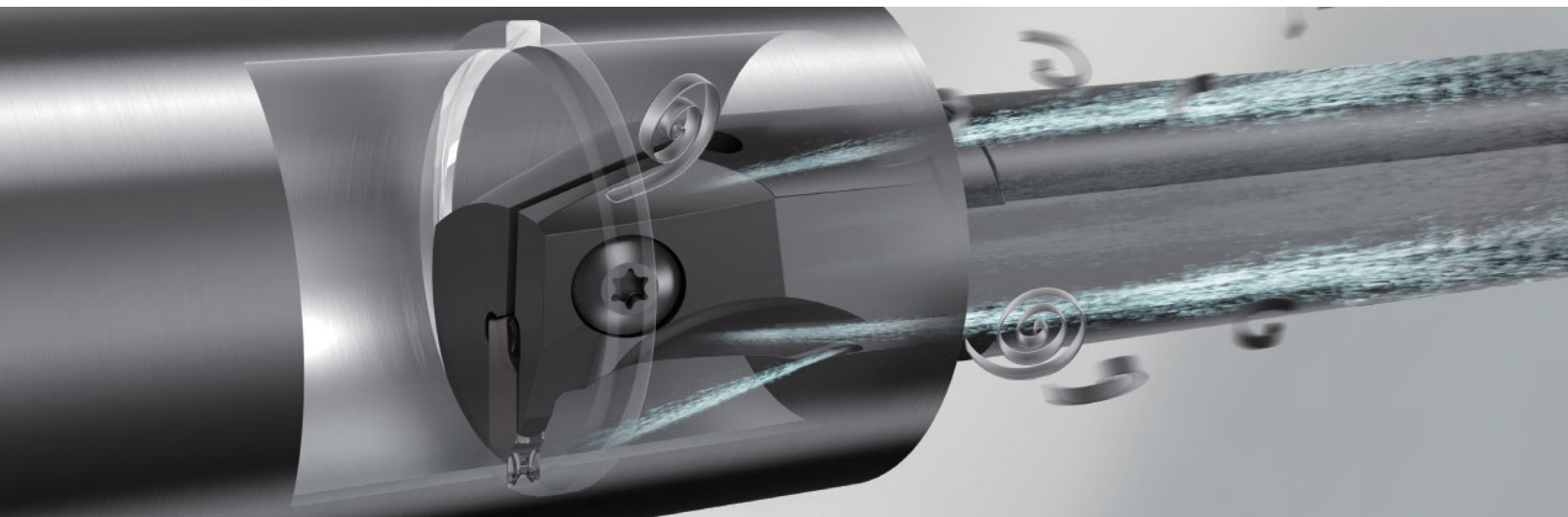




KGDI

Internal Grooving



Stable Machining with Excellent Chip Control and Smooth Chip Evacuation

- Good Chip Control with Special Chipbreaker**
- Smooth Chip Evacuation by Creating Chip Pocket**
- Low Cutting Forces and Stable Machining**



