

THE NEW VALUE FRONTIER



CERATIP®

KYOCERA Cutting Tools

CP188-E

3 Cutting Edges Use **GBA** for Grooving

Advantages

- Wide Product Lineup **New Grade**

PVD Coated Carbide for Steel PVD Coated Carbide for Cast Iron

PR1115 / PR905

- Smooth chip evacuation due to no interference on the chip pocket.

External Grooving Toolholder

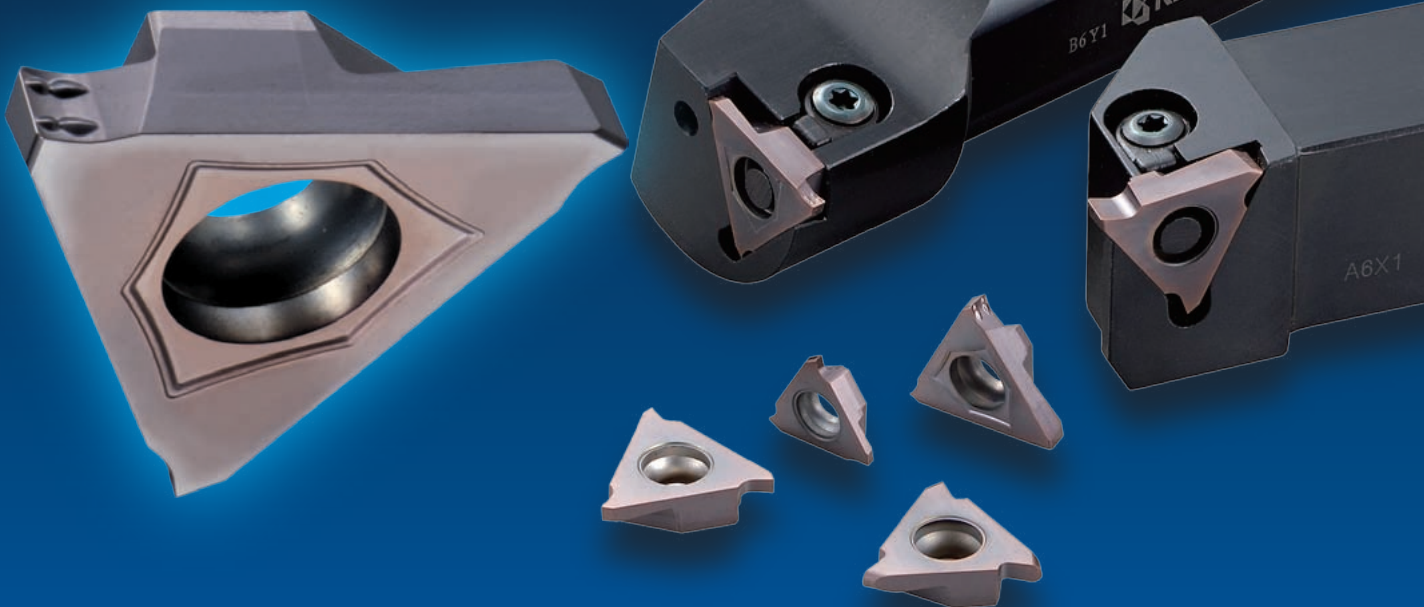
KGBA/KGBAS

Internal Grooving Toolholder

KIGBA

- Good Chip Control by Molded Chipbreaker

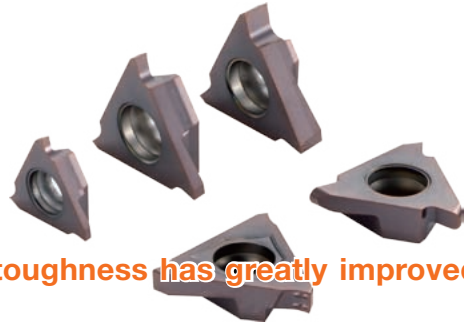
GBA-MY



Improved chip control, stable machining

PVD Coated Carbide for Steel


PR1115




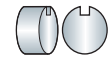
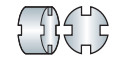
Advantages

- Due to micro grain carbide substrate, material toughness has greatly improved compared to the existing carbide.
- With "New fine Surface PVD Coating" wear resistance has greatly improved.
- Widely available for handling continuous / interrupted cutting with medium to high speed.

