DIA EDGE

GY/GW

MONOBLOCK HOLDERS FOR SWISS-TYPE AUTOMATIC LATHES

NEW HIGH RIGIDITY GEOMETRY IDEAL FOR DEEP GROOVING

ABOUT OUR BRAND

Your manufacturing success is our success.

It's simple. We want to provide high-quality cutting tool products that help deliver unparalleled performance and control for you to manufacture precisely perfect products every day.

Our long heritage of building partnerships through cutting tool solutions to metal working manufacturers, like yours, has given Mitsubishi Materials USA a solid reputation as an industry leader. We understand the importance of getting it right the first time by delivering high-quality cutting tool product brands to help overcome machining challenges to improve machining processes.

Your success is our success and is the driving force behind our innovative products. Our product brands, DIAEDGE and MOLDINO, are trusted globally in the metal manufacturing and die & mold industries for delivering expertly-designed manufactured tools of the trade for highly specialized industries like yours.

With the acquisition of MOLDINO Tool Engineering, Ltd, our traditional Mitsubishi Materials USA cutting tool product line is now sold under the DIAEDGE product brand name.

Brands you can trust:

MITSUBISHI MATERIALS U.S.A.

TRUSTED PRODUCT BRANDS

DIAEDGE MOLDINO

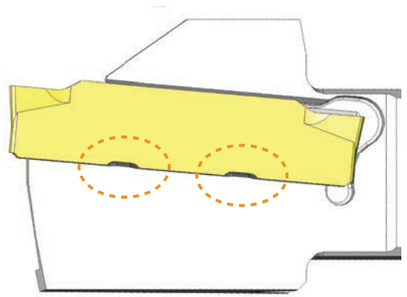
Cutting Off and Grooving System

GY Series

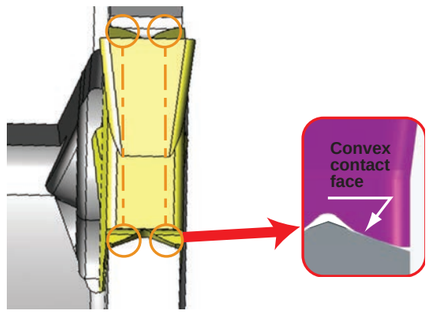
Monoblock Holder for Swiss-type Automatic Lathes

Highly Reliable Insert Clamp

The safety key locks the insert and prevents movement.



The convex geometry ensures high precision clamping.

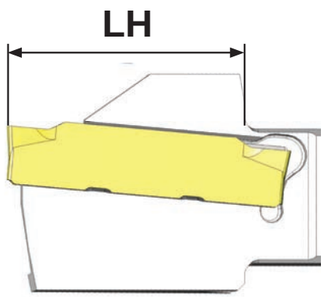


Monoblock Holder for Swiss-type Automatic Lathe

The new geometry with greatly improved rigidity suppresses vibrations and dimensional changes thereby solving problems during cutting off and grooving operations.

Overhang Length Compatible with Swiss-type Automatic Lathes

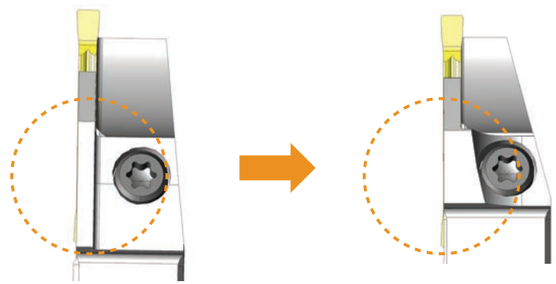
Head length corresponding to the maximum machining diameter of CNC Swiss Type automatic lathes and turret machines.



Features of High-Rigidity Holder

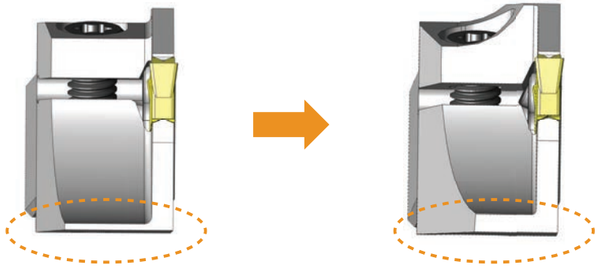
Strong Clamp Bridge

The strong design of the clamp bridge suppresses chatter and vibration.



Thicker Tool Base

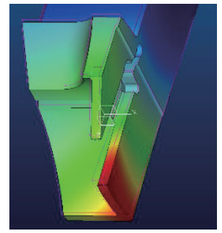
Tool deflection caused by cutting resistance is greatly reduced.



Analysis by Simulation
Deflection Measurement : .0017"

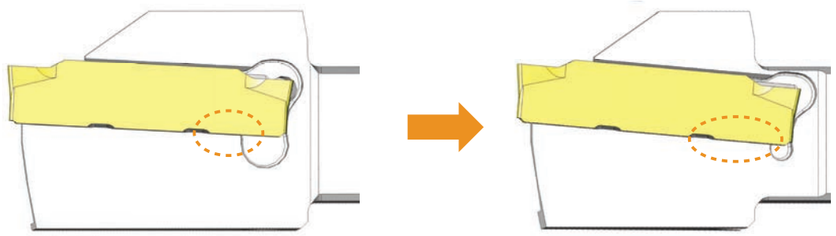
Analysis by Simulation
Deflection Measurement : .0005"

Analysis by Simulation



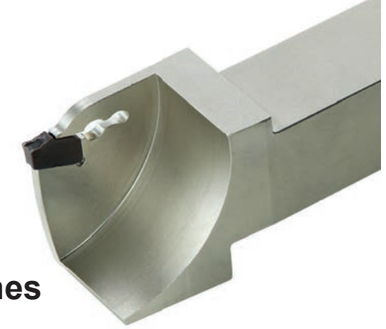
Strengthening of the Insert Clamp

The seating face of the insert becomes wider reducing the deformation of the workpiece material.



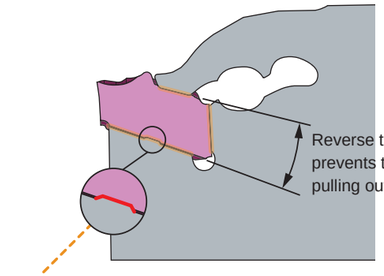
Cutting Off and Grooving System

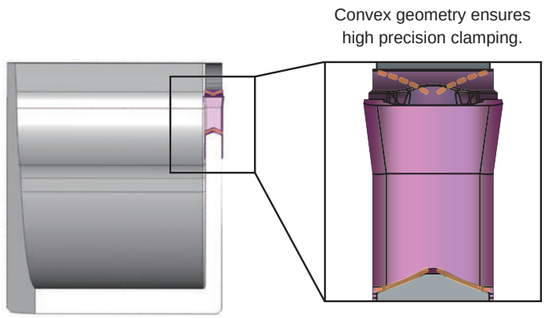
GW Series



Monoblock Holder for Swiss-type Automatic Lathes

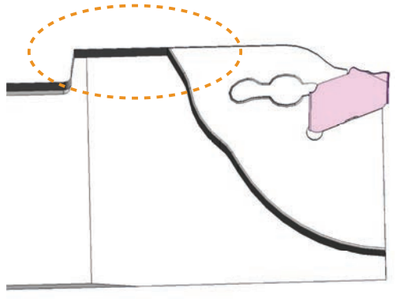
Highly Reliable Insert Clamping

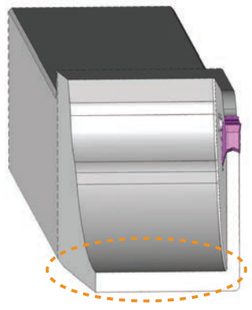




High-Rigidity Holder

Tool deflection caused by cutting resistance and the remaining material pip in the center are greatly reduced.





New Low Resistance and High Lead Angle Insert

New inserts with a lead angle of 8º have been added to the range to reduce burrs and the remaining material pip in the center.

Lead Angle 5°

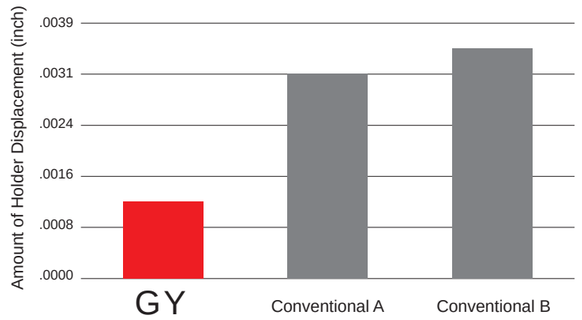
Lead Angle 8°

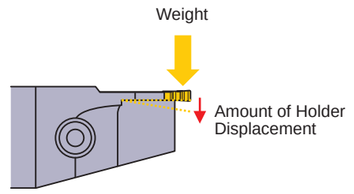
Cutting Performance

Tool Holder Deflection Comparison

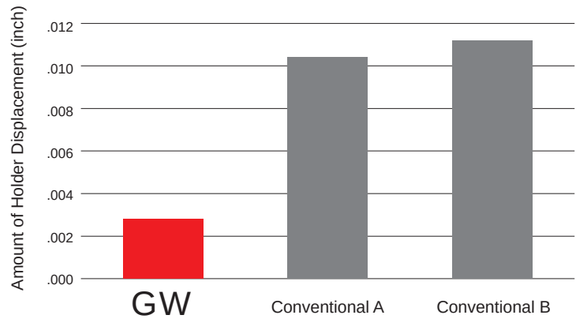
The high rigidity of the tool reduces chatter and vibration thereby improving the component surface finish and also reducing the remaining pip in the center.

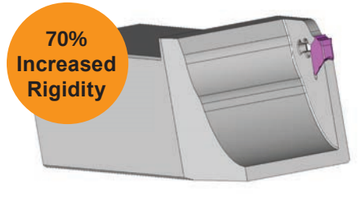
GY Holder

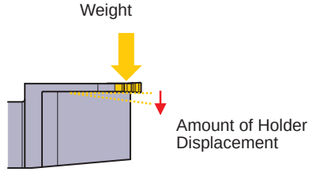




GW Holder







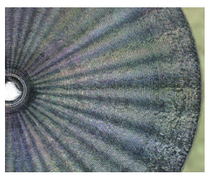
Cutting Performance

Surface Finish Comparison when Cutting Off : AISI 304

The high-rigidity holder suppresses chatter vibration and deflection, improving the finished surface.

