GND Series

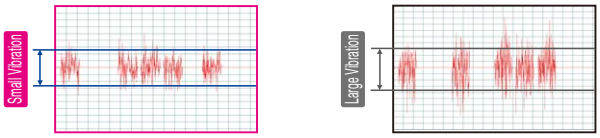
Characteristics

- **Wide range of application processes**
  Applicable for grooving, turning, copying, facing and boring
- **Achieving stable tool life**
  An array of chipbreakers improves the efficiency in chip control in various applications, and prevents unexpected damages caused by chip blockage
- **Achieving reduced chattering and high efficiency machining**
  Holders utilizing one-piece body construction made with special steel, reduces vibration during machining by 30% as compared to conventional models
- **Achieving high precision grooving widths with moulded inserts**
  High precision sintering technology achieves an edge width tolerance of ±0.03mm over a range of edge widths from 1.25 to 6.0mm

Performance

Reduces Chattering

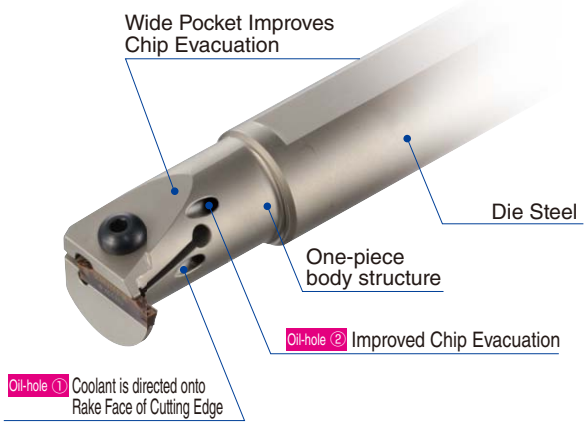
Reduces vibration by up to 30% compared to conventional grades thanks to its high-rigidity design.

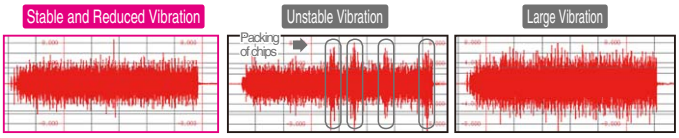


GND　　Conventional Grade(Unit Type)

Work Material：SCM415
Holder：GNDL R2525M-220　Insert：GCM N2002-GG
Cutting Conditions：v_c=100m/min　f=0.10mm/rev　a_p=20.0mm, Wet

Ensures Both High Rigidity and Good Chip Evacuation Internal





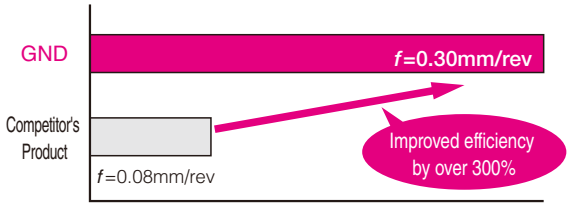
GND　　Comp. A　　Comp. B

Work Material：SCM415
Holder：GNDI R2532-T306　Insert：GCM N3002-GG
Cutting Conditions：v_c=100m/min　f=0.05mm/rev　a_p=3.0mm, Wet

Application Examples

Substantially improved machining efficiency!!

High rigidity holder enables high load machining at high feed rate.



Machining Efficiency

Work Material：SCM435
Holder：GNDL R2525M-320　Insert：GCM N3002-GG（AC530U）
Cutting Conditions：v_c=130m/min　f=0.30mm/rev　Wet

Stable and long tool life ensures reliable functionality even on automatic production lines!!

Reduction of chattering prevents unexpected breakage.

GND　　Competitor's Product

Work Material：S53C
Holder：GNDM L2525M-618　Insert：GCM N6030-RG（AC530U）
Cutting Conditions：v_c=130m/min　f=0.3mm/rev　Wet

GND Series

New

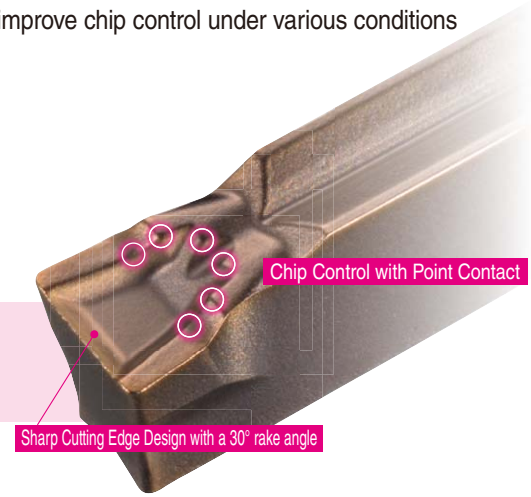
■ GND Series Expansion For Small Lathes

- **The lineup includes grooving widths of 1.25, 1.5, 2.0, and 3.0mm**
- **Reduces chattering and achieves high-efficiency machining**
  Reducing vibration during grooving by employing the same high-rigidity holder design of the GND series
- **Reduces chip control problems**
  The GF type chipbreaker is added to the current wide selection of chipbreakers, to improve chip control under various conditions

■ Low Cutting Resistance Chipbreaker GF Type

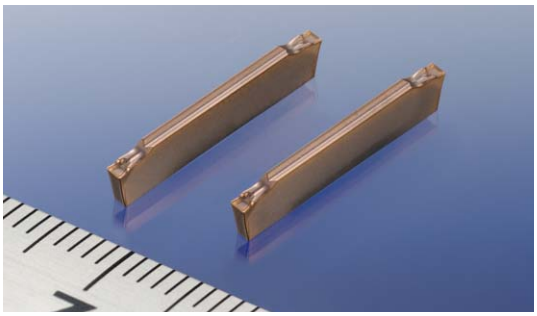
- Reduces chattering during cutting
- Ideal for machining using low-powered equipment such as small lathes
- Reduces adhesion to tools and achieves long tool life in machining of stainless steel, etc.

Achieves excellent chip control and reduced cutting resistance due to the sharp cutting edge design with a 30° rake ange as well as the reduction of frictional resistance through chip control with point contact.



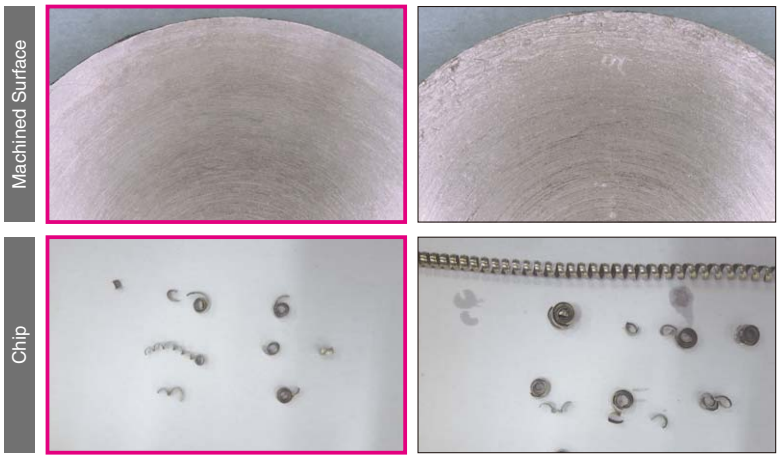
■ Min. groove width 1.25mm

Effective for reduction of material costs and for reduction of vibration during cutting off.



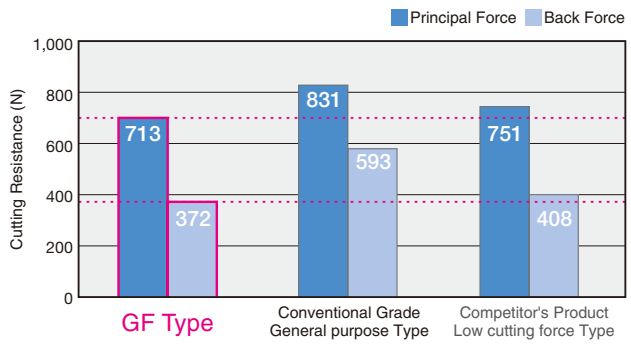
Work Material：SCM415 ø22mm
Holder：GNDL R1212JX-1.2512
Insert：GCM N125005-GF (AC530U)
Cutting Conditions：n=2000min^{-1} f=0.03mm/rev Wet

Provides Excellent Surface Finish and Chip Control

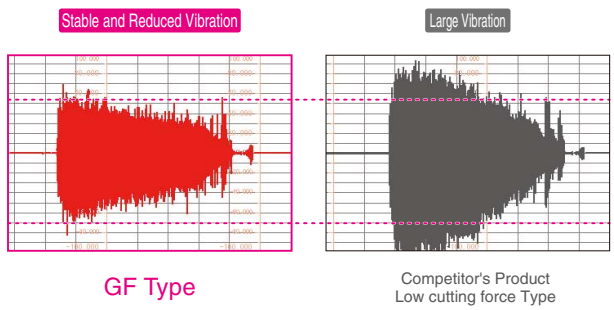


GND（GF Type）　　Competitor's Product

■ Application Examples



Work Material：S45C ø30mm Cut-off applications
Holder：GNDL R2525M-320　Insert：GCM N3002-GF（AC530U）
Cutting Conditions：v_c=80m/min　f=0.10mm/rev　Wet



Work Material：SUS316 ø30mm Cut-off applications
Holder：GNDL R2525M-320　Insert：GCM N3002-GF（AC530U）
Cutting Conditions：v_c=80m/min　f=0.10mm/rev　Wet

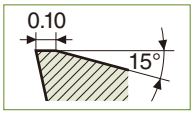
GND Type

■ Achieving stability and longer tool life… A variety of chipbreakers ensure outstanding chip control performance in many different types of applications.