Coating layer of PR1115

Sectional structure	Performance
 <ul style="list-style-type: none"> → NEW FS (fine surface) coat (TiAlN) Suitable for high speed machining and excellent in wear resistance → Micro grain carbide substrate 	<ul style="list-style-type: none"> • High hardness (30GPa) • High adhesiveness • Extremely precised and refined composition • Superior oxidization resistance(800°C)

Adopting TiAlN PVD coat having smooth surface and wear resistance, New FS Coat(TiAlN) brings excellent hardness of coating and adhesiveness than the existing FS coat.

High speed (150m/min)	PR1115		
Medium speed (100m/min)			
Low speed (50m/min)	PR930		
	Continuous	Light Interruption	Interruption
			

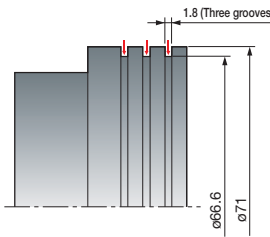

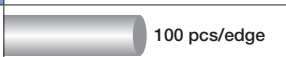
PVD Coated Carbide for Cast Iron

PR905

Advantages

- High Efficiency & Stability for Cast Iron Machining.
- Long Tool Life due to TiAlN Coating Layer with High Surface Smoothness, Wear Resistance and Thermal Stability.
- Stable Machining due to special Carbide Substrate with High Hardness and High Plastic Deformation Resistance that Restrains the Wear caused by Chipping.

Case Studies

S45C <ul style="list-style-type: none"> • Sleeve • Vc=160m/min • ap=2.2mm(Groove depth) • f=0.05~0.12mm/rev • Wet • GBA43L150-020 (PR1115) 	
PR1115 200 pcs/edge	
Competitor A coating 100 pcs/edge	
• PR1115 improved the tool life to more than twice that of competitor A. (It depends on our users' evaluation.)	

Recommended cutting conditions

Work Material	Recommended Grade	Recommended cutting speed:m/min	
		Ground chipbreaker	MY type
Carbon steel(SxxC)	PR1115	80~180	80~200
Alloy steel(SCM)	PR1115	80~160	80~180
Stainless steel(SUS 3 0 4)	PR1115	60~130	60~150
Cast Iron(FC,FCD)	PR905	80~180	-

3 Cutting Edges Grooving Insert with Molded Chipbreaker

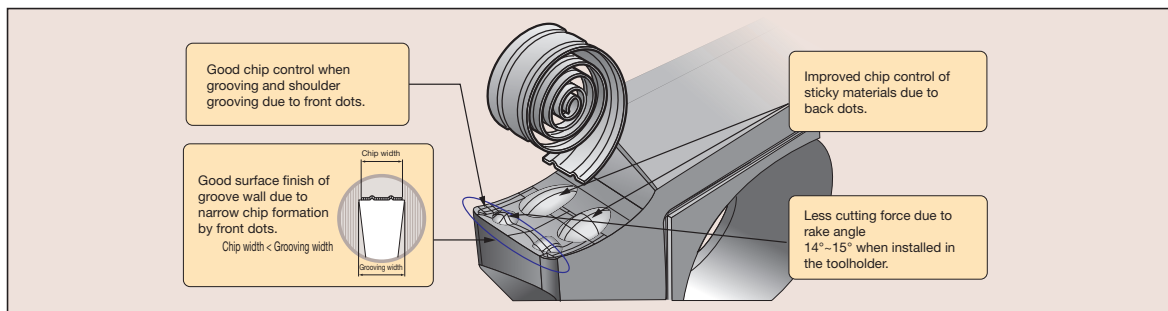
GBA-MY



Advantages

- Molded chipbreaker curls chips well and evacuates chips easily.
- High cost efficiency due to high precision molded insert with 3 cutting edge.
- Suitable for chip control improvement in automated production.