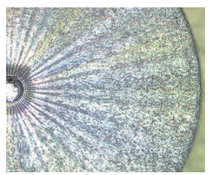
GY Holder

GY



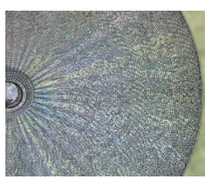
Rz .071 µ-inch

Conventional A



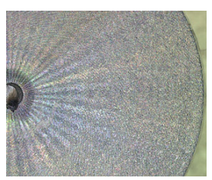
Rz .220 µ-inch

Conventional B



Rz .161 µ-inch

Conventional C



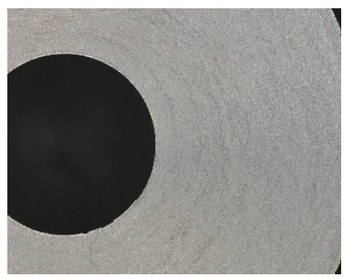
Rz .224 µ-inch

Excellent Surface Finish

<Cutting Conditions>
Work Material : AISI 304 ø.984 inch
Tool : Cutting Width CW=.079 inch
RE=.008 inch
630 inch x .630 inch
Cutting Speed: vc=395 SFM
Feed per Rev. : f=.0039 IPR
Cutting Mode : Wet Cutting

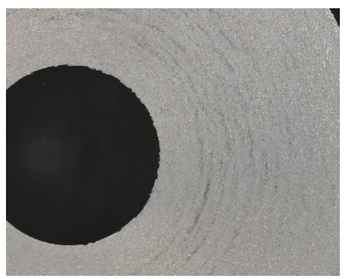
GW Holder

GW Lead Angle 8°



Rz .311 µ-inch

Conventional Lead Angle 6°



Rz .445 µ-inch

High Lead Angle Effect

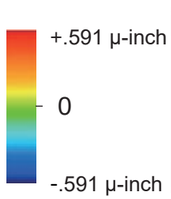
<Cutting Conditions>
Work Material : AISI 304 ø1.496 inch
Tool : Cutting Width CW=.079 inch
Cutting Speed: vc=395 SFM
Feed per Rev. : f=.0043 IPR
Cutting Mode : Wet Cutting

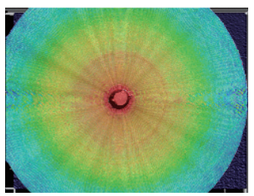
Comparison of the Accuracy of Workpiece When Cutting Off : AISI 304

GY Holder

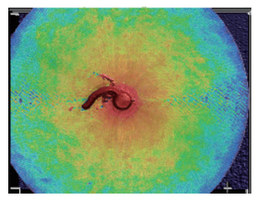
Height Difference Color

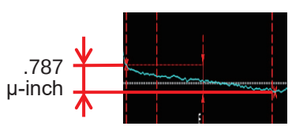
GY

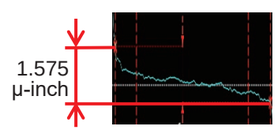




Conventional







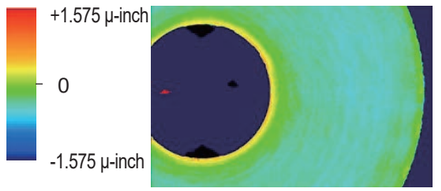
1/2 of Conventional Products

<Cutting Conditions>
Work Material : AISI 304 ø.984 inch
Tool : Cutting Width CW=.079 inch
RE=.008 inch
.630 inch x .630 inch
Cutting Speed: vc=395 SFM
Feed per Rev. : f=.0039 IPR
Cutting Mode : Wet Cutting

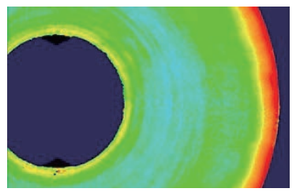
GW Holder

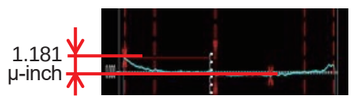
Height Difference Color

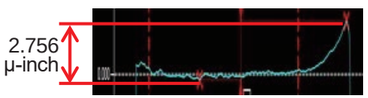
GW Lead Angle 8°



Conventional Lead Angle 8°







High accuracy with same lead angle

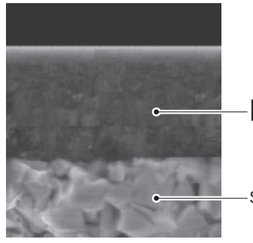
<Cutting Conditions>
Work Material : AISI 304 ø1.496 inch
Tool : Cutting Width CW=.079 inch
Cutting Speed: vc=395 SFM
Feed per Rev. : f=.0043 IPR
Cutting Mode : Wet Cutting

ISO Turning Inserts for Difficult-to-cut Materials

PVD Coated Carbide Grade NEW

MP9015/MP9025

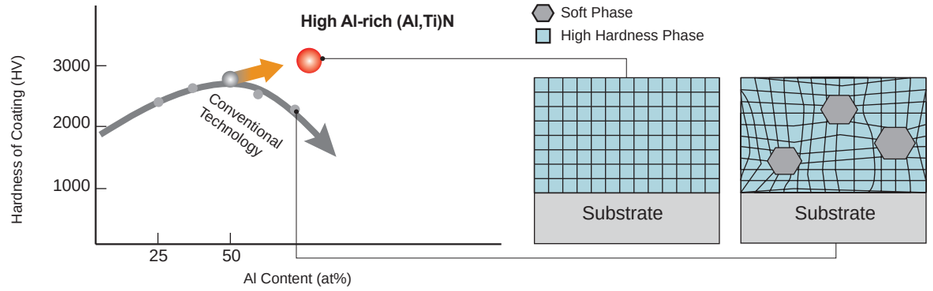
Excellent Wear Resistance when Machining Heat Resistant Super Alloys



MP9015/MP9025

High Al and Conventional Coating Comparison

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	First recommendation for general applications.	Heat Resistant Alloys
S30	MP9025	Prevents severe damage for Increased stability.	Heat Resistant Alloys

Insert Grade

GY Series

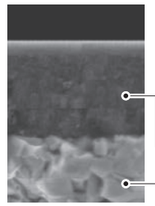
Cutting Conditions \ Work Material	P Steel	M Stainless Steel	K Cast Iron	N Aluminum Alloy	S Heat Resistant Alloy / Titanium Alloy	H Hardened Steel
Stable Cutting ↑ Cutting Conditions ↓ Unstable Cutting	NX2525					BC8110
	MY5015	VP10RT	MY5015	RT9010	NEW MP9015	
	VP10RT				RT9010	MB8025
	VP20RT	VP20RT	VP10RT		NEW MP9025	
			VP20RT			

GW Series

Cutting Conditions \ Work Material	P Steel	M Stainless Steel	K Cast Iron	S Heat Resistant Alloy / Titanium Alloy
Stable Cutting ↑ Cutting Conditions ↓ Unstable Cutting	MY5015		MY5015	VP10RT
	VP10RT	VP10RT	VP10RT	
	VP20RT	VP20RT	VP20RT	VP20RT
	VP30RT	VP30RT		

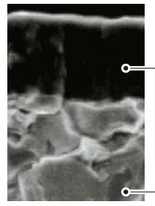
GY/GW **Series Insert Grade**

MP9000 **Series**



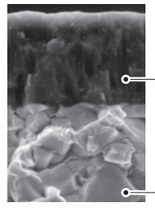
The high Al-rich (Al,Ti)N single layer coating provides stabilization of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

VP20RT



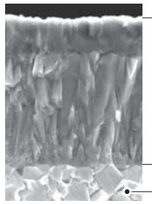
PVD coated grade suitable for a wide range of applications. The combination of a special tough cemented carbide substrate with MIRACLE coating provides an excellent balance of wear and fracture resistance.

VP10RT



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

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 steels.

RT9010

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

NX2525

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

BC8110

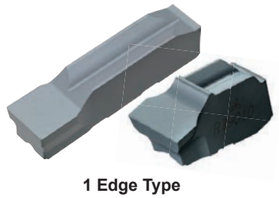
A CBN coated grade for continuous cutting, which provides longer life when machining hardened steel.

MB8025

MB8025 is a sintered CBN grade for hardened steel.

BLANK INSERTS

Blank inserts for custom grinding



1 Edge Type

2 Edge Type

⁎ Blank Inserts are not suitable for machining without grinding.

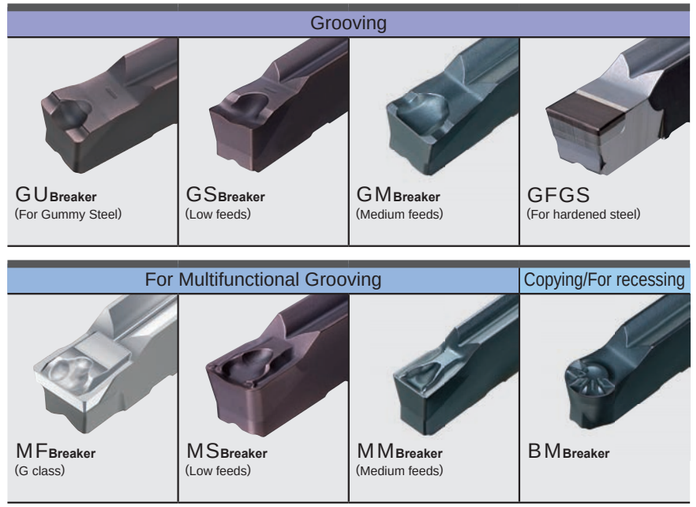
RT9010/RT9020 **for insert blank**

First recommendation for blank inserts is RT9020 due to the tougher carbide substrate and suitable for a wide range of application.
RT9010 is a harder substrate than RT9020 and is ideal for long tool life on stable cutting applications.
Coating is recommended for application on steel, stainless steel and cast iron materials.