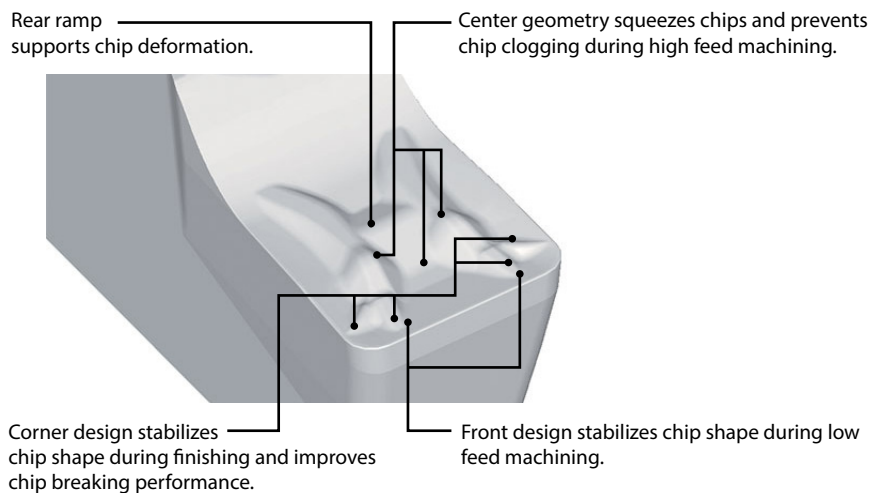
KGDI

Internal Grooving

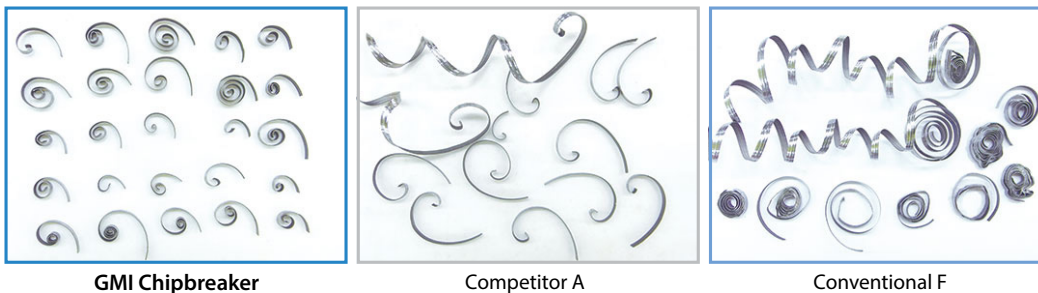
Stable Machining with Excellent Chip Control and Smooth Chip Evacuation

1 Excellent Chip Control with GMI Chipbreaker for Internal Grooving

Evenly breaks chips in various cutting conditions with newly designed chipbreaker geometry.
Good chip control even in finishing applications with small depths of cut.



Chip Control Comparison (Internal Evaluation)



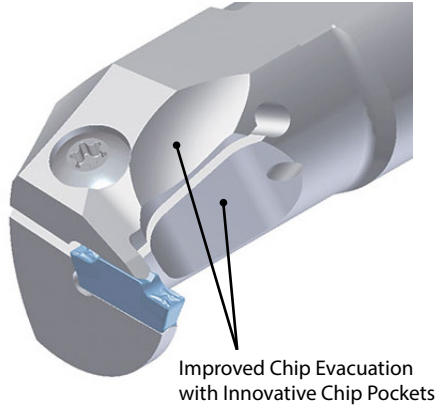
Smooth chip control with stable chip shape compared with Competitor A and Conventional F.
Prevents frequent machine stops caused by tangled chips.

Cutting Conditions: $V_c = 330$ sfm, $f = 0.003$ ipr Toolholder: KGDIR3225B-3
Insert: GDM3015N-040GMI Workpiece: 5120 Steel

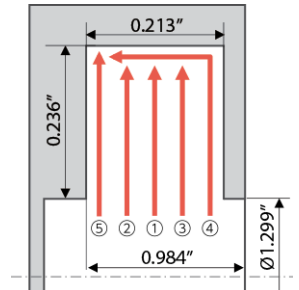
2

Smooth Chip Evacuation by Creating Chip Pocket

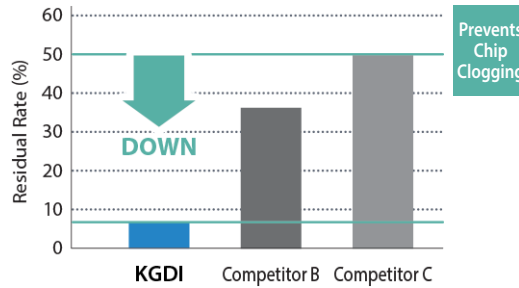
Smooth chip evacuation when grooving and finishing.



