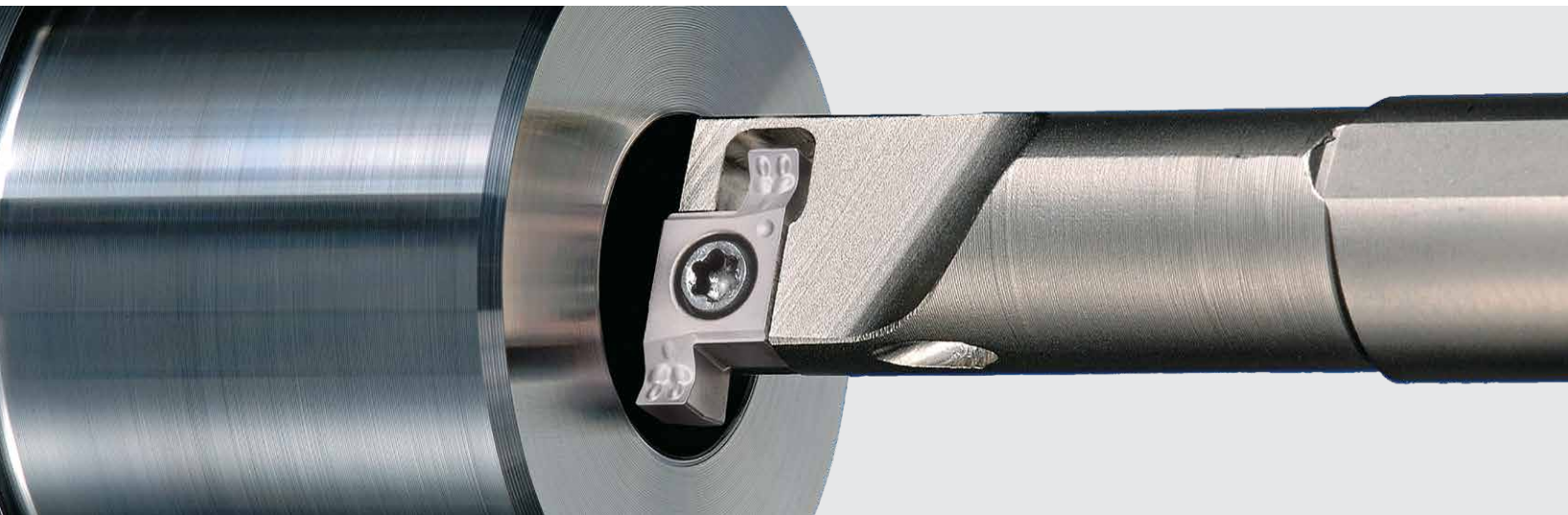




SIGE

Internal Grooving



Internal Screw Clamp Toolholder Provides Excellent Chip Evacuation

Superior chip control with molded chipbreaker
ø0.313" / ø8mm minimum cutting diameter with a 2 edge design
Toolholders for small part machining available



PR20 Series Insert Grades
for steel and stainless steel



SIGE

Internal grooving screw clamp toolholder provides excellent chip evacuation
Superior chip control with molded chipbreaker

1

New grades PR20 series for general purpose
MEGACOAT NANO EX coating technology provides long tool life

New grades for Grooving and Cut-off

PR20 series

NEW



PR2025 is 1st recommendation for steel and stainless steel
Excellent wear resistance and fracture resistance provides long tool life

Achieve long tool life and high stability with the combination of

High content aluminum nano coating layer

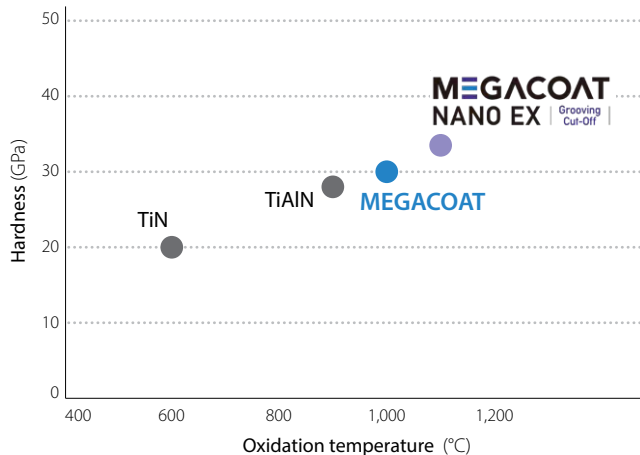
Challenges

Since most of the grooving is continuous machining, the wear progress of the insert is rapid
Tool life is shortened due to deterioration of surface finish, machining accuracy, burr, etc