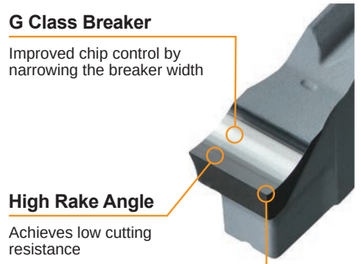
GY Series

A Wide Selection of Inserts

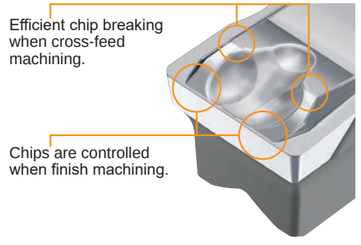
Breaker system



GL Breaker (For Aluminum Alloys)



MF Breaker (For Finish Machining)



GW Series

Breaker System Offering Excellent Chip Disposal Properties

Low Feeds

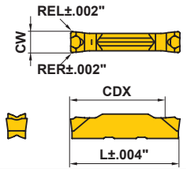
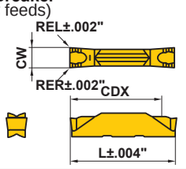
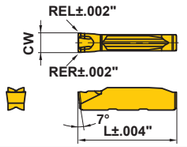
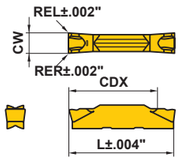
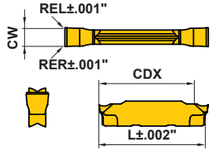
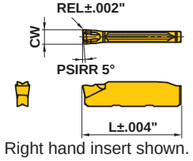
GS **Breaker**

Medium Feeds

GM **Breaker**

GY Series Inserts

(inch)

Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Cermet MY5015	Cermet NX2525	Carbide RT9010	Carbide RT9020	CBN MB8025	Seat Size	CW: Cutting Width inch	CW: Cutting Width (mm)	CW: Tolerance	RER/L	CDX	✶2 L
For Grooving / Cutting Off	**GU Breaker** (For gummy steel) 	GY2M0200D020N-GU			●	●		●				D	.079	(2.00)	±.0012	.008	.776	.815
		GY2M0239E020N-GU			●	●		●				E	.094	(2.39)	±.0012	.008	.780	.815
		GY2M0250E020N-GU			●	●		●				E	.098	(2.50)	±.0012	.008	.768	.815
		GY2M0300F030N-GU			●	●		●				F	.118	(3.00)	±.0012	.012	.760	.815
		GY2M0318F030N-GU			●	●		●				F	.125	(3.18)	±.0012	.012	.760	.815
	GS Breaker (Low feeds) 	GY2M0150C010N-GS			●	●		●				C	.059	(1.50)	±.0012	.004	.528	.579
		GY2M0200D020N-GS			●	●		●				D	.079	(2.00)	±.0012	.008	.736	.815
		GY2M0239E020N-GS			●	●		●				E	.094	(2.39)	±.0012	.008	.728	.815
		GY2M0250E020N-GS			●	●		●				E	.098	(2.50)	±.0012	.008	.728	.815
		GY2M0300F020N-GS			●	●		●				F	.118	(3.00)	±.0012	.008	.728	.815
		GY2M0318F020N-GS			●	●		●				F	.125	(3.18)	±.0012	.008	.728	.815
	GM Breaker (Medium feeds) 	GY1M0200D020N-GM	●	●	●	●	●					D	.079	(2.00)	±.0012	.008	—	.815
		GY1M0250E020N-GM	●	●	●	●	●					E	.098	(2.50)	±.0012	.008	—	.815
		GY1M0300F030N-GM	●	●	●	●	●					F	.118	(3.00)	±.0012	.012	—	.815
	GM Breaker (Medium feeds) 	GY2M0150C020N-GM	●	●	●	●		●				C	.059	(1.50)	±.0012	.008	.547	.579
		GY2M0200D020N-GM	●	●	●	●	●	●				D	.079	(2.00)	±.0012	.008	.764	.815
		GY2M0239E020N-GM	●	●	●	●	●	●				E	.094	(2.39)	±.0012	.008	.764	.815
		GY2M0250E020N-GM	●	●	●	●	●	●				E	.098	(2.50)	±.0012	.008	.764	.815
		GY2M0300F030N-GM	●	●	●	●	●	●				F	.118	(3.00)	±.0012	.012	.764	.815
		GY2M0318F030N-GM	●	●	●	●	●	●				F	.125	(3.18)	±.0012	.012	.764	.815
For Grooving / Cutting Off	**GL Breaker** (For Aluminum Alloys) 	GY2G0200D005N-GL							●			D	.079	(2.00)	±.0008	.002	.768	.829
		GY2G0250E005N-GL							●			E	.098	(2.50)	±.0008	.002	.752	.829
		GY2G0300F005N-GL							●			F	.118	(3.00)	±.0008	.002	.744	.829
For Cutting off	**R/L05-GM Breaker**  Right hand insert shown.	GY1M0200D020R05-GM			●	●						D	.079	(2.00)	±.0012	.008	—	.819
		GY1M0200D020L05-GM			●	●						D	.079	(2.00)	±.0012	.008	—	.819
		GY1M0300F030R05-GM			●	●						F	.118	(3.00)	±.0012	.012	—	.821
		GY1M0300F030L05-GM			●	●						F	.118	(3.00)	±.0012	.012	—	.821

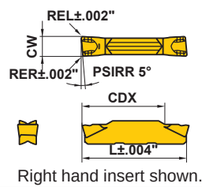
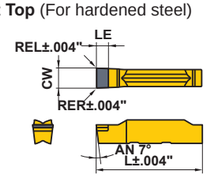
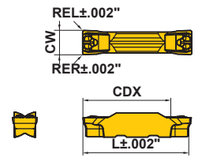
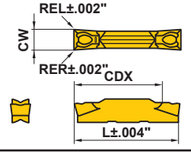
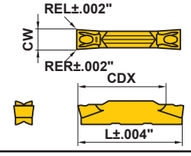
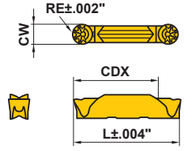
✶2 The dimension depends on the breaker. Refer to the page 9 “L dimension tolerance conversion table”.

● = NEW

● : USA Stock

(10 inserts in one case) (CBN inserts are with 1 piece in one case.)

(inch)

Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Cermet MY5015	Cermet NX2525	Carbide RT9010	Carbide RT9020	CBN BC8110	CBN MB8025	Seat Size	CW: Cutting Width inch	CW: Cutting Width (mm)	CW: Tolerance	RER/L	CDX	✶2 L	LE
For Cutting Off	**R/L05-GM Breaker**  Right hand insert shown.	GY2M0200D020R05-GM			●	●							D	.079	(2.00)	±.0012	.008	.768	.819	–
		GY2M0200D020L05-GM			●	●							D	.079	(2.00)	±.0012	.008	.768	.819	–
		GY2M0250E020R05-GM			●	●							E	.098	(2.50)	±.0012	.008	.768	.820	–
		GY2M0250E020L05-GM			●	●							E	.098	(2.50)	±.0012	.008	.768	.820	–
		GY2M0300F030R05-GM			●	●							F	.118	(3.00)	±.0012	.012	.768	.821	–
		GY2M0300F030L05-GM			●	●							F	.118	(3.00)	±.0012	.012	.768	.821	–
For Grooving	**Flat Top** (For hardened steel) 	GY1G0200D020N-GFGS									●	●	D	.079	(2.00)	±.0012	.008	–	.815	.106
		GY1G0239E020N-GFGS									●	●	E	.094	(2.39)	±.0012	.008	–	.815	.106
		GY1G0250E020N-GFGS									●	●	E	.098	(2.50)	±.0012	.008	–	.815	.106
		GY1G0300F020N-GFGS									●	●	F	.118	(3.00)	±.0012	.008	–	.815	.106
		GY1G0318F020N-GFGS									●	●	F	.125	(3.18)	±.0012	.008	–	.815	.106
For Multifunctional Grooving	**MF Breaker** (Finishing) 	GY2G0200D020N-MF			●	●		●		●			D	.079	(2.00)	±.0008	.008	.768	.829	–
		✶1 GY2G0224D015N-MF			●	●		●		●			D	.088	(2.24)	±.0008	.006	.780	.829	–
		GY2G0239E020N-MF			●	●		●		●			E	.094	(2.39)	±.0008	.008	.756	.829	–
		GY2G0250E020N-MF			●	●		●		●			E	.098	(2.50)	±.0008	.008	.764	.829	–
		✶1 GY2G0274E020N-MF			●	●		●		●			E	.108	(2.74)	±.0008	.008	.776	.829	–
		GY2G0300F020N-MF			●	●		●		●			F	.118	(3.00)	±.0008	.008	.768	.829	–
		GY2G0300F040N-MF			●	●		●		●			F	.118	(3.00)	±.0008	.016	.760	.829	–
		GY2G0318F020N-MF			●	●		●		●			F	.125	(3.18)	±.0008	.008	.768	.829	–
		GY2G0318F040N-MF			●	●		●		●			F	.125	(3.18)	±.0008	.016	.760	.829	–
		✶1 GY2G0324F020N-MF			●	●		●		●			F	.128	(3.24)	±.0008	.008	.768	.829	–
	MS Breaker (Low feeds) 	GY2M0200D020N-MS			●	●	●	●					D	.079	(2.00)	±.0012	.008	.752	.815	–
		GY2M0250E020N-MS			●	●	●	●					E	.098	(2.50)	±.0012	.008	.752	.815	–
		GY2M0300F020N-MS			●	●	●	●					F	.118	(3.00)	±.0012	.008	.756	.815	–
		GY2M0300F040N-MS			●	●	●	●					F	.118	(3.00)	±.0012	.016	.744	.815	–
	MM Breaker (Medium feeds) 	GY2M0200D020N-MM	●	●	●	●	●	●					D	.079	(2.00)	±.0012	.008	.752	.815	–
		GY2M0250E020N-MM	●	●	●	●	●	●					E	.098	(2.50)	±.0012	.008	.752	.815	–
		GY2M0300F020N-MM	●	●	●	●	●	●					F	.118	(3.00)	±.0012	.008	.752	.815	–
		GY2M0300F040N-MM	●	●	●	●	●	●					F	.118	(3.00)	±.0012	.016	.744	.815	–
		GY2M0300F080N-MM	●	●	●	●	●	●					F	.118	(3.00)	±.0012	.031	.728	.815	–
For Copying / For Recessing	**BM Breaker** 	GY2M0200D100N-BM	●	●	●	●	●	●					D	.079	(2.00)	±.0012	.039	.768	.815	–
		GY2M0250E125N-BM	●	●	●	●	●	●					E	.098	(2.50)	±.0012	.049	.760	.815	–
		GY2M0300F150N-BM	●	●	●	●	●	●					F	.118	(3.00)	±.0012	.059	.748	.823	–
		GY2M0318F159N-BM	●	●	●	●	●	●					F	.125	(3.18)	±.0012	.063	.744	.823	–

✶1 Circlip corresponding width of cut

✶2 The dimension depends on the breaker. Refer to the page 9 “L dimension tolerance conversion table”.