Cutting Conditions:
 $V_c = 100 \text{ m/min}$
 ①: D.O.C. = 0.118", ②③: D.O.C. = 0.039", ④⑤: D.O.C. = 0.008"
 $f = 0.003 \text{ ipr}$
 Toolholder: KGDIR3225B-3
 Insert: GDM3015N-040GMI
 Workpiece: 4131 Steel



Residual Chips (Internal Evaluation)



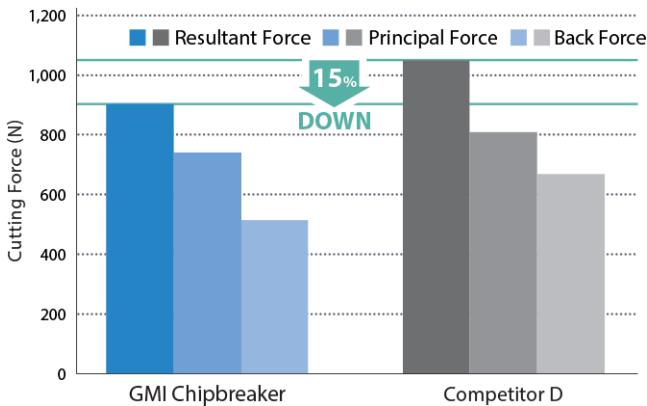
Chips remaining in machined bore were greatly reduced compared with Competitor B and C.

3

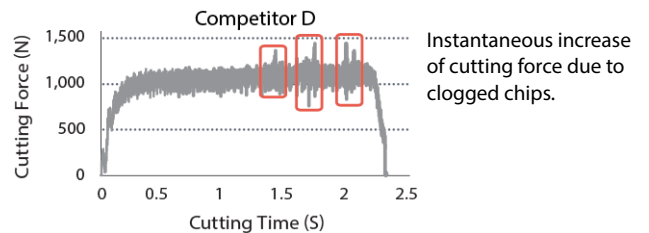
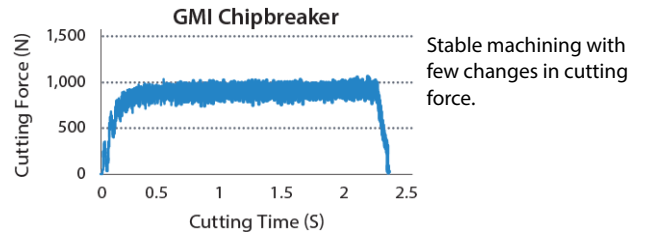
Low Cutting Forces and Stable Machining

GMI chipbreaker prevents chip clogging and reduces cutting forces.

Cutting Force Comparison (Internal Evaluation)



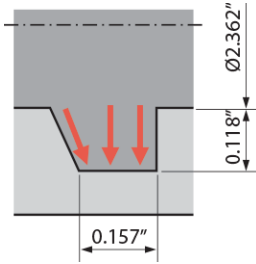
Cutting Conditions: $V_c = 490 \text{ sfm}$, $f = 0.004 \text{ ipr}$ Toolholder: KGDIR3225B-3
 Insert: GDM3015N-040GMI Workpiece: 4131 Steel



Case Studies

Bearing SCM415

Vc = 820 sfm
 f = 0.006 ipr
 Wet
 KGDIR3225B-3
 GDM3015N-040GMI PR1225



GMI Chipbreaker

1200 pcs/edge



Competitor E

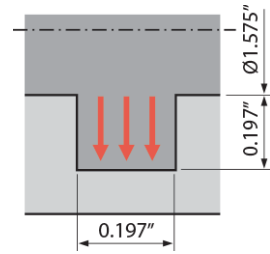
800 pcs/edge

GMI chipbreaker PR1125 showed longer tool life compared with Competitor E. Stable machining without chattering and cutting noise.