Grooving/Turning

General Purpose Type — MG Type
Standard insert for turning

Cross Section of Cutting Edge



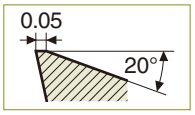
Grooving Widths in Stock (mm)

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock: AC830P, AC425K, AC520U, AC530U

Low Feed Type — ML Type
For low-feed chip management

Cross Section of Cutting Edge



Grooving Widths in Stock (mm)

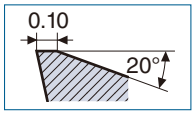
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock: AC830P, AC425K, AC520U, AC530U

Grooving/Cut-Off

General Purpose Type — GG Type
First choice for grooving

Cross Section of Cutting Edge



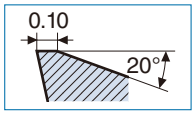
Grooving Widths in Stock (mm)

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock: AC830P, AC425K, AC520U, AC530U

Low Feed Type — GL Type
For low-feed chip management

Cross Section of Cutting Edge



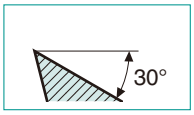
Grooving Widths in Stock (mm)

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Stock: AC830P, AC425K, AC520U, AC530U

Low cutting force Type — GF Type New
Applicable to ultra-thin grooving

Cross Section of Cutting Edge



Grooving Widths in Stock (mm)

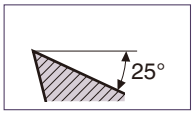
1.25*	1.5*	2.0*
3.0	4.0	5.0
6.0	7.0	8.0

* Only AC530U is in stock.

Stock: AC830P, AC425K, AC520U, AC530U

Cut-Off Type — CG Type
Ideal for cut-off applications

Cross Section of Cutting Edge



Grooving Widths in Stock (mm)

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

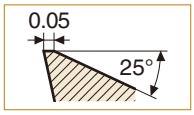
All the CG type products are handed.

Stock: AC830P, AC425K, AC520U, AC530U

Copying

General Purpose Type — RG Type
Perfect for copying

Cross Section of Cutting Edge



Grooving Widths in Stock (mm)

1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

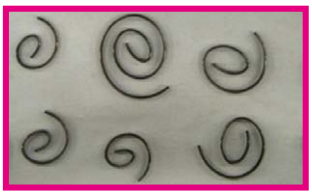
Stock: AC830P, AC425K, AC520U, AC530U

■ Recommended Cutting Conditions

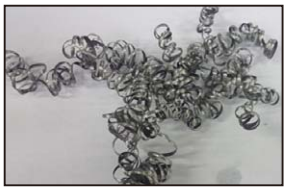
Work Material	P Carbon Steel, Alloy Steel			M Stainless Steel			K Cast Iron			S Exotic Alloy	
Grade	AC830P	AC520U	AC530U	AC830P	AC520U	AC530U	AC425K	AC520U	AC530U	AC520U	AC530U
Cutting Speed v_c (m/min)	80 to 200	80 to 200	50 to 200	70 to 150	70 to 150	50 to 150	80 to 200	60 to 200	50 to 200	20 to 80	20 to 60

■ Improved chip control

Grooving



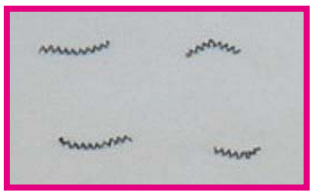
GND Type (GG Type Chipbreaker)



Conventional Grade

Work Material: SCM415
Holder: GNDL R2525M-320 Insert: GCM N3002-GG
Cutting Conditions: v_c=100m/min f=0.15mm/rev a_p=12.0mm Wet

Traversing



GND Type (ML Type Chipbreaker)

Conventional Grade

Work Material: SCM415
Holder: GNDM R2525M-312 Insert: GCM N3002-ML
Cutting Conditions: v_c=100m/min f=0.10mm/rev a_p=0.5mm Wet

Cut-Off Application

GND Type (CG Type Chipbreaker)

Competitor's Product

Work Material: SUS316(ø30mm)
Holder: GNDL R2525M-220 Insert: GCM R2002-CG-05
Cutting Conditions: v_c=100m/min f=0.15mm/rev Wet

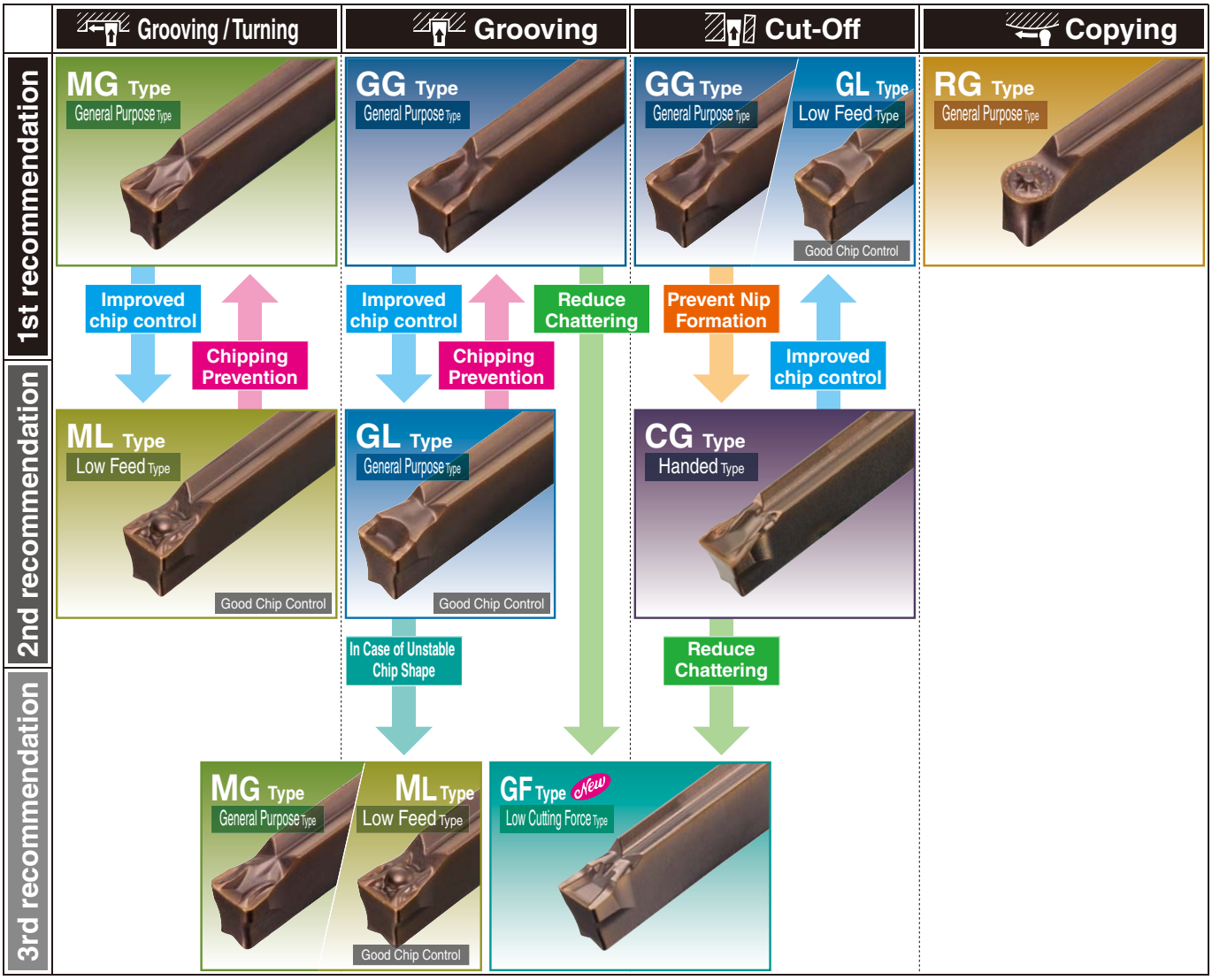
Copying

GND Type (RG Type Chipbreaker)

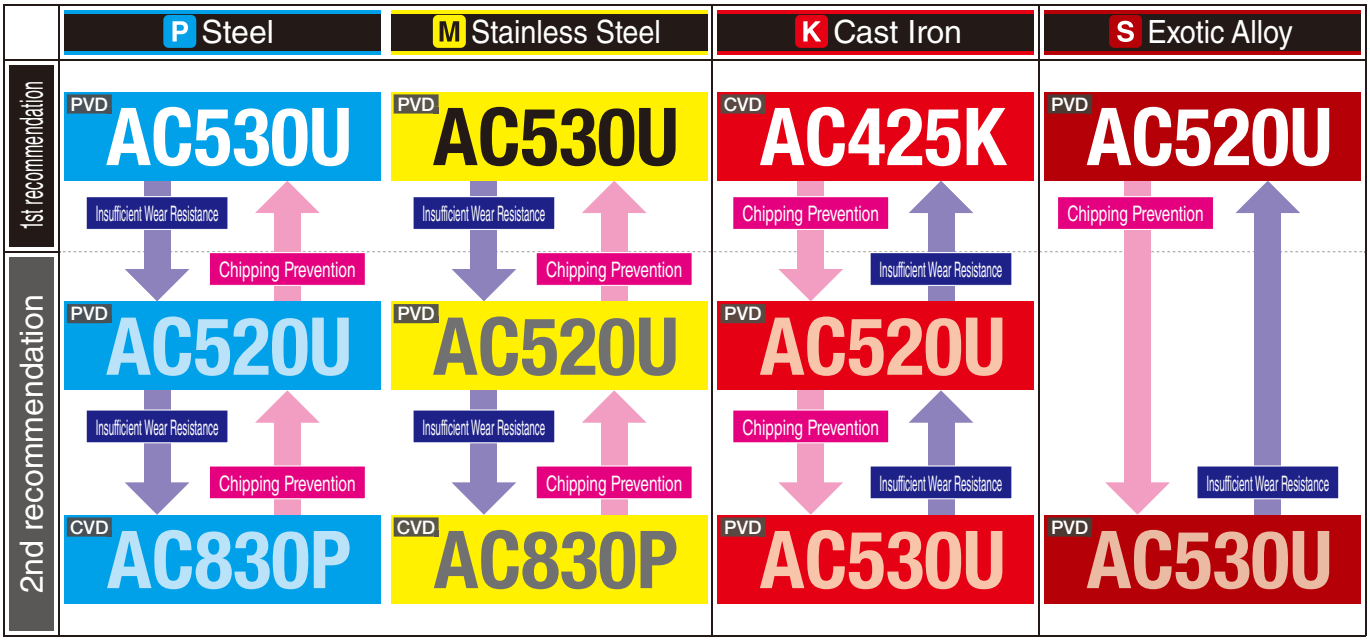
Conventional Grade

Work Material: SCM415
Holder: GNDM R2525M-312 Insert: GCM N3015-RG
Cutting Conditions: v_c=100m/min f=0.15mm/rev a_p=0.1mm Wet

Chipbreaker Selection



Grade Selection



GND Series

For External Machining

Turning / Copying

GNDM (Small Tools) Straight Type — New
Shank Size (Height × Width): □16mm × 16mm — F18,F46
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