● = NEW

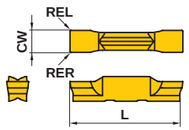
GY Series Inserts

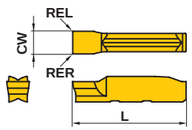
Blank Inserts

(inch)

Applications	Geometry	Order Number	Stock Cermet NX2525	Stock Carbide RT9010	Stock Carbide RT9020	Seat Size	CW Grooving Width inch	CW Grooving Width (mm)	CW Tolerance	RER/L	L
Blank	2 Edge Type	GY2B0220D020N	★	★	★	D	.087	(2.20)	± .0039	.008	.829
		GY2B0250D020N	★	★	★	D	.100	(2.55)	± .0039	.008	.838
		GY2B0270E020N	★	★	★	E	.106	(2.70)	± .0039	.008	.829
		GY2B0300E020N	★	★	★	E	.120	(3.05)	± .0039	.008	.838
	1 Edge Type	GY1B0220D020N	★	★	★	D	.087	(2.20)	± .0039	.008	.830
		GY1B0270E020N	★	★	★	E	.106	(2.70)	± .0039	.008	.831

*1





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

GY Series L Dimension Tolerance Conversion Table

Cutting Width CW	*1Dimensions L (inch)	*2Dimensional tolerance (inch) versus standard dimension (L) of each breaker							
		GU	GS/GM	MS/MM	R/L-GM	Flat Top	MF	BM	GL
.059", 1.50 mm	.579		0						
.079", 2.00 mm	.815	0	0	0	.004	0	.014	.008	.014
.088", 2.24 mm	*3 (.815)						.014		
.094", 2.39 mm	.815	0	0			0	.014		
.098", 2.50 mm	.815	0	0	0	.005	0	.014	.008	.014
.108", 2.74 mm	*3 (.815)						.014		
.118", 3.00 mm	.815	0	0	0	.006	0	.014	.008	.014
.125", 3.18 mm	.815	0	0			0	.014	.008	
.128", 3.24 mm	*3 (.815)						.014		
.157", 4.00 mm	1.010	0	0	0	.008	0	.012	.006	
.167", 4.24 mm	*3 (1.010)						.012		
.187", 4.75 mm	1.010	0	0			0	.012	.006	
.197", 5.00 mm	1.010	0	0	0	.012	0	.012	.006	
.206", 5.24 mm	*3 (1.010)						.012		
.236", 6.00 mm	1.010	0	0	0		0	.012	.010	
.248", 6.31 mm	*3 (1.010)						.012		
.250", 6.35 mm	1.010	0	0				.012	.010	
.315", 8.00 mm	1.201		0	0				.012	

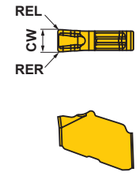
*1 This value is used at the described holder dimension.
*2 ■ when there is no applicable breaker.
*3 The standard dimensions shown here use an approximate insert width.

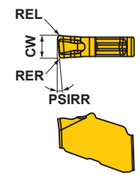
● : USA Stock ★ : Stocked in Japan
(10 inserts in one case) (CBN inserts are available in 1 piece in one case.)

GW Series Inserts

(inch)

Application	Order Number	Stock Coating MY5015	Stock Coating VP10RT	Stock Coating VP20RT	Stock Coating VP30RT	CW Cutting Width inch	CW Cutting Width (mm)	CW Tolerance	RER REL	PSIRR PSIRL	Geometry
Grooving, Cutting Off	GW1M0200D020N-GS		●	●	●	.079	(2.00)	±.0012	.008	–	
Grooving, Cutting Off	NEW GW1M0239E020N-GS		●	●	●	.094	(2.39)	±.0012	.008	–	
Grooving, Cutting Off	GW1M0300F020N-GS		●	●	●	.118	(3.00)	±.0012	.008	–	
Grooving, Cutting Off	GW1M0400G020N-GS		●	●	●	.157	(4.00)	±.0016	.008	–	
Grooving, Cutting Off	GW1M0200D020N-GM	●	●	●	●	.079	(2.00)	±.0012	.008	–	
Grooving, Cutting Off	NEW GW1M0239E020N-GM	●	●	●	●	.094	(2.39)	±.0012	.008	–	
Grooving, Cutting Off	GW1M0300F030N-GM	●	●	●	●	.118	(3.00)	±.0012	.012	–	
Grooving, Cutting Off	GW1M0400G030N-GM	●	●	●	●	.157	(4.00)	±.0016	.012	–	
Cutting off, Low Feed	NEW GW1M0200D020R05-GS		●	●	●	.079	(2.00)	±.0012	.008	5	
Cutting off, Low Feed	NEW GW1M0239E020R05-GS		●	●	●	.094	(2.39)	±.0012	.008	5	
Cutting off, Low Feed	NEW GW1M0300F020R05-GS		●	●	●	.118	(3.00)	±.0012	.008	5	
Cutting off Low Feed, Lead Angle 8°	NEW GW1M0200D003R08-GS		●	●	●	.079	(2.00)	±.0012	.0012	8	
Cutting off Low Feed, Lead Angle 8°	NEW GW1M0239E003R08-GS		●	●	●	.094	(2.39)	±.0012	.0012	8	
Cutting off Low Feed, Lead Angle 8°	NEW GW1M0300F003R08-GS		●	●	●	.118	(3.00)	±.0012	.0012	8	
Cutting Off	GW1M0200D020R05-GM		●	●	●	.079	(2.00)	±.0012	.008	5	
Cutting Off	GW1M0200D020L05-GM		●	●	●	.079	(2.00)	±.0012	.008	5	
Cutting Off	GW1M0300F030R05-GM		●	●	●	.118	(3.00)	±.0012	.012	5	
Cutting Off	GW1M0300F030L05-GM		●	●	●	.118	(3.00)	±.0012	.012	5	
Cutting Off	GW1M0400G030R05-GM		●	●	●	.157	(4.00)	±.0016	.012	5	
Cutting Off	GW1M0400G030L05-GM		●	●	●	.157	(4.00)	±.0016	.012	5	





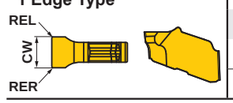
Right hand insert shown.

● = NEW

Blank Inserts

(inch)

Geometry	Order Number	Carbide RT9010	Carbide RT9020	Seat Size	CW Grooving Width inch	CW Grooving Width (mm)	CW Tolerance	RER	REL
1 Edge Type	GW1B0320D020N	★	★	D	.128	(3.24)	±0.10	.008	.008
	GW1B0440F020N	★	★	F	.175	(4.44)	±0.10	.008	.008
	GW1B0540G020N	★	★	G	.214	(5.44)	±0.10	.008	.008



★ Insert blank is not suitable for machining without grinding.

Cutting Conditions ➢ P27

GY SERIES (External for Swiss-type Automatic Lathes)

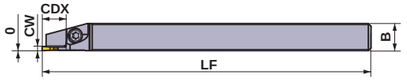


Fig. 1

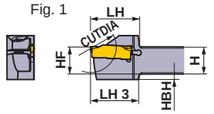


Fig. 2

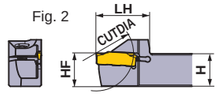
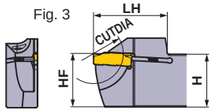


Fig. 3



Right hand tool holder shown.

Spare Parts

Holder Type	Clamp Screw	Wrench
GYSR/L1010JX00	CS350990T	TKY10R
GYSR/L1212JX00	CS350990T	TKY10R
GYSR/L1616JX00	TS4SBL	TKY15R
GYSR/L1915K00	TS4SBL	TKY15R
GYSR/L2012JX00	CS350990T	TKY10R
GYSR/L2020K00	HSC05018	HKY40R
GYSR/L2525K00	HSC05018	HKY40R

(mm)

