

NEW

TRIFORCE-SYSTEM

B140E

INNOVATIONS MAKE THE DIFFERENCE

BETWEEN CONVENTIONAL GROOVING
AND THE NEW TRIFORCE-SYSTEM.

1

UNSURPASSED STABILITY

Provided by the ultimate in clamping strength – TriForce.

2

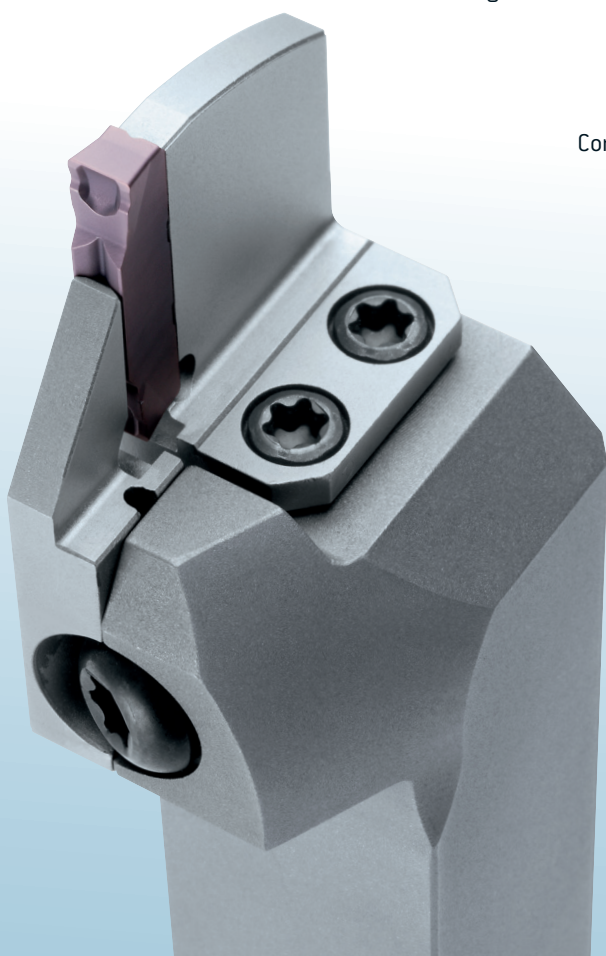
MAXIMUM MODULARITY

Interchangeable blades and holders for reduced tool inventory.

3

OPTIMUM PRODUCTIVITY

Complete range of inserts for efficient grooving and multi-functional turning.



PRECISION
FOR SUCCESS

CHOOSE JAPAN'S NO. 1

MITSUBISHI
MITSUBISHI MATERIALS

www.mitsubishicarbide.com

GY series offers ultimate rigidity and accuracy for stability when grooving.

Easy to use modular blade system allows flexible tool management but maintains an overall strength comparable to a mono block type holder.

New TriForce System for increased stability and performance!

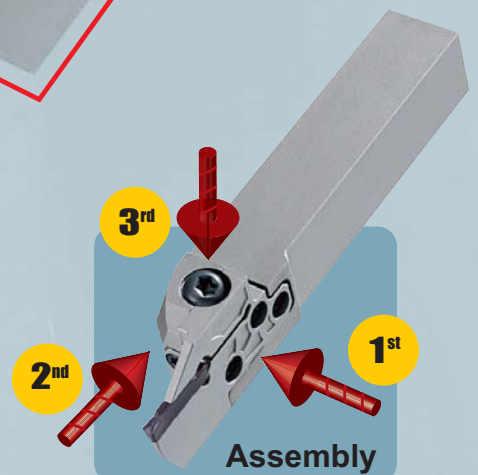
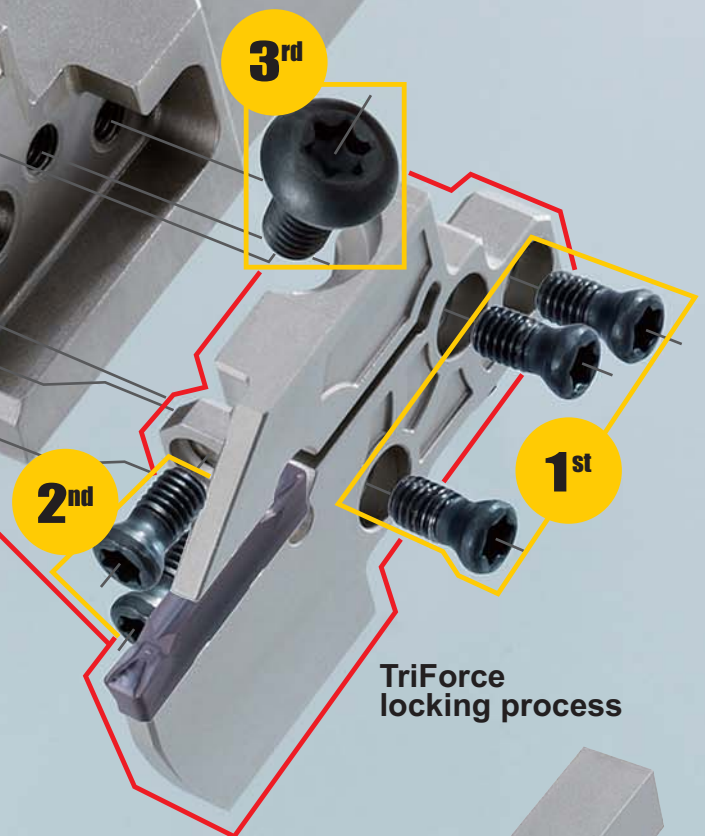
● Innovative TriForce System

Mitsubishi Materials has developed an original and unique, new modular blade system.

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

● Outstanding compatibility

One tool holder can be used with several different blades, offering a versatile modular system and improved tool management.



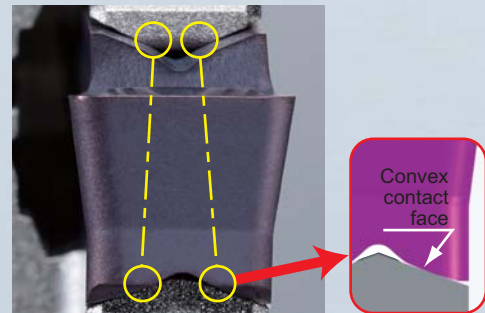
Original insert design leading the way to new grooving applications !

● Highly reliable insert clamping

- Safety keys prevent insert movement.



- The convex geometry ensures high precision clamping.



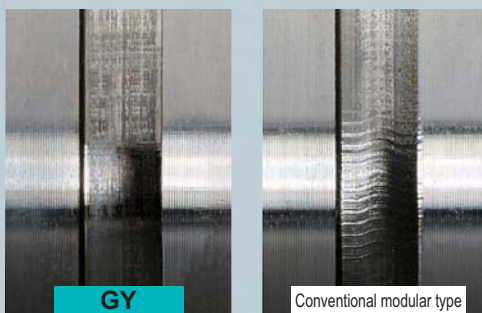
● High accuracy, long life inserts for a wide variety of machining applications

- In comparison with conventional products, the GY series gives a balance of high accuracy and sharpness.
- Excellent chip disposal for both grooving and turning.
- CBN grade MB8025 for finishing of hardened steels.

	Grooving		Multifunctional Grooving		Copying	Cutting Off	
	GM breaker	GFGS (CBN)	(Low feeds) MS breaker	(Medium feeds) MM breaker	BM breaker	GM breaker	R/L05-GM breaker
Shape							
Cutting Mode							

■ Machining comparison

In comparison with conventional modular types, vibration and insert movement are eliminated resulting in higher quality surface finishes.



<Cutting conditions>

Workpiece : DIN 41CrMo4

Insert width : 5mm

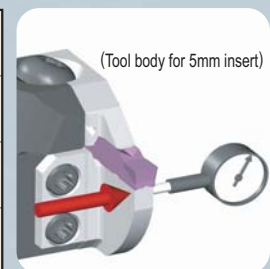
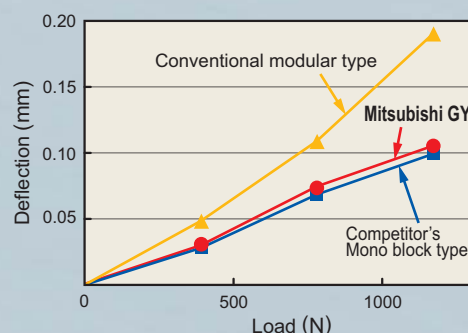
Cutting speed: 150m/min

Feed : 0.2mm/rev

Groove depth: 23mm

■ Rigidity comparison

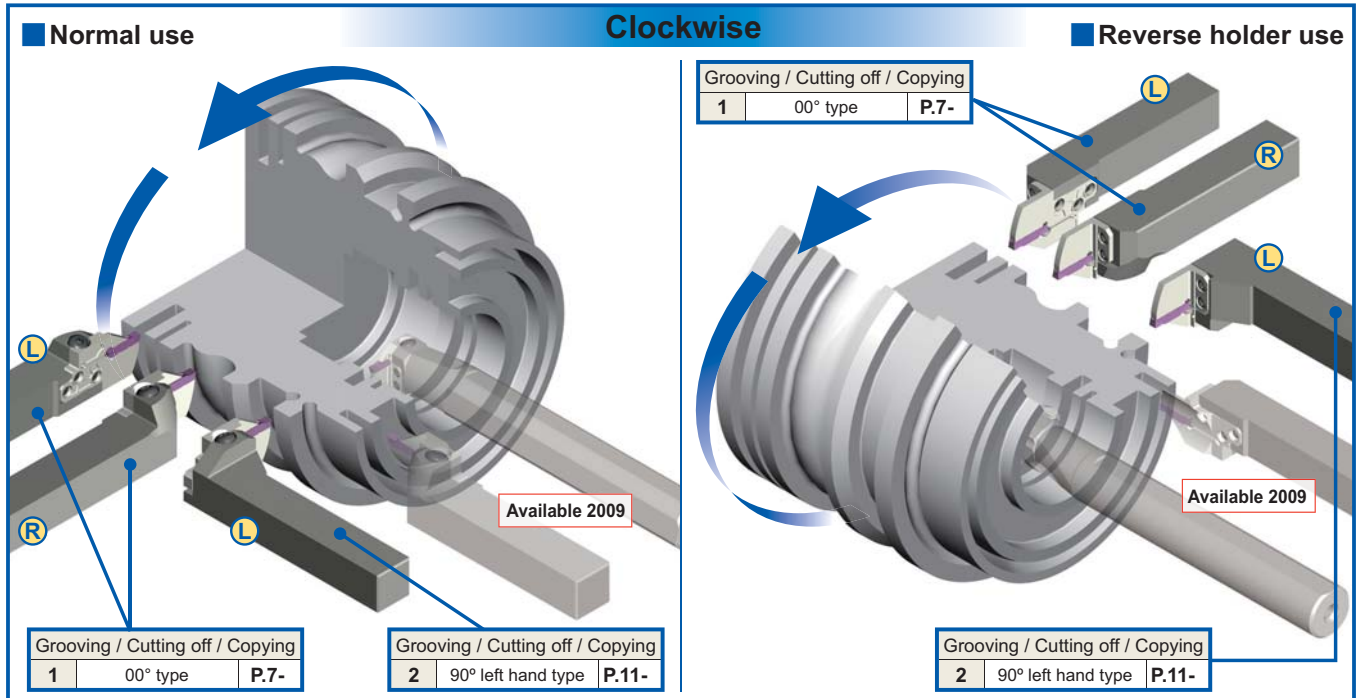
The GY series provides rigidity comparable to a mono block type grooving tool.



