DIA EDGE

TOOL NEWS

2022.9 Update
B255G-G

Cutting Off & Grooving System **GY/GW** Series

GY/GW Inserts

Series Expansion

Grooving Revolution

Durable and Easy to Use Grooving and Cutting Off Tools

MITSUBISHI MATERIALS CORPORATION

New Line-up

NEW

Low Feed Breaker

GS Breaker for Lead Angles 8°and 15°

By improving dimensional accuracy, the amount of remaining centre pip is reduced and good surface finishes are achieved.

Cutting Performance

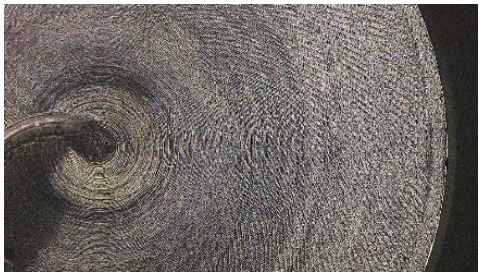
SUS304 Comparison of Cutting Off and Remaining Material

GY
GS Breaker

Completely cut off

Remaining pip in the centre : ø0.49 mm
RZ : 0.009 mm

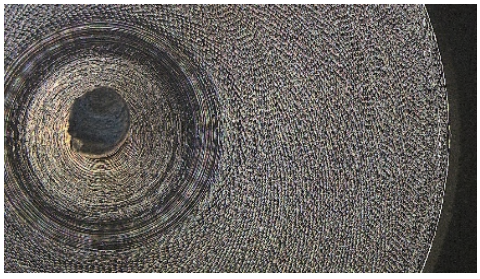
Conventional A



Not completely cut off

Remaining pip in the centre : ø0.58 mm
RZ : 0.043 mm

Conventional B



Not completely cut off

Remaining pip in the centre : ø1.42 mm
RZ : 0.015 mm

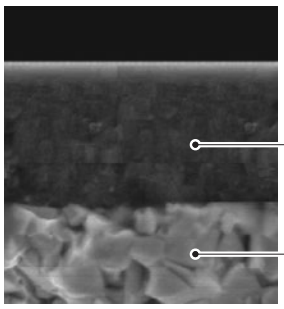
<Cutting Conditions>
Workpiece Material : SUS304 ø16mm
Tool : Cutting Width CW=2mm
Lead Angle 15°
Cutting Speed : vc=100m/min
Feed per Rev. : f=0.03mm/rev
Cutting Mode : Wet Cutting

Turning Inserts for Difficult-to-Cut Materials

PVD Coated Grades

MP9015/MP9025

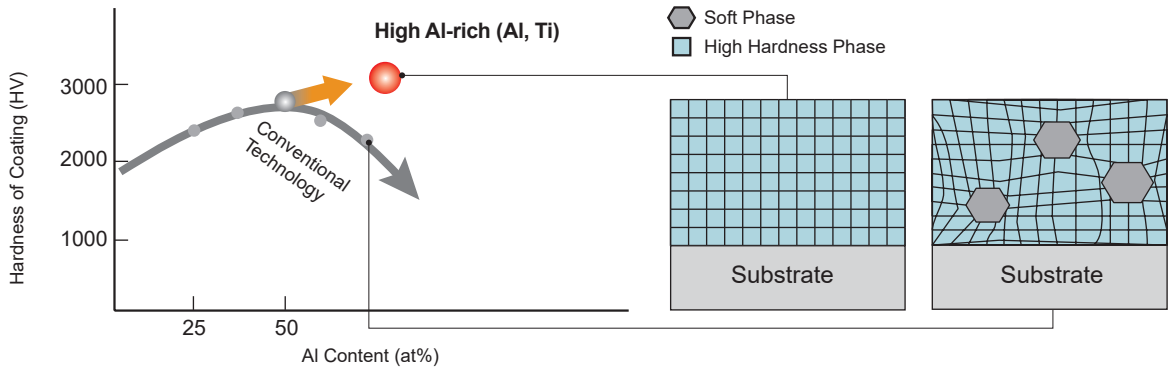
Excellent Wear Resistance when Machining Heat Resistant Super Alloys



MP9015/MP9025

Comparison of High Al and Conventional Coating

The high Al-rich (Al, Ti)N single layer coating provides stabilization of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

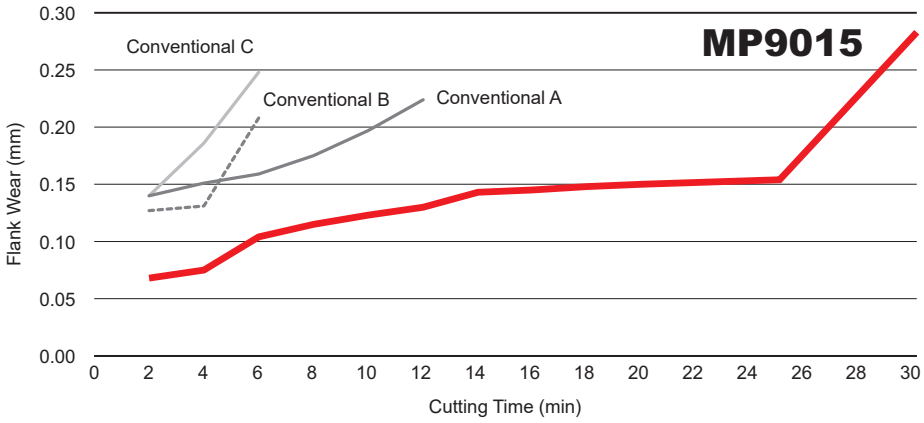


ISO Grade	Grade	Concept	Application
S10	**MP9015**	High hardness grade focusing on wear resistance.	Heat Resistant Alloys
S30	**MP9025**	First recommended grade focusing on fracture resistance.	Heat Resistant Alloys

Cutting Performance

Cross Feed Machining of Inconel 718 - Comparison of Wear Resistance

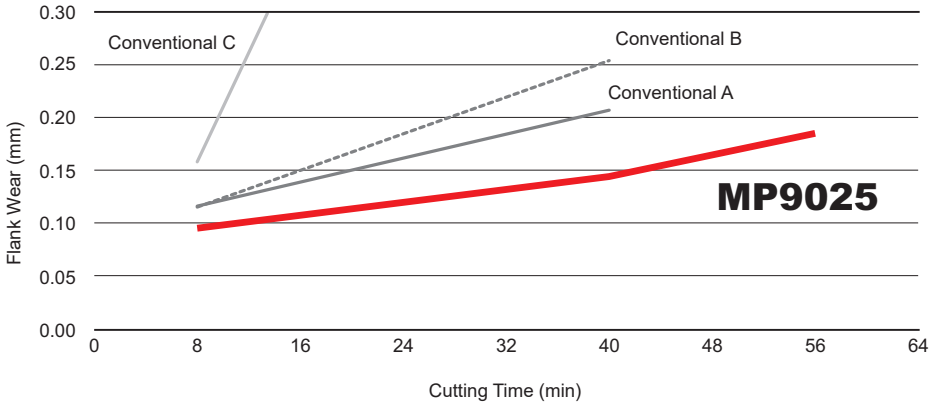
MP9015 exhibits 1.5 times more wear resistance than conventional products.



<Cutting Conditions>
Work Material : Inconel 718
Tool : GY2M0300F150N-BM
Cutting Speed: vc=50m/min
Feed per Rev. : f=0.05mm/rev
Depth of Cut : ap=1.0mm
Cutting Mode : Wet Cutting

Groove Machining of Inconel 718 - Comparison of Wear Resistance

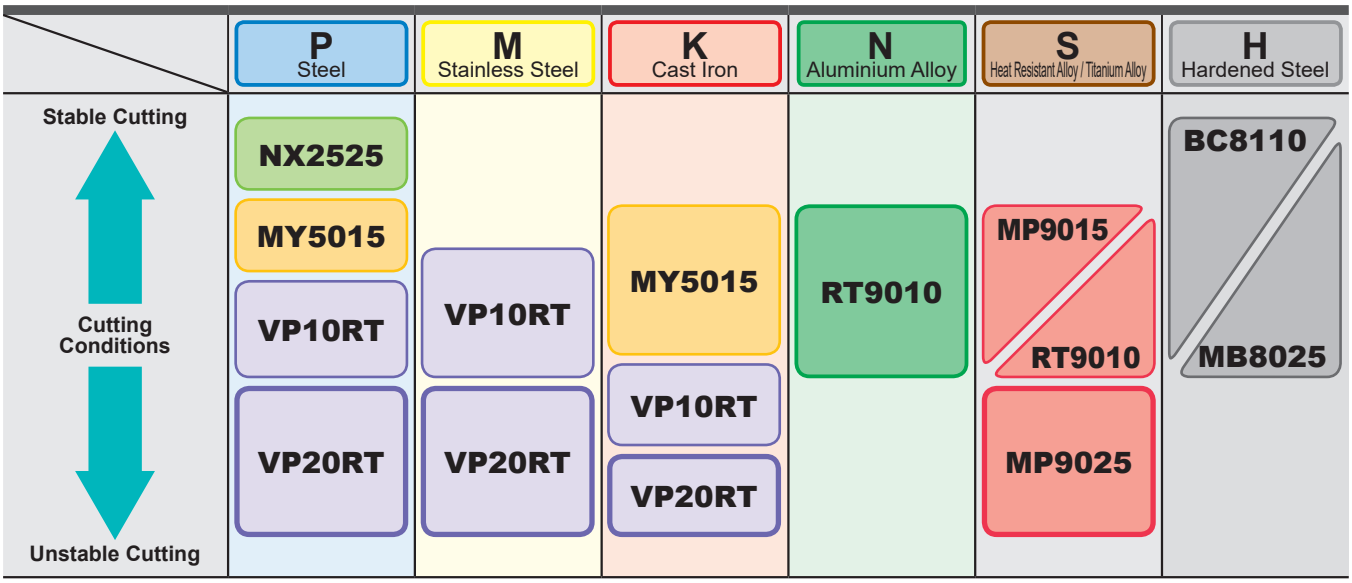
MP9025 has excellent wear resistance.



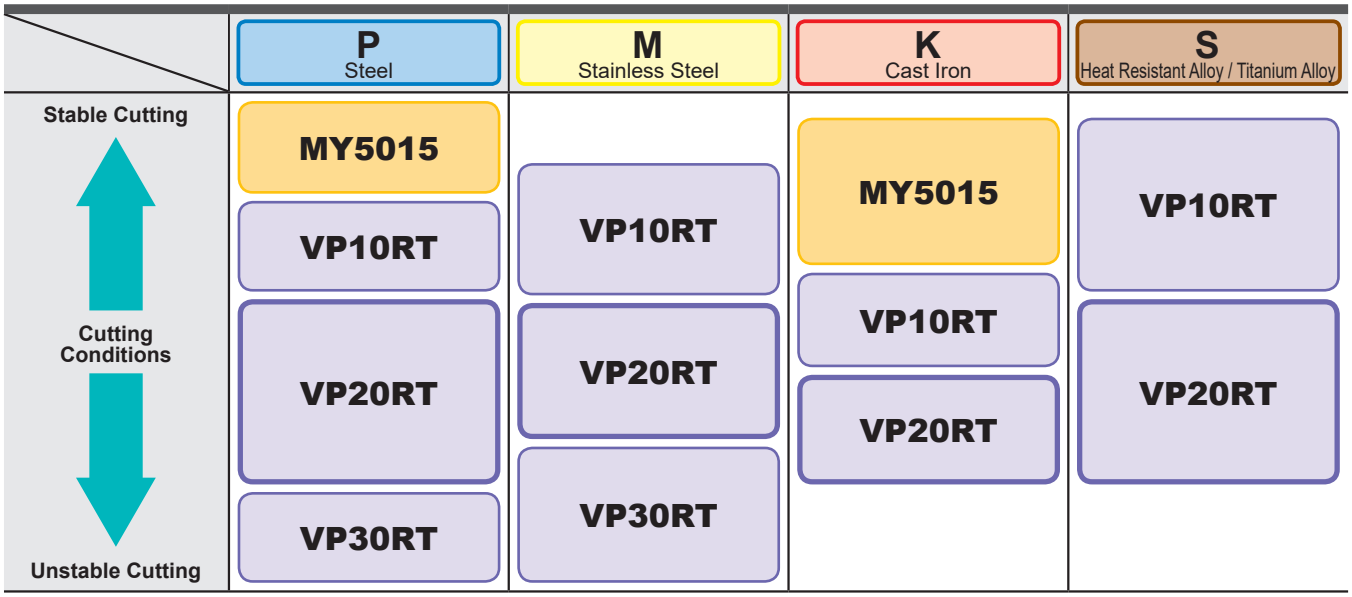
<Cutting Conditions>
Work Material : Inconel 718
Tool : GY2M0300F030N-GM
Cutting Speed: vc=50m/min
Feed per Rev. : f=0.05mm/rev
Flute Depth : 1.0mm
Cutting Mode : Wet Cutting

Insert Grade

GY Series

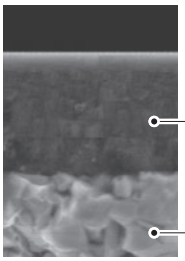


GW Series



GW/GW Series Insert Grade

MP9000 Series

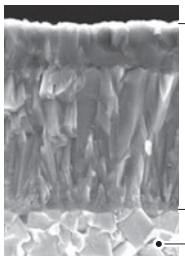


The high Al-rich (Al, Ti)N single layer coating provides stabilization of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

High Al-rich (Al, Ti)N Single Layer Coating

Special Cemented Carbide Substrate

MY5015

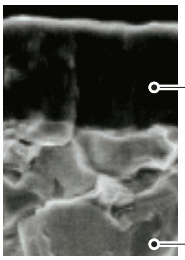


MY5015 is a CVD coated grade with excellent wear resistance even at high temperatures. It provides longer tool life when machining cast and ductile cast irons. Also suitable for high-speed, continuous cutting of steel.

CVD Coated Carbide

Tough Cemented Carbide Substrate

VP20RT



PVD coated grade suitable for a wide range of applications. The combination of a special tough cemented carbide substrate with MIRACLE coating provides an excellent balance of wear and fracture resistance.

MIRACLE Coating

Tough Cemented Carbide Substrate (90.5HRA)

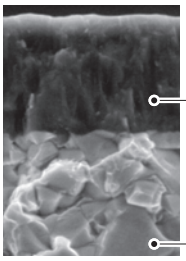
RT9010

RT9010 is a non-coated cemented carbide grade.
Suitable for processing non-ferrous metals.

NX2525

NX2525 is a cermet grade for finish machining of steel and for good surface finishes at lower cutting speeds.

VP10RT



PVD coated grade with a cemented carbide substrate harder than VP20RT. For use on difficult-to-cut materials and for extending tool life.