Seat Size	CW	CDX ⁎4	CUTDIA	Type	Hand (R/L)	Order Number	Stock	Dimensions (mm) ⁎3 H	B	LF	LH	LH 3	HF	HBH	Fig.
C	1.50 .059"	8	16	Mono Block	R	**GYSR1010JX00-C08**	★	10	10	120	17.5	17.5	10	2	1
		8	16		L	**GYSL1010JX00-C08**	★	10	10	120	17.5	17.5	10	2	1
		8	16	Mono Block	R	**GYSR1212JX00-C08**	★	12	12	120	19.5	—	12	—	2
		8	16		L	**GYSL1212JX00-C08**	★	12	12	120	19.5	—	12	—	2
		12	24	Mono Block	R	**GYSR1212JX00-C12**	★	12	12	120	19.5	19.5	12	2	1
		12	24		L	**GYSL1212JX00-C12**	★	12	12	120	19.5	19.5	12	2	1
		13	26	Mono Block	R	**GYSR1616JX00-C13**	★	16	16	120	25	—	16	—	2
		13	26		L	**GYSL1616JX00-C13**	★	16	16	120	25	—	16	—	2
		13	26	Mono Block	R	**GYSR2012JX00-C13**	★	20	12	120	28	—	20	—	3
		13	26		L	**GYSL2012JX00-C13**	★	20	12	120	28	—	20	—	3
D	2.00 2.24 .079" .088"	10	20	Mono Block	R	**GYSR1010JX00-D10**	★	10	10	120	17.5	17.5	10	2	1
		10	20		L	**GYSL1010JX00-D10**	★	10	10	120	17.5	17.5	10	2	1
		12	24	Mono Block	R	**GYSR1212JX00-D12**	●	12	12	120	19.5	19.5	12	2	1
		12	24		L	**GYSL1212JX00-D12**	●	12	12	120	19.5	19.5	12	2	1
		13	26	Mono Block	R	**GYSR1616JX00-D13**	●	16	16	120	25	—	16	—	2
		13	26		L	**GYSL1616JX00-D13**	●	16	16	120	25	—	16	—	2
		16	32	Mono Block	R	**GYSR1616JX00-D16**	●	16	16	120	28	—	16	—	2
		16	32		L	**GYSL1616JX00-D16**	●	16	16	120	28	—	16	—	2
		17	34	Mono Block	R	**GYSR1915K00-D17**	★	19.05	15.875	125	28	—	19.05	—	3
		17	34		L	**GYSL1915K00-D17**	★	19.05	15.875	125	28	—	19.05	—	3
		17	34	Mono Block	R	**GYSR2012JX00-D17**	●	20	12	120	28	—	20	—	3
		17	34		L	**GYSL2012JX00-D17**	★	20	12	120	28	—	20	—	3
		17	34	Mono Block	R	**GYSR2020K00-D17**	★	20	20	125	35	—	20	—	2
		17	34		L	**GYSL2020K00-D17**	★	20	20	125	35	—	20	—	2
		17	34	Mono Block	R	**GYSR2525M00-D17**	★	25	25	150	40	—	25	—	2
		17	34		L	**GYSL2525M00-D17**	★	25	25	150	40	—	25	—	2
E	2.39 2.50 2.74 .094" .098" .108"	10	20	Mono Block	R	**GYSR1010JX00-E10**	●	10	10	120	17.5	17.5	10	2	1
		10	20		L	**GYSL1010JX00-E10**	★	10	10	120	17.5	17.5	10	2	1
		12	24	Mono Block	R	**GYSR1212JX00-E12**	★	12	12	120	19.5	19.5	12	2	1
		12	24		L	**GYSL1212JX00-E12**	●	12	12	120	19.5	19.5	12	2	1
		13	26	Mono Block	R	**GYSR1616JX00-E13**	★	16	16	120	25	—	16	—	2
		13	26		L	**GYSL1616JX00-E13**	★	16	16	120	25	—	16	—	2
		16	32	Mono Block	R	**GYSR1616JX00-E16**	★	16	16	120	28	—	16	—	2
		16	32		L	**GYSL1616JX00-E16**	★	16	16	120	28	—	16	—	2
		17	34	Mono Block	R	**GYSR1915K00-E17**	★	19.05	15.875	125	28	—	19.05	—	3
		17	34		L	**GYSL1915K00-E17**	★	19.05	15.875	125	28	—	19.05	—	3
		17	34	Mono Block	R	**GYSR2012JX00-E17**	★	20	12	120	28	—	20	—	3
		17	34		L	**GYSL2012JX00-E17**	★	20	12	120	28	—	20	—	3
		17	34	Mono Block	R	**GYSR2020K00-E17**	★	20	20	125	35	—	20	—	2
		17	34		L	**GYSL2020K00-E17**	★	20	20	125	35	—	20	—	2
		17	34	Mono Block	R	**GYSR2525M00-E17**	★	25	25	150	40	—	25	—	2
		17	34		L	**GYSL2525M00-E17**	★	25	25	150	40	—	25	—	2

CW = Cutting Width **CDX =** Max. Groove Depth **CUTDIA =** Max. Cut Off Diameter

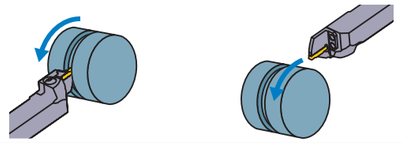
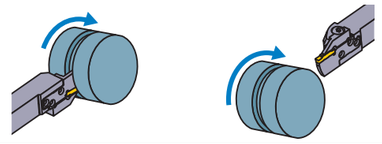
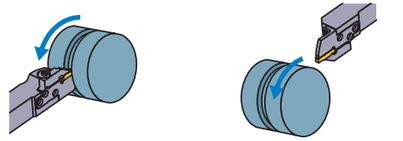
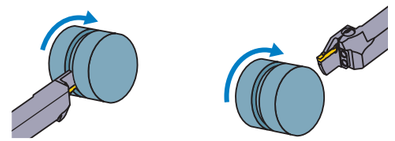
⁎1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages 14—15.
⁎2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used. The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages 14—15.
⁎3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH** and **LH 3** values may vary.
⁎4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page 14—15.

● : USA Stock ★ : Stocked in Japan

(mm)

Seat Size	CW	CDX ⁎4	CUTDIA	Type	Hand (R/L)	Order Number	Stock	Dimensions (mm) ⁎3 H	B	LF	LH	LH 3	HF	HBH	Fig.
F	3.00 3.18 3.24 .118" .125" .128"	12	24	Mono Block	R	**GYSR1212JX00-F12**	●	12	12	120	19.5	19.5	12	2	1
		12	24		L	**GYSL1212JX00-F12**	★	12	12	120	19.5	19.5	12	2	1
		13	26	Mono Block	R	**GYSR1616JX00-F13**	●	16	16	120	25	—	16	—	2
		13	26		L	**GYSL1616JX00-F13**	★	16	16	120	25	—	16	—	2
		16	32	Mono Block	R	**GYSR1616JX00-F16**	●	16	16	120	28	—	16	—	2
		16	32		L	**GYSL1616JX00-F16**	●	16	16	120	28	—	16	—	2
		17	34	Mono Block	R	**GYSR1915K00-F17**	★	19.05	15.875	125	28	—	19.05	—	3
		17	34		L	**GYSL1915K00-F17**	★	19.05	15.875	125	28	—	19.05	—	3
		17	34	Mono Block	R	**GYSR2012JX00-F17**	★	20	12	120	28	—	20	—	3
		17	34		L	**GYSL2012JX00-F17**	★	20	12	120	28	—	20	—	3

Cutting Mode

	Clockwise	Anticlockwise
R		
L		

Insert Selection

Seat Size	Insert Type
C	GY○○0150C○○○○–Breaker shown below
D	GY○○0200/0224D○○○○–Breaker shown below
E	GY○○0239/0250/0274E○○○○–Breaker shown below
F	GY○○0300/0318/0324F○○○○–Breaker shown below

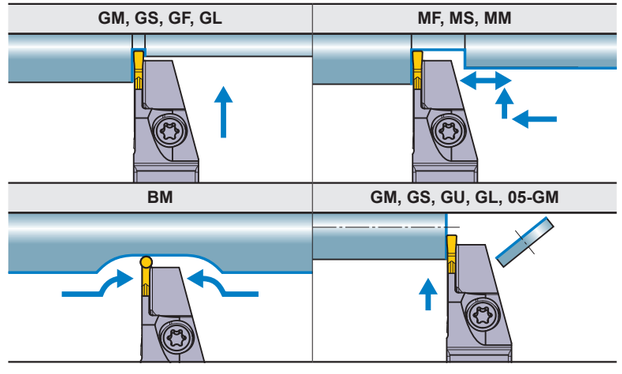
For grooving/cutting off breaker

Seat Size	Breaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	With hand	Neutral
C	.059", 1.50 mm		●	●			
D	.079", 2.00 mm	●	●	●	●	●	●
E	.094", 2.39 mm	●	●	●			●
	.098", 2.50 mm	●	●	●	●	●	●
F	.118", 3.00 mm	●	●	●	●	●	●
	.125", 3.18 mm	●	●	●			●

For multifunctional grooving breaker

Seat Size	Breaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying) Ball shape
C	.059", 1.50 mm				
D	.079", 2.00 mm	●	●	●	●
	.088", 2.24 mm	●			
E	.094", 2.39 mm	●			
	.098", 2.50 mm	●	●	●	●
	.108", 2.74 mm	●			
F	.118", 3.00 mm				●
	RE .008", 0.2 mm	●	●	●	
	RE .016", 0.4 mm	●	●	●	
	RE .031", 0.8 mm			●	
	.125", 3.18 mm				●
	RE .008", 0.2 mm	●			
	RE .016", 0.4 mm	●			
	.128", 3.24 mm	●			

● : Standard insert with dimensions



GW SERIES (External for Swiss-type Automatic Lathes)

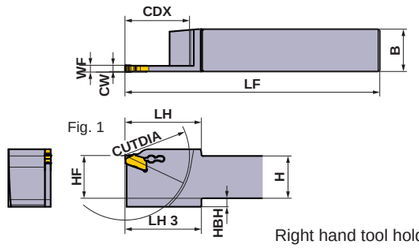


Fig. 1

Right hand tool holder shown.

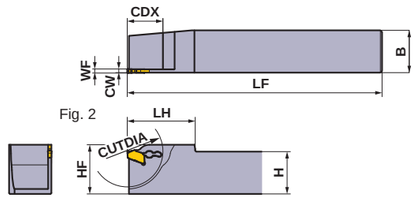


Fig. 2

Right hand tool holder shown.

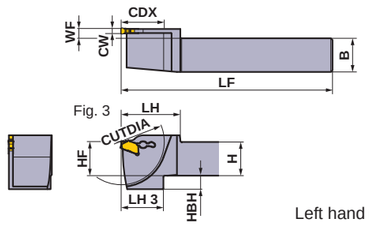


Fig. 3

Left hand tool holder shown.