Chipbreaker Design



Chip Control Comparison

Grooving

Feed Rate(mm/rev)	0.08	0.1	0.15
GBA-MY			
Conventional Ground Chipbreaker A			

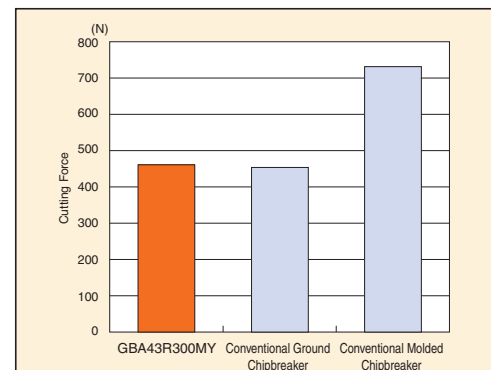
(Cutting Conditions)
SCM440 (4140)
Vc=150m/min (500SFM)
Wet

Shoulder Grooving

Feed Rate(mm/rev)	0.08	0.1	0.15
Width 0.5mm			
Width 1.0mm			

(Cutting Conditions)
SCM415 (CrMo)
Vc=150m/min (500SFM)Wet
GBA43R400-040MY

Cutting Force Comparison



(Cutting Conditions)
SCM435 (4135)
Vc=120m/min (400SFM)
f=0.1mm/rev
Width: 3.0mm

Cutting force of GBA-MY is as low as that of the conventional ground chipbreaker and much lower than that of the conventional molded chipbreaker.

External Grooving Toolholder

Internal Grooving Toolholder

Advantages

- Smooth chip evacuation due to no interference on the chip pocket
- Suitable for Automated Production Line due to Single Step Insert Replacement