GNDS (Shallow Grooves) Straight Type — New
Shank Size (Height × Width): □20mm × 20mm, □25mm × 25mm — F19
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

GNDM Straight Type
Shank Size (Height × Width): □20mm × 20mm, □25mm × 25mm, □32mm × 25mm, □32mm × 32mm — F20,F42
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

GNDMS L Type
Shank Size (Height × Width): □20mm × 20mm, □25mm × 25mm — F20
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

Grooving / Cut-Off

GNDL (Small Tools) Straight Type — New
Shank Size (Height × Width): □10mm × 10mm, □12mm × 12mm, □16mm × 16mm — F18
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

GNDL Straight Type
Shank Size (Height × Width): □20mm × 20mm, □25mm × 25mm, □32mm × 25mm, □32mm × 32mm — F22
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

GNDLS L Type
Shank Size (Height × Width): □20mm × 20mm, □25mm × 25mm — F22
Applicable Grooving Width (mm): 1.25 1.5 2.0 / 3.0 4.0 5.0 / 6.0 7.0 8.0
Applicable Breaker: MG ML GG GL GF RG CG

Series For External Machining

MG :Multi-functional·General Purpose Type ML :Multi-functional·Low Feed Type GG :Grooving·General Purpose Type GL :Grooving·Low Feed Type GF :Grooving·Low Cutting Force Type RG :Copying·General Purpose Type CG :Cut-Off Type

Type	Shank Size (mm) Height(h)	Width(b)	Cutting width (mm) 1.25	1.5	2	3	4	5	6	7	8	Series	Max. Grooving Depth (mm) (5 10 15 20 25 30)	Ref. Page	MG	ML	GG	GL	GF	RG	CG
Small Tools	10	10	1.25	1.5								GNDL Small	10	→F18					◎		
					2							GNDL Small	10				◎	◎	◎		◎
						3						GNDL Small	10		○	○	◎	◎	◎	◎	◎
	12	12	1.25	1.5								GNDL Small	12.5	→F18					◎		
					2							GNDL Small	12.5				◎	◎	◎		◎
						3						GNDL Small	12.5		○	○	◎	◎	◎	◎	◎
	16	16		1.5								GNDM Small	10	→F18					◎		
				1.5								GNDL Small	12.5	→F18					◎		
					2							GNDM Small	12	→F18			◎	◎	◎		◎
					2							GNDL Small	16	→F18			◎	◎	◎		◎
						3						GNDM Small	12	→F18	◎	◎	◎	◎	◎	◎	◎
						3						GNDL Small	16	→F18	○	○	◎	◎	◎	◎	◎
Straight Type	20	20			2							GNDS	6	→F19			◎	◎	◎		◎
					2							GNDM	10	→F20			◎	◎	◎		◎
					2							GNDL	20	→F22			◎	◎	◎		◎
						3						GNDS	6	→F19	◎	◎	◎	◎	◎	◎	◎
						3						GNDM	12	→F20	◎	◎	◎	◎	◎	◎	◎
						3						GNDL	20	→F22	○	○	◎	◎	◎	◎	◎
	25	25					4					GNDS	10	→F19	◎	◎	◎	◎	◎	◎	◎
							4					GNDM	18	→F20	◎	◎	◎	◎	◎	◎	◎
							4					GNDL	25	→F22	○	○	◎	◎	◎	◎	◎
								5	6			GNDS	10	→F19	◎	◎	◎	◎	◎	◎	
								5	6			GNDM	18	→F20	◎	◎	◎	◎	◎	◎	
								5	6			GNDL	25	→F22	○	○	◎	◎	◎	◎	
										7	8	GNDM	18	→F20	◎	◎	◎	◎		◎	
										7	8	GNDL	25	→F22	○	○	◎	◎		◎	
	32	25*				3						GNDM	12	→F20	◎	◎	◎	◎	◎	◎	◎
						3						GNDL	20	→F22	○	○	◎	◎	◎	◎	◎
							4					GNDM	18	→F20	◎	◎	◎	◎	◎	◎	◎
							4					GNDL	25	→F22	○	○	◎	◎	◎	◎	◎
	32	32						5	6			GNDM	18	→F20	◎	◎	◎	◎	◎	◎	
								5	6			GNDL	25	→F22	○	○	◎	◎	◎	◎	
										7	8	GNDM	18	→F20	◎	◎	◎	◎		◎	
										7	8	GNDL	25	→F22	○	○	◎	◎		◎	
L Type	20	20			2							GNDLS	16	→F22			◎	◎	◎		◎
						3						GNDMS	10	→F20	◎	◎	◎	◎	◎	◎	◎
						3						GNDLS	16	→F22	○	○	◎	◎	◎	◎	◎
							4					GNDMS	12	→F20	◎	◎	◎	◎	◎	◎	◎
								5				GNDMS	12	→F20	◎	◎	◎	◎	◎	◎	
	25	25			2							GNDLS	18	→F22			◎	◎	◎		◎
						3						GNDMS	12	→F20	◎	◎	◎	◎	◎	◎	◎
						3						GNDLS	18	→F22	○	○	◎	◎	◎	◎	◎
							4					GNDMS	14	→F20	◎	◎	◎	◎	◎	◎	◎
							4					GNDLS	23	→F22	○	○	◎	◎	◎	◎	◎
								5	6			GNDMS	14	→F20	◎	◎	◎	◎	◎	◎	
								5	6			GNDLS	23	→F22	○	○	◎	◎	◎	◎	

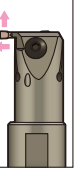
■ :Stock *:Made-to-order item (Shank Size □32×25mm)

◎:1st recommendation ○:2nd recommendation

For Internal Machining

Grooving / Turning / Copying

GNDI
Straight Type



Shank Diameter
ø25mm
ø32mm
ø40mm
F26

Applicable Grooving Width (mm)		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Breaker
MG ML GG GL GF RG CG

For Face Machining

Grooving / Turning / Copying

GNDF
Straight Type

Shank Size (Height × Width)
□20mm × 20mm
□25mm × 25mm
F29

Applicable Grooving Width (mm)		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Breaker
MG ML GG GL GF RG CG

GNDFS
L Type
New

Shank Size (Height × Width)
□25mm × 25mm
□32mm × 32mm
F30

Applicable Grooving Width (mm)		
1.25	1.5	2.0
3.0	4.0	5.0
6.0	7.0	8.0

Applicable Breaker
MG ML GG GL GF RG CG

Series For Internal Machining

MG :Multi-functional·General Purpose Type ML :Multi-functional·Low Feed Type GG :Grooving·General Purpose Type GL :Grooving·Low Feed Type GF :Grooving·Low cutting force Type RG :Copying·General Purpose Type CG :Cut-Off Type

Type	Shank Size øDs (mm)	Cutting width (mm) 2	3	4	5	6	Series	Max. Grooving Depth (mm)	Min. Bore (mm)	Ref. Page	MG	ML	GG	GL	GF	RG	CG
Straight Type	ø32	2					GNDI	6	ø32	→F26			○	◎	○		
	ø40	2						10	ø40				○	◎	○		
	ø25		3	4				6	ø32		○	◎	○	◎	○	○	
	ø32		3	4				10	ø40		○	◎	○	◎	○	○	
	ø40		3	4				11	ø50		○	◎	○	◎	○	○	
	ø25				5			6	ø32		○	◎	○	◎	○	○	
	ø32				5			10	ø40		○	◎	○	◎	○	○	
	ø40				5			11	ø50		○	◎	○	◎	○	○	
	ø40					6		11	ø50		○	◎	○	◎	○	○	

■ :Stock ◎:1st recommendation ○:2nd recommendation

Series For Face Machining

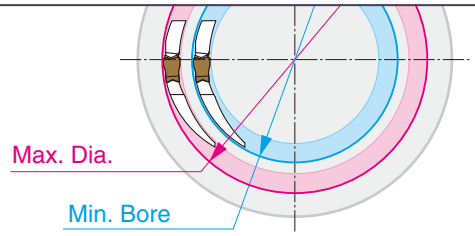
MG :Multi-functional·General Purpose Type ML :Multi-functional·Low Feed Type GG :Grooving·General Purpose Type GL :Grooving·Low Feed Type GF :Grooving·Low cutting force Type RG :Copying·General Purpose Type CG :Cut-Off Type

Type	Shank Size (mm) Height(h)	Width(b)	Cutting width (mm) 3	4	5	6	7	8	Series	Max. Grooving Depth (mm)	Bore (mm)	Ref. Page	MG	ML	GG	GL	GF	RG	CG
Straight Type	20	20	3						GNDF	12	ø35 ø45	→F28	◎	◎	◎	◎	◎	△	
			3							12	ø40 ø55		◎	◎	◎	◎	◎	△	
			3							18	ø50 ø70		◎	◎	◎	◎	◎	△	
			3							18	ø65 ø100		◎	◎	◎	◎	◎	△	
			3							18	ø90 ø150		◎	◎	◎	◎	◎	△	
			3							18	ø140 ø200		◎	◎	◎	◎	◎	△	
			3							18	ø180 ø300		◎	◎	◎	◎	◎	△	
				4					GNDF	18	ø40 ø55	→F28	◎	◎	◎	◎	◎	△	
				4						23	ø50 ø70		◎	◎	◎	◎	◎	△	
				4						23	ø65 ø90		◎	◎	◎	◎	◎	△	
				4						23	ø85 ø130		◎	◎	◎	◎	◎	△	
				4						23	ø125 ø200		◎	◎	◎	◎	◎	△	
				4						23	ø180 ø300		◎	◎	◎	◎	◎	△	
				4						23	ø280 ø1,000		◎	◎	◎	◎	◎	△	
	25	25			5				GNDF	23	ø50 ø70	→F28	◎	◎	◎	◎	◎	△	
					5					23	ø65 ø90		◎	◎	◎	◎	◎	△	
					5					23	ø85 ø130		◎	◎	◎	◎	◎	△	
					5					23	ø125 ø200		◎	◎	◎	◎	◎	△	
					5					23	ø180 ø300		◎	◎	◎	◎	◎	△	
					5					23	ø280 ø1,000		◎	◎	◎	◎	◎	△	
						6			GNDF	23	ø50 ø75	→F28	◎	◎	◎	◎	◎	△	
						6				23	ø70 ø110		◎	◎	◎	◎	◎	△	
						6				23	ø100 ø200		◎	◎	◎	◎	◎	△	
						6				23	ø180 ø300		◎	◎	◎	◎	◎	△	
						6				23	ø280 ø1,000		◎	◎	◎	◎	◎	△	
L Type	20	20				6			GNDFS	20	ø70 ø100	→F30	◎	◎	◎	◎	◎	△	
						6				20	ø100 ø200		◎	◎	◎	◎	◎	△	
						6				20	ø180 ø300		◎	◎	◎	◎	◎	△	
						6				20	ø280 ø1,000		◎	◎	◎	◎	◎	△	
						6				20	ø450 to		◎	◎	◎	◎	◎	△	
	25	25						8	GNDFS	20	ø70 ø100	→F30	◎	◎	◎	◎		△	
								8		20	ø100 ø200		◎	◎	◎	◎		△	
								8		20	ø180 ø300		◎	◎	◎	◎		△	
								8		20	ø280 ø1,000		◎	◎	◎	◎		△	
								8		20	ø450 to		◎	◎	◎	◎		△	

■ :Stock ■ :Made-to-order item ◎:1st recommendation ○:2nd recommendation △:Inserts and holders need modification in some cases.