HOW TO SELECT GY SERIES

STEP 1 SELECT AN APPLICATION

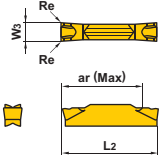
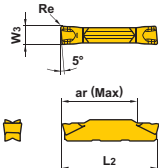
1 Select the application and the direction of the workpiece rotation.

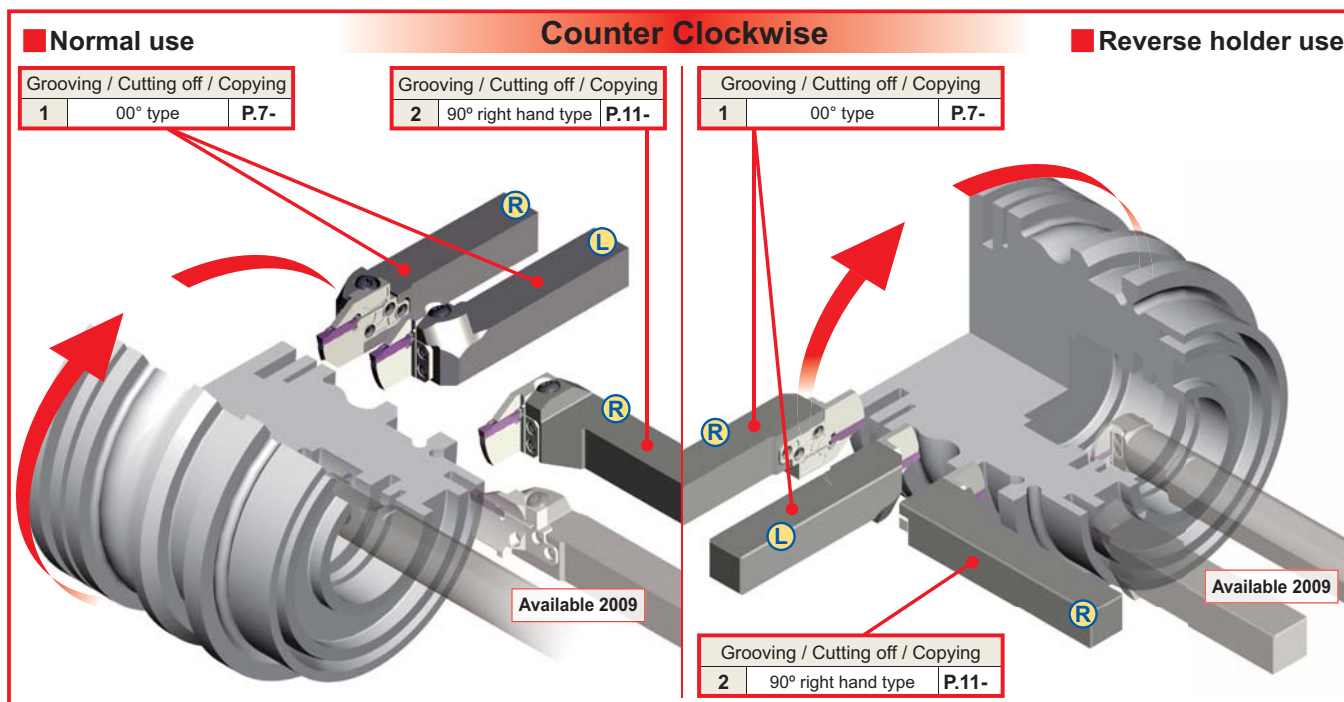


STEP 2 SELECT AN INSERT

1 Select an insert suitable for the application, then select the corresponding seat size.

* Seat size refers to the seat width of the modular blade.

Inserts											
Applications	Geometry	Order Number	Stock			Seat Size	Dimensions (mm)				
			Coated	CBN	MB8025		W3		Re	ar (Max.)	L2
							Grooving Width	Tolerance			
For Grooving / Cutting off	GM Breaker 	GY2M0200D020N-GM	●	●		D	2.00	±0.03	0.2	19.4	20.70
		0239E020N-GM	●	●		E	2.39	±0.03	0.2	19.4	20.70
		0250E020N-GM	●	●		E	2.50	±0.03	0.2	19.4	20.70
		0300F030N-GM	●	●		F	3.00	±0.03	0.3	19.4	20.70
		0318F030N-GM	●	●		F	3.18	±0.03	0.3	19.4	20.70
		0400G030N-GM	●	●		G	4.00	±0.04	0.3	24.4	25.65
		0475H040N-GM	●	●		H	4.75	±0.04	0.4	24.3	25.65
		0500H040N-GM	●	●		H	5.00	±0.04	0.4	24.3	25.65
		0600J040N-GM	●	●		J	6.00	±0.04	0.4	24.3	25.65
		0635J040N-GM	●	●		J	6.35	±0.04	0.4	24.3	25.65
For Cutting off	R/L05-GM Breaker  Right hand insert shown.	GY2M0200D020R05-GM	●	●		D	2.00	±0.03	0.2	19.5	20.80
		0200D020L05-GM	●	●		D	2.00	±0.03	0.2	19.5	20.80
		0250E020R05-GM	●	●		E	2.50	±0.03	0.2	19.5	20.825
		0250E020L05-GM	●	●		E	2.50	±0.03	0.2	19.5	20.825
		0300F030R05-GM	●	●		F	3.00	±0.03	0.3	19.5	20.85
		0300F030L05-GM	●	●		F	3.00	±0.03	0.3	19.5	20.85
		0400G030R05-GM	●	●		G	4.00	±0.04	0.3	24.5	25.85
		0400G030L05-GM	●	●		G	4.00	±0.04	0.3	24.5	25.85
		0500H040R05-GM	●	●		H	5.00	±0.04	0.4	24.5	25.95
		0500H040L05-GM	●	●		H	5.00	±0.04	0.4	24.5	25.95
MS Breaker (Low feeds) 	GY2M0300F020N-MS	●	●		F	3.00	±0.03	0.2	19.2	20.70	
	0300F040N-MS	●	●		F	3.00	±0.03	0.4	18.9	20.70	



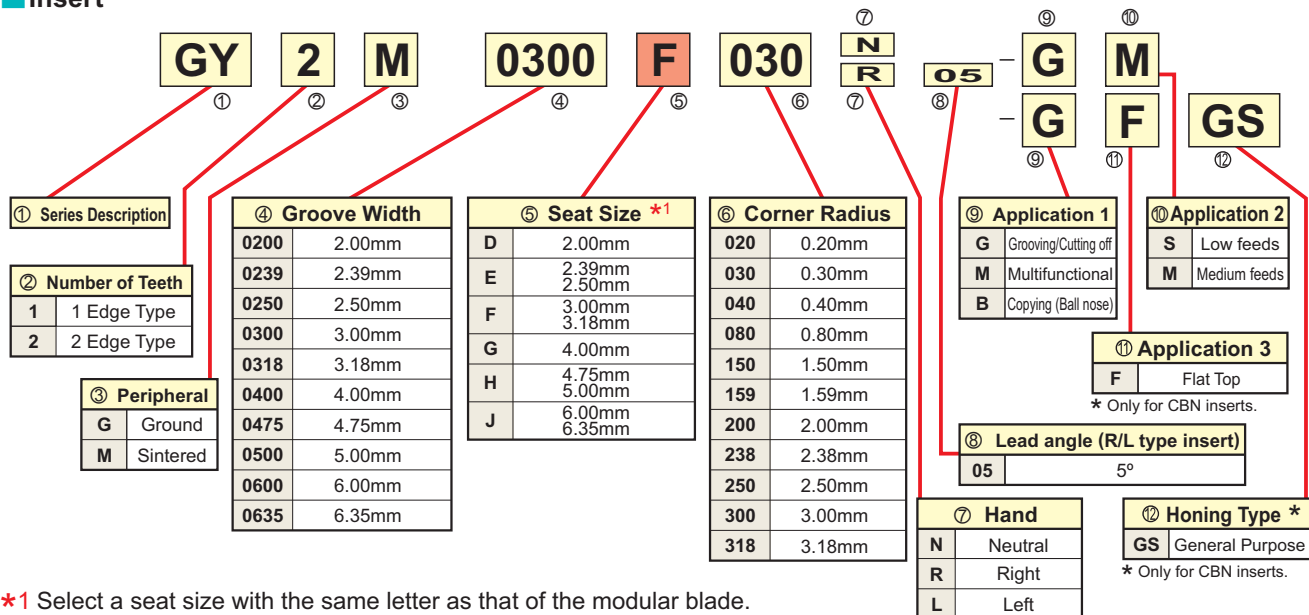
STEP 3 SELECT A MODULAR HOLDER & BLADE

- 1 Proceed to the tool holder page in STEP1, then go to the column of the seat size selected in STEP 2.
- 2 Select the hand of the tool holder.
- 3 Select a modular holder suitable for the machine.
- 4 Select the maximum groove depth.
- 5 Select the modular blade corresponding to 4.