Spare Parts

Wrench
GWY39L

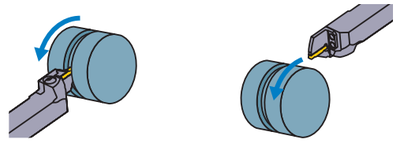
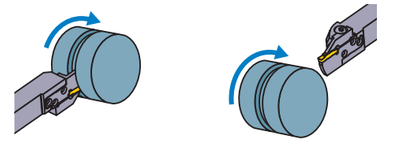
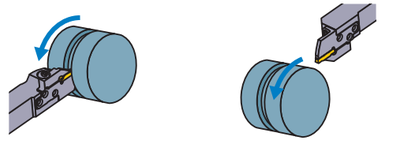
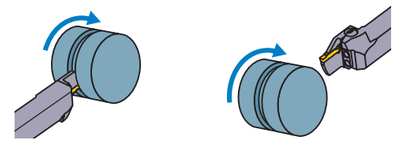
(mm)

Seat Size	CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number	Stock	Dimensions (mm) H	B	LF	LH	LH 3	HF	WF	HBH	Fig.
D	2.00 .079"	19	38	Mono Block	R	GWSR1616JX00-D38	★	16	16	120	30	30	16	0.3	6	1
		19	38		L	GWSL1616JX00-D38	★	16	16	120	30	30	16	0.3	6	1
		19	38	Mono Block	R	GWSR1915K00-D38	★	19.05	15.875	125	35	35	19.05	0.3	3	1
		19	38		L	GWSL1915K00-D38	★	19.05	15.875	125	35	35	19.05	0.3	3	1
		21	42	Mono Block	R	GWSR2020K00-D42	★	20	20	125	35	25	20	0.3	4	1
		21	42		L	GWSL2020K00-D42	★	20	20	125	35	25	20	0.3	4	1
		21	42	Mono Block	R	GWSR2012K00-D42	★	20	12	125	35	25	20	0.3	4	1
		21	42		L	GWSL2012K00-D42	★	20	12	125	35	25	20	0.3	4	1
		21	42	Mono Block	R	GWSR2525M00-D42	★	25	25	150	40	—	25	0.3	—	2
		21	42		L	GWSL2525M00-D42	★	25	25	150	40	—	25	0.3	—	2
E	2.39 .094"	19	38	Mono Block	R	GWSR1915K00-E38	★	19.05	15.875	125	35	35	19.05	0.2	3	1
		19	38		L	GWSL1915K00-E38	★	19.05	15.875	125	35	35	19.05	0.2	3	1
		21	42	Mono Block	R	GWSR2020K00-E42	★	20	20	125	35	25	20	0.2	4	1
		21	42		L	GWSL2020K00-E42	★	20	20	125	35	25	20	0.2	4	1
		21	42	Mono Block	L	GWSL2020K00-E42-M	★	20	20	125	35	25	20	5.7	8	3
		21	42	Mono Block	R	GWSR2012K00-E42	★	20	12	125	35	25	20	0.2	4	1
		21	42		L	GWSL2012K00-E42	★	20	12	125	35	25	20	0.2	4	1
		21	42	Mono Block	R	GWSR2525M00-E42	★	25	25	150	40	—	25	0.2	—	2
		21	42		L	GWSL2525M00-E42	★	25	25	150	40	—	25	0.2	—	2
F	3.00 .118"	19	38	Mono Block	R	GWSR1915K00-F38	●	19.05	15.875	125	35	35	19.05	0.3	3	1
		19	38		L	GWSL1915K00-F38	●	19.05	15.875	125	35	35	19.05	0.3	3	1
		21	42	Mono Block	R	GWSR2012K00-F42	●	20	12	125	35	25	20	0.3	4	1
		21	42		L	GWSL2012K00-F42	●	20	12	125	35	25	20	0.3	4	1
		21	42	Mono Block	R	GWSR2020K00-F42	●	20	20	125	35	25	20	0.3	4	1
		21	42		L	GWSL2020K00-F42	●	20	20	125	35	25	20	0.3	4	1
		21	42	Mono Block	L	GWSL2020K00-F42-M	●	20	20	125	35	25	20	5.8	8	3
		25.5	51	Mono Block	R	GWSR2020K00-F51	●	20	20	125	35	25	20	0.3	8	1
		25.5	51		L	GWSL2020K00-F51	●	20	20	125	35	25	20	0.3	8	1
		25.5	51	Mono Block	L	GWSL2020K00-F51-M	●	20	20	125	35	25	20	5.8	8	3
		25.5	51	Mono Block	R	GWSR2525M00-F51	●	25	25	150	40	40	25	0.3	3	1
		25.5	51		L	GWSL2525M00-F51	●	25	25	150	40	40	25	0.3	3	1
		32.5	65	Mono Block	R	GWSR2020M00-F65	●	20	20	150	40	33	20	0.3	10	1
		32.5	65		L	GWSL2020M00-F65	●	20	20	150	40	33	20	0.3	10	1
		38	76	Mono Block	R	GWSR2525M00-F76	●	25	25	150	45	45	25	0.3	5	1
		38	76		L	GWSL2525M00-F76	●	25	25	150	45	45	25	0.3	5	1
G	4.00	38	76	Mono Block	R	GWSR2525M00-G76	★	25	25	150	45	45	25	0.4	5	1
		38	76		L	GWSL2525M00-G76	★	25	25	150	45	45	25	0.4	5	1

CW = Cutting Width **CDX =** Max. Groove Depth **CUTDIA =** Max. Cut Off Diameter

● : USA Stock ★ : Stocked in Japan

Cutting Mode

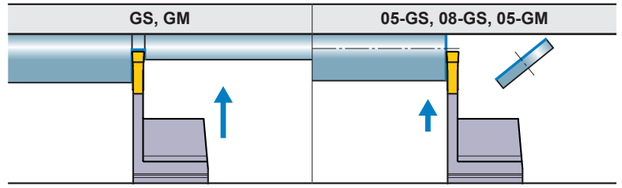
	Clockwise	Anticlockwise
R		
L		

Insert Selection

Seat Size	Insert Type
D	GW1M0200D
E	GW1M0239E
F	GW1M0300F
G	GW1M0400G

For grooving/cutting off breaker						
Seat Size	Breaker / CW	GS (Low)	GM (Medium)	05-GS (Low)	08-GS (Low)	05-GM (Cutting off)
		Neutral	Neutral	With hand	With hand	With hand
D	.079", 2.00 mm	●	●	●	●	●
E	.094", 2.39 mm	●	●	●	●	●
F	.118", 3.00 mm	●	●	●	●	●
G	.157", 4.00 mm	●	●			●

● : Standard insert with dimensions



Proper Use of GW Series Right Hand Inserts

First Recommended

Improved Fracture Resistance

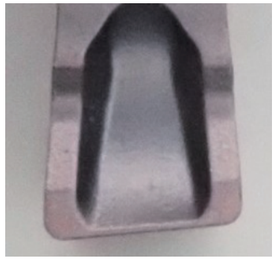
GM Breaker
PSIRR=5°
RE=.008", 0.2 mm

Reduction of Burrs and Core Residue

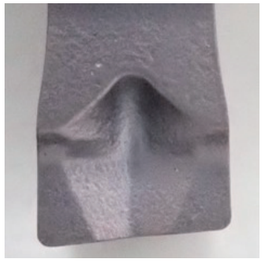
GS Breaker
PSIRR=5°
RE=.008", 0.2 mm

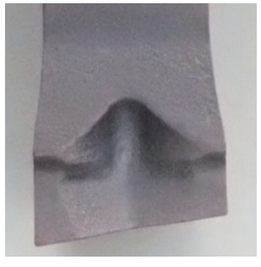
GS Breaker
PSIRR=8°
RE=.001", 0.03 mm

Reduction of Cutting Resistance



Improved Fracture Resistance





Recommended Cutting Speed [For External Grooving / Cutting Off]

	Workpiece Material	Properties	Grade	Cutting Speed **vc** (SFM) 165 330 490 655 820 985
P	Mild Steels	Hardness ≤160HB	VP20RT	330 – 720
			VP10RT	360 – 755
			NX2525	295 – 690
	Carbon Steels Alloy Steels	Hardness 160–280HB	VP20RT	260 – 590
			VP10RT	295 – 620
			MY5015	360 – 820
			NX2525	230 – 560
		Hardness 280HB≤	VP20RT	195 – 460
			VP10RT	230 – 490
			MY5015	295 – 690
			NX2525	180 – 440
M	Stainless Steels	Hardness ≤270HB	VP20RT	195 – 460
			VP10RT	230 – 490
K	Gray Cast Irons	Tensile Strength ≤300MPa	VP20RT	260 – 590
			VP10RT	295 – 620
			MY5015	460 – 985
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	195 – 460
			VP10RT	230 – 490
			MY5015	295 – 690
S	Heat Resistant Alloys Titanium Alloys	–	MP9015	130 – 330
			MP9025	100 – 295
			VP20RT	100 – 195
			VP10RT/ RT9010	130 – 230
H	Hardened Steels	50HRC≤	BC8110/MB8025	260 – 395

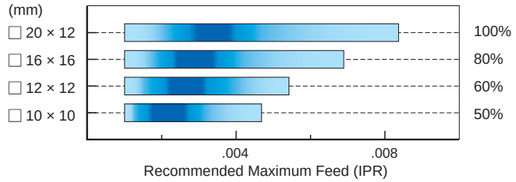
Note 1) For MP9015, MP9025, VP10RT, VP20RT and MY5015, wet cutting is recommended.

	Workpiece Material	Properties	Grade	Cutting Speed **vc** (SFM) 165 330 655 985 1310 1640
N	Aluminum Alloys	Content Si<5%	RT9010	655 – 1640
	Aluminum Alloys	Content 5%≤Si≤10%	RT9010	655 – 1640
	Aluminum Alloys	Content Si>10%	RT9010	330 – 655

RECOMMENDED CUTTING CONDITIONS [For External Grooving / Cutting Off]

Recommended cutting conditions when combining a GYHR/L2525M00/90-M24R/L modular holder and GYM25R/LA-○○○ modular blade.