(User Evaluation)

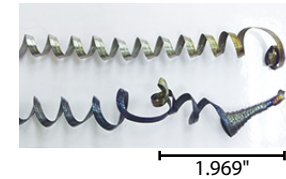
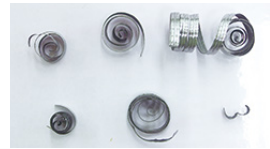
Automotive Parts SS400

Vc = 330 sfm
 f = 0.003 ipr
 Wet
 KGDIR3225B-3
 GDM3015N-040GMI PR1225



GMI Chipbreaker

Conventional G



Competitor G creates scratches on the workpiece with long chips GMI chipbreaker has no problem because of good chip control.

(User Evaluation)

Recommended Cutting Conditions (Cutting Speed)

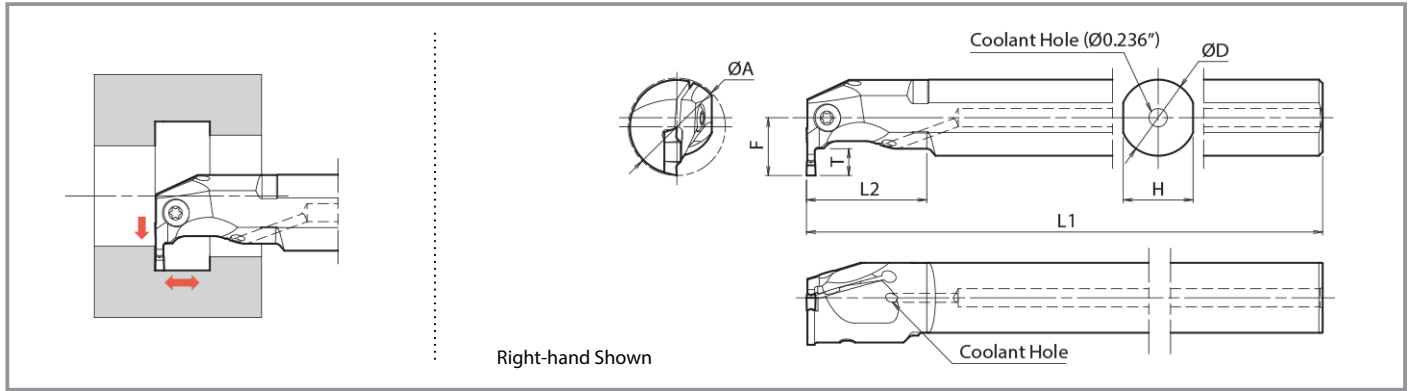
Workpiece	Chipbreaker	Recommended Insert Grade (Vc: sfm)				Notes
		Cermet	MEGACOAT NANO	MEGACOAT		
		TN620	PR1535	PR1225	PR1215	
Carbon Steel	GMI CM	☆ 330 – 720	☆ 260 – 490	★ 260 – 660	☆ 330 – 660	Wet
Alloy Steel		☆ 260 – 660	☆ 230 – 490	★ 230 – 590	☆ 260 – 590	
Stainless Steel		☆ 230 – 590	★ 200 – 490	★ 200 – 490	☆ 200 – 490	
Cast Iron		-	-	-	★ 330 – 660	

★ 1st Choice ☆ 2nd Choice

Recommended Cutting Conditions (f, D.O.C.)

Chipbreaker	Grooving	Turning
	GMI (General Purpose)	

KGDI Toolholder (inch Size)