Seat Size	Insert Width W ₃ (mm)	Hand (R/L)	Max. Groove Depth ar (mm)	Max. Cut Off Diameter D ₁ (mm)	ID	Order Number			
						Modular Blade	Stock	Modular Holder	Stock
D	2.00	R	6	12	(1E1R4D1)	GYM25RA-D06	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			12	24	(1E1R4D2)	GYM25RA-D12	●		●
			20	40	(1E1R4D3)	GYM25RA-D20	●		●
			6	12	(1G1R4D1)	GYM25RA-D06	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			12	24	(1G1R4D2)	GYM25RA-D12	●		●
			20	40	(1G1R4D3)	GYM25RA-D20	●		●
		L	6	12	(1E1L4D1)	GYM25LA-D06	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			12	24	(1E1L4D2)	GYM25LA-D12	●		●
			20	40	(1E1L4D3)	GYM25LA-D20	●		●
			6	12	(1G1L4D1)	GYM25LA-D06	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			12	24	(1G1L4D2)	GYM25LA-D12	●		●
			20	40	(1G1L4D3)	GYM25LA-D20	●		●
			6	12	(1E1R4E1)	GYM25RA-E06	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			12	24	(1E1R4E2)	GYM25RA-E12	●		●
			20	40	(1E1R4E3)	GYM25RA-F20	●		●
			6	12	(1G1R4E1)	GYM25RA-E06	●	GYHR2525M00-M25R	●

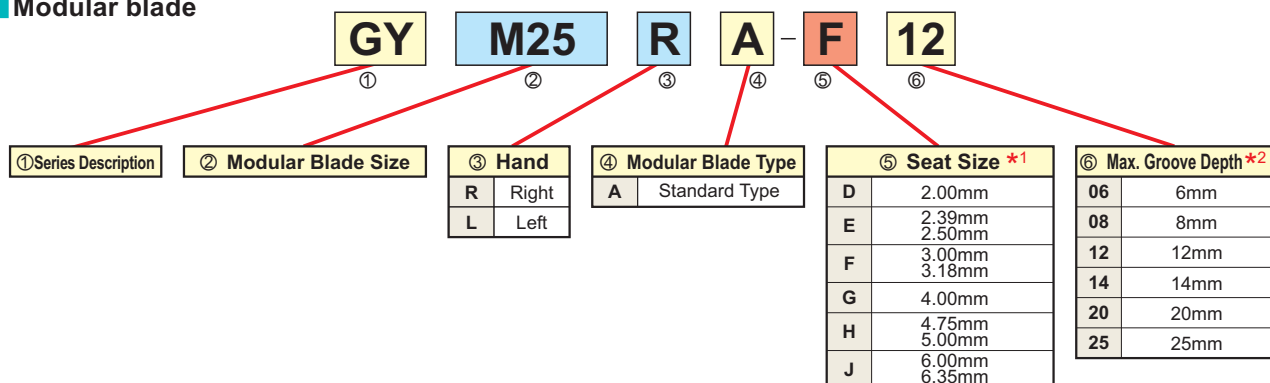
IDENTIFICATION

Insert



*1 Select a seat size with the same letter as that of the modular blade.

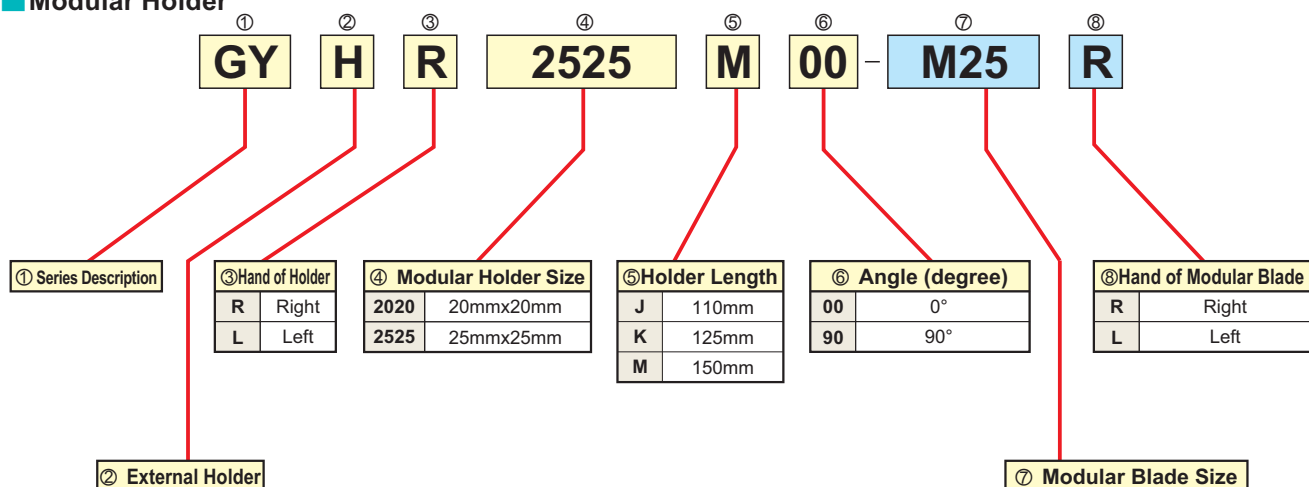
Modular blade



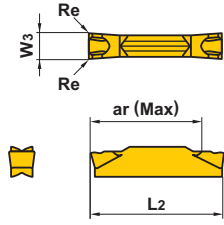
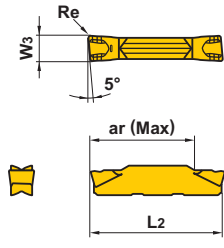
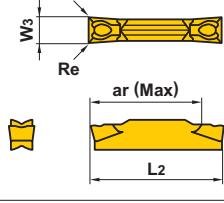
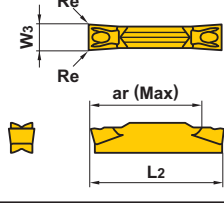
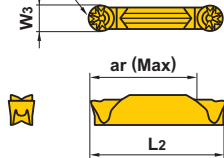
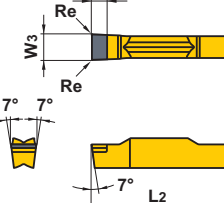
*1 Select a seat size with the same letter as that of the insert.

*2 The maximum groove depth changes according to the insert used.

Modular Holder



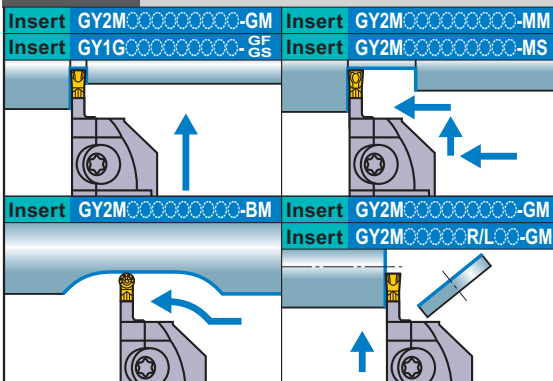
Inserts

Applications	Geometry	Order Number	Stock			Seat Size	Dimensions (mm)				
			Coated	CBN	W ₃		Re	ar (Max.)	L ₂		
										VP10RT	VP20RT
For Grooving / Cutting off	GM Breaker 	GY2M0200D020N-GM	●	●		D	2.00	±0.03	0.2	19.4	20.70
		0239E020N-GM	●	●		E	2.39	±0.03	0.2	19.4	20.70
		0250E020N-GM	●	●		E	2.50	±0.03	0.2	19.4	20.70
		0300F030N-GM	●	●		F	3.00	±0.03	0.3	19.4	20.70
		0318F030N-GM	●	●		F	3.18	±0.03	0.3	19.4	20.70
		0400G030N-GM	●	●		G	4.00	±0.04	0.3	24.4	25.65
		0475H040N-GM	●	●		H	4.75	±0.04	0.4	24.3	25.65
		0500H040N-GM	●	●		H	5.00	±0.04	0.4	24.3	25.65
		0600J040N-GM	●	●		J	6.00	±0.04	0.4	24.3	25.65
		0635J040N-GM	●	●		J	6.35	±0.04	0.4	24.3	25.65
For Cutting off	R/L05-GM Breaker  Right hand insert shown.	GY2M0200D020R05-GM	●	●		D	2.00	±0.03	0.2	19.5	20.80
		0200D020L05-GM	●	●		D	2.00	±0.03	0.2	19.5	20.80
		0250E020R05-GM	●	●		E	2.50	±0.03	0.2	19.5	20.825
		0250E020L05-GM	●	●		E	2.50	±0.03	0.2	19.5	20.825
		0300F030R05-GM	●	●		F	3.00	±0.03	0.3	19.5	20.85
		0300F030L05-GM	●	●		F	3.00	±0.03	0.3	19.5	20.85
		0400G030R05-GM	●	●		G	4.00	±0.04	0.3	24.5	25.85
		0400G030L05-GM	●	●		G	4.00	±0.04	0.3	24.5	25.85
		0500H040R05-GM	●	●		H	5.00	±0.04	0.4	24.5	25.95
		0500H040L05-GM	●	●		H	5.00	±0.04	0.4	24.5	25.95
For Multifunctional Grooving	MS Breaker (Low feeds) 	GY2M0300F020N-MS	●	●		F	3.00	±0.03	0.2	19.2	20.70
		0300F040N-MS	●	●		F	3.00	±0.03	0.4	18.9	20.70
		0400G020N-MS	●	●		G	4.00	±0.04	0.2	24.2	25.65
		0400G040N-MS	●	●		G	4.00	±0.04	0.4	23.9	25.65
		0500H040N-MS	●	●		H	5.00	±0.04	0.4	23.9	25.65
		0500H080N-MS	●	●		H	5.00	±0.04	0.8	23.5	25.65
		0600J040N-MS	●	●		J	6.00	±0.04	0.4	23.9	25.65
		0600J080N-MS	●	●		J	6.00	±0.04	0.8	23.5	25.65
	MM Breaker (Medium feeds) 	GY2M0300F020N-MM	●	●		F	3.00	±0.03	0.2	19.1	20.70
		0300F040N-MM	●	●		F	3.00	±0.03	0.4	18.9	20.70
		0400G040N-MM	●	●		G	4.00	±0.04	0.4	23.9	25.65
		0400G080N-MM	●	●		G	4.00	±0.04	0.8	23.5	25.65
		0500H040N-MM	●	●		H	5.00	±0.04	0.4	23.9	25.65
		0500H080N-MM	●	●		H	5.00	±0.04	0.8	23.5	25.65
		0600J040N-MM	●	●		J	6.00	±0.04	0.4	23.9	25.65
		0600J080N-MM	●	●		J	6.00	±0.04	0.8	23.5	25.65
For Copying	BM Breaker 	GY2M0300F150N-BM	●	●		F	3.00	±0.03	1.50	19.0	20.90
		0318F159N-BM	●	●		F	3.18	±0.03	1.59	18.9	20.90
		0400G200N-BM	●	●		G	4.00	±0.04	2.00	23.4	25.80
		0475H238N-BM	●	●		H	4.75	±0.04	2.38	22.9	25.80
		0500H250N-BM	●	●		H	5.00	±0.04	2.50	22.8	25.80
		0600J300N-BM	●	●		J	6.00	±0.04	3.00	22.5	25.90
For Grooving	Flat Top (CBN) 	GY1G0200D020N-GFGS			●	D	2.00	±0.03	0.2	—	20.70
		0239E020N-GFGS			●	E	2.39	±0.03	0.2	—	20.70
		0250E020N-GFGS			●	E	2.50	±0.03	0.2	—	20.70
		0300F020N-GFGS			●	F	3.00	±0.03	0.2	—	20.70
		0318F020N-GFGS			●	F	3.18	±0.03	0.2	—	20.70
		0400G020N-GFGS			●	G	4.00	±0.03	0.2	—	25.65
		0475H020N-GFGS			●	H	4.75	±0.03	0.2	—	25.65
		0500H020N-GFGS			●	H	5.00	±0.03	0.2	—	25.65

GY SERIES

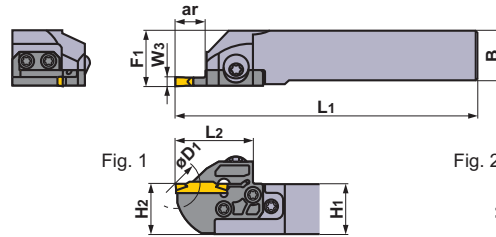
1

00° type holder



Note 1) Please order separately if a single blade or holder is required.