KGBA/KGBAS

KIGBA



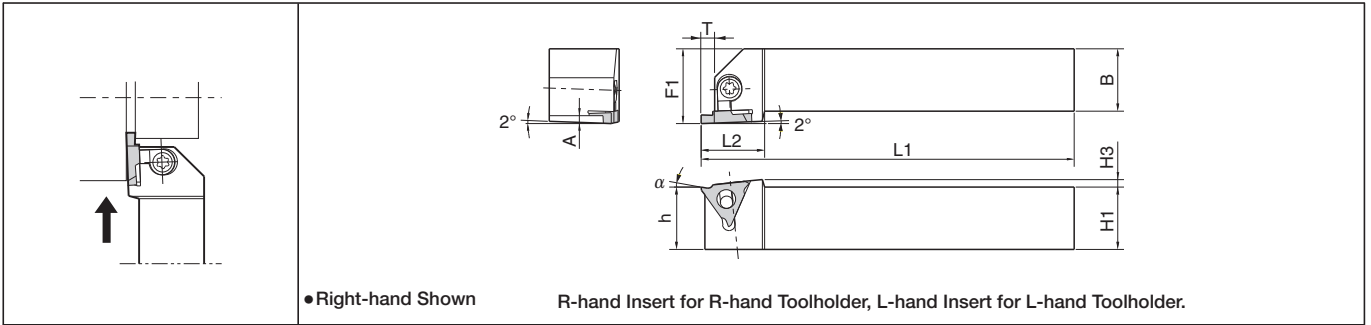
Standard Stock Items

Description	A	T	ød	(mm)	P	Classification of usage												
					Carbon Steel/ Alloy Steel	M												
Description	A	T	ød	(mm)	K													
					Cast Iron	N												
Description	A	T	ød	(mm)	S													
					Titanium Alloy	H												
Description	A	T	ød	(mm)	H													
						Hardened Material(~40HRC)	Hardened Material(40HRC~)									●: Continuous-Light Int. /1st Choice ○: Continuous / 2nd Choice ◐: Continuous-Light Int. /2nd Choice ◑: Continuous / 1st Choice		
Shape	Description	Previous Description	Dimensions (mm)			Cermert		PVD Coated Carbide			Carbide	CBN		PCD	Applicable Toolholder			
			W	B	rε	TN6020	TN90	PR630	PR930	PR1115	PR905	KW10	KBN10B	KBN510		KBN525	KPD001	KPD010
	GBA43% 280-030	GBA43% 280	2.80	4.0	0.3		●	○	●		●						KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5	
	280-030	-	2.80	5.0						●	●						KGBA%...22-25T5 KGBAS%...22-25T5	
	300-010	-	3.00	5.0	0.1					●							KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5	
	300-030	GBA43% 300	3.00	4.0			●	○	●		●						KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5	
	300-030	-	3.00	5.0						●	●						KGBA%...22-25T5 KGBAS%...22-25T5	
	320-030	GBA43% 320	3.20		0.3													KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5
	325-030	325	3.25	4.0														KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5
	330-030	GBA43% 330	3.30						R			●						KGBA%...22-25T5 KGBAS%...22-25T5
	330-030	-	3.30	5.0							●	●						KGBA%...22-25T5 KGBAS%...22-25T5
	350-010	-	3.50	5.0	0.1													
	350-030	GBA43% 350	3.50		0.3		●	○	●	●	●	●						
	400-010	-	4.00		0.1						●							
	400-040	GBA43% 400	4.00	5.0			●	○	●	●	●	●						KGBA%...22-35 KGBAS%...22-35
	430-040	430	4.30		0.4		R	○	●	●	●	●						
	450-040	450	4.50				R	○	●	●	●	●						
480-040	480	4.80				R	○	●	●	●	●							
<p>Molded Chipbreaker</p> <p>MY Chipbreaker</p>	GBA43% 175-020MY	GBA43% 175MY	1.75		0.2	●			●	●							KGBA%...22-15 KGBAS%...22-15	
	185-020MY	185MY	1.85	3.5		●			●	●								
	200-020MY	200MY	2.00			●			●	●								
	230-020MY	230MY	2.30			●			●	●								
	250-030MY	GBA43% 250MY	2.50	4.0		●			●									KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5
	250-030MY	-	2.50	5.0						●								KGBA%...22-25T5 KGBAS%...22-25T5
	265-030MY	GBA43% 265MY	2.65	4.0		●			●									KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5
	265-030MY	-	2.65	5.0						●								KGBA%...22-25T5 KGBAS%...22-25T5
	300-030MY	GBA43% 300MY	3.00	4.0	0.3	●			●									KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5
	300-030MY	-	3.00	5.0						●								KGBA%...22-25T5 KGBAS%...22-25T5
	330-030MY	GBA43% 330MY	3.30	4.0			R			R								KGBAR...22-25 KGBASL...22-25 KGBAR...22-25T5 KGBASL...22-25T5
	330-030MY	-	3.30	5.0						●								KGBA%...22-25T5 KGBAS%...22-25T5
	350-030MY	GBA43% 350MY	3.50	5.0		●			●	●								KGBA%...22-35 KGBAS%...22-35
	400-040MY	400MY	4.00		0.4	●			●	●								KGBA%...22-35 KGBAS%...22-35

