

Grooving System

GY/GW Series



Insert
Expansion

GY Series Chip Breaker for Aluminium Alloys

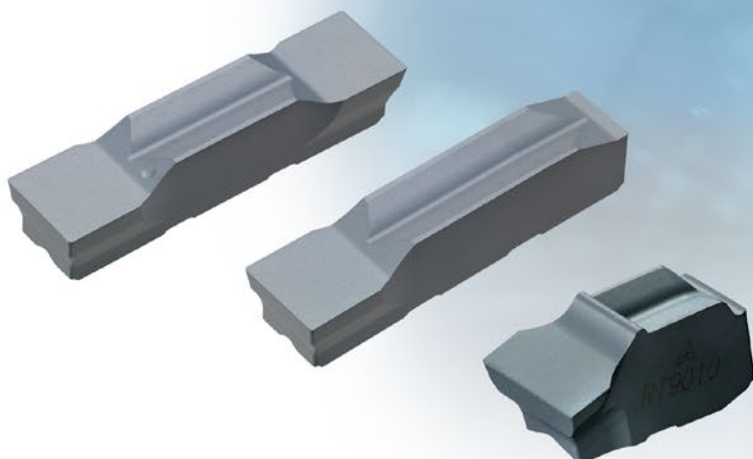
GL Breaker



Sharp Edge
Low Cutting Resistance
Ideal for Cut Off Small Diameter

GY/GW Series

Blank Insert



GY Series Chip Breaker for Aluminium Alloys

GL Breaker

Excellent Chip Control and Welding Resistance

Features

G Class Breaker

Improved chip control by narrowing the breaker width

High Rake Angle

Achieve low cutting resistance

Sharp Edge

Improved welding resistance for aluminium alloys



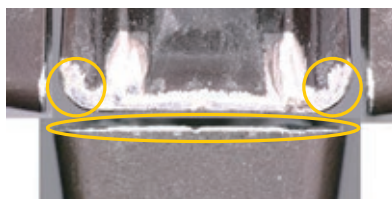
Cutting Performance

Grooving comparison of A5052 material

Enhance finishing surface due to suppressed vibration and reduced welding.



GL Braker

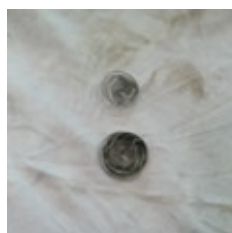


Conventional Large Welding

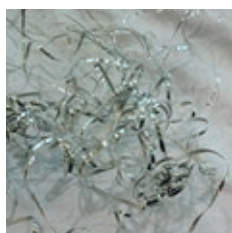
<Cutting Conditions>
Workpiece Material : A5052
Groove Width : CW=3mm
Cutting Methods : Grooving
Cutting Speed : vc=150m/min
Feed per Rev. : f=0.1mm
Depth of Cut : ap=0.2mm
Cutting Mode : Wet Cutting
Machine : Vertical Lathe

Chip comparison at grooving process of A5056 material

Good chip control leading to excellent bottom surface.



GL Braker



Conventional

<Cutting Conditions>
Workpiece Material : A5056
Groove Width : CW=2mm
Cutting Methods : Grooving
Cutting Speed : vc=300-450m/min
Feed per Rev. : f=0.10-0.12mm
Cutting Mode : Wet Cutting
Machine : Composite Lathe

Inserts

(mm)

Applications	Geometry	Order Number	Carbide		CW		RER/L	CDX	L
			RT9010	Seat Size	Groove Width	Tolerance			
For Grooving / Cutting Off	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

L Dimension Tolerance Conversion Table

(mm)

CW	Standard * Dimensions	Dimension Difference with Standard Dimension L	
		GL	
2.00	20.7	0.35	
2.50	20.7	0.35	
3.00	20.7	0.35	

*Holder dimension shows standard dimensions.