Key Points in Face Machining

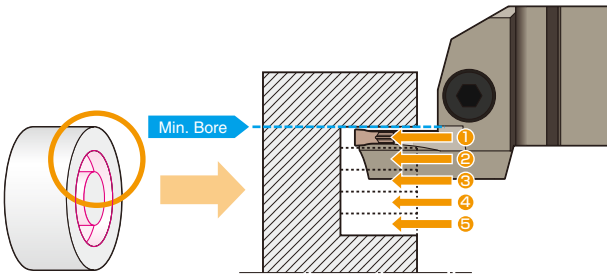
Holder Selection



- Select a holder so that the outer diameter of the first groove to be machined comes within the range of maximum and minimum grooving diameter of the holder.
- If the first groove meets the range of the effective grooving diameter, the grooving diameter will not be limited for the second and later passes.

Precautions for Groove Expansion

Recommended Chipbreaker MG ML GG GL GF



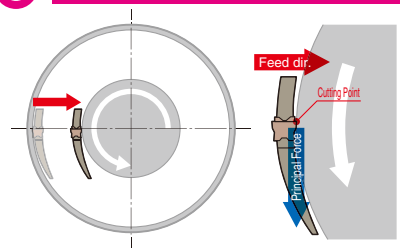
- If the first groove meets the range of the effective grooving diameter during groove expansion, the grooving diameter will not be limited for the second and later passes.

Precautions for Traversing

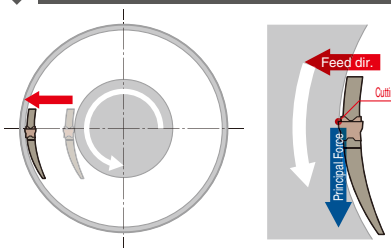
Recommended Chipbreaker MG ML

Considering the rigidity of the holder, we recommend machining from the outside to the inside.

○ Outer Side→Inner Side



✕ Inner Side→Outer Side



If machining is performed toward the outside, the wall thickness remaining on the principal force side will become thinner, which reduces the rigidity of the holder.

- If the first groove meets the range of the effective grooving diameter in face traversing, the grooving diameter will not be limited for the second and later passes.
- Select the chipbreaker of the lower limit side of the recommended cutting conditions and straighten chips before evacuation. (In face grooving, broken chips easily get stuck in grooves, which causes problems.)
- When breaking chips, step feed is required.

Key Points in Internal Machining

Precautions for Internal Machining

Recommended Chipbreaker ML GL

If the prepared hole diameter is small, use an ML type or GL type low-feed chipbreaker, each of which reduces chip curl diameter, to ensure adequate chip evacuation.

GCMN3004-MG

GCMN3002-ML

GCMN3002-GG

GCMN3002-GL

Work Material: SCM415 Bore Dia. ø25mm Holder: GNDI R2532-T306 Insert: GCM N300○-○○
Cutting Conditions: v_c=100m/min f=0.1mm/rev a_p=3.0mm Wet

Internal Machining

External Machining

GCMN3002-GG

⚠ Chip shapes differ between internal and external machining even under the same cutting condition.

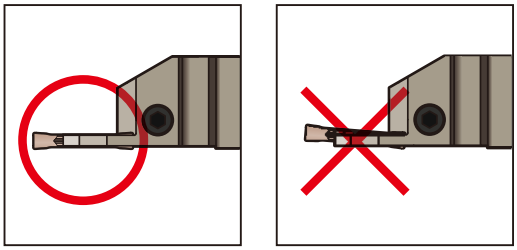
Work Material: SCM415
Holder: GNDL R2525M-320 Insert: GCM N3002-GG
Cutting Conditions: v_c=100m/min f=0.1mm/rev a_p=5mm Wet

SEC-Grooving Tools GND Type Important Notes

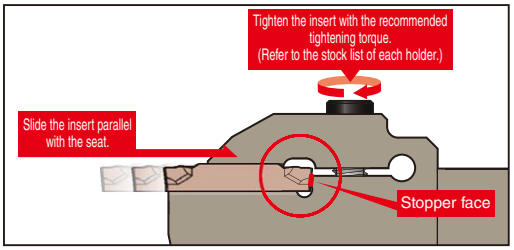
Precautions when Attaching Inserts

(1) Remove any dust and oil from the insert seat before attaching the insert.
(2) If there are scratches or burrs on the insert seat, scrape them away.
(3) Attach the insert by sliding it parallel along the seat.
(4) Clamp the insert with the opposite side (holder side) of the cutting edge pushed back to the stopper face.
(5) Tighten the insert with the recommended tightening torque. If you tighten the insert with excessive torque, the insert may be broken,which may lead to injury.

Attach the insert in parallel with the seat



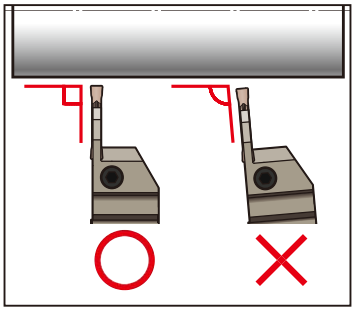
Be sure to push the insert to the end



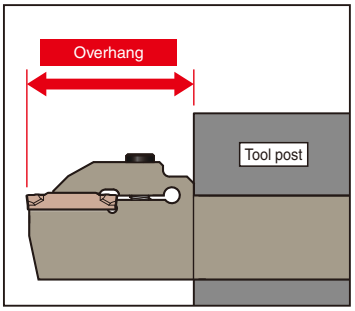
Precautions when Setting Holders

(1) Remove any dust and oil from the tool post before setting the holder.
(2) If there are scratches or burrs on the tool post, scrape them away.
(3) Set the holder so that the insert becomes perpendicular to the workpiece. Failure to do so may result in chattering or a curved surface finish.
(4) The overhang of the holder should be as short as possible.
(5) When grooving or traversing, adjust the center height of the cutting edge to as close to ±0mm as possible. (Within ±0.1mm is recommended.) Incorrect center height adjustment may cause chattering. In cut-off applications, adjust the center height of the cutting edge to a value from 0.0 to +0.2mm. A lower center height will result in larger nip at the center.

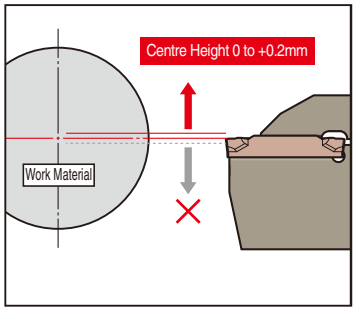
Attach the holder perpendicular to the workpiece



The overhang should be short



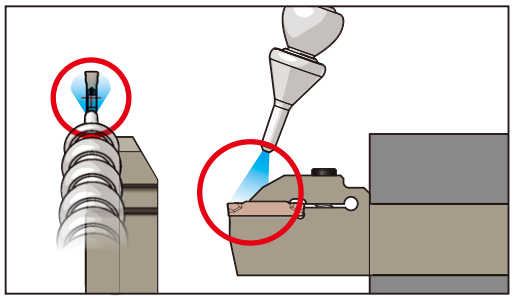
Center height adjustment in cut-off applications



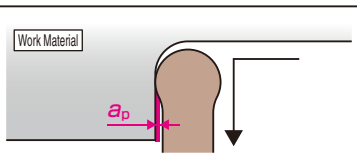
Precautions when Setting the Coolant Supply Nozzle

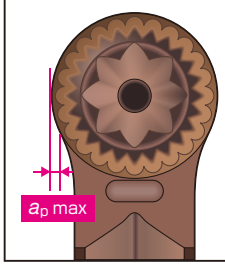
(1) Set the coolant supply nozzle so that coolant can be supplied from the top of the upper clamp unit.

Supply coolant to the top of the upper clamp unit



Depth of Cut when Pulling Out with RG Chipbreaker





Cutting width (mm)	Maximum Depth of Cut when Pulling Out (mm)
W	a_p max
3.0	0.15
4.0	0.20
5.0	0.25
6.0	0.30
7.0	0.35
8.0	0.40

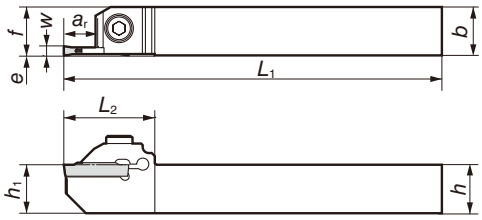
GNDM / GNDL Type (Zero Off-set)

External Multi-purpose Small Tools Type (Grooving, Turning, and Copying)

External

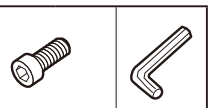
New

* Use the multi-purpose copying insert for turning (wide grooves).