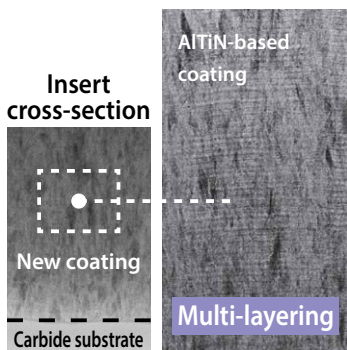
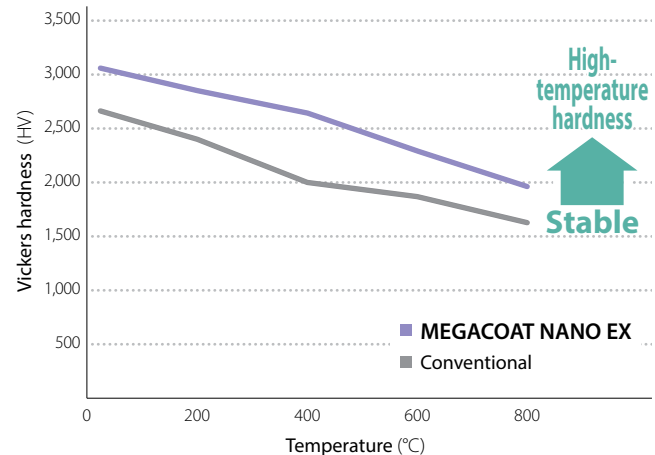
SOLUTION

MEGACOAT NANO EX is a special nano coating layer with a high aluminum content developed by Kyocera's unique technology
Solve these machining challenges with excellent wear resistance, high-temperature hardness and plastic deformation resistance

Coating characteristics (Internal evaluation)



Comparison of vickers hardness transition with temperature (Internal evaluation)



Special nano coating layer

Long tool life Excellent wear and fracture resistance

Multi-layering of high content aluminum nano layers added with high melting point material having different concentration. Suppresses hexagonal crystal precipitation and achieves excellent oxidation resistance

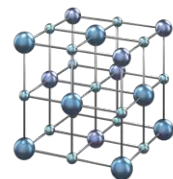
Stable machining High coating toughness

Crystal grain refinement
Optimized internal stress suppresses crack growth

Unique Technology (Patent applied)

Proprietary coating process improve high content aluminum coating nano layers performance

Maintains a cubic crystal structure to maximize the properties of aluminum (Al)



2

Internal screw clamp toolholder provides excellent chip evacuation

Large chip pocket on screw clamp toolholder enables excellent chip evacuation

Screw clamp

Large chip pocket



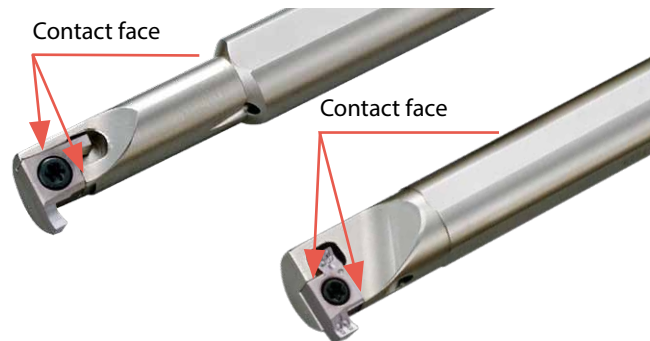
Conventional clamp



3

Reduces chatter with firm insert clamping system

Clamp the insert firmly from the two contact faces

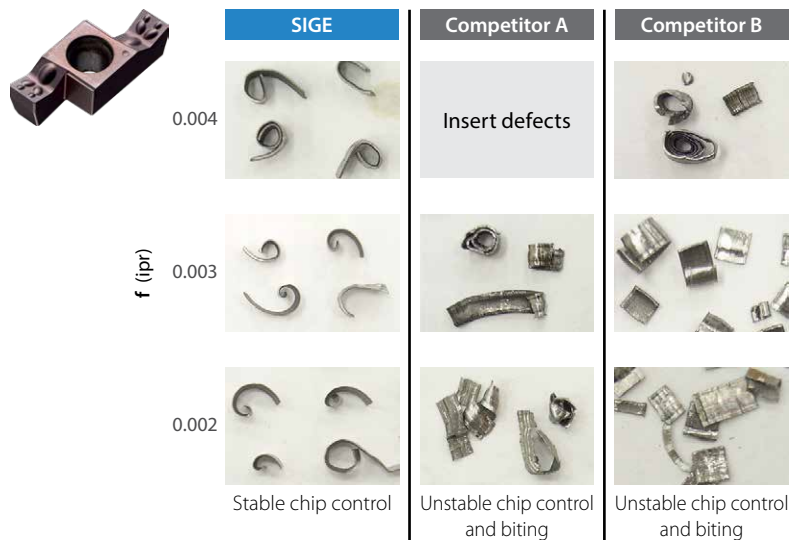


4

Superior chip control with a 2 edge design

Excellent chip evacuation with molded chipbreaker

Chip evacuation comparison (Internal evaluation)