MIRACLE Coating

Tough Cemented Carbide Substrate (92.0HRA)

BC8110

BC8110 is a coated grade for continuous cutting, which provides longer life when machining hardened steel.

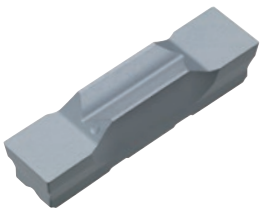
MB8025

MB8025 is a sintered CBN grade for hardened steel.

Blank Inserts

Blank inserts for custom grinding.

1 Edge Type



2 Edge Type

*** Insert blank is not suitable for machining without grinding.**

RT9010/RT9020 for insert blank

RT9020 is the first recommendation for blank inserts due to the tougher carbide substrate's suitability over a wider range of applications.
RT9010 is a harder substrate and is ideal for long tool life on stable applications.
A coating layer is recommended for machining steel, stainless and cast irons.

GY Series

Breaker System

Grooving / Cutting Off

GUBreaker
(For Gummy Steel)

GSBreaker
(Low feeds)

GMBreaker
(Medium feeds)

GLBreaker
(For Aluminium Alloys)

Cutting Off

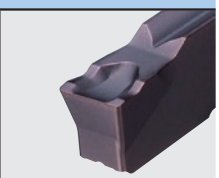
NEW

R08-GS Breaker
(Low feeds)

NEW

R15-GS Breaker
(Low feeds)

GMBreaker
(Medium feeds)



R/L05-GM Breaker
(Medium feeds)

Grooving

GFGS
(For hardened steel)

For Multifunctional Grooving

MFBreaker
(G class)

MSBreaker
(Low feeds)

MMBreaker
(Medium feeds)

Copying/For Recessing

BMBreaker

For Grooving / Cutting Off

GL Breaker (For Aluminium Alloys)

G Class Breaker

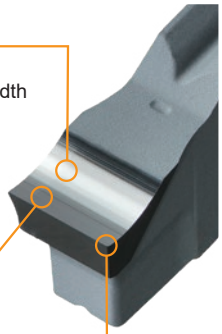
Improved chip control by narrowing the breaker width

High Rake Angle

Achieves low cutting resistance

Sharp Edge

Improved welding resistance for aluminium alloys



For Multifunctional Grooving

MF Breaker (For Finish Machining)

Efficient chip breaking when cross-feed machining.

Chips are controlled when finish machining.

GW Series

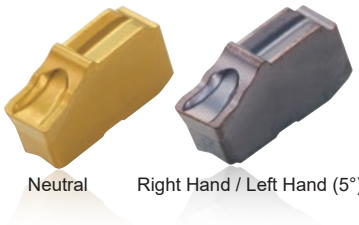
Breaker System Offering Excellent Chip Disposal Properties

Low Feeds

Neutral　Right Hand (5°)　Right Hand (8°)

GS Breaker

Medium Feeds



Neutral　Right Hand / Left Hand (5°)

GM Breaker

Reference Material

C-TYPE CIRCLIP STANDARDS LIST

Category	Application		Standard	Width (Tolerance)									
				For shaft						For hole			
C-type stop ring 	For shaft	For hole	ANSI B27.7/27.8 (US) BS 3673 (UK) DIN 471/472 (De) NF E 22 163 (Fr) UNI 7435/7438 (It)	0.5 0.7 0.8 0.9 1.1 1.3 1.6 1.85 2.15 2.65 3.15 4.15 5.15 6.2	+0.14 0 +0.18 0 +0.22 0	0.305 0.457 0.737 0.991 1.168 1.422 1.727 2.184 2.616 3.048 3.531	+0.051 0 +0.076 0 +0.102 0 +0.127 0 +0.152 0	1.15 1.35 1.75 1.95 2.2 2.7 3.2 4.2	+0.14 0 +0.18 0	9 1.1 1.3 1.6 1.85 2.15 2.65 3.15 4.15 5.15 6.2	+0.14 0 +0.18 0 +0.22 0	0.457 0.737 0.991 1.168 1.422 1.727 2.184 2.616 3.048	+0.051 0 +0.076 0 +0.102 0 +0.127 0
C-type concentric stop ring 	For shaft	For hole	JIS B 2804 (JP)										
E-type stop ring 	For shaft		N1*** American	0.32 0.5 0.7 1.0 1.2 1.4	+0.05 0 +0.10 0 +0.14 0	0.305 0.457 0.584 0.737 0.991 1.168 1.422 1.727	+0.051 0 +0.076 0 +0.102 0	0.3 0.4 0.5 0.7 0.9 1.15 1.75 2.2	+0.05 0 +0.10 0 +0.14 0				

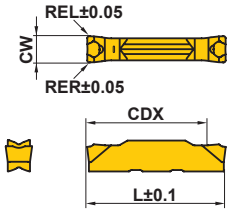
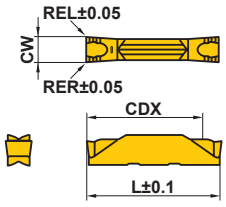
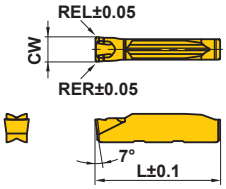
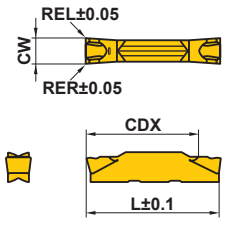
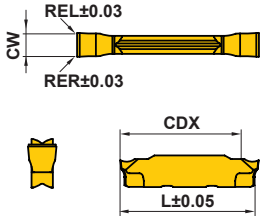
O-RING STANDARDS

Category	Standard	Width (Tolerance)								
		General				For oil pressure				For air pressure
For stable	DIN 3770/3771 (De)	2.54 3.18 4.32 6.1 8.0	+0.13 0			1.9 2.3	+0.1 0	2.3 3.1 3.7 6.4 9.0	+0.2 0	
	JIS B 2401 (JP) ISO 3601	3.2 4.0 7.5 11.0	+0.2 0	2.5 3.2 4.7 7.5 11.1	+0.14 0	2.9	+0.15 0			
For dynamic	SMS 1586/1588 (Se) BS 1806/4518 (UK)					3.6 4.5	+0.2 0			
	SAE AS-568 (US)	2.39 3.58 4.78 7.14 9.58	+0.25 0			5.5 7.0	+0.3 0	2.4 3.6 4.8 7.1 9.5	+0.25 0	2.3 3.1 3.7 6.4 9.0 / 2.2 3.4 4.6 6.9 9.3
						8.6	+0.4 0			+0.2 0 / +0.25 0
						10.7	+0.5 0			

G-class insert with MF breaker is available for single-step machining.
Conventional GY series insert is available for single-step machining.
Machined in multiple steps or by cross feed machining.

GY Series Inserts

(mm)

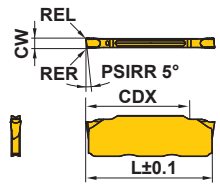
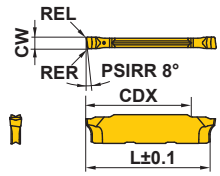
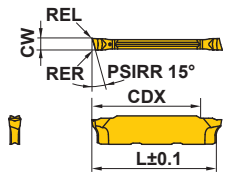
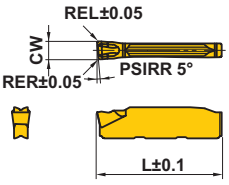
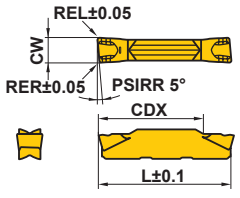
Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Cermet MY5015	Cermet NX2525	Carbide	Carbide RT9010	Carbide RT9020	Seat Size	CW: Cutting Width	CW: Tolerance	RER/L	CDX	*2 L
For Grooving / Cutting Off	**GU Breaker** (For gummy steel) 	GY2M0200D020N-GU			●	●		●				D	2.00	±0.03	0.2	19.7	20.70
		GY2M0239E020N-GU			●	●		●				E	2.39	±0.03	0.2	19.8	20.70
		GY2M0250E020N-GU			●	●		●				E	2.50	±0.03	0.2	19.5	20.70
		GY2M0300F030N-GU			●	●		●				F	3.00	±0.03	0.3	19.3	20.70
		GY2M0318F030N-GU			●	●		●				F	3.18	±0.03	0.3	19.3	20.70
		GY2M0400G030N-GU			●	●		●				G	4.00	±0.04	0.3	24.2	25.65
		GY2M0475H040N-GU			●	●		●				H	4.75	±0.04	0.4	24.2	25.65
		GY2M0500H040N-GU			●	●		●				H	5.00	±0.04	0.4	24.2	25.65
		GY2M0600J040N-GU			●	●		●				J	6.00	±0.04	0.4	24.2	25.65
		GY2M0635J040N-GU			●	●		●				J	6.35	±0.04	0.4	24.2	25.65
	GS Breaker (Low feeds) 	NEW GY2M0120B010N-GS			●	●						B	1.20	±0.03	0.1	12.2	14.70
		GY2M0150C010N-GS			●	●		●				C	1.50	±0.03	0.1	13.4	14.70
		GY2M0200D020N-GS			●	●		●				D	2.00	±0.03	0.2	18.7	20.70
		GY2M0239E020N-GS			●	●		●				E	2.39	±0.03	0.2	18.5	20.70
		GY2M0250E020N-GS			●	●		●				E	2.50	±0.03	0.2	18.5	20.70
		GY2M0300F020N-GS			●	●		●				F	3.00	±0.03	0.2	18.5	20.70
		GY2M0318F020N-GS			●	●		●				F	3.18	±0.03	0.2	18.5	20.70
		GY2M0400G020N-GS			●	●		●				G	4.00	±0.04	0.2	23.9	25.65
		GY2M0475H030N-GS			●	●		●				H	4.75	±0.04	0.3	23.9	25.65
		GY2M0500H030N-GS			●	●		●				H	5.00	±0.04	0.3	24.0	25.65
		GY2M0600J030N-GS			●	●		●				J	6.00	±0.04	0.3	24.1	25.65
		GY2M0635J030N-GS			●	●		●				J	6.35	±0.04	0.3	24.1	25.65
		GY2M0800K030N-GS			●	●						K	8.00	±0.04	0.3	29.1	30.50
	GM Breaker (Medium feeds) 	GY1M0200D020N-GM	●	●	●	●	●					D	2.00	±0.03	0.2	—	20.70
		GY1M0250E020N-GM	●	●	●	●	●					E	2.50	±0.03	0.2	—	20.70
		GY1M0300F030N-GM	●	●	●	●	●					F	3.00	±0.03	0.3	—	20.70
		GY1M0400G030N-GM	●	●	●	●	●					G	4.00	±0.04	0.3	—	25.65
		GY1M0500H040N-GM	●	●	●	●	●					H	5.00	±0.04	0.4	—	25.65
	GM Breaker (Medium feeds) 	GY2M0150C020N-GM	●	●	●	●		●				C	1.50	±0.03	0.2	13.9	14.70
		GY2M0200D020N-GM	●	●	●	●	●	●				D	2.00	±0.03	0.2	19.4	20.70
		GY2M0239E020N-GM	●	●	●	●	●	●				E	2.39	±0.03	0.2	19.4	20.70
		GY2M0250E020N-GM	●	●	●	●	●	●				E	2.50	±0.03	0.2	19.4	20.70
		GY2M0300F030N-GM	●	●	●	●	●	●				F	3.00	±0.03	0.3	19.4	20.70
		GY2M0318F030N-GM	●	●	●	●	●	●				F	3.18	±0.03	0.3	19.4	20.70
		GY2M0400G030N-GM	●	●	●	●	●	●				G	4.00	±0.04	0.3	24.4	25.65
		GY2M0475H040N-GM	●	●	●	●	●	●				H	4.75	±0.04	0.4	24.3	25.65
		GY2M0500H040N-GM	●	●	●	●	●	●				H	5.00	±0.04	0.4	24.3	25.65
		GY2M0600J040N-GM	●	●	●	●	●	●				J	6.00	±0.04	0.4	24.3	25.65
		GY2M0635J040N-GM	●	●	●	●	●	●				J	6.35	±0.04	0.4	24.3	25.65
		GY2M0800K050N-GM	●	●	●	●	●					K	8.00	±0.04	0.5	29.3	30.50
	GL Breaker (For Aluminium Alloys) 	GY2G0200D005N-GL								●		D	2.00	±0.02	0.05	19.5	21.05
		GY2G0250E005N-GL								●		E	2.50	±0.02	0.05	19.1	21.05
		GY2G0300F005N-GL								●		F	3.00	±0.02	0.05	18.9	21.05

*2 The dimension depends on the breaker. Refer to page 12 “L dimension tolerance conversion table”.

● : Inventory maintained in Japan.
(10 inserts in one case) (CBN inserts are with 1 piece in one case.)