Above figures show right hand tools

Spare Parts

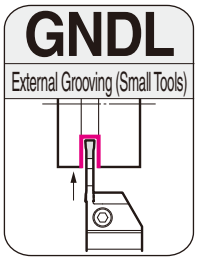


Holders

Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	L_2	e	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDM R/L1616JX-1.510	●	●	16	16	120	(16)	16	26	0	**1.5**	**10**	GCM N150005-GF	BX0515	**4.0**	LH040
GNDM R/L1616JX-212	●	●	16	16	120	(16)	16	30	0	**2.0**	**12**	GCM □20○○-□□			
GNDM R/L1616JX-312	●	●	16	16	120	(16)	16	30	0	**3.0**	**12**	GCM □30○○-□□			

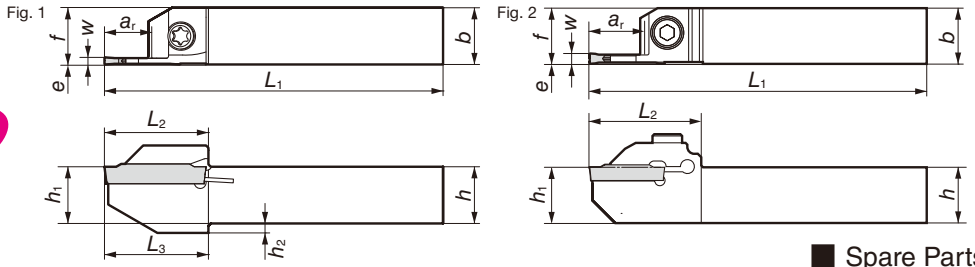
Select holders and inserts with the same grooving widths (w). Refer to F19 for applicable inserts.

External Grooving / Cut-Off Small Tools



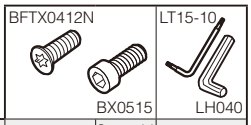
External

New



Above figures show right hand tools

Spare Parts



Holders

Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	h_2	L_2	L_3	e	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Fig.	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDL R/L1010JX-1.2510	●	●	10	10	120	(10)	10	2.0	18	18.3	0	**1.25**	**10.0**	1	GCM N125005-GF	BFTX0412N	**3.0**	LT15-10
GNDL R/L1010JX-1.510	●	●	10	10	120	(10)	10	2.0	18	18.3	0	**1.50**	**10.0**		GCM N150005-GF			
GNDL R/L1010JX-210	●	●	10	10	120	(10)	10	2.0	22	22.3	0	**2.00**	**10.0**		GCM □20○○-□□			
GNDL R/L1010JX-310	●	●	10	10	120	(10)	10	2.0	22	22.3	0	**3.00**	**10.0**		GCM □30○○-□□			
GNDL R/L1212JX-1.2512	●	●	12	12	120	(12)	12	2.0	19	19.3	0	**1.25**	**12.0**	1	GCM N125005-GF	BFTX0412N	**3.0**	LT15-10
GNDL R/L1212JX-1.512	●	●	12	12	120	(12)	12	2.0	19	19.3	0	**1.50**	**12.0**		GCM N150005-GF			
GNDL R/L1212JX-212.5	●	●	12	12	120	(12)	12	2.0	22	22.3	0	**2.00**	**12.5**		GCM □20○○-□□			
GNDL R/L1212JX-312.5	●	●	12	12	120	(12)	12	2.0	22	22.3	0	**3.00**	**12.5**		GCM □30○○-□□			
GNDL R/L1616JX-1.512.5	●	●	16	16	120	(16)	16	—	28	—	0	**1.50**	**12.5**	2	GCM N150005-GF	BX0515	**4.0**	LH040
GNDL R/L1616JX-216	●	●	16	16	120	(16)	16	—	32	—	0	**2.00**	**16.0**		GCM □20○○-□□			
GNDL R/L1616JX-316	●	●	16	16	120	(16)	16	—	32	—	0	**3.00**	**16.0**		GCM □30○○-□□			

Select holders and inserts with the same grooving widths (w). Refer to F19 for applicable inserts.

Recommended Cutting Conditions (GNDM(Small Tools)/GNDL(Small Tools)/GNDS)

Work Material	P Carbon Steel / Alloy Steel			M Stainless Steel			K Cast Iron			S Exotic Alloy	
Grade	AC830P	AC520U	AC530U	AC830P	AC520U	AC530U	AC425K	AC520U	AC530U	AC520U	AC530U
Cutting Speed v_c (m/min)	80 to 200	80 to 200	50 to 200	70 to 150	70 to 150	50 to 150	80 to 200	60 to 200	50 to 200	20 to 80	20 to 60

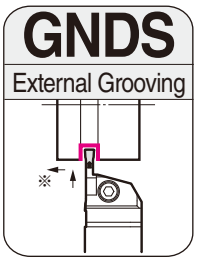
Grooving / Cut-Off

Breaker		Feed Rate f (mm/rev) MG	ML	GG	GL	GF	RG	CG
Grooving Widths w (mm)	1.25	–	–	–	–	0.01 to 0.08	–	–
	1.5	–	–	–	–	0.02 to 0.10	–	–
	2.0	–	–	0.05 to 0.25	0.03 to 0.15	0.03 to 0.12	–	0.05 to 0.20
	3.0	0.08 to 0.20	0.03 to 0.15	0.10 to 0.30	0.05 to 0.18	0.05 to 0.15	0.05 to 0.15	0.08 to 0.25
	4.0	0.10 to 0.25	0.05 to 0.20	0.15 to 0.35	0.08 to 0.22	0.05 to 0.18	0.10 to 0.20	0.10 to 0.30
	5.0	0.12 to 0.30	0.08 to 0.25	0.20 to 0.40	0.10 to 0.25	0.08 to 0.20	0.15 to 0.25	–
	6.0	0.15 to 0.35	0.10 to 0.30	0.20 to 0.45	0.12 to 0.30	0.10 to 0.25	0.20 to 0.30	–

Turning

Breaker		MG Feed Rate f (mm/rev)	MG Depth of Cut a_p (mm)	ML Feed Rate f (mm/rev)	ML Depth of Cut a_p (mm)	RG Feed Rate f (mm/rev)	RG Depth of Cut a_p (mm)
Grooving Widths w (mm)	3.0	0.08 to 0.25	0.4 to 1.5	0.05 to 0.18	0.3 to 1.5	0.10 to 0.40	0.3 to 1.2
	4.0	0.10 to 0.30	0.5 to 2.0	0.05 to 0.20	0.4 to 2.0	0.15 to 0.45	0.6 to 1.6
	5.0	0.12 to 0.35	0.8 to 2.5	0.08 to 0.25	0.5 to 2.5	0.20 to 0.50	0.8 to 2.0
	6.0	0.15 to 0.40	1.0 to 3.0	0.10 to 0.30	0.5 to 3.0	0.30 to 0.60	1.0 to 2.2

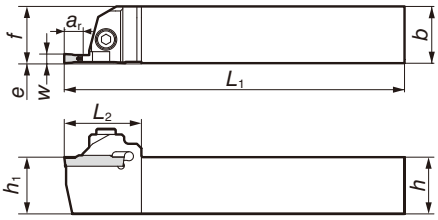
External Multi-purpose Shallow Grooves Type (Grooving, Turning, and Copying)



External

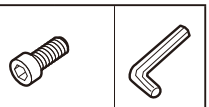
New

* Use the multi-purpose copying insert for turning (wide grooves).



Above figures show right hand tools

Spare Parts

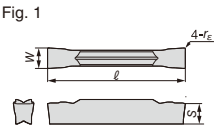
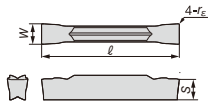
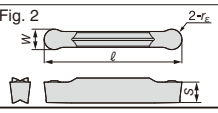


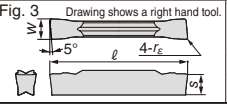
Holders

Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	L_2	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDS R/L2020K-206	●	●	20	20	125	20	20	30	**2.0**	**6**	GCM □20○○-□□	BX0520	**5.0**	LH040
GNDS R/L2020K-306	●	●	20	20	125	20	20	30	**3.0**	**6**	GCM □30○○-□□			
GNDS R/L2020K-410	●	●	20	20	125	20	20	34	**4.0**	**10**	GCM □40○○-□□			
GNDS R/L2020K-510	●	●	20	20	125	20	20	34	**5.0**	**10**	GCM N50○○-□□			
GNDS R/L2020K-610	●	●	20	20	125	20	20	34	**6.0**	**10**	GCM N60○○-□□			
GNDS R/L2525M-206	●	●	25	25	150	25	25	30	**2.0**	**6**	GCM □20○○-□□			
GNDS R/L2525M-306	●	●	25	25	150	25	25	30	**3.0**	**6**	GCM □30○○-□□			
GNDS R/L2525M-410	●	●	25	25	150	25	25	34	**4.0**	**10**	GCM □40○○-□□			
GNDS R/L2525M-510	●	●	25	25	150	25	25	34	**5.0**	**10**	GCM N50○○-□□			
GNDS R/L2525M-610	●	●	25	25	150	25	25	34	**6.0**	**10**	GCM N60○○-□□			

Select holders and inserts with the same grooving widths (w).