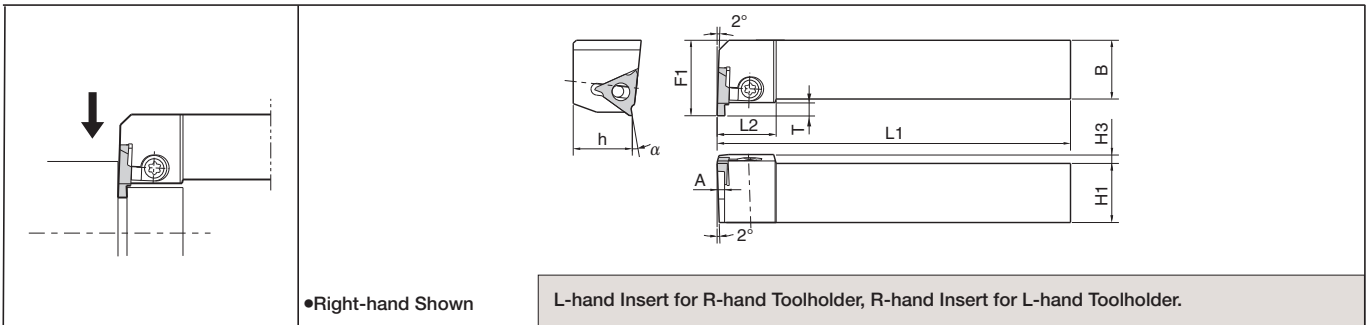
Dimension B shows available grooving depth.
KIGBA-type Internal Grooving Toolholder

※ The edge width tolerance GBA32% 050 is different: 0.50^{±0.05}
●: Std. Stock ○: Check Availability R: R-hand only



■ KGBA



■ KGBAS



● Toolholder Dimension

Description	Stock		Dimension(mm)										Spare Parts		Applicable Insert			
	R	L	H1-h	H3	B	L1	L2	F1	A	T	Clamp Set	Wrench						
																		
KGBA^{R/L}																		
2020K-16	●	●	20	4.0	20	125	24	25	-	2.5			LGBA-16 ^{R/S}	FT-15	GBA32 ^{R/L} Type			
2525M-16	●	●	25	4.0	25	150	25	30										
2020K22-15	●	●	20	4.0	20	125	25.5	25	1.0	4.0		LGBA-22 ^{R/S}			FT-15	GBA43 ^{R/L} Type		
2525M22-15	●	●	25	4.0	25	150	25.5	30	2.0	4.5								
2020K22-25	●	●	20	4.0	20	125	25	25										
2525M22-25	●	●	25	4.0	25	150	25.5	30										
2020K22-25T5	●	●	20	4.0	20	125	25.5	25	2.0									
2525M22-25T5	●	●	25	4.0	25	150	25.5	30		5.5								
2020K22-35	●	●	20	4.0	20	125	25.5	25	3.0			LGBA-16 ^{R/S}	FT-15	GBA32 ^{R/L} Type				
2525M22-35	●	●	25	4.0	25	150	25.5	30										
KGBAS^{R/L}																		
2020K-16	●	●	20	4.0	20	125	25	25	-	2.5					LGBA-22 ^{R/S}	FT-15	GBA32 ^{R/L} Type	
2525M-16	●	●	25	4.5	25	150	25	30										
2020K22-15	●	●	20	4.5	20	125	25	27	1.0	4.0				LGBA-22 ^{R/S}			FT-15	GBA43 ^{R/L} Type
2525M22-15	●	●	25	5.0	25	150	25	32	2.0	4.5								
2020K22-25	●	●	20	4.5	20	125	25	27										
2525M22-25	●	●	25	5.0	25	150	25	32										
2020K22-25T5	●	●	20	4.5	20	125	25	27	2.0									
2525M22-25T5	●	●	25	5.0	25	150	25	32		5.5								
2020K22-35	●	●	20	4.5	20	125	25	27	3.0									
2525M22-35	●	●	25	5.0	25	150	25	32										

Dimension T shows the distance from the Toolholder to the cutting edge Dimension B shows available grooving depth