GY Series Inserts

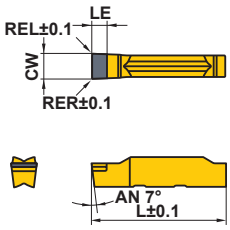
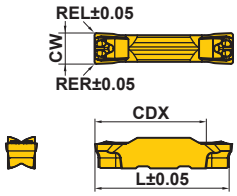
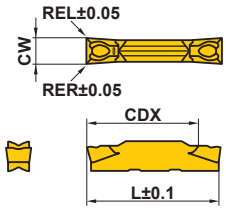
(mm)

Applications	Geometry	Order Number	Stock Coated MP9015	Stock Coated MP9025	Stock Coated VP10RT	Stock Coated VP20RT	Stock Coated MY5015	Seat Size	CW Cutting Width	CW Tolerance	Corner R REL	Corner R Tolerance	Corner R RER	Corner R Tolerance	CDX	*2 L
For Cutting off	**R05-GS Breaker** NEW (Low feeds) 	**GY2M0120B010R05-GS**			●	●		**B**	1.20	±0.03	0.1	±0.05	0.1	±0.05	12.22	14.70
	R08-GS Breaker NEW (Low feeds) 	**GY2G0150C010R08-GS**			●	●		**C**	1.50	±0.02	0.1	±0.03	0.1	–	13.17	15.23
		GY2G0200D020R08-GS			●	●		**D**	2.00	±0.03	0.2	±0.05	0.2	–	18.85	21.33
		GY2G0250E020R08-GS			●	●		**E**	2.50	±0.03	0.2	±0.05	0.2	–	19.04	21.46
		GY2G0300F020R08-GS			●	●		**F**	3.00	±0.03	0.2	±0.05	0.2	–	18.62	21.53
	R15-GS Breaker NEW (Low feeds) 	**GY2G0150C003R15-GS**			●	●		**C**	1.50	±0.02	0.03	+0.03 -0.02	0.1	–	13.17	15.23
		GY2G0150C010R15-GS			●	●		**C**	1.50	±0.02	0.1	±0.03	0.1	–	13.17	15.23
		GY2G0200D003R15-GS			●	●		**D**	2.00	±0.03	0.03	+0.03 -0.02	0.1	–	18.85	21.32
		GY2G0200D010R15-GS			●	●		**D**	2.00	±0.03	0.1	±0.03	0.1	–	18.85	21.30
		GY2G0250E003R15-GS			●	●		**E**	2.50	±0.03	0.03	+0.03 -0.02	0.1	–	19.04	21.46
		GY2G0250E020R15-GS			●	●		**E**	2.50	±0.03	0.2	±0.05	0.1	–	19.04	21.46
		GY2G0300F003R15-GS			●	●		**F**	3.00	±0.03	0.03	+0.03 -0.02	0.1	–	18.62	21.58
		GY2G0300F020R15-GS			●	●		**F**	3.00	±0.03	0.2	±0.05	0.1	–	18.62	21.53
	R/L05-GM Breaker  Right hand insert shown.	**GY1M0200D020R05-GM**			●	●		**D**	2.00	±0.03	0.2	±0.05	0.2	±0.05	–	20.80
		GY1M0200D020L05-GM			●	●		**D**	2.00	±0.03	0.2	±0.05	0.2	±0.05	–	20.80
		GY1M0300F030R05-GM			●	●		**F**	3.00	±0.03	0.3	±0.05	0.3	±0.05	–	20.85
		GY1M0300F030L05-GM			●	●		**F**	3.00	±0.03	0.3	±0.05	0.3	±0.05	–	20.85
	R/L05-GM Breaker  Right hand insert shown.	**GY2M0200D020R05-GM**			●	●		**D**	2.00	±0.03	0.2	±0.05	0.2	±0.05	19.5	20.80
		GY2M0200D020L05-GM			●	●		**D**	2.00	±0.03	0.2	±0.05	0.2	±0.05	19.5	20.80
		GY2M0250E020R05-GM			●	●		**E**	2.50	±0.03	0.2	±0.05	0.2	±0.05	19.5	20.825
		GY2M0250E020L05-GM			●	●		**E**	2.50	±0.03	0.2	±0.05	0.2	±0.05	19.5	20.825
		GY2M0300F030R05-GM			●	●		**F**	3.00	±0.03	0.3	±0.05	0.3	±0.05	19.5	20.85
		GY2M0300F030L05-GM			●	●		**F**	3.00	±0.03	0.3	±0.05	0.3	±0.05	19.5	20.85
		GY2M0400G030R05-GM			●	●		**G**	4.00	±0.04	0.3	±0.05	0.3	±0.05	24.5	25.85
		GY2M0400G030L05-GM			●	●		**G**	4.00	±0.04	0.3	±0.05	0.3	±0.05	24.5	25.85
		GY2M0500H040R05-GM			●	●		**H**	5.00	±0.04	0.4	±0.05	0.4	±0.05	24.5	25.95
		GY2M0500H040L05-GM			●	●		**H**	5.00	±0.04	0.4	±0.05	0.4	±0.05	24.5	25.95

*2 The dimension depends on the breaker. Refer to page 12 “L dimension tolerance conversion table”.

● : Inventory maintained in Japan.
(10 inserts in one case) (CBN inserts are available in 1 piece in one case.)

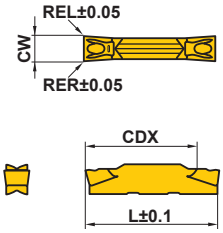
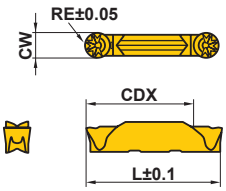
(mm)

Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Coated MY5015	Cermet NX2525	Carbide RT9010	Carbide RT9020	CBN BC8110	Seat Size	CW: Cutting Width	CW: Tolerance	RER/L	CDX	∗2 L	LE
For Grooving	**Flat Top** (For hardened steel) 	GY1G0200D020N-GFGS									●	D	2.00	±0.03	0.2	—	20.70	2.7
		GY1G0239E020N-GFGS									●	E	2.39	±0.03	0.2	—	20.70	2.7
		GY1G0250E020N-GFGS									●	E	2.50	±0.03	0.2	—	20.70	2.7
		GY1G0300F020N-GFGS									●	F	3.00	±0.03	0.2	—	20.70	2.7
		GY1G0318F020N-GFGS									●	F	3.18	±0.03	0.2	—	20.70	2.7
		GY1G0400G020N-GFGS									●	G	4.00	±0.03	0.2	—	25.65	2.7
		GY1G0475H020N-GFGS									●	H	4.75	±0.03	0.2	—	25.65	2.7
		GY1G0500H020N-GFGS									●	H	5.00	±0.03	0.2	—	25.65	2.7
		GY1G0600J020N-GFGS									●	J	6.00	±0.03	0.2	—	25.65	2.7
For Multifunctional Grooving	**MF Breaker** (Finishing) 	GY2G0200D020N-MF			●	●		●	●			D	2.00	±0.02	0.2	19.5	21.05	—
		∗1 GY2G0224D015N-MF			●	●		●	●			D	2.24	±0.02	0.15	19.8	21.05	—
		GY2G0239E020N-MF			●	●		●	●			E	2.39	±0.02	0.2	19.2	21.05	—
		GY2G0250E020N-MF			●	●		●	●			E	2.50	±0.02	0.2	19.4	21.05	—
		∗1 GY2G0274E020N-MF			●	●		●	●			E	2.74	±0.02	0.2	19.7	21.05	—
		GY2G0300F020N-MF			●	●		●	●			F	3.00	±0.02	0.2	19.5	21.05	—
		GY2G0300F040N-MF			●	●		●	●			F	3.00	±0.02	0.4	19.3	21.05	—
		GY2G0318F020N-MF			●	●		●	●			F	3.18	±0.02	0.2	19.5	21.05	—
		GY2G0318F040N-MF			●	●		●	●			F	3.18	±0.02	0.4	19.3	21.05	—
		∗1 GY2G0324F020N-MF			●	●		●	●			F	3.24	±0.02	0.2	19.5	21.05	—
		GY2G0400G020N-MF			●	●		●	●			G	4.00	±0.02	0.2	24.9	25.95	—
		GY2G0400G040N-MF			●	●		●	●			G	4.00	±0.02	0.4	24.7	25.95	—
		GY2G0400G080N-MF			●	●		●	●			G	4.00	±0.02	0.8	24.3	25.95	—
		∗1 GY2G0424G020N-MF			●	●		●	●			G	4.24	±0.02	0.2	24.9	25.95	—
		GY2G0475H020N-MF			●	●		●	●			H	4.75	±0.02	0.2	24.4	25.95	—
		GY2G0475H040N-MF			●	●		●	●			H	4.75	±0.02	0.4	24.2	25.95	—
		GY2G0475H080N-MF			●	●		●	●			H	4.75	±0.02	0.8	23.8	25.95	—
		GY2G0500H020N-MF			●	●		●	●			H	5.00	±0.02	0.2	24.4	25.95	—
		GY2G0500H040N-MF			●	●		●	●			H	5.00	±0.02	0.4	24.2	25.95	—
		GY2G0500H080N-MF			●	●		●	●			H	5.00	±0.02	0.8	23.8	25.95	—
		∗1 GY2G0524H020N-MF			●	●		●	●			H	5.24	±0.02	0.2	24.4	25.95	—
		GY2G0600J020N-MF			●	●		●	●			J	6.00	±0.02	0.2	24.4	25.95	—
		GY2G0600J040N-MF			●	●		●	●			J	6.00	±0.02	0.4	24.2	25.95	—
		GY2G0600J080N-MF			●	●		●	●			J	6.00	±0.02	0.8	23.8	25.95	—
		∗1 GY2G0631J020N-MF			●	●		●	●			J	6.31	±0.02	0.2	24.4	25.95	—
		GY2G0635J020N-MF			●	●		●	●			J	6.35	±0.02	0.2	24.4	25.95	—
		GY2G0635J040N-MF			●	●		●	●			J	6.35	±0.02	0.4	24.2	25.95	—
		GY2G0635J080N-MF			●	●		●	●			J	6.35	±0.02	0.8	23.8	25.95	—
	MS Breaker (Low feeds) 	GY2M0200D020N-MS			●	●	●	●				D	2.00	±0.03	0.2	19.1	20.70	—
		GY2M0250E020N-MS			●	●	●	●				E	2.50	±0.03	0.2	19.1	20.70	—
		GY2M0300F020N-MS			●	●	●	●				F	3.00	±0.03	0.2	19.2	20.70	—
		GY2M0300F040N-MS			●	●	●	●				F	3.00	±0.03	0.4	18.9	20.70	—
		GY2M0400G020N-MS			●	●	●	●				G	4.00	±0.04	0.2	24.2	25.65	—
		GY2M0400G040N-MS			●	●	●	●				G	4.00	±0.04	0.4	23.9	25.65	—
		GY2M0500H040N-MS			●	●	●	●				H	5.00	±0.04	0.4	23.9	25.65	—
		GY2M0500H080N-MS			●	●	●	●				H	5.00	±0.04	0.8	23.5	25.65	—
		GY2M0600J040N-MS			●	●	●	●				J	6.00	±0.04	0.4	23.9	25.65	—
		GY2M0600J080N-MS			●	●	●	●				J	6.00	±0.04	0.8	23.5	25.65	—
		GY2M0800K080N-MS			●	●	●					K	8.00	±0.04	0.8	28.5	30.50	—

∗1 Circlip corresponding width of cut

GY Series Inserts

(mm)

Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Coated MY5015	Cermet NX2525	Carbide	Carbide RT9010	Carbide RT9020	Seat Size	CW: Cutting Width	CW: Tolerance	RE RER/L	CDX	*2 L
For Multifunctional Grooving	**MM Breaker** (Medium feeds) 	**GY2M0200D020N-MM**	●	●	●	●	●	●				**D**	2.00	±0.03	0.2	19.1	20.70
		GY2M0250E020N-MM	●	●	●	●	●	●				**E**	2.50	±0.03	0.2	19.1	20.70
		GY2M0300F020N-MM	●	●	●	●	●	●				**F**	3.00	±0.03	0.2	19.1	20.70
		GY2M0300F040N-MM	●	●	●	●	●	●				**F**	3.00	±0.03	0.4	18.9	20.70
		GY2M0300F080N-MM	●	●	●	●	●	●				**F**	3.00	±0.03	0.8	18.5	20.70
		GY2M0400G020N-MM	●	●	●	●	●	●				**G**	4.00	±0.04	0.2	24.1	25.65
		GY2M0400G040N-MM	●	●	●	●	●	●				**G**	4.00	±0.04	0.4	23.9	25.65
		GY2M0400G080N-MM	●	●	●	●	●	●				**G**	4.00	±0.04	0.8	23.5	25.65
		GY2M0500H040N-MM	●	●	●	●	●	●				**H**	5.00	±0.04	0.4	23.9	25.65
		GY2M0500H080N-MM	●	●	●	●	●	●				**H**	5.00	±0.04	0.8	23.5	25.65
		GY2M0600J040N-MM	●	●	●	●	●	●				**J**	6.00	±0.04	0.4	23.9	25.65
		GY2M0600J080N-MM	●	●	●	●	●	●				**J**	6.00	±0.04	0.8	23.5	25.65
		GY2M0800K080N-MM	●	●	●	●	●					**K**	8.00	±0.04	0.8	28.5	30.50
		GY2M0800K120N-MM	●	●	●	●	●					**K**	8.00	±0.04	1.2	28.1	30.50
For Copying / For Recessing	**BM Breaker** 	**GY2M0200D100N-BM**	●	●	●	●	●	●				**D**	2.00	±0.03	1.00	19.5	20.90
		GY2M0250E125N-BM	●	●	●	●	●	●				**E**	2.50	±0.03	1.25	19.3	20.90
		GY2M0300F150N-BM	●	●	●	●	●	●				**F**	3.00	±0.03	1.50	19.0	20.90
		GY2M0318F159N-BM	●	●	●	●	●	●				**F**	3.18	±0.03	1.59	18.9	20.90
		GY2M0400G200N-BM	●	●	●	●	●	●				**G**	4.00	±0.04	2.00	23.4	25.80
		GY2M0475H238N-BM	●	●	●	●	●	●				**H**	4.75	±0.04	2.38	22.9	25.80
		GY2M0500H250N-BM	●	●	●	●	●	●				**H**	5.00	±0.04	2.50	22.8	25.80
		GY2M0600J300N-BM	●	●	●	●	●	●				**J**	6.00	±0.04	3.00	22.5	25.90
		GY2M0635J318N-BM	●	●	●	●	●	●				**J**	6.35	±0.04	3.18	22.3	25.90
		GY2M0800K400N-BM	●	●	●	●	●					**K**	8.00	±0.04	4.00	26.5	30.80

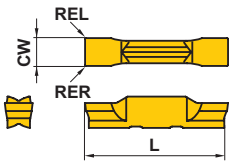
*2 The dimension depends on the breaker. Refer to page 12 “L dimension tolerance conversion table”.

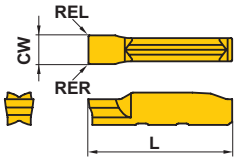
● : Inventory maintained in Japan.
(10 inserts in one case) (CBN inserts are available in 1 piece in one case.)

Blank Inserts

(mm)

Geometry	Order Number	Cermet		Carbide		Seat Size	CW		RER	REL	L
		NX2525		RT9010	RT9020		Groove Width	Tolerance			
2 Edge Type	**GY2B0220D020N**	●		●	●	**D**	2.20	±0.10	0.2	0.2	21.05
	GY2B0250D020N	●		●	●	**D**	2.55	±0.10	0.2	0.2	21.28
	GY2B0270E020N	●		●	●	**E**	2.70	±0.10	0.2	0.2	21.05
	GY2B0300E020N	●		●	●	**E**	3.05	±0.10	0.2	0.2	21.28
	GY2B0340F020N	●		●	●	**F**	3.40	±0.10	0.2	0.2	21.05
	GY2B0360F020N	●		●	●	**F**	3.65	±0.10	0.2	0.2	21.28
	GY2B0420G020N	●		●	●	**G**	4.20	±0.10	0.2	0.2	26.00
	GY2B0460G020N	●		●	●	**G**	4.65	±0.10	0.2	0.2	26.18
	GY2B0520H020N	●		●	●	**H**	5.20	±0.10	0.2	0.2	26.00
	GY2B0560H020N	●		●	●	**H**	5.65	±0.10	0.2	0.2	26.18
	GY2B0655J020N	●		●	●	**J**	6.55	±0.10	0.2	0.2	26.03
	GY2B0680J020N	●		●	●	**J**	6.85	±0.10	0.2	0.2	26.18
	GY2B0880K020N			●	●	**K**	8.85	±0.10	0.2	0.2	30.88
1 Edge Type	**GY1B0220D020N**	●		●	●	**D**	2.20	±0.10	0.2	0.2	21.07
	GY1B0270E020N	●		●	●	**E**	2.70	±0.10	0.2	0.2	21.10
	GY1B0340F020N	●		●	●	**F**	3.40	±0.10	0.2	0.2	21.00
	GY1B0420G020N	●		●	●	**G**	4.20	±0.10	0.2	0.2	25.86
	GY1B0520H020N	●		●	●	**H**	5.20	±0.10	0.2	0.2	25.90
	GY1B0655J020N	●		●	●	**J**	6.55	±0.10	0.2	0.2	25.90





∗ Insert blank is not suitable for machining without grinding.