GNDM(Small Tools) / GNDL(Small Tools) / GNDS Insert

Application	Shape	Appearance	Cat. No.	Coated Carbide AC830P	AC425K	AC520U	AC530U	Dimensions (mm) w Cutting width	w Tolerance	r_ε	ℓ	s	Pcs./Pack	Fig.
Grooving / Turning	Fig. 1 	**MG** Type General Purpose Type	**GCM N3004-MG**	●	●	●	●	**3.0**	±0.03	0.4	21.1	3.8	5	1
			GCM N4008-MG	●	●	●	●	**4.0**	±0.03	0.8	26.4	4.0		
			GCM N5008-MG	●	●	●	●	**5.0**	±0.03	0.8	26.4	4.1		
			GCM N6008-MG	●	●	●	●	**6.0**	±0.03	0.8	26.4	4.5		
		ML Type w=~4.0mm w=5.0mm~ Low Feed Type	**GCM N3002-ML**	●	●	●	●	**3.0**	±0.03	0.2	21.1	3.8	5	1
			GCM N4004-ML	●	●	●	●	**4.0**	±0.03	0.4	26.4	4.0		
			GCM N5004-ML	●	●	●	●	**5.0**	±0.03	0.4	26.4	4.1		
			GCM N6004-ML	●	●	●	●	**6.0**	±0.03	0.4	26.4	4.5		
Grooving / Cut-Off	Fig. 1 	**GG** Type General Purpose Type	**GCM N2002-GG**	●		●	●	**2.0**	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GG	●		●	●	**3.0**	±0.03	0.2	21.1	3.8		
			GCM N4002-GG	●		●	●	**4.0**	±0.03	0.2	26.4	4.0		
			GCM N5002-GG	●		●	●	**5.0**	±0.03	0.2	26.4	4.1		
			GCM N6002-GG	●		●	●	**6.0**	±0.03	0.2	26.4	4.5		
			GCM N3004-GG	●		●	●	**3.0**	±0.03	0.4	21.1	3.8	5	1
			GCM N4004-GG	●		●	●	**4.0**	±0.03	0.4	26.4	4.0		
			GCM N5004-GG	●		●	●	**5.0**	±0.03	0.4	26.4	4.1		
			GCM N6004-GG	●		●	●	**6.0**	±0.03	0.4	26.4	4.5		
		GL Type Low Feed Type	**GCM N2002-GL**	●		●	●	**2.0**	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GL	●		●	●	**3.0**	±0.03	0.2	21.1	3.8		
			GCM N4002-GL	●		●	●	**4.0**	±0.03	0.2	26.4	4.0		
			GCM N5002-GL	●		●	●	**5.0**	±0.03	0.2	26.4	4.1		
			GCM N6002-GL	●		●	●	**6.0**	±0.03	0.2	26.4	4.5		
		GF Type Low Cutting Force Type	**GCM N125005-GF** New	—	—	—	●	**1.25**	±0.03	0.05	17.4	3.2	5	1
			GCM N150005-GF New	—	—	—	●	**1.5**	±0.03	0.05	17.4	3.7		
			GCM N2002-GF New	—	—	—	●	**2.0**	±0.03	0.2	21.1	3.6		
			GCM N3002-GF New	●		●	●	**3.0**	±0.03	0.2	21.1	3.8		
			GCM N4002-GF New	●		●	●	**4.0**	±0.03	0.2	26.4	4.0		
			GCM N5002-GF New	●		●	●	**5.0**	±0.03	0.2	26.4	4.1		
			GCM N6002-GF New	●		●	●	**6.0**	±0.03	0.2	26.4	4.5		
Copying	Fig. 2 	**RG** Type General Purpose Type	**GCM N3015-RG**	●	●	●	●	**3.0**	±0.03	1.5	21.1	3.8	5	2
			GCM N4020-RG	●	●	●	●	**4.0**	±0.03	2.0	26.4	4.0		
			GCM N5025-RG	●	●	●	●	**5.0**	±0.03	2.5	27.2	4.1		
			GCM N6030-RG	●	●	●	●	**6.0**	±0.03	3.0	27.5	4.5		

Application	Shape	Appearance	Cat. No.	Coated Carbide AC830P R	AC830P L	AC425K R	AC425K L	AC520U R	AC520U L	AC530U R	AC530U L	Dimensions (mm) w Cutting width	w Tolerance	r_ε	ℓ	s	Pcs./Pack	Fig.
Cut-Off	Fig. 3 Drawing shows a right hand tool. 	**CG** Type General Purpose Type	**GCM R/L2002-CG-05**	●	●			●	●	●	●	**2.0**	±0.03	0.2	21.1	3.6	5	3
			GCM R/L3002-CG-05	●	●			●	●	●	●	**3.0**	±0.03	0.2	21.3	3.8		
			GCM R/L4002-CG-05	●	●			●	●	●	●	**4.0**	±0.03	0.2	26.7	4.0		

Select holders and inserts with the same grooving widths (w). Recommended Cutting Conditions F18

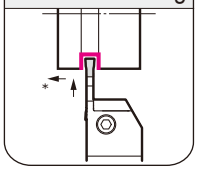
● mark: Standard stocked item (expanded item)

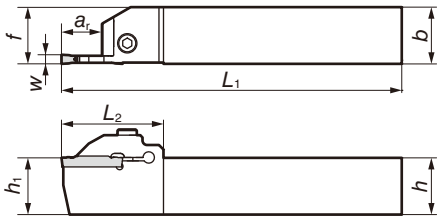
GNDM / GNDMS Type

External Multi-purpose Type (Grooving, Turning, and Copying)

GNDM
External Grooving

External





Above figures show right hand tools

* Use the multi-purpose copying insert for turning (wide grooves).

Holders

Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	L_2	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDM R/L2020K-210 New	●	●	20	20	125	20	20	33.6	**2.0**	**10**	GCM □20○○-□□	BX0520	**5.0**	LH040
GNDM R/L2020K-312	●	●	20	20	125	20	20	36.6	**3.0**	**12**	GCM □30○○-□□			
GNDM R/L2020K-418	●	●	20	20	125	20	20	45.0	**4.0**	**18**	GCM □40○○-□□			
GNDM R/L2020K-518	●	●	20	20	125	20	20	45.0	**5.0**	**18**	GCM N50○○-□□			
GNDM R/L2020K-618	●	●	20	20	125	20	20	45.0	**6.0**	**18**	GCM N60○○-□□			
GNDM R/L2525M-210 New	●	●	25	25	150	25	25	33.6	**2.0**	**10**	GCM □20○○-□□			
GNDM R/L2525M-312	●	●	25	25	150	25	25	36.6	**3.0**	**12**	GCM □30○○-□□			
GNDM R/L2525M-418	●	●	25	25	150	25	25	45.0	**4.0**	**18**	GCM □40○○-□□			
GNDM R/L2525M-518	●	●	25	25	150	25	25	45.0	**5.0**	**18**	GCM N50○○-□□			
GNDM R/L2525M-618	●	●	25	25	150	25	25	45.0	**6.0**	**18**	GCM N60○○-□□			
GNDM R/L3225P-312			32	25	170	25	32	36.6	**3.0**	**12**	GCM □30○○-□□			
GNDM R/L3225P-418			32	25	170	25	32	45.0	**4.0**	**18**	GCM □40○○-□□			
GNDM R/L3225P-518			32	25	170	25	32	45.0	**5.0**	**18**	GCM N50○○-□□			
GNDM R/L3225P-618			32	25	170	25	32	45.0	**6.0**	**18**	GCM N60○○-□□			
GNDM R/L3225P-718			32	25	170	25	32	50.0	**7.0**	**18**	GCM N70○○-□□	BX0620	**6.0**	LH050
GNDM R/L3225P-818			32	25	170	25	32	50.0	**8.0**	**18**	GCM N80○○-□□			
GNDM R/L3232P-312	●	●	32	32	170	32	32	36.6	**3.0**	**12**	GCM □30○○-□□	BX0620	**6.0**	LH050
GNDM R/L3232P-418	●	●	32	32	170	32	32	45.0	**4.0**	**18**	GCM □40○○-□□			
GNDM R/L3232P-518	●	●	32	32	170	32	32	45.0	**5.0**	**18**	GCM N50○○-□□			
GNDM R/L3232P-618	●	●	32	32	170	32	32	45.0	**6.0**	**18**	GCM N60○○-□□			
GNDM R/L3232P-718	●	●	32	32	170	32	32	50.0	**7.0**	**18**	GCM N70○○-□□			
GNDM R/L3232P-818	●	●	32	32	170	32	32	50.0	**8.0**	**18**	GCM N80○○-□□			

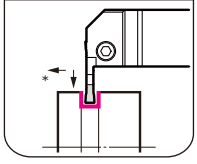
Select holders and inserts with the same grooving widths (w). Refer to F21 for applicable inserts.

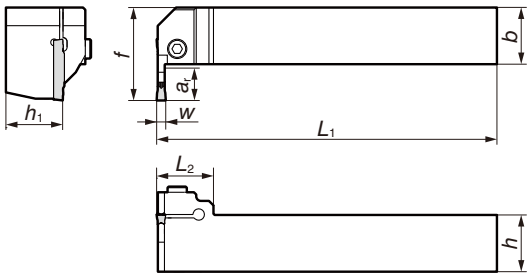
Spare Parts

External L-Styled (Side Cut) Multi-purpose Type (Grooving, Turning, and Copying)

GNDMS
External Grooving

External





Above figures show right hand tools

* Use the multi-purpose copying insert for turning (wide grooves).

Holders

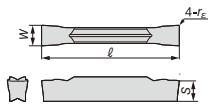
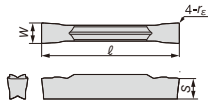
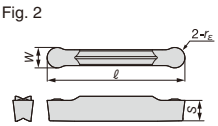
Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	L_2	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDMS R/L2020K-310	●	●	20	20	125	32	20	25	**3.0**	**10**	GCM □30○○-□□	BX0520	**5.0**	LH040
GNDMS R/L2020K-412	●	●	20	20	125	34	20	25	**4.0**	**12**	GCM □40○○-□□			
GNDMS R/L2020K-512	●	●	20	20	125	34	20	25	**5.0**	**12**	GCM N50○○-□□			
GNDMS R/L2525M-312	●	●	25	25	150	39	25	25	**3.0**	**12**	GCM □30○○-□□			
GNDMS R/L2525M-414	●	●	25	25	150	41	25	25	**4.0**	**14**	GCM □40○○-□□			
GNDMS R/L2525M-514	●	●	25	25	150	41	25	25	**5.0**	**14**	GCM N50○○-□□			
GNDMS R/L2525M-614	●	●	25	25	150	41	25	25	**6.0**	**14**	GCM N60○○-□□			

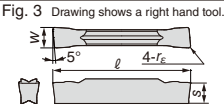
Select holders and inserts with the same grooving widths (w). Refer to F21 for applicable inserts.