Note 2) Please use right hand modular blade for right hand modular holder and left hand modular blade for left hand modular holder.

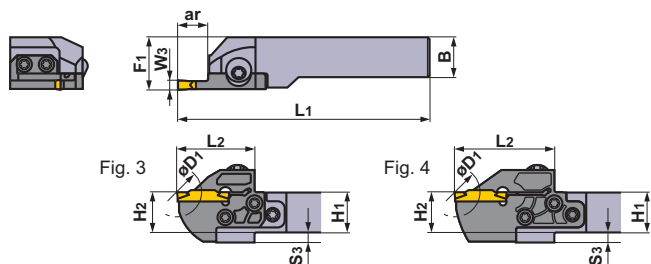


Right hand tool holder shown.

Seat Size	Insert Width W ₃ (mm)	Hand (R/L)	Max. Groove Depth ar (mm)	Max. Cut Off Diameter D ₁ (mm)	ID	Order Number			
						Modular Blade	Stock	Modular Holder	Stock
D	2.00	R	6	12	(1E1R4D1)	GYM25RA-D06	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			12	24	(1E1R4D2)	GYM25RA-D12	●		
			20 *1	40 *2	(1E1R4D3)	GYM25RA-D20	●		
			6	12	(1G1R4D1)	GYM25RA-D06	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			12	24	(1G1R4D2)	GYM25RA-D12	●		
			20 *1	40 *2	(1G1R4D3)	GYM25RA-D20	●		
		L	6	12	(1E1L4D1)	GYM25LA-D06	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			12	24	(1E1L4D2)	GYM25LA-D12	●		
			20 *1	40 *2	(1E1L4D3)	GYM25LA-D20	●		
			6	12	(1G1L4D1)	GYM25LA-D06	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			12	24	(1G1L4D2)	GYM25LA-D12	●		
			20 *1	40 *2	(1G1L4D3)	GYM25LA-D20	●		
E	2.39 2.50	R	6	12	(1E1R4E1)	GYM25RA-E06	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			12	24	(1E1R4E2)	GYM25RA-E12	●		
			20 *1	40 *2	(1E1R4E3)	GYM25RA-E20	●		
			6	12	(1G1R4E1)	GYM25RA-E06	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			12	24	(1G1R4E2)	GYM25RA-E12	●		
			20 *1	40 *2	(1G1R4E3)	GYM25RA-E20	●		
		L	6	12	(1E1L4E1)	GYM25LA-E06	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			12	24	(1E1L4E2)	GYM25LA-E12	●		
			20 *1	40 *2	(1E1L4E3)	GYM25LA-E20	●		
			6	12	(1G1L4E1)	GYM25LA-E06	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			12	24	(1G1L4E2)	GYM25LA-E12	●		
			20 *1	40 *2	(1G1L4E3)	GYM25LA-E20	●		
F	3.00 3.18	R	6	12	(1E1R4F1)	GYM25RA-F06	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			12	24	(1E1R4F2)	GYM25RA-F12	●		
			20 *1	40 *2	(1E1R4F3)	GYM25RA-F20	●		
			6	12	(1G1R4F1)	GYM25RA-F06	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			12	24	(1G1R4F2)	GYM25RA-F12	●		
			20 *1	40 *2	(1G1R4F3)	GYM25RA-F20	●		
		L	6	12	(1E1L4F1)	GYM25LA-F06	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			12	24	(1E1L4F2)	GYM25LA-F12	●		
			20 *1	40 *2	(1E1L4F3)	GYM25LA-F20	●		
			6	12	(1G1L4F1)	GYM25LA-F06	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			12	24	(1G1L4F2)	GYM25LA-F12	●		
			20 *1	40 *2	(1G1L4F3)	GYM25LA-F20	●		

*1 The maximum groove depth changes according to the insert used. Please refer to the maximum groove depth of inserts on page 6.

*2 The maximum cut off diameter D₁ changes according to the insert used. The cut off diameter is double the maximum groove depth (ar) of inserts on page 6.*3 Dimensions shown are when the gauge insert is used. If other insert geometries are used then L₁, L₂ and F₁ values may vary.



Right hand tool holder shown.

SPARE PARTS

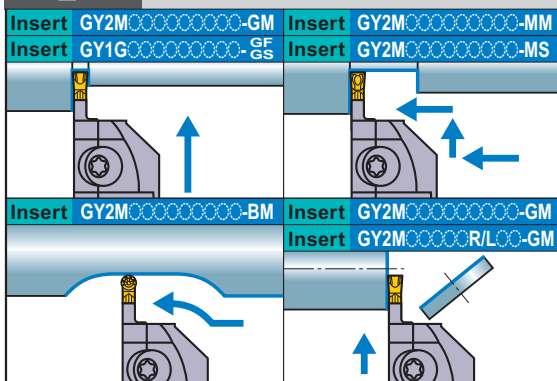
Modular Holder Number			
	Clamp Screw	Blade Screw	Wrench
GYHR/L2020K00-M25R/L	GY06013M	TS55	TKY30R TKY25R
GYHR/L2525M00-M25R/L			

	Dimensions (mm) *3							Fig.	Insert	
	H1	B	L1	L2	H2	F1	S3		Geometry / Insert Number	page
	20	20	117	31	20	26	5	3	GY2M0200D020N-GM (Gauge insert) GY2M0200D020R/L05-GM GY1G0200D020N-GFGS	P.6
	20	20	125	39	20	26	5	3		
	20	20	131	45	20	26	5	4		
	25	25	142	31	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	156	45	25	28	—	2		
	20	20	117	31	20	26	5	3		
	20	20	125	39	20	26	5	3		
	20	20	131	45	20	26	5	4		
	25	25	142	31	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	156	45	25	28	—	2		
	20	20	117	31	20	26	5	3	GY2M0239E020N-GM GY2M0250E020N-GM (Gauge insert) GY2M0250E020R/L05-GM GY1G0239E020N-GFGS GY1G0250E020N-GFGS	P.6
	20	20	125	39	20	26	5	3		
	20	20	131	45	20	26	5	4		
	25	25	142	31	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	156	45	25	28	—	2		
	20	20	117	31	20	26	5	3		
	20	20	125	39	20	26	5	3		
	20	20	131	45	20	26	5	4		
	25	25	142	31	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	156	45	25	28	—	2		
	20	20	117	31	20	26	5	3	GY2M0300F030N-GM (Gauge insert) GY2M0318F030N-GM GY2M0300F030R/L05-GM GY2M0300F020N-MS GY2M0300F040N-MS GY2M0300F020N-MM GY2M0300F040N-MM GY2M0300F150N-BM GY2M0318F159N-BM GY1G0300F020N-GFGS GY1G0318F020N-GFGS	P.6
	20	20	125	39	20	26	5	3		
	20	20	131	45	20	26	5	4		
	25	25	142	31	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	156	45	25	28	—	2		
	20	20	117	31	20	26	5	3		
	20	20	125	39	20	26	5	3		
	20	20	131	45	20	26	5	4		
	25	25	142	31	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	156	45	25	28	—	2		

GY SERIES

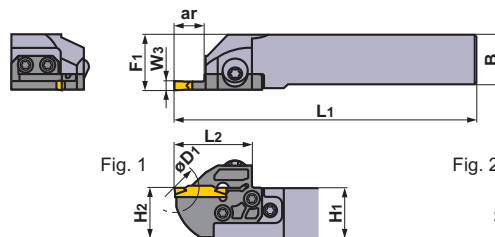
1

00° type holder



Note 1) Please order separately if a single blade or holder is required.

Note 2) Please use right hand modular blade for right hand modular holder and left hand modular blade for left hand modular holder.

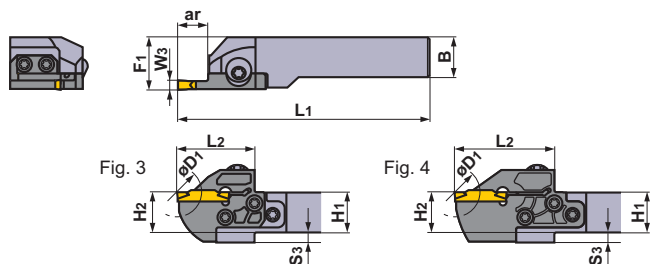


Right hand tool holder shown.