GY SERIES L DIMENSION TOLERANCE CONVERSION TABLE

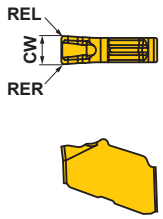
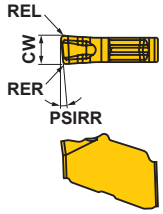
(mm)

Cutting Width CW	∗1 Dimensions L	∗2 Dimensional tolerance versus standard dimension (L) of each breaker									
		GU	GS/GM	MS/MM	R05-GS	R08/15-GS	R/L-GM	Flat Top	MF	BM	GL
1.20	14.70		0		0						
1.50	14.70		0			0.50					
2.00	20.70	0	0	0		0.60	0.10	0	0.35	0.20	0.35
2.24	∗3 (20.7)								0.35		
2.39	20.70	0	0					0	0.35		
2.50	20.70	0	0	0		0.80	0.125	0	0.35	0.20	0.35
2.74	∗3 (20.7)								0.35		
3.00	20.70	0	0	0		0.80	0.15	0	0.35	0.20	0.35
3.18	20.70	0	0					0	0.35	0.20	
3.24	∗3 (20.7)								0.35		
4.00	25.65	0	0	0			0.20	0	0.30	0.15	
4.24	∗3 (25.65)								0.30		
4.75	25.65	0	0					0	0.30	0.15	
5.00	25.65	0	0	0			0.30	0	0.30	0.15	
5.24	∗3 (25.65)								0.30		
6.00	25.65	0	0	0				0	0.30	0.25	
6.31	∗3 (25.65)								0.30		
6.35	25.65	0	0						0.30	0.25	
8.00	30.50		0	0						0.30	

∗1 This value is used at the described holder dimension.
∗2 ▒ when there is no applicable breaker.
∗3 The standard dimensions shown here use an approximate insert width.

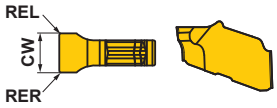
GW Series Inserts

(mm)

Application	Order Number	Stock: Coating MY5015	Stock: Coating VP10RT	Stock: Coating VP20RT	Stock: Coating VP30RT	Stock: Carbide RT9010	Stock: Carbide RT9020	CW: Cutting Width	CW: Tolerance	REL	RER	PSIRR PSIRL	Geometry
Grooving, Cutting Off	**GW1M0200D020N-GS**		●	●	●			2.00	±0.03	0.2	0.2	–	
Grooving, Cutting Off	**GW1M0239E020N-GS**		●	●	●			2.39	±0.03	0.2	0.2	–	
Grooving, Cutting Off	**GW1M0300F020N-GS**		●	●	●			3.00	±0.03	0.2	0.2	–	
Grooving, Cutting Off	**GW1M0400G020N-GS**		●	●	●			4.00	±0.04	0.2	0.2	–	
Grooving, Cutting Off	**GW1M0500H030N-GS**		●	●	●			5.00	±0.04	0.3	0.3	–	
Grooving, Cutting Off	**GW1M0200D020N-GM**	●	●	●	●			2.00	±0.03	0.2	0.2	–	
Grooving, Cutting Off	**GW1M0239E020N-GM**	●	●	●	●			2.39	±0.03	0.2	0.2	–	
Grooving, Cutting Off	**GW1M0300F030N-GM**	●	●	●	●			3.00	±0.03	0.3	0.3	–	
Grooving, Cutting Off	**GW1M0400G030N-GM**	●	●	●	●			4.00	±0.04	0.3	0.3	–	
Grooving, Cutting Off	**GW1M0500H040N-GM**	●	●	●	●			5.00	±0.04	0.4	0.4	–	
Cutting off, Low Feed	**GW1M0200D020R05-GS**		●	●	●			2.00	±0.03	0.2	0.2	5	
Cutting off, Low Feed	**GW1M0239E020R05-GS**		●	●	●			2.39	±0.03	0.2	0.2	5	
Cutting off, Low Feed	**GW1M0300F020R05-GS**		●	●	●			3.00	±0.03	0.2	0.2	5	
Cutting off Low Feed, Lead Angle 8°	**GW1M0200D003R08-GS**		●	●	●			2.00	±0.03	0.03	0.03	8	
Cutting off Low Feed, Lead Angle 8°	**GW1M0239E003R08-GS**		●	●	●			2.39	±0.03	0.03	0.03	8	
Cutting off Low Feed, Lead Angle 8°	**GW1M0300F003R08-GS**		●	●	●			3.00	±0.03	0.03	0.03	8	
Cutting Off	**GW1M0200D020R05-GM**		●	●	●			2.00	±0.03	0.2	0.2	5	
Cutting Off	**GW1M0200D020L05-GM**		●	●	●			2.00	±0.03	0.2	0.2	5	
Cutting Off	**GW1M0239E020R05-GM**		●	●	●			2.39	±0.03	0.2	0.2	5	
Cutting Off	**GW1M0239E020L05-GM**		●	●	●			2.39	±0.03	0.2	0.2	5	
Cutting Off	**GW1M0300F030R05-GM**		●	●	●			3.00	±0.03	0.3	0.3	5	
Cutting Off	**GW1M0300F030L05-GM**		●	●	●			3.00	±0.03	0.3	0.3	5	
Cutting Off	**GW1M0400G030R05-GM**		●	●	●			4.00	±0.04	0.3	0.3	5	
Cutting Off	**GW1M0400G030L05-GM**		●	●	●			4.00	±0.04	0.3	0.3	5	
Cutting Off	**GW1M0500H040R05-GM**		●	●	●			5.00	±0.04	0.4	0.4	5	
Cutting Off	**GW1M0500H040L05-GM**		●	●	●			5.00	±0.04	0.4	0.4	5	Right hand insert shown.

Blank Inserts

(mm)

Geometry	Order Number	Carbide RT9010	Carbide RT9020	CW: Grooving Width	CW: Tolerance	RER	REL
1 Edge Type 	**GW1B0320D020N**	●	●	3.24	±0.10	0.2	0.2
	GW1B0440F020N	●	●	4.44	±0.10	0.2	0.2
	GW1B0540G020N	●	●	5.44	±0.10	0.2	0.2
	GW1B0640H020N	●	●	6.44	±0.10	0.2	0.2

*** Insert blank is not suitable for machining without grinding.**

● : Inventory maintained in Japan.
(10 inserts in one case)

Cutting Conditions ➢ P25

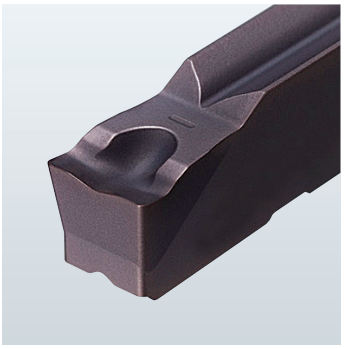
Correct Use of GY Series GS Breaker

First Recommendation

Reduction of Cutting Resistance

Lead Angle
PSIRR=0°

Improved Fracture Resistance

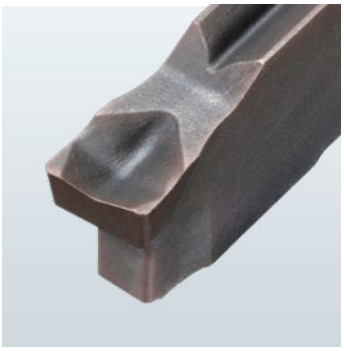


Cutting Off of Holes and Small Parts

Reduction of Burrs and Core Residue

Lead Angle
PSIRR=8°

Improved Fracture Resistance



Lead Angle
PSIRR=15°

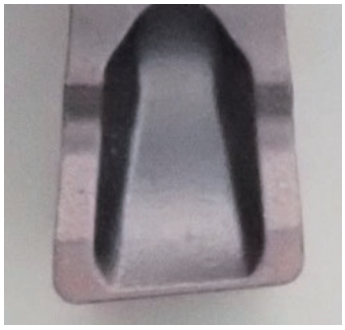
Correct Use of GW Series Inserts

First Recommendation

Improved Fracture Resistance

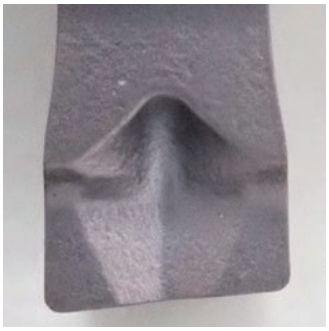
GM Breaker
PSIRR=5°

Reduction of Cutting Resistance



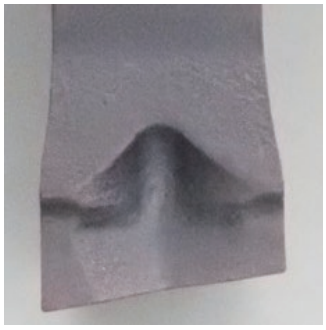
Reduction of Burrs and Core Residue

GS Breaker
PSIRR=5°



GS Breaker
PSIRR=8°

Improved Fracture Resistance



Recommended Cutting Speed [For External Grooving / Cutting Off]

	Workpiece Material	Properties	Grade	Cutting Speed **vc** (m/min) 50 100 150 200 250 300
P	Mild Steel	Hardness ≤160HB	VP20RT	100–220
			VP10RT	110–230
			NX2525	90–210
	Carbon Steel Alloy Steel	Hardness 160–280HB	VP20RT	80–180
			VP10RT	90–190
			MY5015	110–250
			NX2525	70–170
		Hardness 280HB≤	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
			NX2525	55–135
M	Stainless Steels	Hardness ≤270HB	VP20RT	60–140
			VP10RT	70–150
K	Gray Cast Irons	Tensile Strength ≤300MPa	VP20RT	80–180
			VP10RT	90–190
			MY5015	140–300
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
S	Heat Resistant Alloys Titanium Alloys	–	MP9015	40–100
			MP9025	30–90
			VP20RT	30–60
			VP10RT/ RT9010	40–70
H	Hardened Steel	50HRC≤	BC8110/MB8025	80–120

Note 1) For MP9015, MP9025, VP10RT, VP20RT and MY5015, wet cutting is recommended.

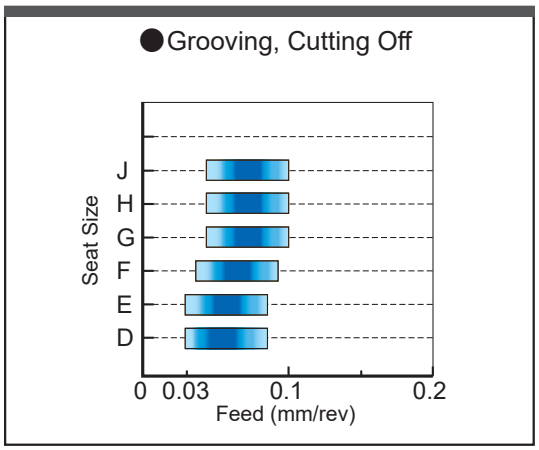
	Workpiece Material	Properties	Grade	Cutting Speed **vc** (m/min) 50 100 200 300 400 500
N	Aluminium Alloys (A6061, 7075)	Content Si<5%	RT9010	200–500
	Aluminium Alloys (AC4B)	Content 5%≤Si≤10%	RT9010	200–500
	Aluminium Alloys (ADC12, A390)	Content Si>10%	RT9010	100–200

Recommended Cutting Conditions [For External Grooving / Cutting Off]

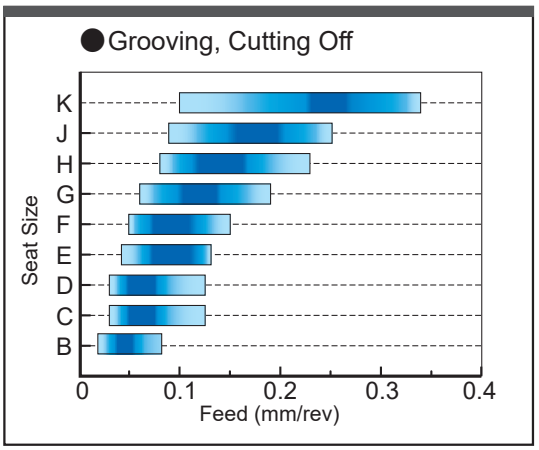
Recommended cutting conditions when combining a GYHR/L2525M00/90-M25R/L modular holder and GYM25R/LA-○○○ modular blade.