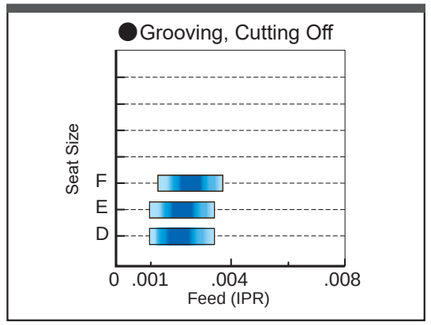
■ In the case of mono block type holder for Swiss style lathes



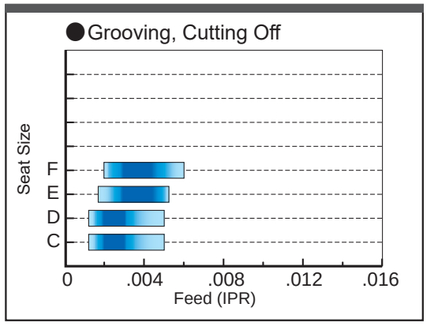
Please refer to the tables above on recommended cutting conditions for external grooving and cutting off.
Apply the percentage ratio shown on each shank size with the values in the table.

■ Recommended feed rate and depth of cut

GU BREAKER

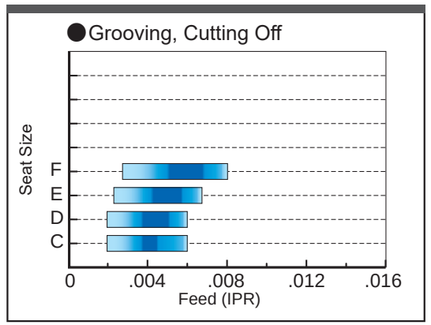


GS BREAKER

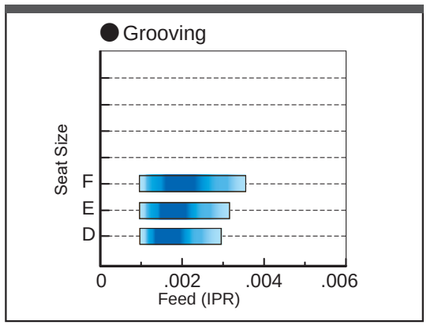


Seat Size	Insert Width
C	.059", 1.50 mm
D	.079", 2.00 mm .088", 2.24 mm
E	.094", 2.39 mm .098", 2.50 mm .108", 2.74 mm
F	.118", 3.00 mm .125", 3.18 mm .128", 3.24 mm

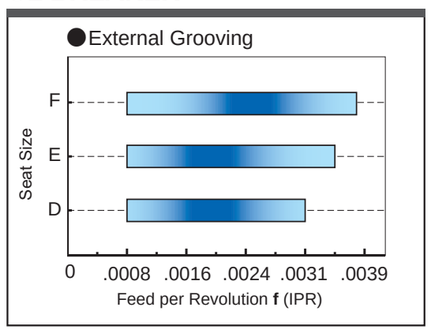
GM BREAKER



FLAT TOP GFGS (CBN)

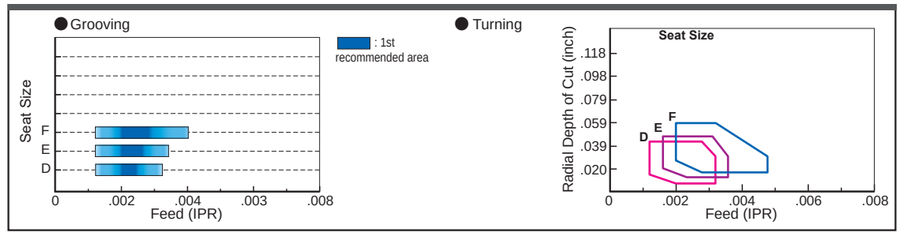


GL BREAKER



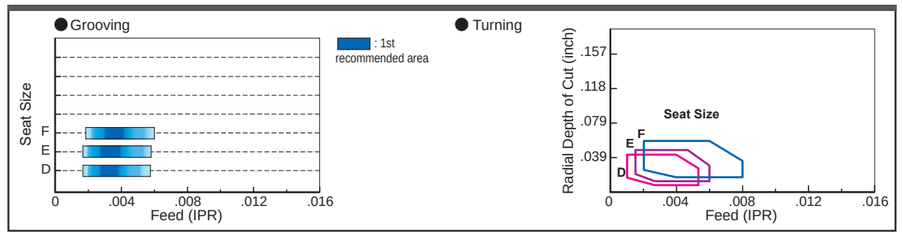
: 1st recommended area

MF BREAKER

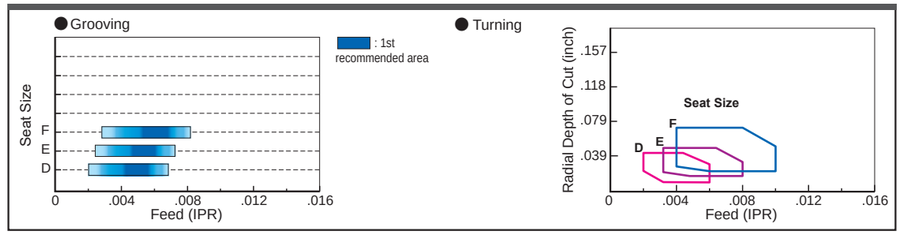


Seat Size	Insert Width
C	.059", 1.50 mm
D	.079", 2.00 mm .088", 2.24 mm
E	.094", 2.39 mm .098", 2.50 mm .108", 2.74 mm
F	.118", 3.00 mm .125", 3.18 mm .128", 3.24 mm

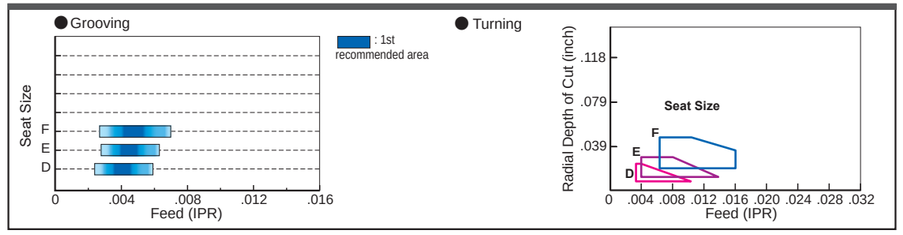
MS BREAKER



MM BREAKER



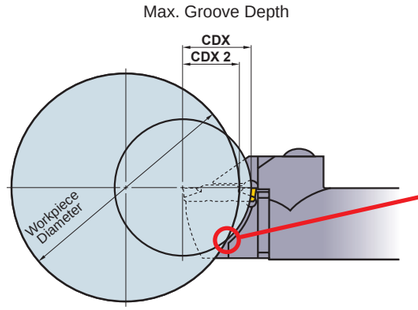
BM BREAKER

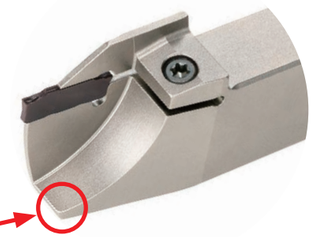


LIMITATION OF THE MAXIMUM GROOVE DEPTH [For External Grooving]

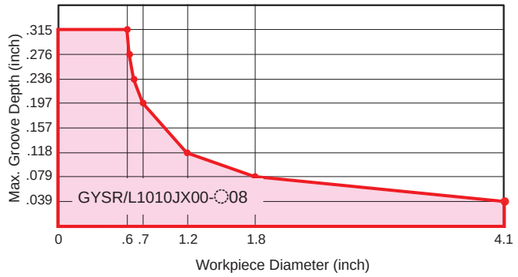
●In The Case of Mono Block Type Holder for Swiss-style Lathes

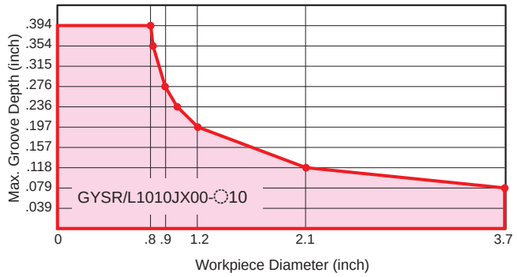
The maximum groove depth is limited by the workpiece diameter.

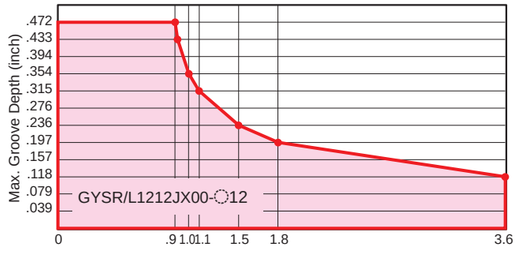


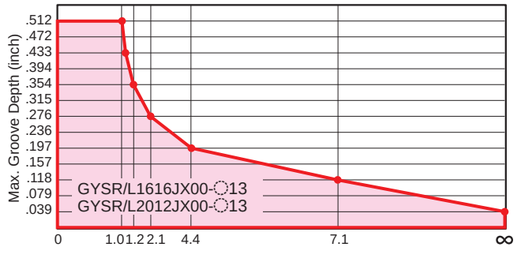


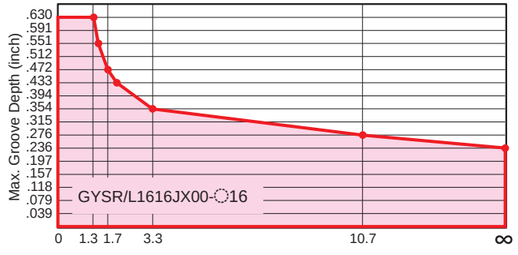
Due to interference, the maximum groove depth is limited by the workpiece diameter.