Seat Size	Insert Width W ₃ (mm)	Hand (R/L)	Max. Groove Depth ar (mm)	Max. Cut Off Diameter D ₁ (mm)	ID	Order Number			
						Modular Blade	Stock	Modular Holder	Stock
G	4.00	R	8	16	(1E1R4G1)	GYM25RA-G08	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			14	28	(1E1R4G2)	GYM25RA-G14	●		
			25 *1	50 *2	(1E1R4G3)	GYM25RA-G25	●		
			8	16	(1G1R4G1)	GYM25RA-G08	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			14	28	(1G1R4G2)	GYM25RA-G14	●		
			25 *1	50 *2	(1G1R4G3)	GYM25RA-G25	●		
		L	8	16	(1E1L4G1)	GYM25LA-G08	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			14	28	(1E1L4G2)	GYM25LA-G14	●		
			25 *1	50 *2	(1E1L4G3)	GYM25LA-G25	●		
			8	16	(1G1L4G1)	GYM25LA-G08	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			14	28	(1G1L4G2)	GYM25LA-G14	●		
			25 *1	50 *2	(1G1L4G3)	GYM25LA-G25	●		
H	4.75 5.00	R	8	16	(1E1R4H1)	GYM25RA-H08	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			14	28	(1E1R4H2)	GYM25RA-H14	●		
			25 *1	50 *2	(1E1R4H3)	GYM25RA-H25	●		
			8	16	(1G1R4H1)	GYM25RA-H08	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			14	28	(1G1R4H2)	GYM25RA-H14	●		
			25 *1	50 *2	(1G1R4H3)	GYM25RA-H25	●		
		L	8	16	(1E1L4H1)	GYM25LA-H08	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			14	28	(1E1L4H2)	GYM25LA-H14	●		
			25 *1	50 *2	(1E1L4H3)	GYM25LA-H25	●		
			8	16	(1G1L4H1)	GYM25LA-H08	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			14	28	(1G1L4H2)	GYM25LA-H14	●		
			25 *1	50 *2	(1G1L4H3)	GYM25LA-H25	●		
J	6.00 6.35	R	8	16	(1E1R4J1)	GYM25RA-J08	●	GYHR2020K00-M25R (20mm×20mm Square holder)	●
			14	28	(1E1R4J2)	GYM25RA-J14	●		
			25 *1	50 *2	(1E1R4J3)	GYM25RA-J25	●		
			8	16	(1G1R4J1)	GYM25RA-J08	●	GYHR2525M00-M25R (25mm×25mm Square holder)	●
			14	28	(1G1R4J2)	GYM25RA-J14	●		
			25 *1	50 *2	(1G1R4J3)	GYM25RA-J25	●		
		L	8	16	(1E1L4J1)	GYM25LA-J08	●	GYHL2020K00-M25L (20mm×20mm Square holder)	●
			14	28	(1E1L4J2)	GYM25LA-J14	●		
			25 *1	50 *2	(1E1L4J3)	GYM25LA-J25	●		
			8	16	(1G1L4J1)	GYM25LA-J08	●	GYHL2525M00-M25L (25mm×25mm Square holder)	●
			14	28	(1G1L4J2)	GYM25LA-J14	●		
			25 *1	50 *2	(1G1L4J3)	GYM25LA-J25	●		

*1 The maximum groove depth changes according to the insert used. Please refer to the maximum groove depth of inserts on page 6.

*2 The maximum cut off diameter D₁ changes according to the insert used. The cut off diameter is double the maximum groove depth (ar) of inserts on page 6.*3 Dimensions shown are when the gauge insert is used. If other insert geometries are used then L₁, L₂ and F₁ values may vary.



Right hand tool holder shown.

SPARE PARTS

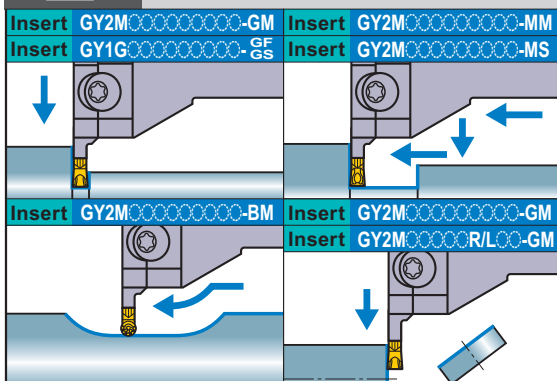
Modular Holder Number			
	Clamp Screw	Blade Screw	Wrench
GYHR/L2020K00-M25R/L	GY06013M	TS55	TKY30R TKY25R
GYHR/L2525M00-M25R/L			

	Dimensions (mm) *3							Fig.	Insert	
	H1	B	L1	L2	H2	F1	S3		Geometry / Insert Number	page
	20	20	119	33	20	26	5	3	GY2M0400G030N-GM (Gauge insert) GY2M0400G030R/L05-GM GY2M0400G020N-MS GY2M0400G040N-MS GY2M0400G040N-MM GY2M0400G080N-MM GY2M0400G200N-BM GY1G0400G020N-GFGS	P.6
	20	20	125	39	20	26	5	3		
	20	20	136	50	20	26	5	4		
	25	25	144	33	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	161	50	25	28	—	2		
	20	20	119	33	20	26	5	3		
	20	20	125	39	20	26	5	3		
	20	20	136	50	20	26	5	4		
	25	25	144	33	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	161	50	25	28	—	2		
	20	20	119	33	20	26	5	3	GY2M0475H040N-GM GY2M0500H040N-GM (Gauge insert) GY2M0500H040R/L05-GM GY2M0500H040N-MS GY2M0500H080N-MS GY2M0500H040N-MM GY2M0500H080N-MM GY2M0475H238N-BM GY2M0500H250N-BM GY1G0475H020N-GFGS GY1G0500H020N-GFGS	P.6
	20	20	125	39	20	26	5	3		
	20	20	136	50	20	26	5	4		
	25	25	144	33	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	161	50	25	28	—	2		
	20	20	119	33	20	26	5	3		
	20	20	125	39	20	26	5	3		
	20	20	136	50	20	26	5	4		
	25	25	144	33	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	161	50	25	28	—	2		
	20	20	119	33	20	26	5	3	GY2M0600J040N-GM (Gauge insert) GY2M0635J040N-GM GY2M0600J040N-MS GY2M0600J080N-MS GY2M0600J040N-MM GY2M0600J080N-MM GY2M0600J300N-BM GY2M0635J318N-BM	P.6
	20	20	125	39	20	26	5	3		
	20	20	136	50	20	26	5	4		
	25	25	144	33	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	161	50	25	28	—	2		
	20	20	119	33	20	26	5	3		
	20	20	125	39	20	26	5	3		
	20	20	136	50	20	26	5	4		
	25	25	144	33	25	28	—	1		
	25	25	150	39	25	28	—	1		
	25	25	161	50	25	28	—	2		

GY SERIES

2

90° type holder



Note 1) Please order separately if a single blade or holder is required.

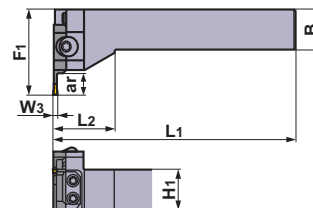
Note 2) Please use left hand modular blade for right hand modular holder and right hand modular blade for left hand modular holder.



Fig. 2



Fig. 1



Right hand tool holder shown.

Seat Size	Insert Width W ₃ (mm)	Hand (R/L)	Max. Groove Depth ar (mm)	Max. Cut Off Diameter D ₁ (mm)	ID	Order Number			
						Modular Blade	Stock	Modular Holder	Stock
D	2.00	R	6	12	(2G1R4D1)	GYM25LA-D06	●	GYHR2525M90-M25L (25mm×25mm Square holder)	●
			12	24	(2G1R4D2)	GYM25LA-D12	●		
			20 *1	40 *2	(2G1R4D3)	GYM25LA-D20	●		
		L	6	12	(2G1L4D1)	GYM25RA-D06	●	GYHL2525M90-M25R (25mm×25mm Square holder)	●
			12	24	(2G1L4D2)	GYM25RA-D12	●		
			20 *1	40 *2	(2G1L4D3)	GYM25RA-D20	●		
E	2.39 2.50	R	6	12	(2G1R4E1)	GYM25LA-E06	●	GYHR2525M90-M25L (25mm×25mm Square holder)	●
			12	24	(2G1R4E2)	GYM25LA-E12	●		
			20 *1	40 *2	(2G1R4E3)	GYM25LA-E20	●		
		L	6	12	(2G1L4E1)	GYM25RA-E06	●	GYHL2525M90-M25R (25mm×25mm Square holder)	●
			12	24	(2G1L4E2)	GYM25RA-E12	●		
			20 *1	40 *2	(2G1L4E3)	GYM25RA-E20	●		
F	3.00 3.18	R	6	12	(2G1R4F1)	GYM25LA-F06	●	GYHR2525M90-M25L (25mm×25mm Square holder)	●
			12	24	(2G1R4F2)	GYM25LA-F12	●		
			20 *1	40 *2	(2G1R4F3)	GYM25LA-F20	●		
		L	6	12	(2G1L4F1)	GYM25RA-F06	●	GYHL2525M90-M25R (25mm×25mm Square holder)	●
			12	24	(2G1L4F2)	GYM25RA-F12	●		
			20 *1	40 *2	(2G1L4F3)	GYM25RA-F20	●		
G	4.00	R	8	16	(2G1R4G1)	GYM25LA-G08	●	GYHR2525M90-M25L (25mm×25 Square holder)	●
			14	28	(2G1R4G2)	GYM25LA-G14	●		
			25 *1	50 *2	(2G1R4G3)	GYM25LA-G25	●		
		L	8	16	(2G1L4G1)	GYM25RA-G08	●	GYHL2525M90-M25R (25mm×25 Square holder)	●
			14	28	(2G1L4G2)	GYM25RA-G14	●		
			25 *1	50 *2	(2G1L4G3)	GYM25RA-G25	●		

*1 The maximum groove depth changes according to the insert used. Please refer to the maximum groove depth of inserts on page 6.

*2 The maximum cut off diameter D₁ changes according to the insert used. The cut off diameter is double the maximum groove depth (ar) of inserts on page 6.*3 Dimensions shown are when the gauge insert is used. If other insert geometries are used then L₁, L₂ and F₁ values may vary.