■ Recommended feed rate and depth of cut

GU Breaker

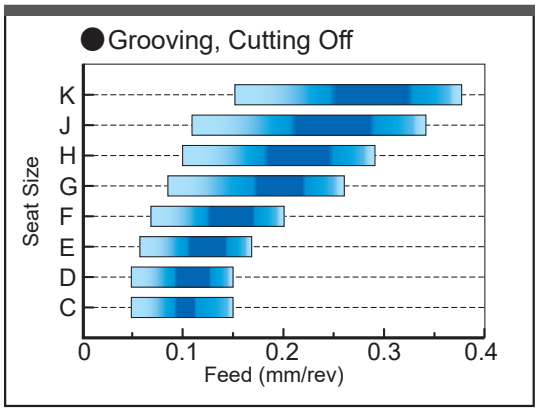


GS Breaker

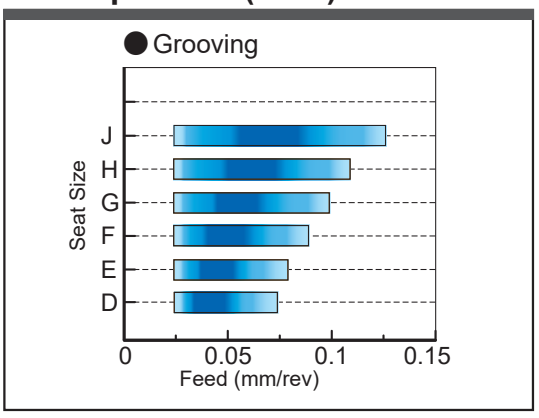


Seat Size	Insert Width (mm)
B	1.20
C	1.50
D	2.00 2.24
E	2.39 2.50 2.74
F	3.00 3.18 3.24
G	4.00 4.24
H	4.75 5.00 5.24
J	6.00 6.31 6.35
K	8.00

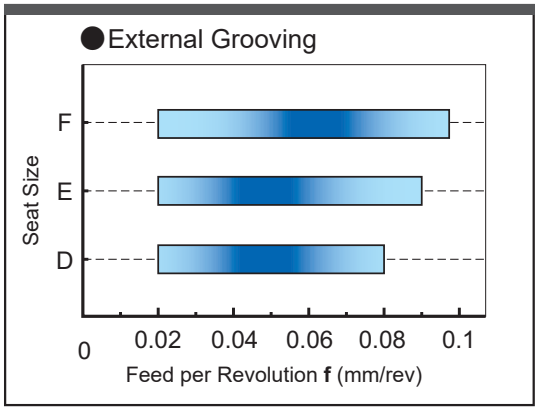
GM Breaker



Flat Top GFGS (CBN)



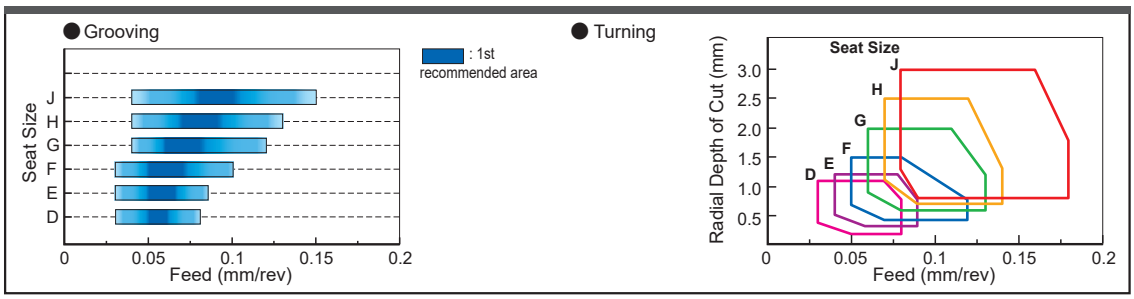
GL Breaker



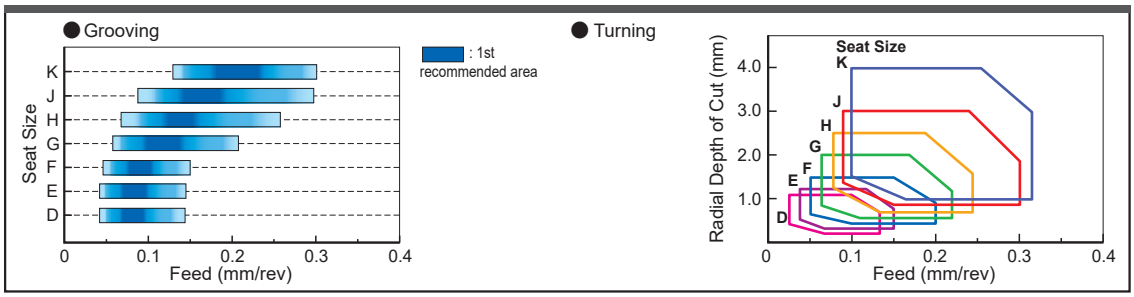
: 1st recommended area

Grooving / Cutting Off

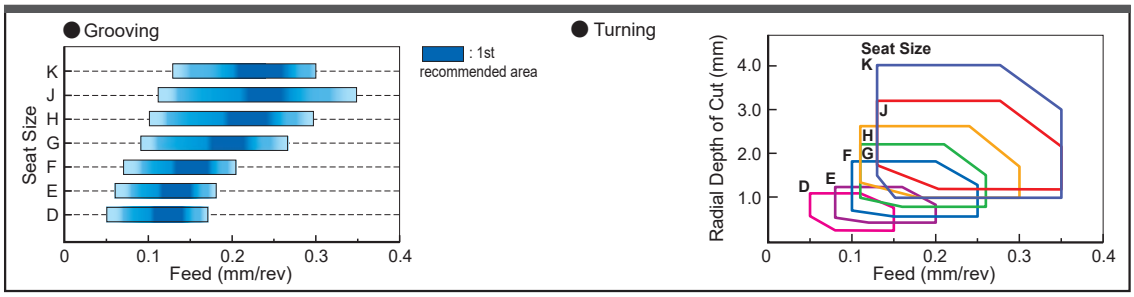
MF Breaker



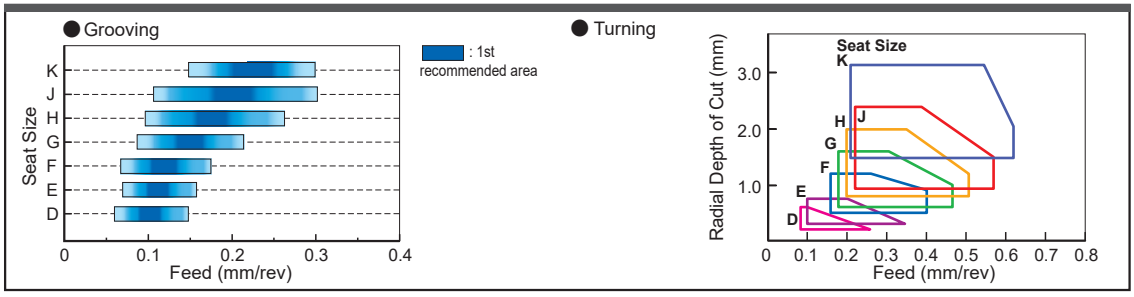
MS Breaker



MM Breaker

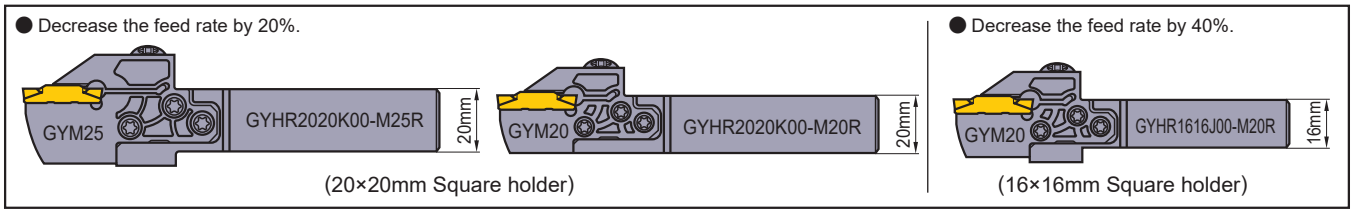


BM Breaker

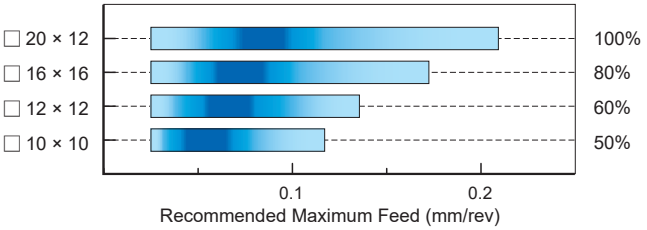


Seat Size	Insert Width (mm)
C	1.50
D	2.00 2.24
E	2.39 2.50 2.74
F	3.00 3.18 3.24
G	4.00 4.24
H	4.75 5.00 5.24
J	6.00 6.31 6.35
K	8.00

Note 1) Lower the recommended cutting speed given in the table by 20% and 40% respectively when combining the following modular holders and modular blades.



■ In the case of mono block type holder for Swiss-type lathes

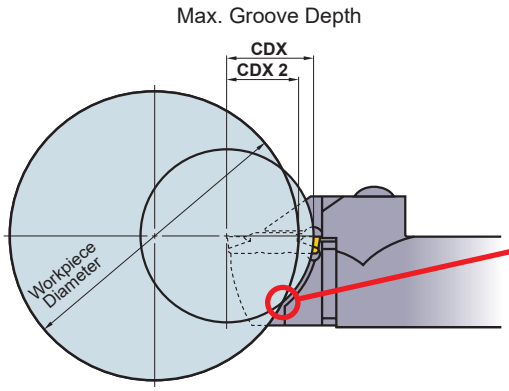


Please refer to the tables above on recommended cutting conditions for external grooving and cutting off.
Apply the percentage ratio shown on each shank size with the values in the table.

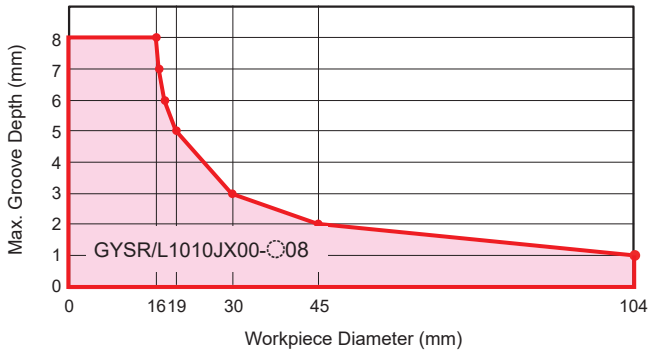
LIMITATION OF THE MAXIMUM GROOVE DEPTH [For External Grooving]

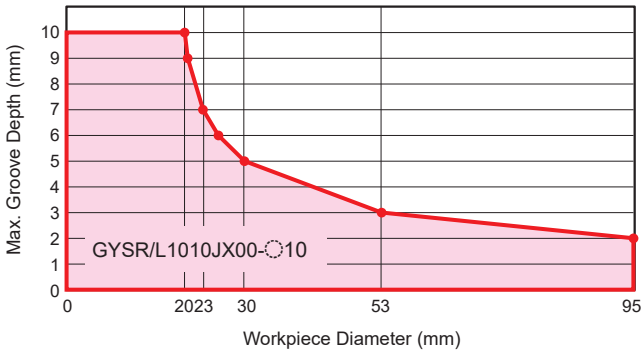
•In The Case of Mono Block Type Holder for Swiss-Type Lathes

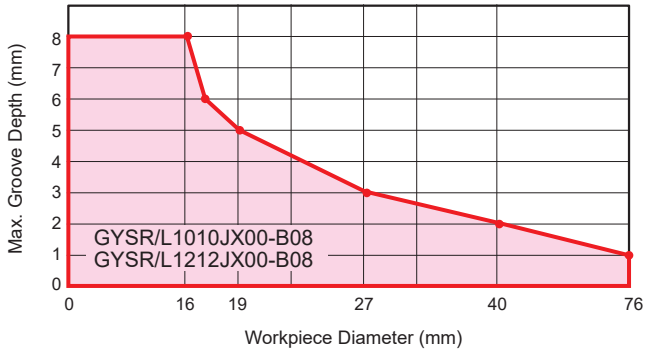
The maximum groove depth is limited by the workpiece diameter.

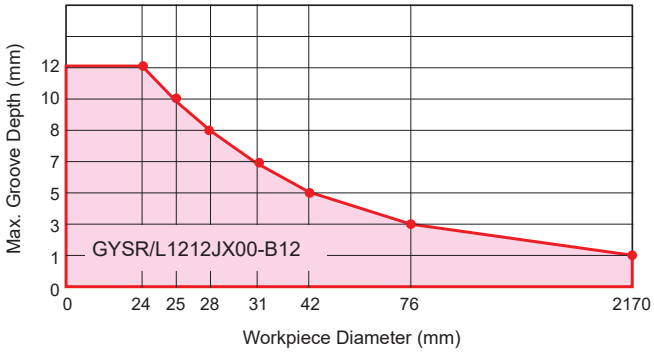


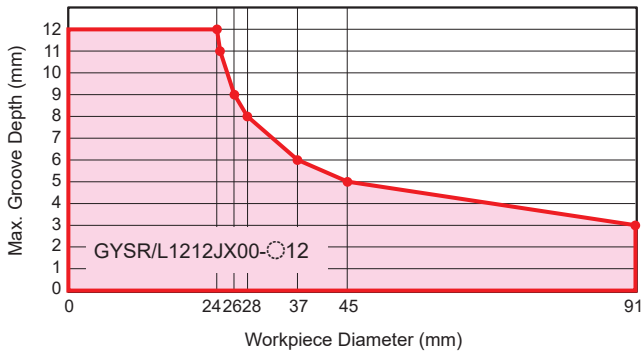
Due to interference, the maximum groove depth is limited by the workpiece diameter.

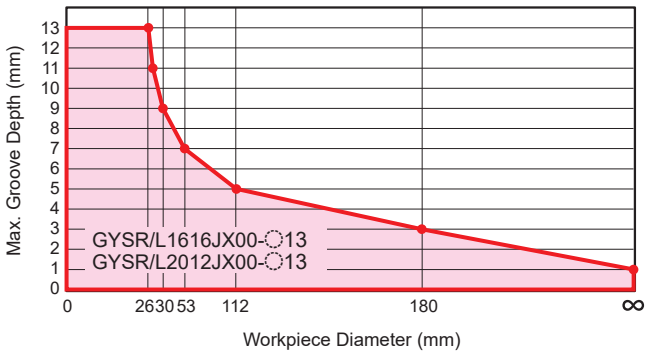






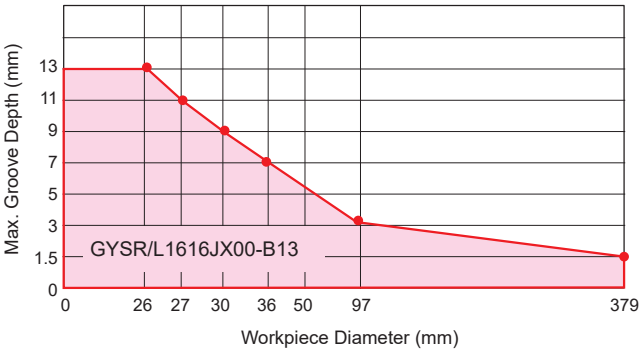


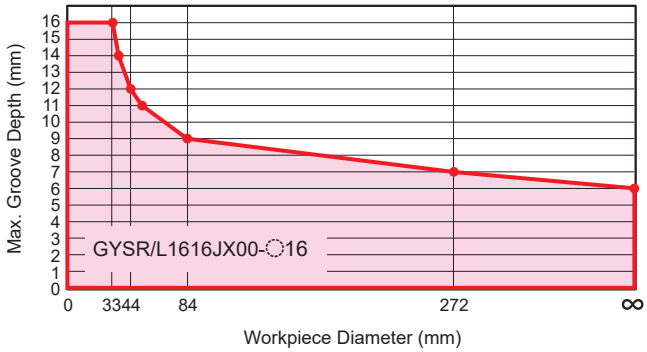


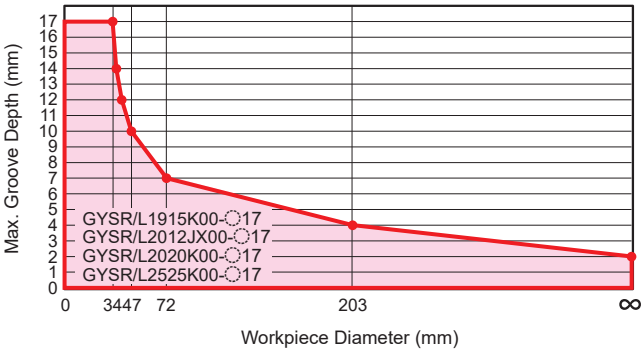


GY Series


Max. Groove Depth (mm)
0
1
2
3
4
5
6
7
8
GYSR/L1616JX00-B08
0
16
19
22
27
40
76
Workpiece Diameter (mm)