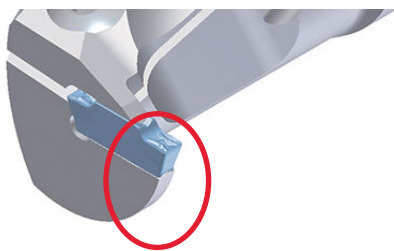
Toolholder Dimensions

Description	Stock	Min. Bore Dia.		Dimensions (in)							Edge Width W (in)		Spare Parts			
		ØA		ØD	H	L1	L2	F	T	MIN.	MAX.	Clamp Screw		Wrench		
		GMI	CM													
KGDIR 10B-2	●	0.709	-	0.625	0.591	6	0.984	0.374	0.177	0.079	0.079	GS-50	-	LW-3	-	
	●	0.984	-	0.75	0.709	7	1.181	0.571	0.236	0.079	0.079	GS-50	-	LW-3	-	
	●	1.26	-	1	0.906	8	1.575	0.748	0.276	0.079	0.079	-	SB-5TR	-	LTW-20	
KGDIR 10B-3	●	0.787	0.827	0.625	0.591	6	0.984	0.453	0.217	0.118	0.118	GS-50	-	LW-3	-	
	●	0.984	1.024	0.75	0.709	7	1.181	0.571	0.236	0.118	0.118	GS-50	-	LW-3	-	
	●	1.26	1.299	1	0.906	8	1.575	0.748	0.315	0.118	0.118	-	SB-5TR	-	LTW-20	
KGDIR 16B-4	●	1.26	A: 1.575 B: 1.299	1	0.906	8	1.575	0.748	0.335	0.157	0.197	-	SB-5TR	-	LTW-20	
	●	1.575	A: 1.890 B: 1.614	1.25	1.142	8.5	1.969	0.925	0.433	0.157	0.197	-	SB-5TR	-	LTW-20	
KGDIR 16B-5	●	1.26	A: 1.457 B: 1.338	1	0.906	8	1.575	0.748	0.335	0.197	0.197	-	SB-5TR	-	LTW-20	
	●	1.575	A: 1.772 B: 1.653	1.25	1.142	8.5	1.969	0.925	0.433	0.197	0.197	-	SB-5TR	-	LTW-20	

A : Available with Original Holder Shape

B : Available with Modified Holder Shape (Below)

● : U.S. Stock



A : Original



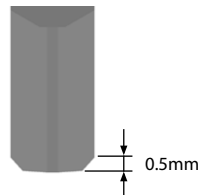
B : Modified



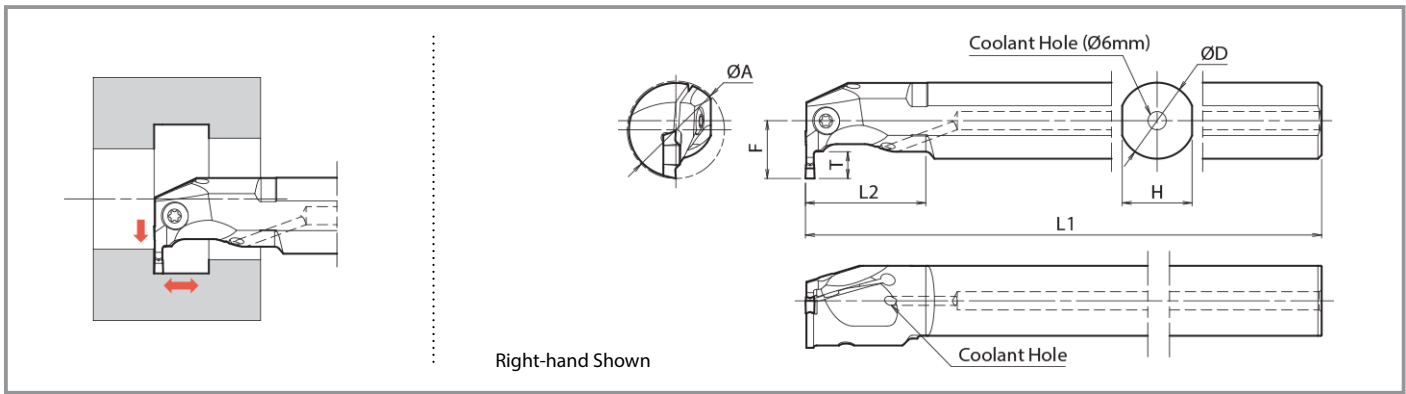
A : Top View



B : Top View



KGDI Toolholder (Metric Size)