Spare Parts

GNDM / GNDMS Type

For GNDM / GNDMS

Application	Shape	Appearance	Cat. No.	Coated Carbide AC830P	AC425K	AC520U	AC530U	Dimensions (mm) w Cutting width	Tolerance	r_ε	ℓ	s	Pcs./Pack	Fig.
Grooving / Turning	Fig. 1 	MG Type General Purpose Type	GCM N3004-MG	●	●	●	●	3.0	±0.03	0.4	21.1	3.8	5	1
			GCM N4008-MG	●	●	●	●	4.0	±0.03	0.8	26.4	4.0		
			GCM N5008-MG	●	●	●	●	5.0	±0.03	0.8	26.4	4.1		
			GCM N6008-MG	●	●	●	●	6.0	±0.03	0.8	26.4	4.5		
			GCM N7008-MG	●	●	●	●	7.0	±0.04	0.8	28.75	5.5		
			GCM N8008-MG	●	●	●	●	8.0	±0.04	0.8	28.75	6.0		
		ML Type w=~4.0mm w=5.0mm~ Low Feed Type	GCM N3002-ML	●	●	●	●	3.0	±0.03	0.2	21.1	3.8	5	1
			GCM N4004-ML	●	●	●	●	4.0	±0.03	0.4	26.4	4.0		
			GCM N5004-ML	●	●	●	●	5.0	±0.03	0.4	26.4	4.1		
			GCM N6004-ML	●	●	●	●	6.0	±0.03	0.4	26.4	4.5		
			GCM N7004-ML	●	●	●	●	7.0	±0.04	0.4	28.75	5.5		
			GCM N8004-ML	●	●	●	●	8.0	±0.04	0.4	28.75	6.0		
Grooving / Cut-Off	Fig. 1 	GG Type General Purpose Type	GCM N2002-GG	●		●	●	2.0	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GG	●		●	●	3.0	±0.03	0.2	21.1	3.8		
			GCM N4002-GG	●		●	●	4.0	±0.03	0.2	26.4	4.0		
			GCM N5002-GG	●		●	●	5.0	±0.03	0.2	26.4	4.1		
			GCM N6002-GG	●		●	●	6.0	±0.03	0.2	26.4	4.5		
			GCM N3004-GG	●		●	●	3.0	±0.03	0.4	21.1	3.8	5	1
			GCM N4004-GG	●		●	●	4.0	±0.03	0.4	26.4	4.0		
			GCM N5004-GG	●		●	●	5.0	±0.03	0.4	26.4	4.1		
			GCM N6004-GG	●		●	●	6.0	±0.03	0.4	26.4	4.5		
			GCM N7004-GG	●		●	●	7.0	±0.04	0.4	28.75	5.5		
			GCM N8004-GG	●		●	●	8.0	±0.04	0.4	28.75	6.0		
		GL Type Low Feed Type	GCM N2002-GL	●		●	●	2.0	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GL	●		●	●	3.0	±0.03	0.2	21.1	3.8		
			GCM N4002-GL	●		●	●	4.0	±0.03	0.2	26.4	4.0		
			GCM N5002-GL	●		●	●	5.0	±0.03	0.2	26.4	4.1		
			GCM N6002-GL	●		●	●	6.0	±0.03	0.2	26.4	4.5		
			GCM N7004-GL	●		●	●	7.0	±0.04	0.4	28.75	5.5		
			GCM N8004-GL	●		●	●	8.0	±0.04	0.4	28.75	6.0		
		GF Type Low cutting force Type	GCM N2002-GF New	—	—	—	●	2.0	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GF New	●		●	●	3.0	±0.03	0.2	21.1	3.8		
			GCM N4002-GF New	●		●	●	4.0	±0.03	0.2	26.4	4.0		
			GCM N5002-GF New	●		●	●	5.0	±0.03	0.2	26.4	4.1		
			GCM N6002-GF New	●		●	●	6.0	±0.03	0.2	26.4	4.5		
Copying	Fig. 2 	RG Type General Purpose Type	GCM N3015-RG	●	●	●	●	3.0	±0.03	1.5	21.1	3.8	5	2
			GCM N4020-RG	●	●	●	●	4.0	±0.03	2.0	26.4	4.0		
			GCM N5025-RG	●	●	●	●	5.0	±0.03	2.5	27.2	4.1		
			GCM N6030-RG	●	●	●	●	6.0	±0.03	3.0	27.5	4.5		
			GCM N7035-RG	●	●	●	●	7.0	±0.04	3.5	29.05	5.5		
			GCM N8040-RG	●	●	●	●	8.0	±0.04	4.0	29.25	6.0		

Application	Shape	Appearance	Cat. No.	Coated Carbide AC830P R	AC830P L	AC425K R	AC425K L	AC520U R	AC520U L	AC530U R	AC530U L	Dimensions (mm) w Cutting width	Tolerance	r_ε	ℓ	s	Pcs./Pack	Fig.
Cut-Off	Fig. 3 Drawing shows a right hand tool. 	CG Type General Purpose Type	GCM R/L2002-CG-05	●	●			●	●	●	●	2.0	±0.03	0.2	21.1	3.6	5	3
			GCM R/L3002-CG-05	●	●			●	●	●	●	3.0	±0.03	0.2	21.3	3.8		
			GCM R/L4002-CG-05	●	●			●	●	●	●	4.0	±0.03	0.2	26.7	4.0		

Select holders and inserts with the same grooving widths (*w*).

Recommended Cutting Conditions (GNDM / GNDMS)

Work Material	P Carbon Steel / Alloy Steel			M Stainless Steel			K Cast Iron			S Exotic Alloy	
Grade	AC830P	AC520U	AC530U	AC830P	AC520U	AC530U	AC425K	AC520U	AC530U	AC520U	AC530U
Cutting Speed v_c (m/min)	80 to 200	80 to 200	50 to 200	70 to 150	70 to 150	50 to 150	80 to 200	60 to 200	50 to 200	20 to 80	20 to 60

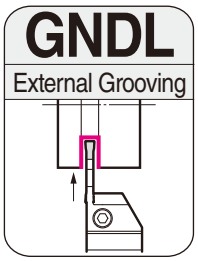
Grooving / Cut-Off	Breaker	Feed Rate *f* (mm/rev) MG	ML	GG	GL	GF	RG	CG
Grooving Widths *w* (mm)	2.0	-	-	0.05 to 0.25	0.03 to 0.15	0.03 to 0.12	-	0.05 to 0.20
	3.0	0.08 to 0.20	0.03 to 0.15	0.10 to 0.30	0.05 to 0.18	0.05 to 0.15	0.05 to 0.15	0.08 to 0.25
	4.0	0.10 to 0.25	0.05 to 0.20	0.15 to 0.35	0.08 to 0.22	0.05 to 0.18	0.10 to 0.20	0.10 to 0.30
	5.0	0.12 to 0.30	0.08 to 0.25	0.20 to 0.40	0.10 to 0.25	0.08 to 0.20	0.15 to 0.25	-
	6.0	0.15 to 0.35	0.10 to 0.30	0.20 to 0.45	0.12 to 0.30	0.10 to 0.25	0.20 to 0.30	-
	7.0	0.18 to 0.40	0.12 to 0.35	0.20 to 0.50	0.15 to 0.35	-	0.25 to 0.35	-
	8.0	0.20 to 0.45	0.15 to 0.40	0.20 to 0.55	0.18 to 0.40	-	0.35 to 0.40	-

Turning	Breaker	MG Feed Rate *f* (mm/rev)	MG Depth of Cut a_p (mm)	ML Feed Rate *f* (mm/rev)	ML Depth of Cut a_p (mm)	RG Feed Rate *f* (mm/rev)	RG Depth of Cut a_p (mm)
Grooving Widths *w* (mm)	3.0	0.08 to 0.25	0.4 to 1.5	0.05 to 0.18	0.3 to 1.5	0.10 to 0.40	0.3 to 1.2
	4.0	0.10 to 0.30	0.5 to 2.0	0.05 to 0.20	0.4 to 2.0	0.15 to 0.45	0.6 to 1.6
	5.0	0.12 to 0.35	0.8 to 2.5	0.08 to 0.25	0.5 to 2.5	0.20 to 0.50	0.8 to 2.0
	6.0	0.15 to 0.40	1.0 to 3.0	0.10 to 0.30	0.5 to 3.0	0.30 to 0.60	1.0 to 2.2
	7.0	0.18 to 0.45	1.2 to 3.5	0.12 to 0.35	0.7 to 3.5	0.35 to 0.65	1.2 to 2.5
	8.0	0.20 to 0.50	1.5 to 4.0	0.15 to 0.40	0.7 to 4.0	0.35 to 0.70	1.5 to 3.0

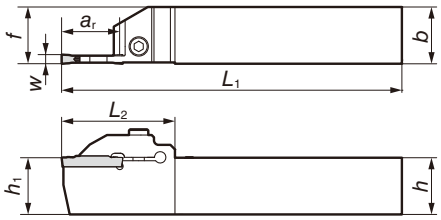
● mark : Standard stocked item (expanded item)

GNDL / GNDLS Type

External Deep Grooving & Cut-Off

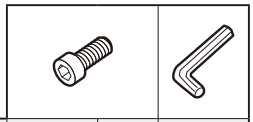


External



Above figures show right hand tools

Spare Parts

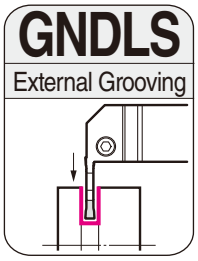


Holders

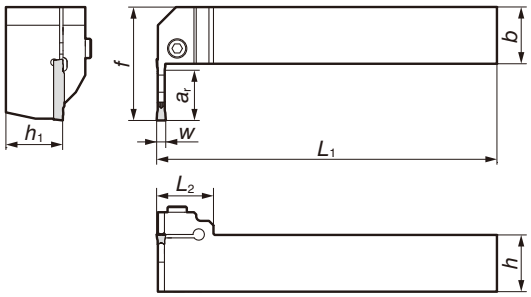
Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	L_2	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDL R/L2020K-220	●	●	20	20	125	20	20	44.5	**2.0**	**20**	GCM □20○○-□□	BX0520	**5.0**	LH040
GNDL R/L2020K-320	●	●	20	20	125	20	20	44.5	**3.0**	**20**(18)	GCM □30○○-□□			
GNDL R/L2020K-425	●	●	20	20	125	20	20	50.0	**4.0**	**25**(23)	GCM □40○○-□□			
GNDL R/L2020K-525	●	●	20	20	125	20	20	50.0	**5.0**	**25**(23)	GCM N50○○-□□			
GNDL R/L2020K-625	●	●	20	20	125	20	20	50.0	**6.0**	**25**(23)	GCM N60○○-□□			
GNDL R/L2525M-220	●	●	25	25	150	25	25	44.5	**2.0**	**20**	GCM □20○○-□□			
GNDL R/L2525M-320	●	●	25	25	150	25	25	44.5	**3.0**	**20**(18)	GCM □30○○-□□			
GNDL R/L2525M-425	●	●	25	25	150	25	25	50.0	**4.0**	**25**(23)	GCM □40○○-□□			
GNDL R/L2525M-525	●	●	25	25	150	25	25	50.0	**5.0**	**25**(23)	GCM N50○○-□□			
GNDL R/L2525M-625	●	●	25	25	150	25	25	50.0	**6.0**	**25**(23)	GCM N60○○-□□			
GNDL R/L3225P-320			32	25	170	25	32	44.5	**3.0**	**20**(18)	GCM □30○○-□□			
GNDL R/L3225P-425			32	25	170	25	32	50.0	**4.0**	**25**(23)	GCM □40○○-□□			
GNDL R/L3225P-525			32	25	170	25	32	50.0	**5.0**	**25**(23)	GCM N50○○-□□			
GNDL R/L3225P-625			32	25	170	25	32	50.0	**6.0**	**25**(23)	GCM N60○○-□□			
GNDL R/L3225P-725			32	25	170	25	32	50.0	**7.0**	**25**(23)	GCM N70○○-□□	BX0620	**6.0**	LH050
GNDL R/L3225P-825			32	25	170	25	32	50.0	**8.0**	**25**(23)	GCM N80○○-□□			
GNDL R/L3232P-320	●	●	32	32	170	32	32	44.5	**3.0**	**20**(18)	GCM □30○○-□□	BX0620	**6.0**	LH050
GNDL R/L3232P-425	●	●	32	32	170	32	32	50.0	**4.0**	**25**(23)	GCM □40○○-□□			
GNDL R/L3232P-525	●	●	32	32	170	32	32	50.0	**5.0**	**25**(23)	GCM N50○○-□□			
GNDL R/L3232P-625	●	●	32	32	170	32	32	50.0	**6.0**	**25**(23)	GCM N60○○-□□			
GNDL R/L3232P-725	●	●	32	32	170	32	32	50.0	**7.0**	**25**(23)	GCM N70○○-□□			
GNDL R/L3232P-825	●	●	32	32	170	32	32	50.0	**8.0**	**25**(23)	GCM N80○○-□□			

Select holders and inserts with the same grooving widths (*w*). Dimensions in parentheses under maximum grooving depth are for applications that use copying inserts (RG Type Breakers).
Refer to F23 for applicable inserts.