Recommended Cutting Conditions

External Grooving

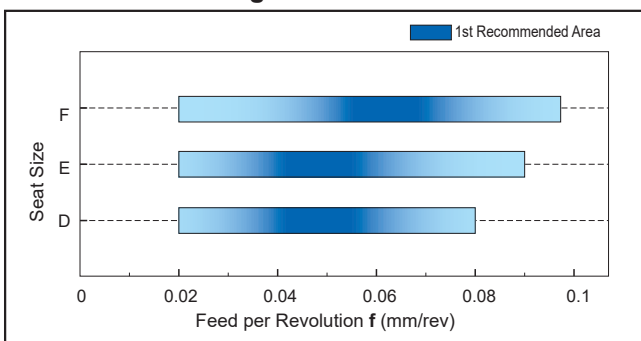
Workpiece Material	Properties	Grade	Cutting Speed v_c (m/min)							
			50	100	200	300	400	500		
N	Aluminium Alloys (A6061, 7075)	Content Si < 5%				200				500
	Aluminium Alloys (AC4B)	Content 5% ≤ Si ≤ 10%				200				500
	Aluminium Alloys (ADC12, A390)	Content Si > 10%			100	200				

Internal Grooving

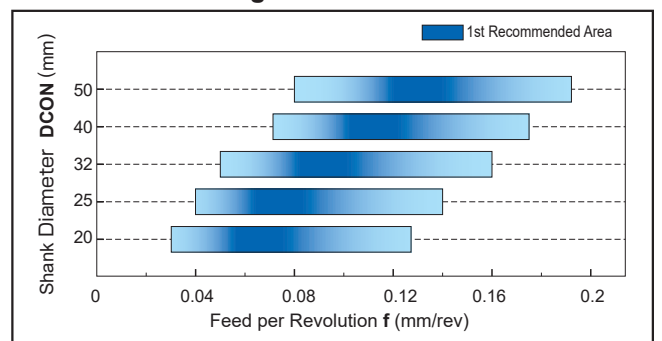
Workpiece Material	Properties	Grade	Cutting Speed v_c (m/min)						
			50	100	200	300	400	500	
N	Aluminium Alloys (A6061, 7075)	Content Si < 5%			150		400		
	Aluminium Alloys (AC4B)	Content 5% ≤ Si ≤ 10%			150		400		
	Aluminium Alloys (ADC12, A390)	Content Si > 10%			80	160			

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

External Grooving



Internal Grooving

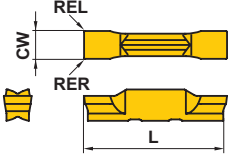
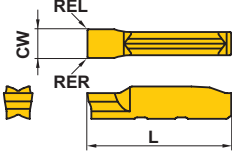


● : Inventory maintained in Japan. (10 inserts in one case)

Blank Inserts


GY Series

(mm)

Geometry	Order Number	Cermet			Carbide		Seat Size	CW		RER	REL	L
		NX2525	RT9010	RT9020	Grooving Width	Tolerance						
2 Edge Type 	● GY2B0220D020N	●	●	●	D	2.20	±0.10	0.2	0.2	21.05		
	NEW GY2B0250D020N	●	●	●	D	2.55	±0.10	0.2	0.2	21.28		
	● GY2B0270E020N	●	●	●	E	2.70	±0.10	0.2	0.2	21.05		
	NEW GY2B0300E020N	●	●	●	E	3.05	±0.10	0.2	0.2	21.28		
	● GY2B0340F020N	●	●	●	F	3.40	±0.10	0.2	0.2	21.05		
	NEW GY2B0360F020N	●	●	●	F	3.65	±0.10	0.2	0.2	21.28		
	● GY2B0420G020N	●	●	●	G	4.20	±0.10	0.2	0.2	26.00		
	NEW GY2B0460G020N	●	●	●	G	4.65	±0.10	0.2	0.2	26.18		
	● GY2B0520H020N	●	●	●	H	5.20	±0.10	0.2	0.2	26.00		
	NEW GY2B0560H020N	●	●	●	H	5.65	±0.10	0.2	0.2	26.18		
	● GY2B0655J020N	●	●	●	J	6.55	±0.10	0.2	0.2	26.03		
NEW GY2B0680J020N	●	●	●	J	6.85	±0.10	0.2	0.2	26.18			
NEW 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		

GW Series

(mm)

Geometry	Order Number	Carbide		CW		RER	REL
		RT9010	RT9020	Grooving Width	Tolerance		
1 Edge Type 	NEW GY1B0320D020N	●	●	3.24	±0.10	0.2	0.2
	NEW GY1B0440F020N	●	●	4.44	±0.10	0.2	0.2
	NEW GY1B0540G020N	●	●	5.44	±0.10	0.2	0.2
	NEW GY1B0640H020N	●	●	6.44	±0.10	0.2	0.2

Note 1) Blank inserts to be ground by customers.

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

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

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

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