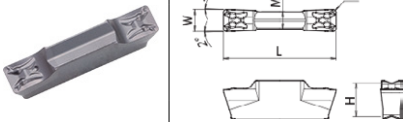
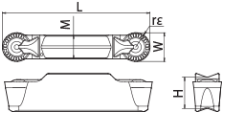
Toolholder Dimensions

Description	Stock		Min. Bore Dia.		Dimensions (mm)							Edge Width W (mm)		Spare Parts			
	R	L	ØA		ØD	H	L1	L2	F	T	MIN.	MAX.	Clamp Screw		Wrench		
			GMI	CM													
KGDI 1816B-2	○	○	18	—	16	15	150	25	9.5	4.5	2	2	GS-50	—	LW-3	—	
2520B-2	○	○	25	—	20	18	180	30	14.5	6	2	2	GS-50	—	LW-3	—	
3225B-2	○	○	32	—	25	23	200	40	19	7	2	2	—	SB-5TR	—	LTW-20	
KGDI 2016B-3	○	○	20	21	16	15	150	25	11.5	5.5	3	3	GS-50	—	LW-3	—	
2520B-3	○	○	25	26	20	18	180	30	14.5	6	3	3	GS-50	—	LW-3	—	
3225B-3	○	○	32	33	25	23	200	40	19	8	3	3	—	SB-5TR	—	LTW-20	
KGDI 3225B-4	○	○	32	40 (34*)	25	23	200	40	19	8.5	4	5	—	SB-5TR	—	LTW-20	
4032B-4	○	○	40	48 (42*)	32	29	220	50	23.5	11	4	5	—	SB-5TR	—	LTW-20	
KGDI 3225B-5	○	○	32	37 (34*)	25	23	200	40	19	8.5	5	5	—	SB-5TR	—	LTW-20	
4032B-5	○	○	40	45 (42*)	32	29	220	50	23.5	11	5	5	—	SB-5TR	—	LTW-20	

* Possible by slightly chamfering toolholder's tip about 0.5 mm

○ : World Express (Shipping: 7-10 Business Days)

Applicable Inserts

Shape		Description	Dimensions (mm)						Cermet	MEGACOAT NANO	MEGACOAT		Applicable Toolholder		
			W*		rε	M	L	H			TN620	PR1535		PR1225	PR1215
			in	mm											
		GDM2013N-020GMI	0.079	2.0	0.2	1.5	13.5	4.3	○	●	●	○	KGDI [®] /L...-2		
		GDM3015N-040GMI	0.118	3.0	0.4	2.4	15.5	4.6	○	●	●	○	KGDI [®] /L...-3		
		GDM4020N-040GMI	0.157	4.0	0.4	3.4	20	4.3	○	●	●	○	KGDI [®] /L...-4		
		GDM5020N-040GMI	0.197	5.0	0.4	4.4	20	4.3	○	●	●	○	KGDI [®] /L...-4 5		
		GDM5020N-080GMI	0.197	5.0	0.8	4.4	20	4.3	○	●	●	○	KGDI [®] /L...-4 5		
		GDM3015N-150R-CM	0.118	3.0	1.5	2.3	16.3	4.6	□	●	●	○	KGDI [®] /L...-3		
		GDM4020N-200R-CM	0.157	4.0	2.0	3.3	20	4.3	□	●	●	●	KGDI [®] /L...-4		
		GDM5020N-250R-CM	0.197	5.0	2.5	4.2	21	4.3	□	●	●	●	KGDI [®] /L...-4 5		

*Tolerance: ±0.03mm for W = 2.0 and 3.0 and 4.0, ±0.04mm for W = 5.0

● : U.S. Stock ○ : World Express (Shipping: 7-10 Business Days) □ : Check Availability



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