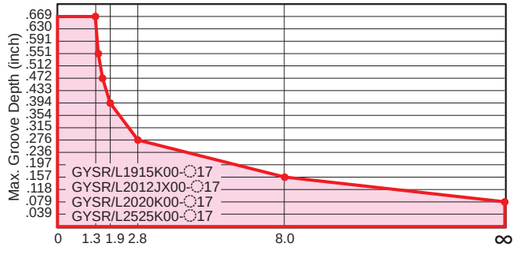












GW Series

Recommended Cutting Conditions

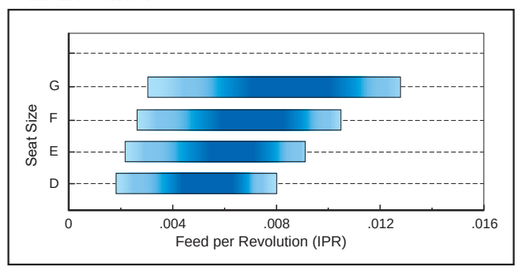
■ Cutting Speed

	Work Material	Properties	Grade	Cutting Speed **vc** (SFM) 165 330 490 655 820 985
P	Mild Steels	Hardness ≤160HB	VP20RT	330 – 785
			VP10RT	360 – 820
	Carbon Steels Alloy Steels	Hardness 160–280HB	VP20RT	260 – 655
			VP10RT	295 – 690
			VP30RT	195 – 590
			MY5015	360 – 820
		Hardness ≥280HB	VP20RT	195 – 525
			VP10RT	230 – 560
			VP30RT	130 – 460
			MY5015	295 – 690
M	Stainless Steels	Hardness ≤270HB	VP20RT	195 – 590
			VP10RT	230 – 620
			VP30RT	130 – 525
K	Gray Cast Irons	Tensile Strength ≤300MPa	VP20RT	260 – 655
			VP10RT	295 – 690
			MY5015	460 – 985
	Ductile Cast Irons	Tensile Strength ≤800MPa	VP20RT	195 – 525
			VP10RT	230 – 560
			MY5015	295 – 690
S	Heat Resistant Alloys Titanium Alloys	–	VP20RT	100 195
			VP10RT	130 230

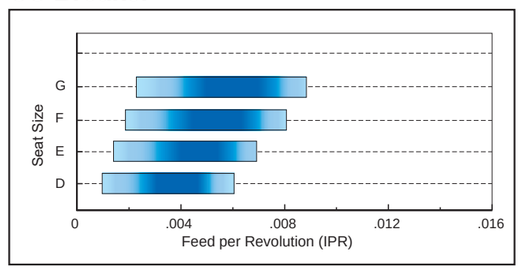
Note 1) VP20RT is the first recommended grade for materials.
Note 2) For VP10RT, VP20RT, VP30RT and MY5015, wet cutting is recommended.

■ Feed per Revolution

GM Breaker



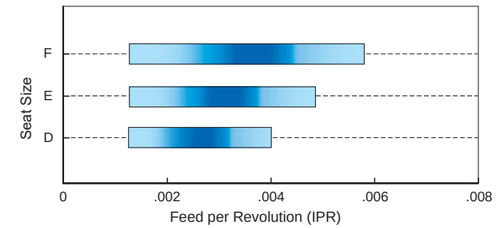
GS Breaker



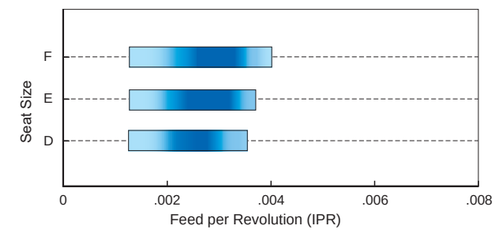
Chip Breaker	Feed per Revolution (IPR)			
	Seat Size D	Seat Size E	Seat Size F	Seat Size G
GM Breaker	.0020 – .0079	.0024 – .0091	.0028 – .0102	.0031 – .0126
GS Breaker	.0012 – .0059	.0016 – .0067	.0020 – .0079	.0024 – .0087

Cutting Off Feed per Revolution

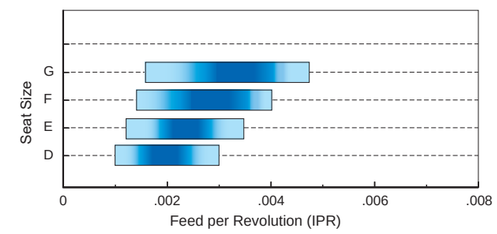
R05-GS Breaker



R08-GS Breaker



R/L05-GM Breaker

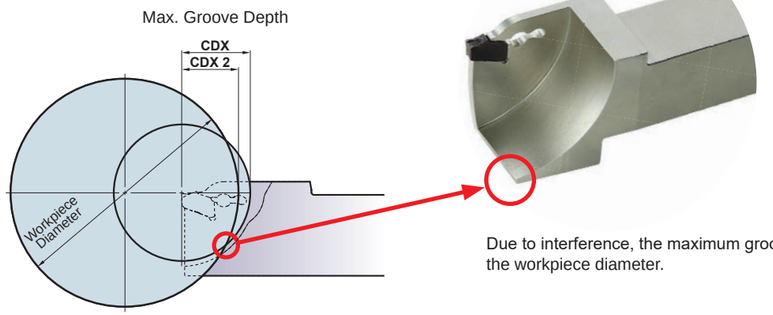


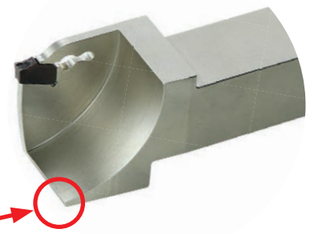
Chip Breaker	PSIPR	Hand	Feed per Revolution (IPR)			
			Seat Size D	Seat Size E	Seat Size F	Seat Size G
R05-GS	5°	R	.0012 – .0039	.0012 – .0047	.0012 – .0055	–
R08-GS	8°	R	.0012 – .0031	.0012 – .0035	.0012 – .0055	–
R05-GM	5°	R/L	.0020 – .0059	.0024 – .0067	.0028 – .0079	.0031 – .0091

LIMITATION OF THE MAXIMUM GROOVE DEPTH [For External Grooving]

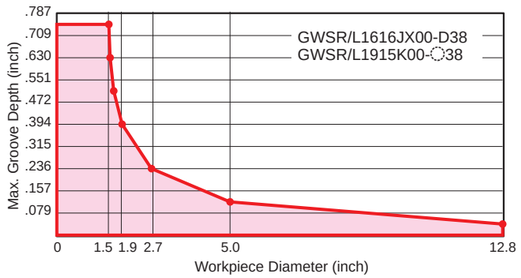
•In The Case of Mono Block Type Holder for Swiss-style Lathes

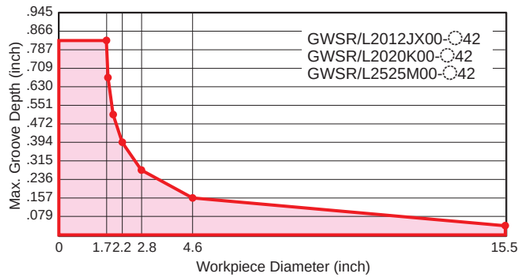
The maximum groove depth is limited by the workpiece diameter.

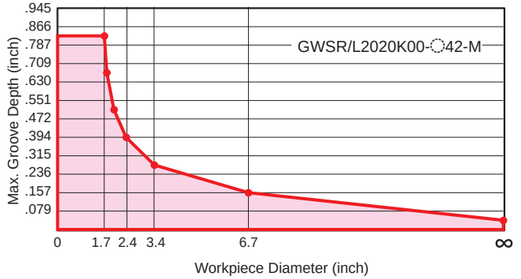


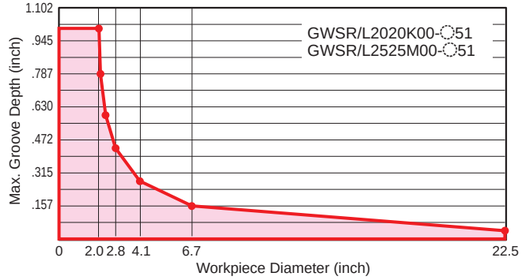


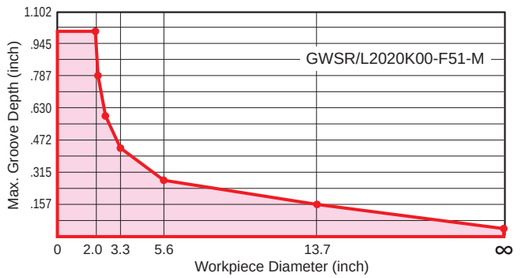
Due to interference, the maximum groove depth is limited by the workpiece diameter.

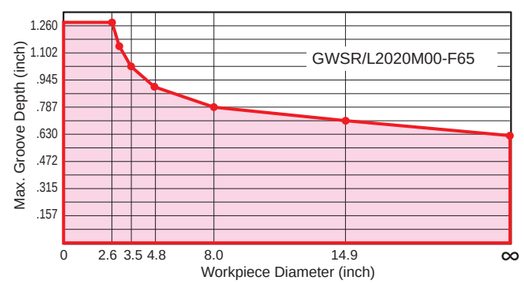


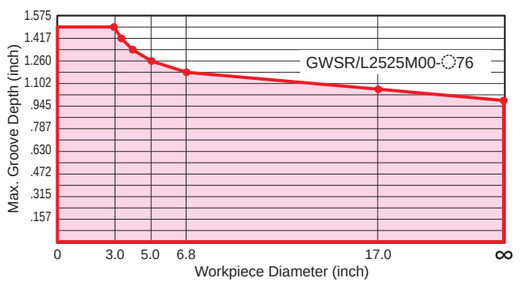












Cutting Off & Grooving System

C009A 2019-2020

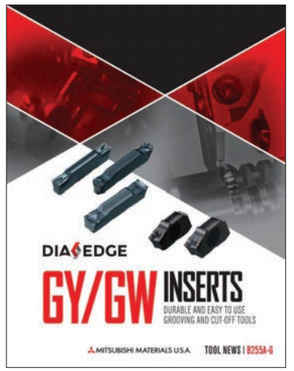
General Catalog

B225A TOOL NEWS

GW Series

B255A-G TOOL NEWS

GY/GW Insert



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- 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.

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