Cutting conditions : Vc = 330 sfm, D.O.C. = 0.079", Minimum Bore Dia. $\varnothing 0.630$ ", Wet Workpiece : SCM415
SIGER0810C-EH, GER300-020CM

$\varnothing 0.313$ " / $\varnothing 8$ mm minimum bore diameter

Chip evacuation comparison (Internal evaluation)



Cutting conditions : Vc = 160 sfm, D.O.C. = 1.25 mm, f = 0.0008 ipr, Minimum Bore Dia. $\varnothing 0.313$ ", Wet Workpiece : SCM415
SIGER05EH, GER200-010A

5

Variety of toolholders for small parts machining available

Shank diameter compatible with automatic lathes

Tool overhang length can be shortened by mounting sleeve still near the shank tip

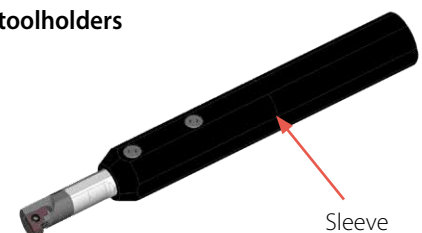
The toolholder is tightly restrained by the sleeve, which suppresses chatter when using automatic lathe

Can be restrained by the sleeve



Applicable sleeve

Overhang length is adjustable with a combination of sleeves and toolholders



NEW

Inserts sold in 10 piece boxes

*Use PR2025, PR1225, KW10 for turning with edge width 1mm. (GE R/L100-005A/100-005B)

NEW

2-Edge /
Molded Chipbreaker

● : Standard Item

Recommended Cutting Conditions ★ 1st recommendation ☆ 2nd recommendation

Workpiece	Recommended Insert Grades (Vc : sfm)		(1) f for Grooving (ipr)						Notes
	MEGACOAT NANO EX 	MEGACOAT	(2) f for Traversing (ipr)						
			(3) D.O.C. for Traversing (in)						
			GER 150 ~ 200 - 010CM	GER 250 ~ 350 - 020CM					
PR2025	PR1225	GER 150 ~ 200 - 010DM		GER 230 ~ 250 - 020DM	GER 300 ~ 400 - 020DM				
		GER 150 ~ 200 - 010EM			GER 250 ~ 300 - 020EM	GER 350 ~ 400 - 020EM	GER 450 ~ 500 - 020EM		
Carbon Steel ★ 200 ~ 520	☆ 200 ~ 520	(1) 0.0012 ~ 0.0039	(1) 0.0012 ~ 0.0047	(1) 0.0016 ~ 0.0047	(1) 0.0020 ~ 0.0047	(1) 0.0020 ~ 0.0047	(1) 0.0020 ~ 0.0047		
		(2) 0.0012 ~ 0.0039	(2) 0.0012 ~ 0.0039	(2) 0.0016 ~ 0.0039	(2) 0.0020 ~ 0.0039	(2) 0.0020 ~ 0.0039	(2) 0.0020 ~ 0.0039		
		(3) Max. 0.0394	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591		
Alloy Steel ★ 200 ~ 460	☆ 200 ~ 460	(1) 0.0012 ~ 0.0039	(1) 0.0012 ~ 0.0039	(1) 0.0016 ~ 0.0047	(1) 0.0020 ~ 0.0047	(1) 0.0020 ~ 0.0047	(1) 0.0020 ~ 0.0047		
		(2) 0.0012 ~ 0.0039	(2) 0.0012 ~ 0.0039	(2) 0.0016 ~ 0.0039	(2) 0.0020 ~ 0.0039	(2) 0.0020 ~ 0.0039	(2) 0.0020 ~ 0.0039		
		(3) Max. 0.0394	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591		
Stainless Steel ★ 200 ~ 360	☆ 200 ~ 360	(1) 0.0012 ~ 0.0031	(1) 0.0012 ~ 0.0031	(1) 0.0016 ~ 0.0031	(1) 0.0020 ~ 0.0039	(1) 0.0020 ~ 0.0039	(1) 0.0020 ~ 0.0039		
		(2) 0.0012 ~ 0.0039	(2) 0.0012 ~ 0.0039	(2) 0.0016 ~ 0.0039	(2) 0.0020 ~ 0.0039	(2) 0.0020 ~ 0.0039	(2) 0.0020 ~ 0.0039		
		(3) Max. 0.0394	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591	(3) Max. 0.0591		