External L-Styled (Side Cut) Grooving

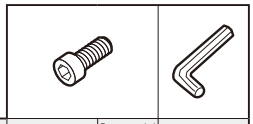


External



Above figures show right hand tools

Spare Parts



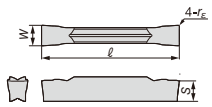
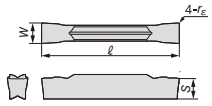
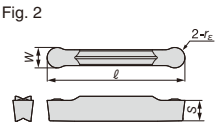
Holders

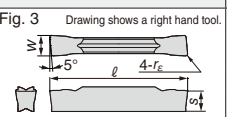
Cat. No.	Stock R	Stock L	Dimensions (mm) h	b	L_1	f	h_1	L_2	Grooving Width (mm) w	Max. Grooving Depth (mm) a_r	Applicable Insert	Cap Screw	Recommended Tightening Torque (N·m)	Spanner
GNDLS R/L2020K-216	●	●	20	20	125	38	20	25	**2.0**	**16**	GCM □20○○-□□	BX0520	**5.0**	LH040
GNDLS R/L2020K-316	●	●	20	20	125	38	20	25	**3.0**	**16**	GCM □30○○-□□			
GNDLS R/L2525M-218	●	●	25	25	150	45	25	25	**2.0**	**18**	GCM □20○○-□□			
GNDLS R/L2525M-318	●	●	25	25	150	45	25	25	**3.0**	**18**	GCM □30○○-□□			
GNDLS R/L2525M-423	●	●	25	25	150	50	25	25	**4.0**	**23**	GCM □40○○-□□			
GNDLS R/L2525M-523	●	●	25	25	150	50	25	25	**5.0**	**23**	GCM N50○○-□□			
GNDLS R/L2525M-623	●	●	25	25	150	50	25	25	**6.0**	**23**	GCM N60○○-□□			

Select holders and inserts with the same grooving widths (*w*). Refer to F23 for applicable inserts.

GNDL / GNDLS Type

For GNDL/GNDLS

Application	Shape	Appearance	Cat. No.	Coated Carbide AC830P	AC425K	AC520U	AC530U	Dimensions (mm) w Cutting width	Tolerance	r_ε	ℓ	s	Pcs./Pack	Fig.
Grooving / Turning	Fig. 1 	MG Type General Purpose Type	GCM N3004-MG	●	●	●	●	3.0	±0.03	0.4	21.1	3.8	5	1
			GCM N4008-MG	●	●	●	●	4.0	±0.03	0.8	26.4	4.0		
			GCM N5008-MG	●	●	●	●	5.0	±0.03	0.8	26.4	4.1		
			GCM N6008-MG	●	●	●	●	6.0	±0.03	0.8	26.4	4.5		
			GCM N7008-MG	●	●	●	●	7.0	±0.04	0.8	28.75	5.5		
			GCM N8008-MG	●	●	●	●	8.0	±0.04	0.8	28.75	6.0		
		ML Type w=~4.0mm w=5.0mm~ Low Feed Type	GCM N3002-ML	●	●	●	●	3.0	±0.03	0.2	21.1	3.8	5	1
			GCM N4004-ML	●	●	●	●	4.0	±0.03	0.4	26.4	4.0		
			GCM N5004-ML	●	●	●	●	5.0	±0.03	0.4	26.4	4.1		
			GCM N6004-ML	●	●	●	●	6.0	±0.03	0.4	26.4	4.5		
			GCM N7004-ML	●	●	●	●	7.0	±0.04	0.4	28.75	5.5		
			GCM N8004-ML	●	●	●	●	8.0	±0.04	0.4	28.75	6.0		
Grooving / Cut-Off	Fig. 1 	GG Type General Purpose Type	GCM N2002-GG	●		●	●	2.0	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GG	●		●	●	3.0	±0.03	0.2	21.1	3.8		
			GCM N4002-GG	●		●	●	4.0	±0.03	0.2	26.4	4.0		
			GCM N5002-GG	●		●	●	5.0	±0.03	0.2	26.4	4.1		
			GCM N6002-GG	●		●	●	6.0	±0.03	0.2	26.4	4.5		
			GCM N3004-GG	●		●	●	3.0	±0.03	0.4	21.1	3.8	5	1
			GCM N4004-GG	●		●	●	4.0	±0.03	0.4	26.4	4.0		
			GCM N5004-GG	●		●	●	5.0	±0.03	0.4	26.4	4.1		
			GCM N6004-GG	●		●	●	6.0	±0.03	0.4	26.4	4.5		
			GCM N7004-GG	●		●	●	7.0	±0.04	0.4	28.75	5.5		
			GCM N8004-GG	●		●	●	8.0	±0.04	0.4	28.75	6.0		
		GL Type Low Feed Type	GCM N2002-GL	●		●	●	2.0	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GL	●		●	●	3.0	±0.03	0.2	21.1	3.8		
			GCM N4002-GL	●		●	●	4.0	±0.03	0.2	26.4	4.0		
			GCM N5002-GL	●		●	●	5.0	±0.03	0.2	26.4	4.1		
			GCM N6002-GL	●		●	●	6.0	±0.03	0.2	26.4	4.5		
			GCM N7004-GL	●		●	●	7.0	±0.04	0.4	28.75	5.5		
			GCM N8004-GL	●		●	●	8.0	±0.04	0.4	28.75	6.0		
		GF Type Low cutting force Type	GCM N2002-GF New	—	—	—	●	2.0	±0.03	0.2	21.1	3.6	5	1
			GCM N3002-GF New	●		●	●	3.0	±0.03	0.2	21.1	3.8		
			GCM N4002-GF New	●		●	●	4.0	±0.03	0.2	26.4	4.0		
			GCM N5002-GF New	●		●	●	5.0	±0.03	0.2	26.4	4.1		
			GCM N6002-GF New	●		●	●	6.0	±0.03	0.2	26.4	4.5		
Copying	Fig. 2 	RG Type General Purpose Type	GCM N3015-RG	●	●	●	●	3.0	±0.03	1.5	21.1	3.8	5	2
			GCM N4020-RG	●	●	●	●	4.0	±0.03	2.0	26.4	4.0		
			GCM N5025-RG	●	●	●	●	5.0	±0.03	2.5	27.2	4.1		
			GCM N6030-RG	●	●	●	●	6.0	±0.03	3.0	27.5	4.5		
			GCM N7035-RG	●	●	●	●	7.0	±0.04	3.5	29.05	5.5		
			GCM N8040-RG	●	●	●	●	8.0	±0.04	4.0	29.25	6.0		

Application	Shape	Appearance	Cat. No.	Coated Carbide AC830P R	AC830P L	AC425K R	AC425K L	AC520U R	AC520U L	AC530U R	AC530U L	Dimensions (mm) w Cutting width	Tolerance	r_ε	ℓ	s	Pcs./Pack	Fig.
Cut-Off	Fig. 3 Drawing shows a right hand tool. 	CG Type General Purpose Type	GCM R/L2002-CG-05	●	●			●	●	●	●	2.0	±0.03	0.2	21.1	3.6	5	3
			GCM R/L3002-CG-05	●	●			●	●	●	●	3.0	±0.03	0.2	21.3	3.8		
			GCM R/L4002-CG-05	●	●			●	●	●	●	4.0	±0.03	0.2	26.7	4.0		

Select holders and inserts with the same grooving widths (*w*).

Recommended Cutting Conditions (GNDL/GNDLS)

Work Material	P Carbon Steel / Alloy Steel			M Stainless Steel			K Cast Iron			S Exotic Alloy	
Grade	AC830P	AC520U	AC530U	AC830P	AC520U	AC530U	AC425K	AC520U	AC530U	AC520U	AC530U
Cutting Speed v_c (m/min)	80 to 200	80 to 200	50 to 200	70 to 150	70 to 150	50 to 150	80 to 200	60 to 200	50 to 200	20 to 80	20 to 60

Application	Breaker		Feed Rate *f* (mm/rev) MG	ML	GG	GL	GF	RG	CG
Grooving / Cut-Off	Grooving Widths *w* (mm)	2.0	–	–	0.05 to 0.25	0.03 to 0.15	0.03 to 0.12	–	0.05 to 0.20
		3.0	0.08 to 0.20	0.03 to 0.15	0.10 to 0.30	0.05 to 0.18	0.05 to 0.15	0.05 to 0.15	0.08 to 0.25
		4.0	0.10 to 0.25	0.05 to 0.20	0.15 to 0.35	0.08 to 0.22	0.05 to 0.18	0.10 to 0.20	0.10 to 0.30
		5.0	0.12 to 0.30	0.08 to 0.25	0.20 to 0.40	0.10 to 0.25	0.08 to 0.20	0.15 to 0.25	–
		6.0	0.15 to 0.35	0.10 to 0.30	0.20 to 0.45	0.12 to 0.30	0.10 to 0.25	0.20 to 0.30	–
		7.0	0.18 to 0.40	0.12 to 0.35	0.20 to 0.50	0.15 to 0.35	–	0.25 to 0.35	–
		8.0	0.20 to 0.45	0.15 to 0.40	0.20 to 0.55	0.18 to 0.40	–	0.35 to 0.40	–

● mark: Standard stocked item (expanded item)