●:Standard Stock

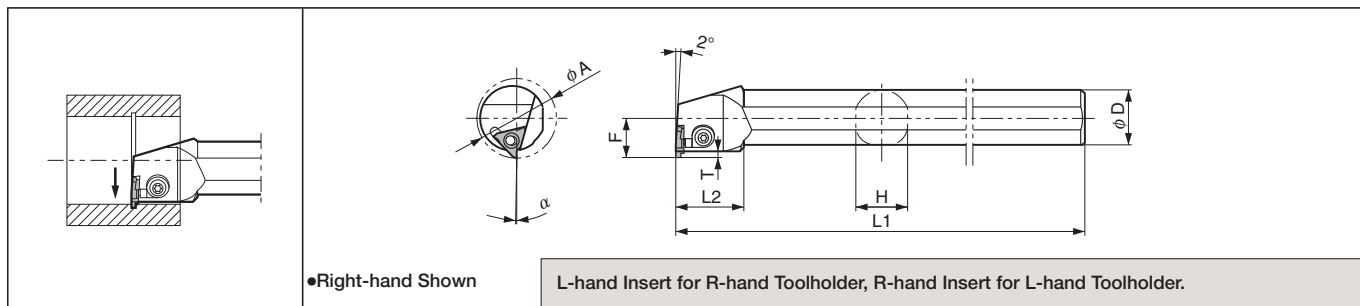
•Clamp Set : KGBA^{R/L}...LGBA-ORS for Right-hand Toolholder, and LGBA-OLS for Left-hand Toolholder
KGBAS^{R/L}...LGBA-OLS for Right-hand Toolholder, and LGBA-ORS for Left-hand Toolholder

● Rake Angle after Installment of GBA(α)



For GBA32 ^{R/L} ○○○-○○○		For GBA43 ^{R/L} ○○○-○○○		For GBA43 ^{R/L} ○○○-○○○R(Full R)		
Insert Grade	α	Insert Grade	α	Full-R	Insert Grade	α
TN90 PR630 PR930 PR1115 PR905 KPD010	10°	KBN10B, KBN510, KBN525	0°	050R~150R	TN90 PR630 PR930 PR1115 PR905	10°
		TN90 PR630 PR930 PR1115 PR905 KPD001, KPD010	10°	200R	TN90 PR630 PR930 PR1115 PR905	14°
KW10	20°	KW10	20°	050R~200R	KW10	

Insert	α
GBA43 ^{R/L} 175MY S GBA43 ^{R/L} 350MY	15°
GBA43 ^{R/L} 400MY	14°

α indicates the rake angle at the center of the edge width after installing insert



● Toolholder Dimension

Description	Stock		Min Cutting Dia.	Dimension(mm)								Spare Parts		Applicable Insert
	R	L		φA	φD	H	L1	L2	F	T	Clamp Set	Wrench		
														
KIGBA^{R/L} 3525-16	●	●	35	25	23	220	30	17.5	3.0			LGBA-16^{L/R}S	FT-15	GBA32^R Type
4032-22	●	●	40	32	30	250	30	23.0	3.0			LGBA-22^{L/R}S	FT-15	GBA43^R Type

• Dimension T Shows the distance from the Toolholder to the cutting edge.
 Available Groove Depth KIGBA%3525-16... "B" Dimension of the Applicable Insert
 KIGBA%4032-22...2.0mm for GBA43% 125-020, 145-020, 100-050R.
 2.8mm for the Inserts except the above

●:Standard Stock

•Clamp Set : LGBA-□LS for Right-hand Toolholder. and LGBA-□RS for Left-hand Toolholder.

● Rake Angle after Installment of GBA (α)

For GBA32 ^{R/L} ○○○-○○○		For GBA43 ^{R/L} ○○○-○○○		For GBA43 ^{R/L} ○○○-○○○R(Full R)		
Insert Grade	α	Insert Grade	α	Full-R	Insert Grade	α
TN90 PR630 PR930 PR1115 PR905 KPD010	+1°	KBN10B, KBN510, KBN525 TN90 PR630 PR930 PR1115 PR905 KPD001, KPD010	-9° +1°	050R-150R	TN90 PR630 PR930 PR1115 PR905	+1° +5°
				200R		
KW10	+11°	KW10	+11°	050R~200R	KW10	

● Rake Angle after Installment of GBA-MY (α)

Insert	α
GBA43 ^{R/L} 175MY § GBA43 ^{R/L} 350MY	+6°
GBA43 ^{R/L} 400MY	+5°

α indicates the rake angle at the center of the edge width after installing insert