SPARE PARTS

Modular Holder Number		 (5 pcs.)	
	Clamp Screw	Blade Screw	Wrench
GYHR/L2525M90-M25L/R	GY06013M	TS55	TKY30R TKY25R

	Dimensions (mm) *3						Fig.	Insert	
	H1	B	L1	L2	H2	F1		Geometry / Insert Number	page
	25	25	150	38	25	45	1	 GY2M0200D020N-GM (Gauge insert)	P.6
	25	25	150	38	25	53	1		
	25	25	150	38	25	59	2		
	25	25	150	38	25	45	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	59	2		
								 GY2M0200D020R/L05-GM	
								 GY1G0200D020N-GFGS	
	25	25	150	38	25	45	1	 GY2M0239E020N-GM GY2M0250E020N-GM (Gauge insert)	P.6
	25	25	150	38	25	53	1		
	25	25	150	38	25	59	2		
	25	25	150	38	25	45	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	59	2		
								 GY2M0250E020R/L05-GM	
								 GY1G0239E020N-GFGS GY1G0250E020N-GFGS	
	25	25	150	38	25	45	1	 GY2M0300F030N-GM (Gauge insert)	P.6
	25	25	150	38	25	53	1		
	25	25	150	38	25	59	2		
	25	25	150	38	25	45	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	59	2		
								 GY2M0318F030N-GM	
								 GY2M0300F030R/L05-GM	
								 GY2M0300F020N-MS GY2M0300F040N-MS	
								 GY2M0300F020N-MM GY2M0300F040N-MM	
								 GY2M0300F150N-BM GY2M0318F159N-BM	
								 GY1G0300F020N-GFGS GY1G0318F020N-GFGS	
	25	25	150	38	25	47	1	 GY2M0400G030N-GM (Gauge insert)	P.6
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		
	25	25	150	38	25	47	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		
								 GY2M0400G030R/L05-GM	
								 GY2M0400G020N-MS GY2M0400G040N-MS	
								 GY2M0400G040N-MM GY2M0400G080N-MM	
								 GY2M0400G200N-BM	
								 GY1G0400G020N-GFGS	

GY SERIES

2

90° type holder

Note 1) Please order separately if a single blade or holder is required.
Note 2) Please use left hand modular blade for right hand modular holder and right hand modular blade for left hand modular holder.

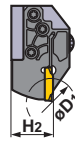
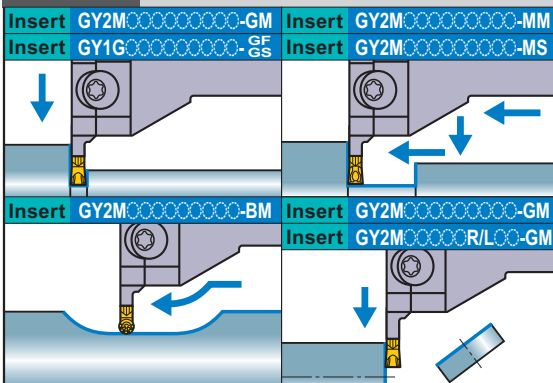
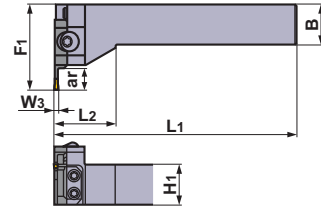


Fig. 2



Fig. 1



Right hand tool holder shown.

Seat Size	Insert Width W ₃ (mm)	Hand (R/L)	Max. Groove Depth ar (mm)	Max. Cut Off Diameter D ₁ (mm)	ID	Order Number			
						Modular Blade	Stock	Modular Holder	Stock
H	4.75 5.00	R	8	16	(2G1R4H1)	GYM25LA-H08	●	GYHR2525M90-M25L (25mm×25mm Square holder)	●
			14	28	(2G1R4H2)	GYM25LA-H14	●		
			25 *1	50 *2	(2G1R4H3)	GYM25LA-H25	●		
		L	8	16	(2G1L4H1)	GYM25RA-H08	●	GYHL2525M90-M25R (25mm×25mm Square holder)	●
			14	28	(2G1L4H2)	GYM25RA-H14	●		
			25 *1	50 *2	(2G1L4H3)	GYM25RA-H25	●		
J	6.00 6.35	R	8	16	(2G1R4J1)	GYM25LA-J08	●	GYHR2525M90-M25L (25mm×25mm Square holder)	●
			14	28	(2G1R4J2)	GYM25LA-J14	●		
			25 *1	50 *2	(2G1R4J3)	GYM25LA-J25	●		
		L	8	16	(2G1L4J1)	GYM25RA-J08	●	GYHL2525M90-M25R (25mm×25mm Square holder)	●
			14	28	(2G1L4J2)	GYM25RA-J14	●		
			25 *1	50 *2	(2G1L4J3)	GYM25RA-J25	●		

*1 The maximum groove depth changes according to the insert used. Please refer to the maximum groove depth of inserts on page 6.

*2 The maximum cut off diameter D₁ changes according to the insert used. The cut off diameter is double the maximum groove depth (ar) of inserts on page 6.

*3 Dimensions shown are when the gauge insert is used. If other insert geometries are used then L₁, L₂ and F₁ values may vary.

SPARE PARTS

Modular Holder Number			
	Clamp Screw	Blade Screw	Wrench
GYHR/L2525M90-M25L/R	GY06013M	TS55	TKY30R TKY25R

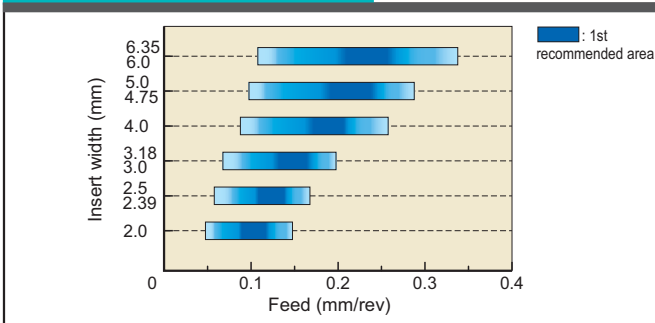
	Dimensions (mm) *3						Fig.	Insert	
	H1	B	L1	L2	H2	F1		Geometry / Insert Number	page
	25	25	150	38	25	47	1	 GY2M0475H040N-GM GY2M0500H040N-GM (Gauge insert)  GY2M0500H040R/L05-GM  GY2M0500H040N-MS GY2M0500H080N-MS  GY2M0500H040N-MM GY2M0500H080N-MM  GY2M0475H238N-BM GY2M0500H250N-BM  GY1G0475H020N-GFGS GY1G0500H020N-GFGS	P.6
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		
	25	25	150	38	25	47	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		
	25	25	150	38	25	47	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		
	25	25	150	38	25	47	1	 GY2M0600J040N-GM (Gauge insert) GY2M0635J040N-GM  GY2M0600J040N-MS GY2M0600J080N-MS  GY2M0600J040N-MM GY2M0600J080N-MM  GY2M0600J300N-BM GY2M0635J318N-BM	P.6
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		
	25	25	150	38	25	47	1		
	25	25	150	38	25	53	1		
	25	25	150	38	25	64	2		

Recommended Cutting Conditions

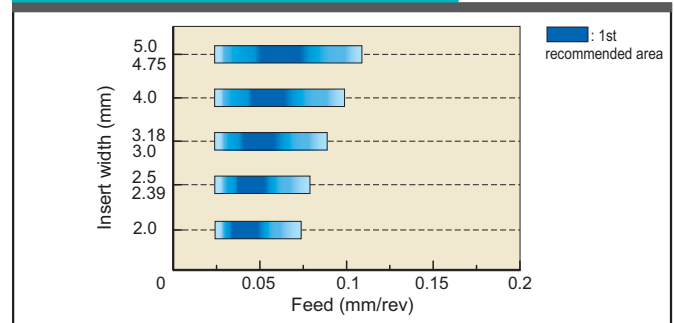
*Below are the recommended cutting conditions when using the modular holder GYHR/L2525M00-M25R/L with the modular blade GYM25A-00.

Recommended feed rate and depth of cut

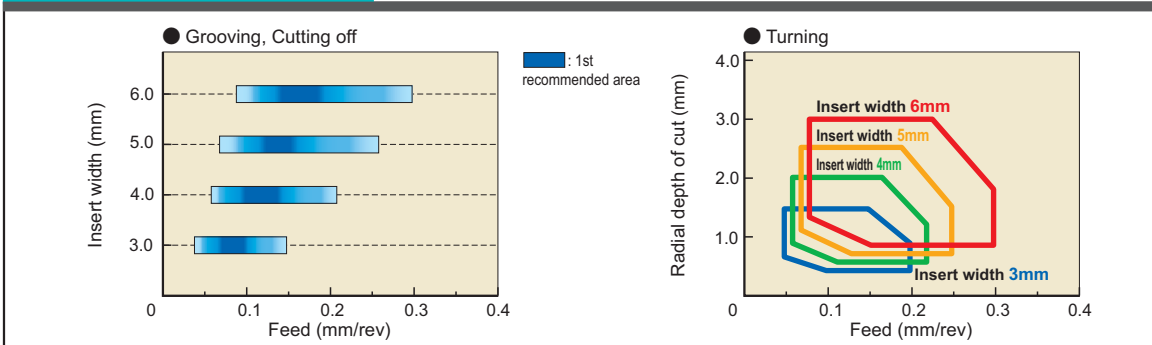
GM Breaker



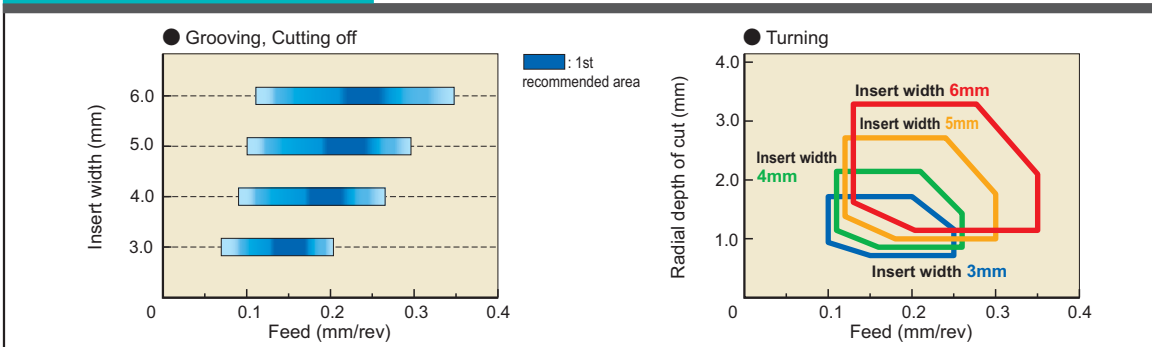
Flat Top GFGS (CBN)



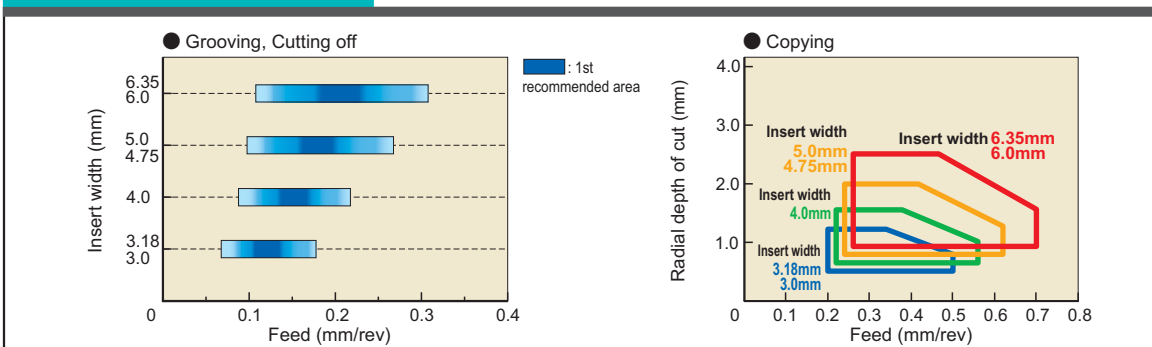
MS Breaker



MM Breaker

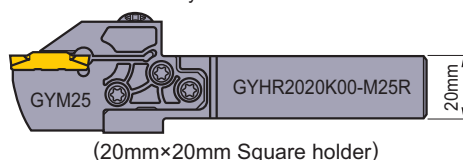


BM Breaker



Note) When using a combination as shown below, decrease the recommended feed rate by 20%.