Max. Groove Depth (mm)
0
1.5
3
5
7
9
11
13
GYSR/L1616JX00-B13
0
26
27
30
36
50
97
379
Workpiece Diameter (mm)

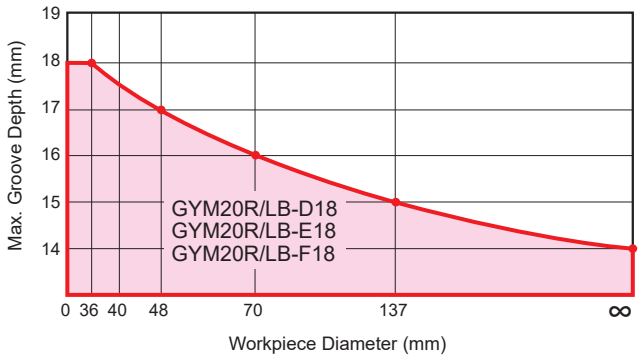

Max. Groove Depth (mm)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
GYSR/L1616JX00-○16
0
3344
84
272
∞
Workpiece Diameter (mm)


Max. Groove Depth (mm)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
GYSR/L1915K00-○17
GYSR/L2012JX00-○17
GYSR/L2020K00-○17
GYSR/L2525K00-○17
0
3447
72
203
∞
Workpiece Diameter (mm)

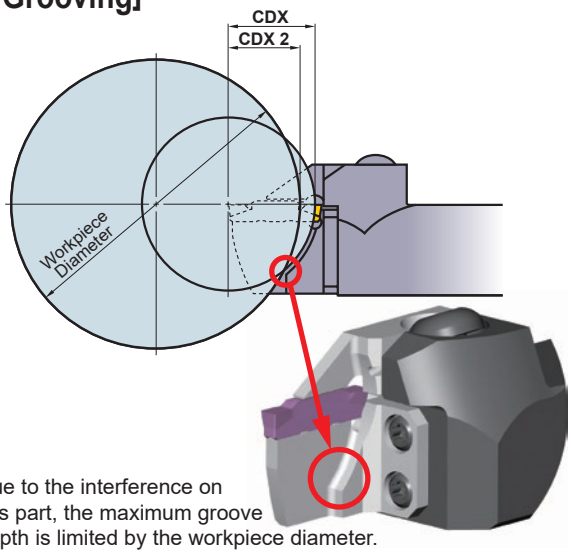
Limitation of The Maximum Groove Depth [For External Grooving]

•When using the modular blade GYM○○R/LA-○○○
The maximum groove depth is not limited by the workpiece diameter.

•When using the modular blade GYM○○R/LB-○○○
The maximum groove depth is limited by the workpiece diameter.



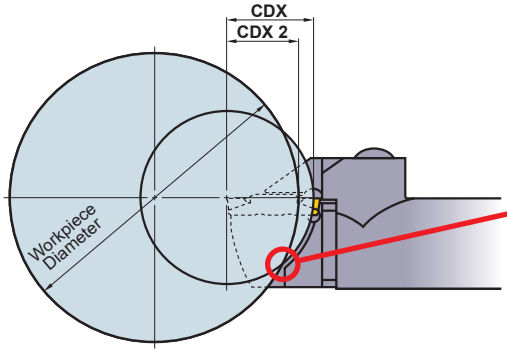
Max. Groove Depth



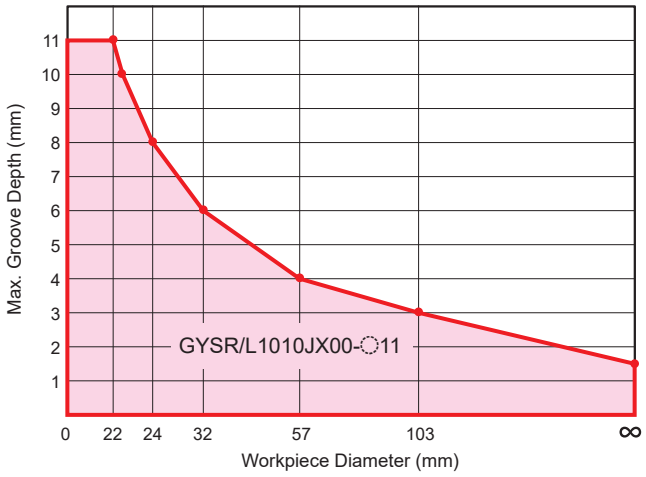
Due to the interference on this part, the maximum groove depth is limited by the workpiece diameter.

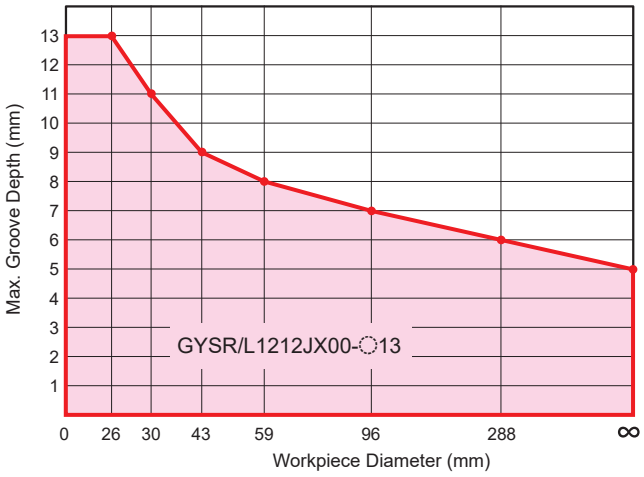
•In the case of mono block type holder for Swiss-type lathes
The maximum groove depth is limited by the workpiece diameter.

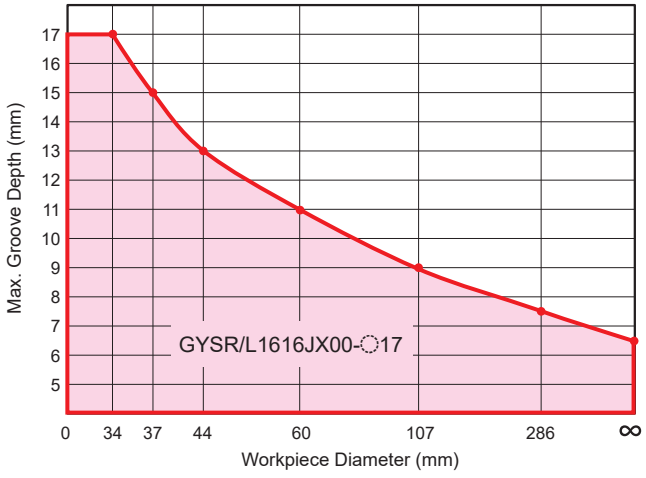
Max. Groove Depth

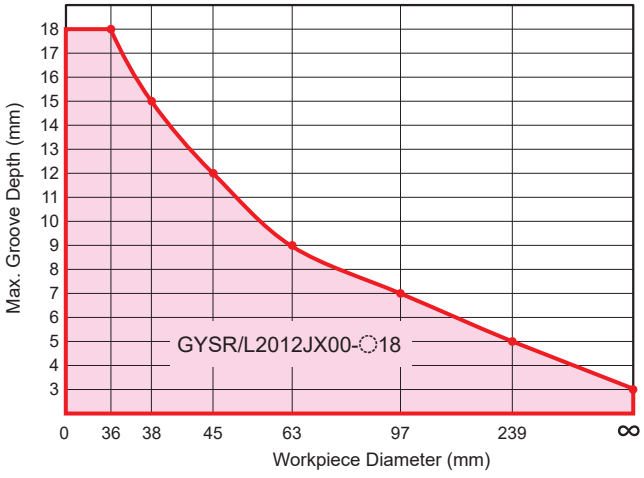


Due to interference, the maximum groove depth is limited by the workpiece diameter.







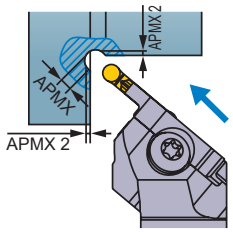


Recommended Cutting Speed [For External Recessing]

	Workpiece Material	Properties	Grade	Cutting Speed vc (m/min) 50 100 150 200 250
P	Mild Steel	Hardness ≤180HB	VP20RT	80 – 180
			VP10RT	90 – 190
	Carbon Steel Alloy Steel	Hardness 180–280HB	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
			NX2525	55 – 135
	Carbon Steel Alloy Steel	Hardness 280–350HB	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
			NX2525	45 – 105
M	Stainless Steels	Hardness ≤350HB	VP20RT	50 – 110
			VP10RT	60 – 120
K	Gray Cast Irons	Tensile Strength ≤350MPa	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
S	Heat Resistant Alloys Titanium Alloys	–	MP9015	40 – 100
			MP9025	30 – 90
			VP20RT	30 – 60
			VP10RT	40 – 70

Note 1) For MP9015, MP9025, VP10RT, VP20RT and MY5015, wet cutting is recommended.

Distance from Work Surface Recess Depth

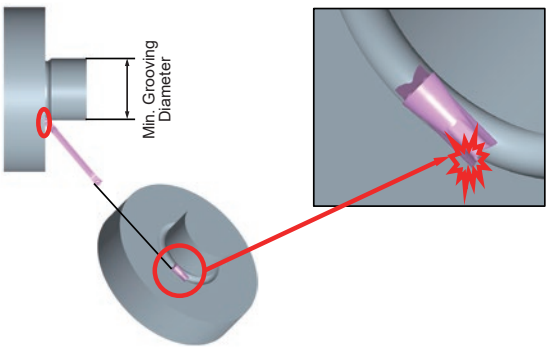


Cutting Width CW (mm)	Recess Depth APMX (mm)	Distance from Work Surface to Recess Depth APMX 2 (mm)
2.00	1.50	0.646
2.50	1.75	0.720
3.00	2.00	0.793
3.18	2.09	0.819
4.00	2.50	0.939
4.75	2.88	1.049
5.00	3.00	1.086
6.00	3.50	1.232
6.35	3.68	1.283

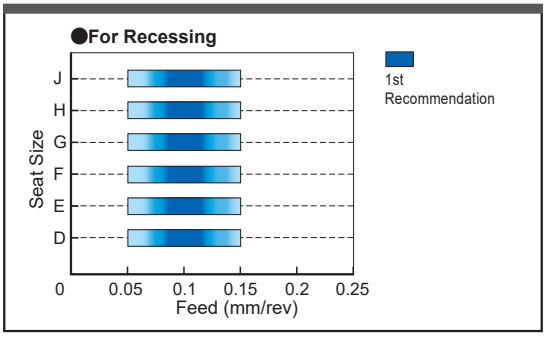
BM Breaker

Minimum grooving diameter

Ensure the tool is suitable for the diameter being machined. Refer to the Min. Grooving Diameter as shown in the table on the “page number” to avoid a collision with the workpiece shown below.

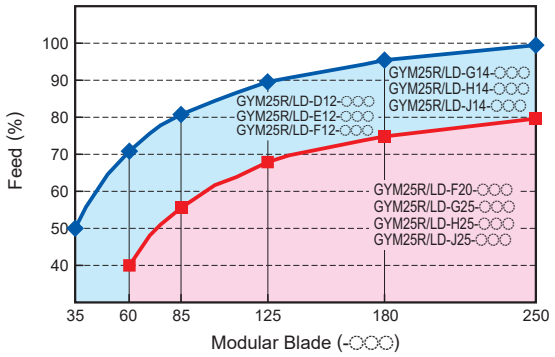


■ Recommended feed rate and depth of cut



Memo

Relationship Between The Modular Blade and Feed Per Rotation [For Face Grooving]



Note 1) Adjust the feed per rotation in the cutting conditions to the percentage shown in the table above.

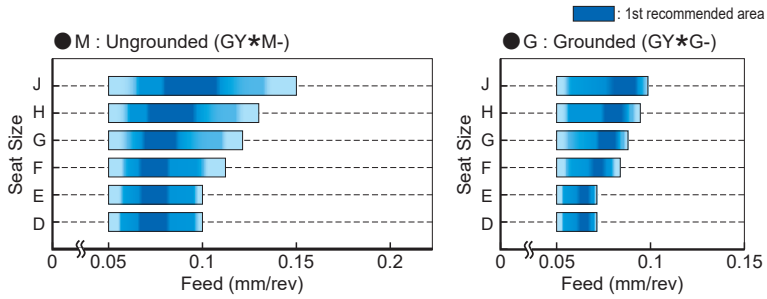
Recommended Cutting Speed [For Face Grooving]

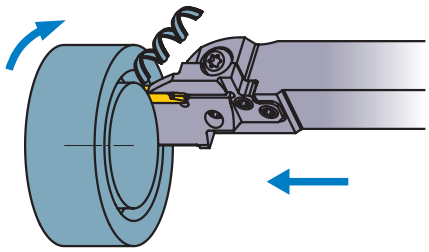
	Workpiece Material	Properties	Grade	Cutting Speed (m/min)
P	Mild Steel	Hardness ≤160HB	VP20RT	80–180
			VP10RT	90–190
			NX2525	70–170
	Carbon Steel Alloy Steel	Hardness 160–280HB	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
			NX2525	55–135
		Hardness 280HB≤	VP20RT	50–110
			VP10RT	60–120
			MY5015	80–160
			NX2525	45–105
M	Stainless Steels	Hardness ≤270HB	VP20RT	50–110
			VP10RT	60–120
K	Gray Cast Irons	Tensile Strength ≤300MPa	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	50–110
			VP10RT	60–120
			MY5015	80–160
S	Heat Resistant Alloys Titanium Alloys	–	MP9015	40–100
			MP9025	30–90
			VP20RT	30–60
			VP10RT	40–70
			RT9010	40–70
H	Hardened Steel	Hardness 50HRC≤	BC8110	60–120
			MB8025	60–120

Note 1) For MP9015, MP9025, VP10RT, VP20RT and MY5015, wet cutting is recommended.