- Decrease the feed rate by 20%.



● Recommended cutting speed

	Work Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤160HB	VP10RT VP20RT	160 (100—220)
	Carbon Steel Alloy Steel	160—280HB		130 (80—180)
		≥ 280HB		100 (60—140)
M	Stainless Steel	≤270HB	VP10RT VP20RT	100 (60—140)

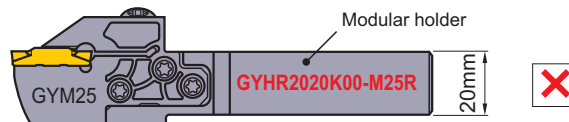
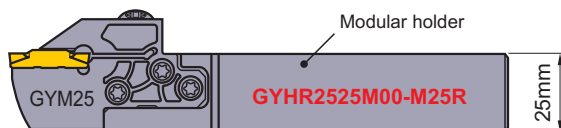
	Work Material	Hardness	Grade	Cutting Speed (m/min)
K	Cast Iron	Tensile Strength ≤300MPa	VP10RT VP20RT	160 (100—220)
	Ductile Cast Iron	Tensile Strength ≤800MPa		130 (80—180)
S	Heat Resistant Alloy Titanium Alloy	—	VP10RT VP20RT	40 (30—60)
H	Hardened steel	≥50HRC	MB8025	100 (80—120)

Note 1) **VP20RT** is the first recommended grade for materials other than hardened steel.

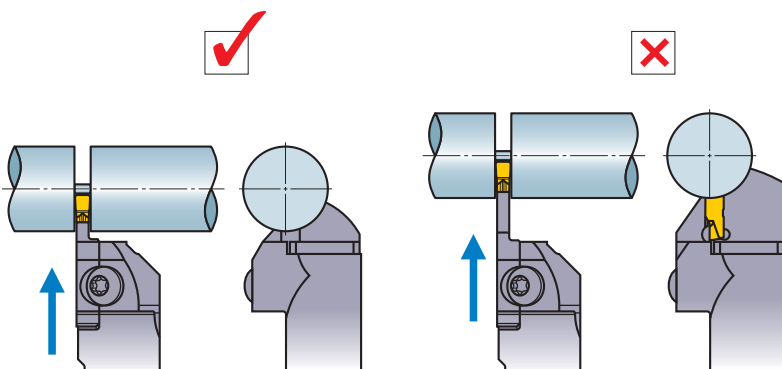
Note 2) For VP10RT and VP20RT, wet cutting is recommended.

Tool Selection

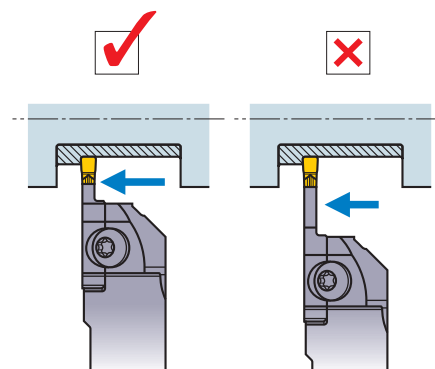
Notes when selecting a tool body



To ensure sufficient clamping rigidity, select a modular holder with the largest possible shank size.

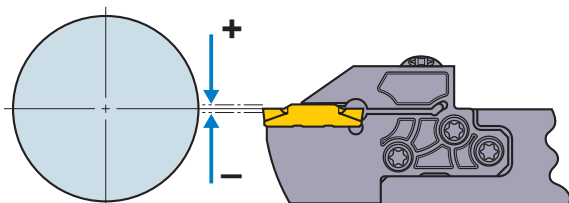


Select the shortest possible blade suitable for the application.



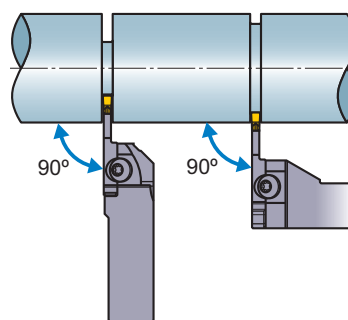
Select the shortest possible blade suitable for the application.

Notes when setting the tool

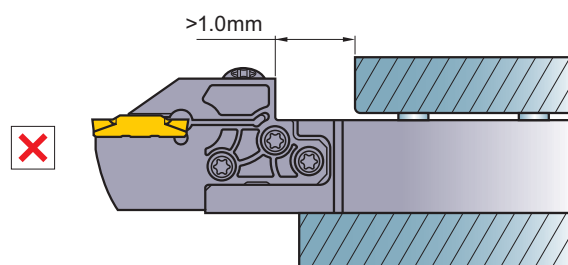
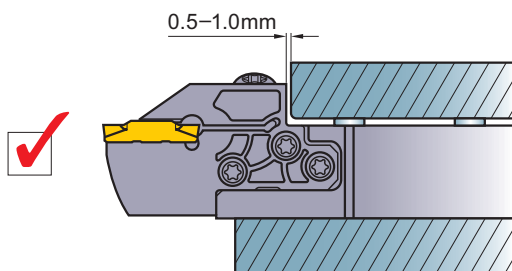


<Grooving/Cross-feed machining>
Set the cutting edge height to $\pm 0.1\text{mm}$ parallel to the central axis.

<Cutting off>
Set the cutting edge height to $0 - +0.2\text{mm}$ parallel to the central axis.



Set the insert perpendicular to the central axis.

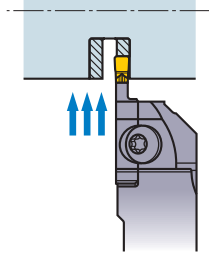


When setting the tool, ensure that the overhang is as short as possible.

Machining Recommendations

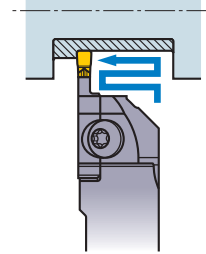
Notes on multi-function machining (MS and MM breakers)

Machining Narrow Grooves



It is recommended to carry out plunging in several passes.

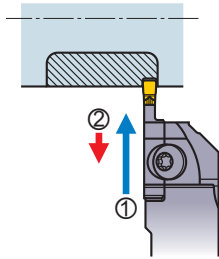
Machining Wide Grooves



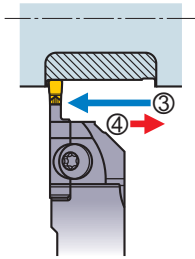
It is recommended that cross-feed machining is used.

Machining Wide Grooves

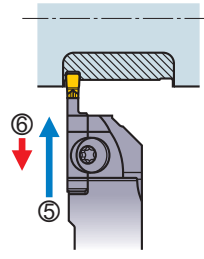
Roughing



① Carry out grooving.
② Retract the tool approx 0.1mm.

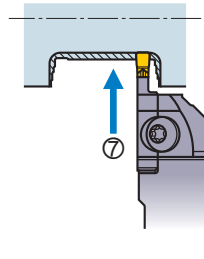


③ Carry out cross feed machining.
④ Retract the tool approx 0.1mm.

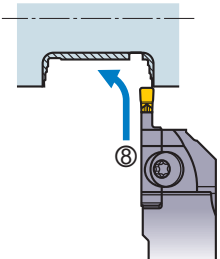


⑤ Carry out grooving.
⑥ Retract the tool approx 0.1mm.
* Repeat the steps ①–⑥.

Finishing

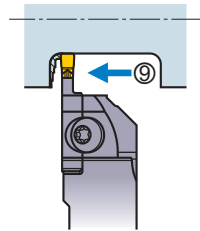


⑦ Carry out grooving to the end point of the corner radius.

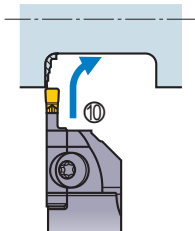


⑧ Machining of the wall surface, corner radius and bottom face should be carried out in one process.

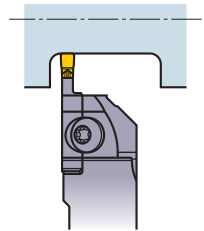
Finishing



⑨ Stop at the bottom of the corner radius.

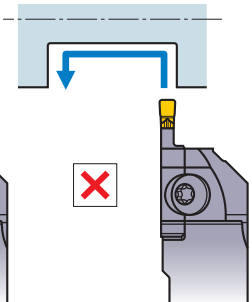
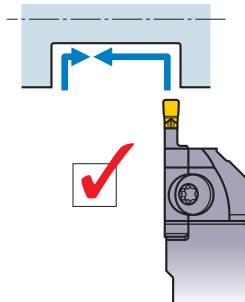


⑩ Machine the counter wall to the corner radius in one process.



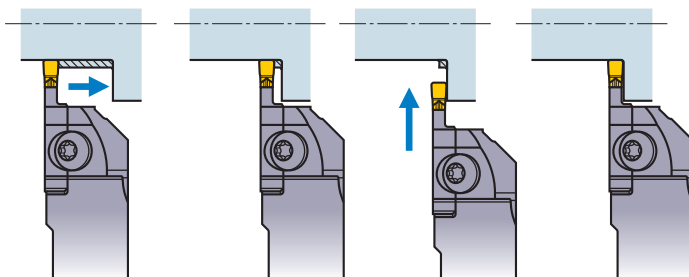
⑪ Finish machining.