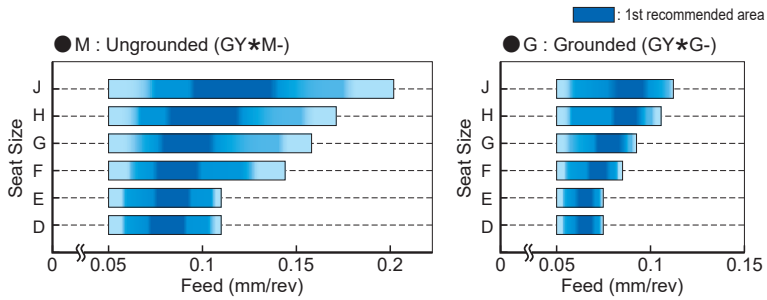
Recommended Cutting Conditions [For Face Grooving]

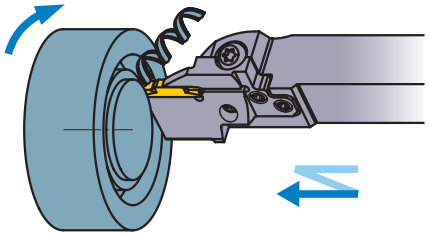
Grooving





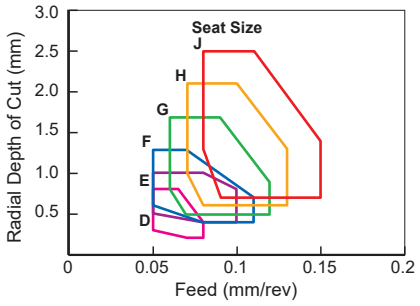
Plunging





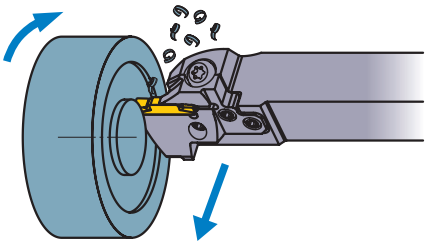
✱ After the 1st plunge, the width of cut should be set narrower than insert with CW.

Traverse Machining (MF Breaker)

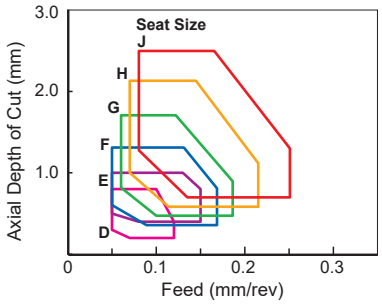


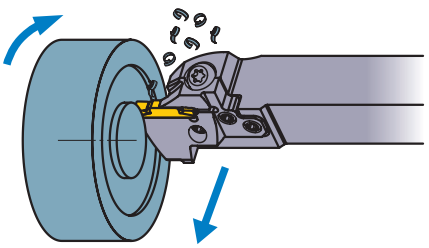
Seat Size	Insert Width (mm)
D	2.00 2.24
E	2.39 2.50 2.74
F	3.00 3.18 3.24

Seat Size	Insert Width (mm)
G	4.00 4.24
H	4.75 5.00 5.24
J	6.00 6.31 6.35

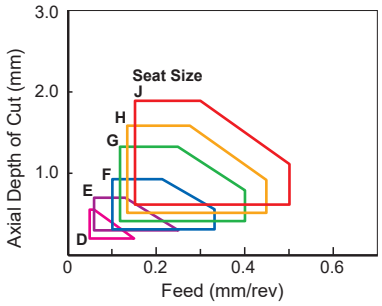


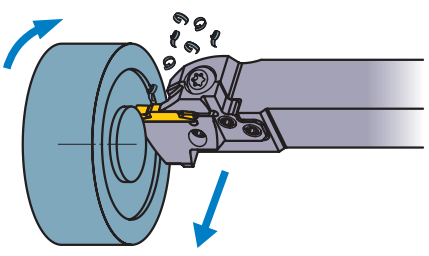
Traverse Machining (MM/MS Breaker)





Traverse Machining (BM Breaker)



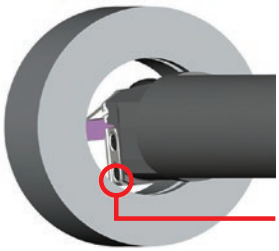


Note 1) GL chip breaker is not recommended for face grooving.

Limitation of The Maximum Groove Depth [For Internal Grooving]

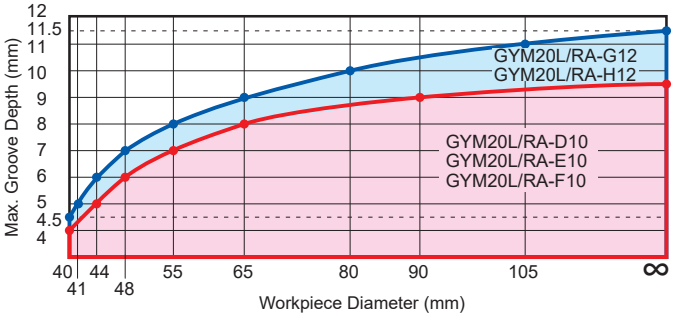
•When using the mono block type
The maximum groove depth is not limited by the cutting diameter.

•When using the modular blade type
The maximum groove depth is limited by the cutting diameter.

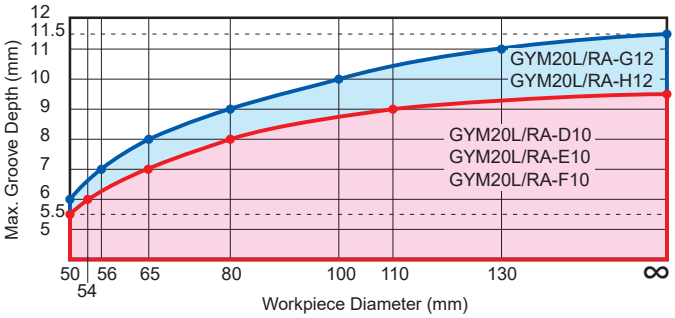


Due to interference of this part, the maximum groove depth is limited by the cutting diameter.

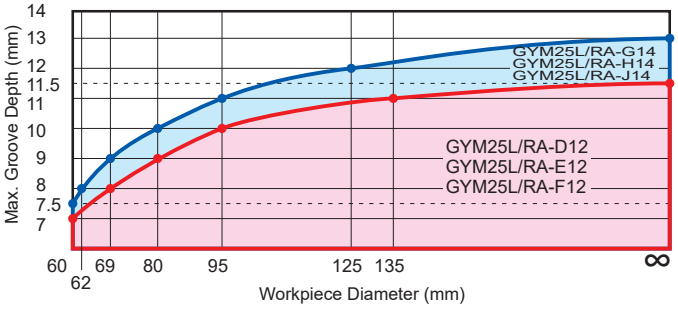
•Shank Diameter=32mm (GYM20 Blade)



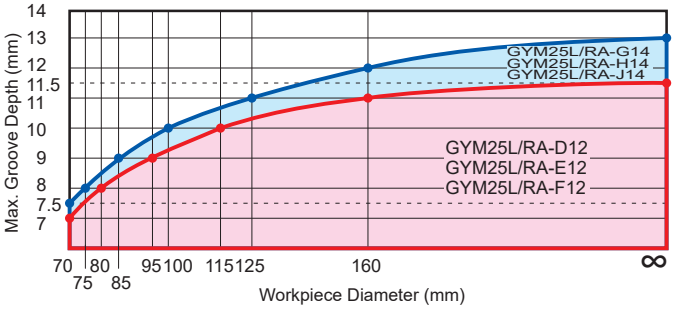
•Shank Diameter=40mm (GYM20 Blade)



•Shank Diameter=40mm (GYM25 Blade)



•Shank Diameter=50mm (GYM25 Blade)



Recommended Cutting Speed [For Internal Grooving]

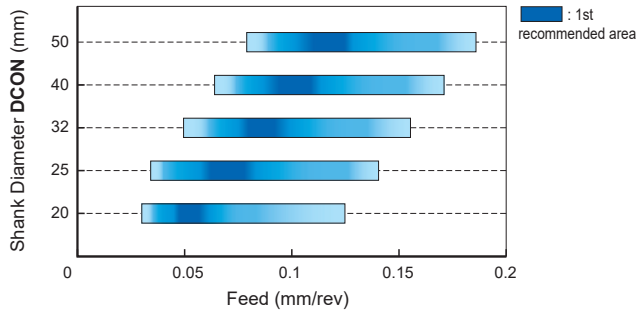
	Workpiece Material	Properties	Grade	Cutting Speed (m/min) 50 100 150 200 250
P	Mild Steel	Hardness ≤160HB	VP20RT	80–180
			VP10RT	90–190
			NX2525	70–170
	Carbon Steel Alloy Steel	Hardness 160–280HB	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
			NX2525	55–135
		Hardness 280HB≤	VP20RT	50–110
			VP10RT	60–120
			MY5015	80–160
			NX2525	45–105
M	Stainless Steels	Hardness ≤270HB	VP20RT	50–110
			VP10RT	60–120
K	Gray Cast Irons	Tensile Strength ≤300MPa	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	50–110
			VP10RT	60–120
			MY5015	80–160
S	Heat Resistant Alloys Titanium Alloys	–	MP9015	40–100
			MP9025	30–90
			VP20RT	30–60
			VP10RT/RT9010	40–70
H	Hardened Steel	50HRC≤	BC8110/MB8025	60–100

Note 1) For MP9015, MP9025, VP10RT, VP20RT and MY5015, wet cutting is recommended.

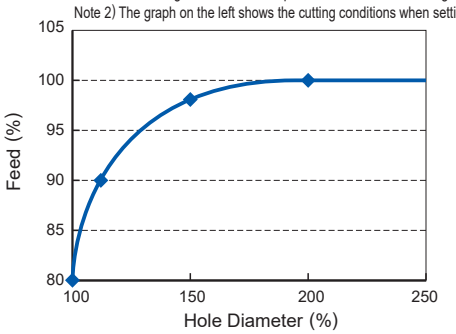
	Workpiece Material	Properties	Grade	Cutting Speed **vc** (m/min) 50 100 200 300 400 500
N	Aluminium Alloys (A6061, 7075)	Content Si<5%	RT9010	150–400
	Aluminium Alloys (AC4B)	Content 5%≤Si≤10%	RT9010	150–400
	Aluminium Alloys (ADC12, A390)	Content Si>10%	RT9010	80–160

Recommended Cutting Conditions [For Internal Grooving]

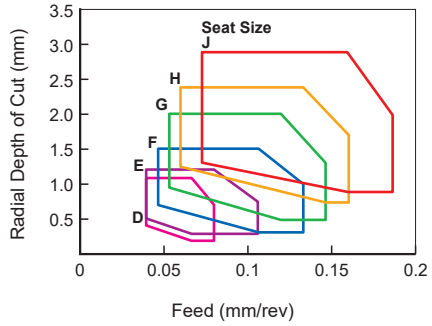
Grooving



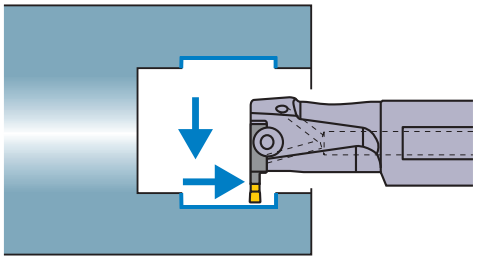
Note 1) The cutting diameter 100% represents the minimum cutting diameter (DMIN).
Note 2) The graph on the left shows the cutting conditions when setting the feed to 100%.



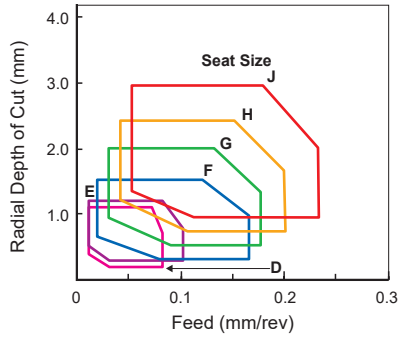
Traverse Machining (MF Breaker)



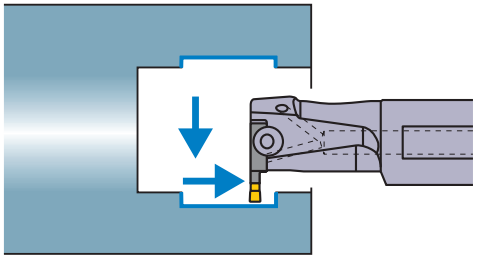
● When traverse machining a blind hole, it is recommended to carry out back turning considering chip disposal.



Traverse Machining (MM/MS Breaker)

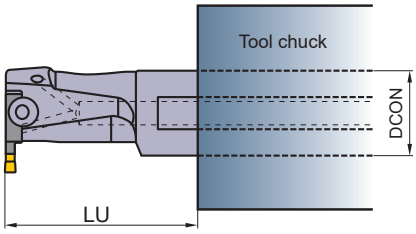


● When traverse machining a blind hole, it is recommended to carry out back turning considering chip disposal.



Note 1) The above cutting conditions are for when using the tool overhang (LU) 1.6-2.0 times larger than the shank diameter (DCON). (L/D=1.6-2.0)
When using L/D larger than 2.0, reduce the cutting conditions.

	Seat Size
	Insert Width (mm)
D	2.00 2.24
E	2.39 2.50 2.74
F	3.00 3.18 3.24
G	4.00 4.24
H	4.75 5.00 5.24
J	6.00 6.31 6.35



Memo

GW Series

Recommended Cutting Conditions

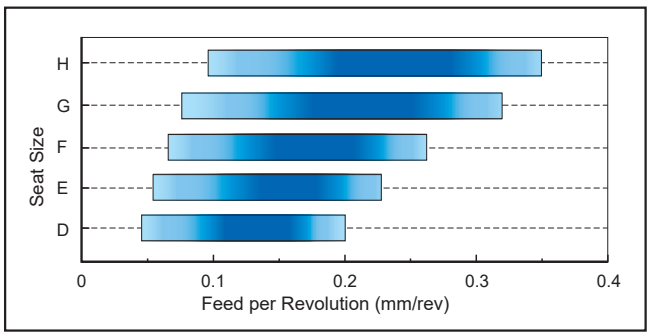
■ Cutting Speed

	Workpiece Material	Properties	Grade	Cutting Speed (m/min) 50 100 150 200 250 300
P	Mild Steel	Hardness ≤160HB	VP20RT	100–240
			VP10RT	110–250
	Carbon Steel Alloy Steel	Hardness 160−280HB	VP20RT	80–200
			VP10RT	90–210
			VP30RT	60–180
			MY5015	110–250
		Hardness ≥280HB	VP20RT	60–160
			VP10RT	70–170
			VP30RT	40–140
			MY5015	90–210
M	Stainless Steels	Hardness ≤270HB	VP20RT	60–180
			VP10RT	70–190
			VP30RT	40–160
K	Gray Cast Irons	Tensile Strength ≤300MPa	VP20RT	80–200
			VP10RT	90–210
			MY5015	140–300
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	60–160
			VP10RT	70–170
			MY5015	90–210
S	Heat Resistant Alloys Titanium Alloys	–	VP20RT	30–60
			VP10RT	40–70

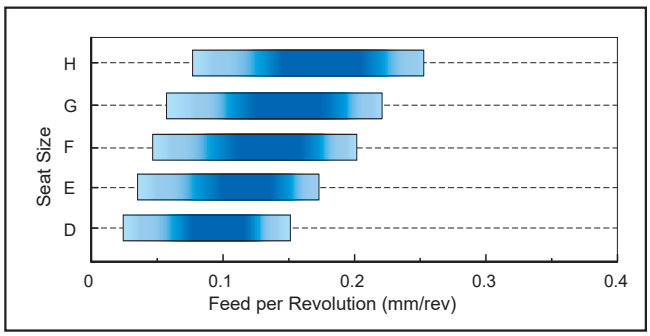
Note 1) VP20RT is the first recommended grade for materials.
Note 2) For VP10RT, VP20RT, VP30RT and MY5015, wet cutting is recommended.