Precautions when Finishing Walls



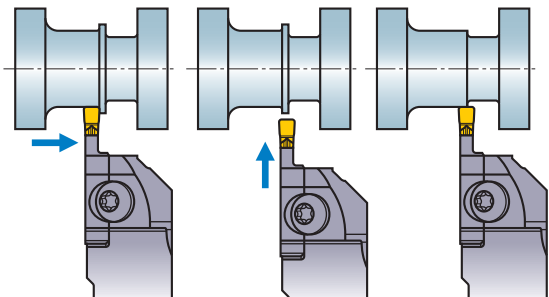
To produce high accuracy walls using MS or MM breaker insert, do not carry out back turning. Plunging is recommended.

Wall Machining



When machining a wall, chip jamming can occur. In this case, stop cross feed machining just before the wall (at a point less than the insert width) then remove the remaining material using plunging.

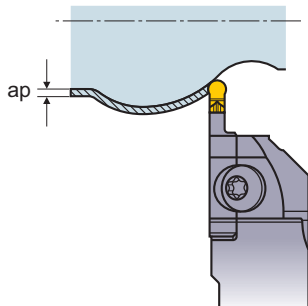
Machining of a Ring Section



When a ring remains in a cross feed end process, finish cross feed machining 1–1.5mm short of the end point, then remove the ring using plunging.

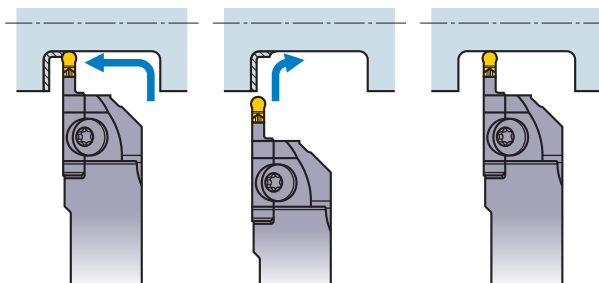
Machining Recommendations

Notes on multi-function machining (BM breaker)



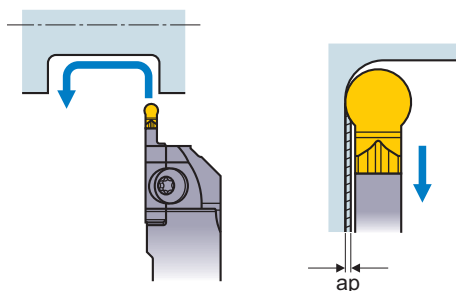
With the BM breaker insert, 3 dimensional copying is possible.
Set the depth of cut (a_p) to 40% less than the insert width.

Roughing



Use plunging and cross-feed machining.
When machining the corner, vibration is likely to occur. To avoid this, reduce the feed by 50%.

Finishing

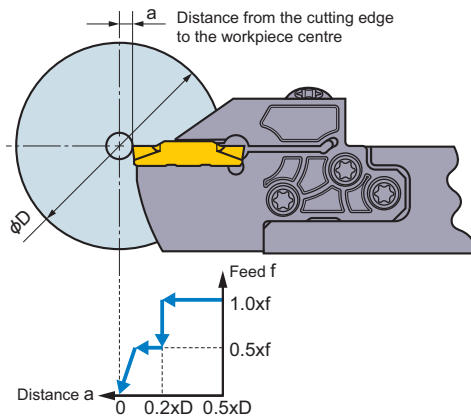


Carry out finishing in one process.
For the depth of cut (a_p) when back turning, refer to the table on the right.

Insert	a_p (mm)
GY2M0300F150N-BM	0.15
GY2M0318F159N-BM	
GY2M0400G200N-BM	0.20
GY2M0475H238N-BM	0.24
GY2M0500H250N-BM	
GY2M0600J150N-BM	0.30
GY2M0635J318N-BM	

● Notes for cutting off

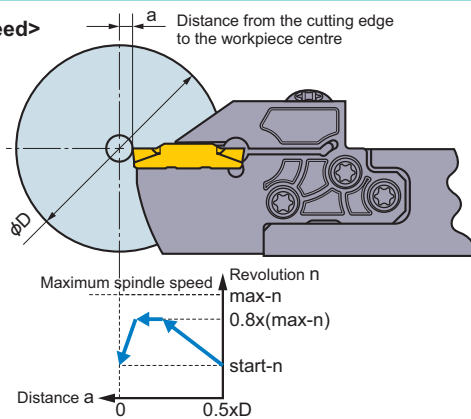
<Feed>



When the cutting edge approaches the centre, reduce the feed by 50%.

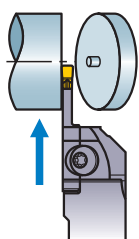
If necessary, stop the feed prior to reaching the centre of the workpiece to prevent it falling under its own weight.

<Spindle speed>

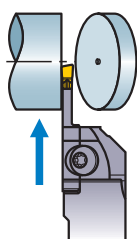


When using constant cutting speed during a cutting off cycle, it is recommended to limit the spindle speed to 80% of maximum to ensure stability.

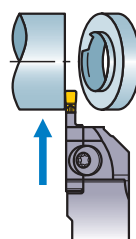
To prevent the workpiece from being expelled, lower the spindle speed before finishing the grooving operation.



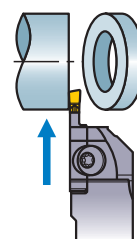
Neutral insert



Handed insert



Neutral insert



Handed insert

When there is a centre stub on solid bar work or burrs are formed on pipe material, it is possible to decrease them by using a handed insert. With a handed insert, machining tends to be less stable when compared to using a neutral insert. Pay special attention to avoid fracturing of the cutting edge and decrease the feed when necessary.

Assembly instruction

Assembly procedures

A

(b) Wrench

(d) Wrench

(a) Insert clamp screw x 1pc.

(c) Modular blade setscrew x 5pcs.

(Ex.) GYHR2525M00 - **M25R**

Modular Holder

Modular Blade

(Ex.) **②** GY **M25R** A - **③** F 20
 GY **M25R** A - F 12

Long (5 holes)

Short, Medium (4 holes)

Insert

(Ex.) GY2M0300 **④** F 040N-MS
 GY2M0318 **F** 030N-GM

Note 1) ③ and ④ are changed by the insert size.

B

Side screws (3 screws)

Long modular blade (5 holes)

B'

Side screws (2 screws)

Short, Medium modular blade (4 holes)

Note 2) ① and ② should be matched. (See caption A)

C

Front screws (2 screws)

Note 3)
Please tighten the modular blade setscrews in order of [Side screws] → [Front screws].

D

Note 4)
Please clean the insert-seat before installing the insert.

Note 5)
③ and ④ should be matched. (See caption A)

E

Note 6)
To prevent damage to the blade, don't tighten the insert clamp screw without installing an insert.

F

Complete

Note 7)
The insert clamp screw is inclined. Ensure that the wrench is perpendicular to the screw.

● Recommended screw tightening torques

Modular Holder Number	Insert Installation			Modular Blade Installation		
	(a) Screw	(b) Wrench	Tightening Torque	(c) Screw	(d) Wrench	Tightening Torque
GYHR2020K00-M25R GYHL2020K00-M25L GYHR2525M00-M25R GYHL2525M00-M25L GYHR2525M90-M25L GYHL2525M90-M25R	GY06013M	TKY30R	6.0Nm	TS55	TKY25R	5.0Nm

External grooving/Cutting off (00° type/90° type)

Modular Holder Number	Modular Blade		Insert Width (mm)	Page
	Modular Blade Number	Max. Groove Depth (mm)		
GYHR2020K00-M25R	GYM25RA-D06	6	2.00	P.7 P.9
	GYM25RA-D12	12		
	GYM25RA-D20	20		
	GYM25RA-E06	6	2.39 2.50	
	GYM25RA-E12	12		
	GYM25RA-E20	20		
	GYM25RA-F06	6	3.00 3.18	
	GYM25RA-F12	12		
	GYM25RA-F20	20		
	GYM25RA-G08	8	4.00	
	GYM25RA-G14	14		
	GYM25RA-G25	25		
	GYM25RA-H08	8	4.75 5.00	
	GYM25RA-H14	14		
	GYM25RA-H25	25		
	GYM25RA-J08	8	6.00 6.35	
	GYM25RA-J14	14		
	GYM25RA-J25	25		
GYHL2020K00-M25L	GYM25LA-D06	6	2.00	P.7 P.9
	GYM25LA-D12	12		
	GYM25LA-D20	20		
	GYM25LA-E06	6	2.39 2.50	
	GYM25LA-E12	12		
	GYM25LA-E20	20		
	GYM25LA-F06	6	3.00 3.18	
	GYM25LA-F12	12		
	GYM25LA-F20	20		
	GYM25LA-G08	8	4.00	
	GYM25LA-G14	14		
	GYM25LA-G25	25		
	GYM25LA-H08	8	4.75 5.00	
	GYM25LA-H14	14		
	GYM25LA-H25	25		
	GYM25LA-J08	8	6.00 6.35	
	GYM25LA-J14	14		
	GYM25LA-J25	25		

Modular Holder Number	Modular Blade		Insert Width (mm)	Page
	Modular Blade Number	Max. Groove Depth (mm)		
GYHR2525M00-M25R GYHL2525M90-M25R	GYM25RA-D06	6	2.00	P.7 P.9 P.11 P.13
	GYM25RA-D12	12		
	GYM25RA-D20	20		
	GYM25RA-E06	6	2.39 2.50	
	GYM25RA-E12	12		
	GYM25RA-E20	20		
	GYM25RA-F06	6	3.00 3.18	
	GYM25RA-F12	12		
	GYM25RA-F20	20		
	GYM25RA-G08	8	4.00	
	GYM25RA-G14	14		
	GYM25RA-G25	25		
	GYM25RA-H08	8	4.75 5.00	
	GYM25RA-H14	14		
	GYM25RA-H25	25		
	GYM25RA-J08	8	6.00 6.35	
	GYM25RA-J14	14		
	GYM25RA-J25	25		
GYHL2525M00-M25L GYHR2525M90-M25L	GYM25LA-D06	6	2.00	P.7 P.9 P.11 P.13
	GYM25LA-D12	12		
	GYM25LA-D20	20		
	GYM25LA-E06	6	2.39 2.50	
	GYM25LA-E12	12		
	GYM25LA-E20	20		
	GYM25LA-F06	6	3.00 3.18	
	GYM25LA-F12	12		
	GYM25LA-F20	20		
	GYM25LA-G08	8	4.00	
	GYM25LA-G14	14		
	GYM25LA-G25	25		
	GYM25LA-H08	8	4.75 5.00	
	GYM25LA-H14	14		
	GYM25LA-H25	25		
	GYM25LA-J08	8	6.00 6.35	
	GYM25LA-J14	14		
	GYM25LA-J25	25		



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