■ Feed per Revolution

GM Breaker



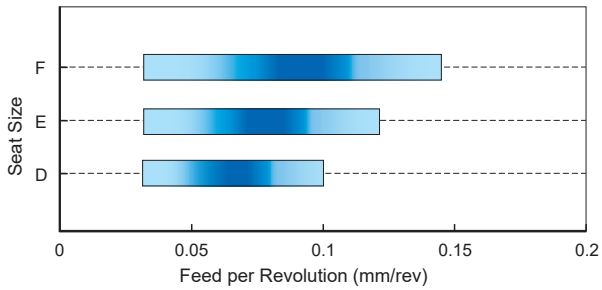
GS Breaker



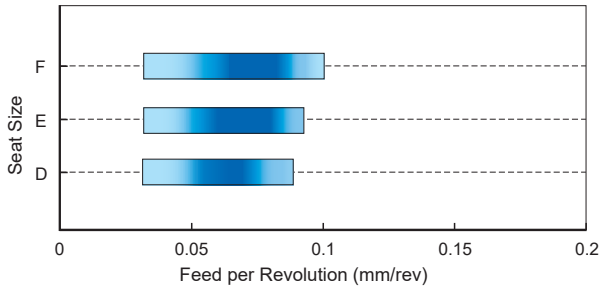
Chip Breaker	Feed per Revolution (mm/rev)				
	Seat Size D	Seat Size E	Seat Size F	Seat Size G	Seat Size H
GM Breaker	0.05−0.20	0.06−0.23	0.07−0.26	0.08−0.32	0.10−0.35
GS Breaker	0.03−0.15	0.04−0.17	0.05−0.20	0.06−0.22	0.08−0.25

Cutting Off Feed per Revolution

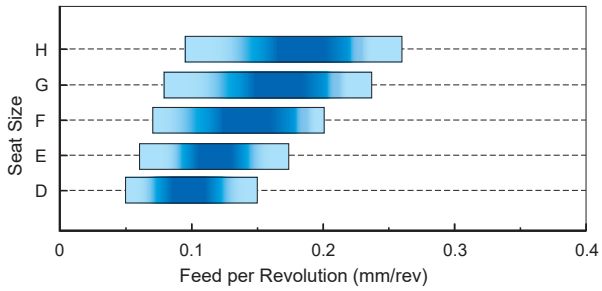
R05-GS Breaker



R08-GS Breaker



R/L05-GM Breaker



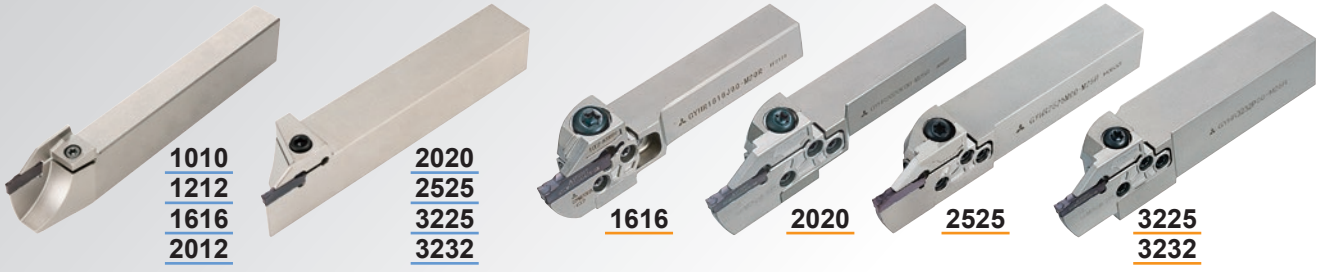
Chip Breaker	PSIPR	Hand	Feed per Revolution (mm/rev)				
			Seat Size D	Seat Size E	Seat Size F	Seat Size G	Seat Size H
R05-GS	5°	R	0.03–0.10	0.03–0.12	0.03–0.14	–	–
R08-GS	8°	R	0.03–0.08	0.03–0.09	0.03–0.14	–	–
R05-GM	5°	R/L	0.05–0.15	0.06–0.17	0.07–0.20	0.08–0.23	0.10–0.26

GY Series

A wide selection of holders and inserts available for diverse grooving and cutting off applications

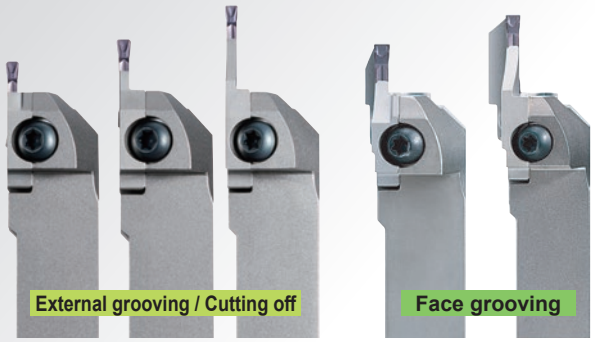
External • Face holders

Corresponding blades for a variety of modular holders with different shank sizes



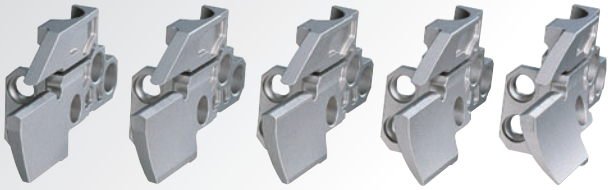
Mono block type | **Modular type**

A wide selection of holders and inserts available for diverse grooving and cutting off applications



Same holder

Applicable for various diameters of face grooves by the wide array of modular blades with different grooving diameters



Internal holders

A wide range of holders available from minimum diameter of ø25mm

Mono block type
Min.cutting diameter
ϕ25, ϕ32mm

Modular type
Min.cutting diameter
ϕ40, ϕ50mm
ϕ60, ϕ70mm

Short shank types are standard stock items

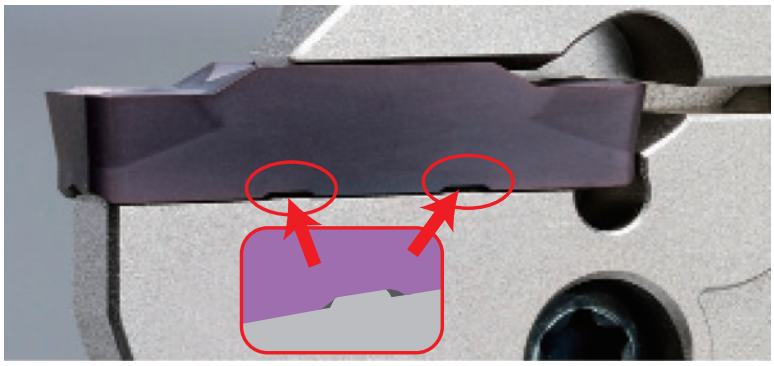
Mono block type | **Modular type**

Short | Standard | Short | Standard

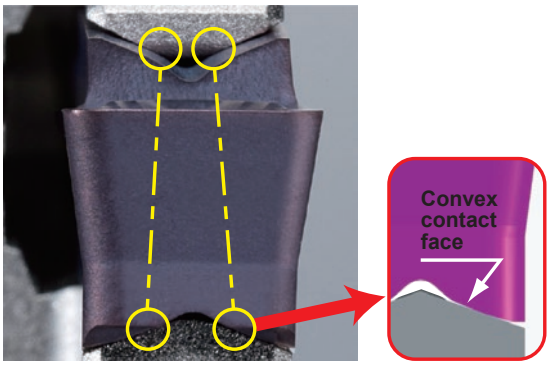
Original insert design leading the way to new grooving and cutting off applications

Highly reliable insert clamping

Safety keys prevent insert movement.



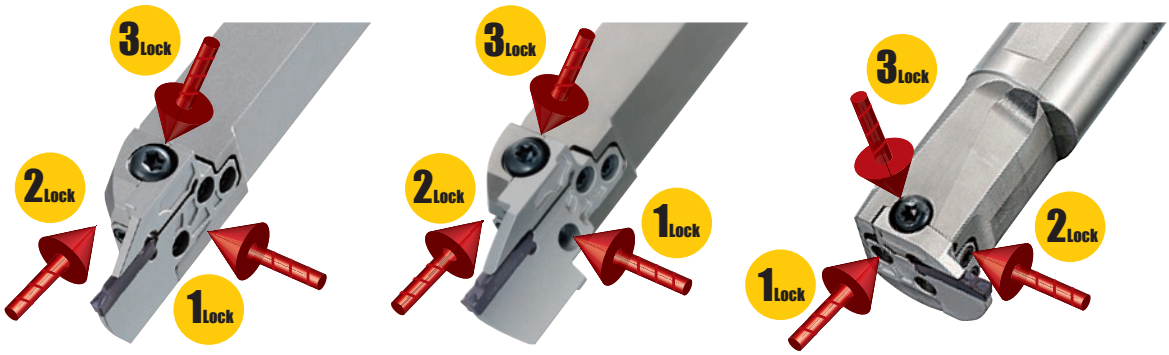
The convex geometry ensures high precision clamping.



New TRI-LOCK System for increased stability and performance!

TRI-LOCK System

The TRI-LOCK system ensures the blade is securely fixed in 3 directions (side, front and top), giving high rigidity for stable grooving and cutting off performance.

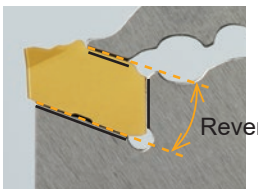


GW Series
Long Lasting, Easy to Use Cutting Off & Grooving System
Easy to Utilize Configuration that Improves Tool Handling

Clamp

Simple insert clamping method offering high rigidity.

To prevent the insert from being pulled out during machining a reverse taper angle has been designed from the front of the insert, additionally the design also includes 3 large locating faces between the insert and the blade offering increased cutting edge reliability. The blade itself is made from a special alloy steel to suit this application.
In respect to insert indexing a unique wrench is supplied to ensure ease when changing the insert.



Reverse Taper Angle

Voice of Developer

Just how easy is it to set an insert?

With the use of a unique wrench, it is possible to locate and remove the insert with one simple action making it easier for use in the workshop.

Through Coolant Blade

Increased wear resistance due to the use of 2 through coolant ejection holes.

2 through coolant holes supply the coolant to both the rake and flank face, leading to effective cutting edge cooling and increased wear resistance.
Additionally this blade can also be used for both low pressure and high pressure coolant (7MPa).

Voice of Developer

How is it possible to reduce heat generation?

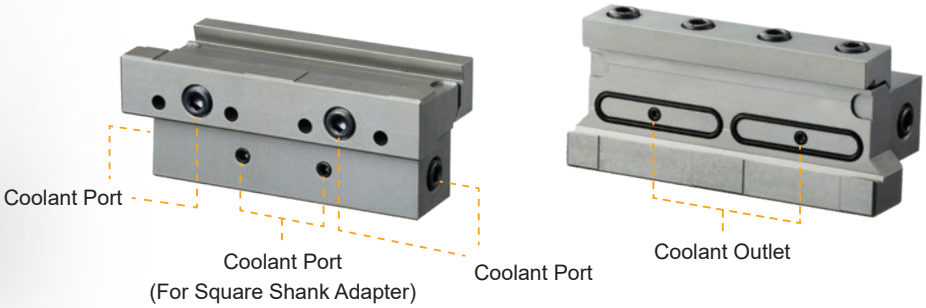
The 2 coolant holes used in the blade are capable of using high coolant pressures of up (7MPa), this is achieved by using as large as possible through coolant hole diameter.
The ejection holes are located close to the cutting edge to improve the cutting edge cooling effect and increase wear resistance.

GW video is available on YouTube.
You Tube

Coolant Ports

Flexible set up possible with the use of 6 coolant ports.

There are 6 coolant ports designed into the tool block. This makes it easier for the end user to set up the tool block and blade to a configuration that suits their needs. If necessary it is also possible to use a coolant hose. The direct type coolant also improves cutting edge cooling and chip evacuation.



Voice of Developer

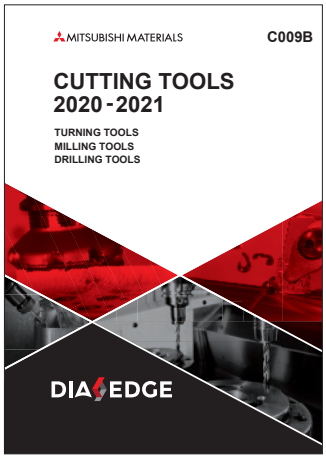
Further adaptability to workshop conditions.

In response to end user feedback, the coolant outlet has been improved to prevent leaks. The O-ring material and shape have been modified and the length of hose adjusted for more effective everyday use.

Cutting Off & Grooving System

C009B 2020-2021

General Catalogue



B225G TOOL NEWS

GW Series

For Your Safety
●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or driver. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

MITSUBISHI MATERIALS CORPORATION

MITSUBISHI MATERIALS CORPORATION

Overseas Sales Dept, Asian Region
Marunouchi Nijubashi Building 22F, 3-2-3, Marunouchi, Chiyoda-ku, Tokyo 100-8117, Japan

Overseas Sales Dept, European & American Region
Marunouchi Nijubashi Building 22F, 3-2-3, Marunouchi, Chiyoda-ku, Tokyo 100-8117, Japan

http://www.mitsubishicarbide.com/en/
(Tools specifications subject to change without notice.)

EXP-20-E011
2022.9.E