NEW

● : Standard Item

Dimension CDX shows available grooving depth

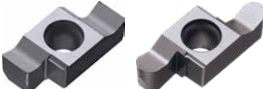
Recommended Cutting Conditions ★ 1st recommendation ☆ 2nd recommendation

Ground Chipbreaker : GE^{R/L}...C(R), GE^{R/L}...D(R), GE^{R/L}...E

Workpiece	Recommended Insert Grades (Vc : sfm)				(1) f for Grooving (ipr)							Notes
	 MEGACOAT NANO EX	MEGACOAT	Cermet	Carbide	(2) f for Traversing (ipr)							
					(3) D.O.C. for Traversing (in)							
	PR2025	PR1225	TN6020	GW15	GE R/L 100 ~ 200 - 010C 200 - 100CR	GE R/L 250 ~ 350 - 020C 250 ~ 300 - 150CR						
				GE R/L 100 ~ 145 - 010D	GE R/L 150 ~ 195 - 010D	GE R/L 200 ~ 280 - 020D 200 - 100DR		GE R/L 300 ~ 400 - 020D 300 - 150DR				
				GE R/L 100 - 010E	GE R/L 150 ~ 195 - 010E	GE R/L 200 ~ 225 - 010E 230 - 020E	GE R/L 250 ~ 330 - 020E		GE R/L 350 ~ 430 - 020E	GE R/L 450 ~ 500 - 020E		
Carbon Steel	★ 200 ~ 460	☆ 200 ~ 460	☆ 390 ~ 590	-	(1) 0.0012~0.0031	(1) 0.0012~0.0031	(1) 0.0016~0.0035	(1) 0.0016~0.0035	(1) 0.0020~0.0047	(1) 0.0020~0.0047	(1) 0.0020~0.0047	
					(2) 0.0012~0.0031	(2) 0.0012~0.0031	(2) 0.0016~0.0035	(2) 0.0016~0.0035	(2) 0.0020~0.0039	(2) 0.0020~0.0039	(2) 0.0020~0.0039	
					(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	
Alloy Steel	★ 200 ~ 390	☆ 200 ~ 390	☆ 330 ~ 520	-	(1) 0.0012~0.0028	(1) 0.0012~0.0028	(1) 0.0016~0.0031	(1) 0.0016~0.0031	(1) 0.0020~0.0039	(1) 0.0020~0.0039	(1) 0.0020~0.0039	
					(2) 0.0012~0.0039	(2) 0.0012~0.0039	(2) 0.0016~0.0031	(2) 0.0016~0.0031	(2) 0.0020~0.0039	(2) 0.0020~0.0039	(2) 0.0020~0.0039	
					(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	
Stainless Steel	★ 200 ~ 360	☆ 200 ~ 360	☆ 230 ~ 430	-	(1) 0.0012~0.0028	(1) 0.0012~0.0028	(1) 0.0016~0.0031	(1) 0.0016~0.0031	(1) 0.0020~0.0039	(1) 0.0020~0.0039	(1) 0.0020~0.0039	
					(2) 0.0012~0.0039	(2) 0.0012~0.0039	(2) 0.0016~0.0031	(2) 0.0016~0.0031	(2) 0.0020~0.0039	(2) 0.0020~0.0039	(2) 0.0020~0.0039	
					(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	
Cast Iron	-	-	★ 200 ~ 330	(1) 0.0012~0.0031	(1) 0.0012~0.0031	(1) 0.0016~0.0035	(1) 0.0016~0.0035	(1) 0.0020~0.0047	(1) 0.0020~0.0047	(1) 0.0020~0.0047		
				(2) 0.0012~0.0031	(2) 0.0012~0.0031	(2) 0.0016~0.0035	(2) 0.0016~0.0035	(2) 0.0020~0.0039	(2) 0.0020~0.0039	(2) 0.0020~0.0039		
				(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0118	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197		
Aluminum	-	-	★ 490 ~ 980	(1) 0.0020~0.0047	(1) 0.0020~0.0047	(1) 0.0020~0.0059	(1) 0.0020~0.0059	(1) 0.0031~0.0059	(1) 0.0031~0.0059	(1) 0.0031~0.0059		
				(2) 0.0020~0.0047	(2) 0.0020~0.0047	(2) 0.0020~0.0059	(2) 0.0020~0.0059	(2) 0.0031~0.0059	(2) 0.0031~0.0059	(2) 0.0031~0.0059		
				(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0315	(3) Max. 0.0315	(3) Max. 0.0315		
Brass	-	-	★ 330 ~ 820	(1) 0.0020~0.0047	(1) 0.0020~0.0047	(1) 0.0020~0.0059	(1) 0.0020~0.0059	(1) 0.0031~0.0059	(1) 0.0031~0.0059	(1) 0.0031~0.0059		
				(2) 0.0020~0.0047	(2) 0.0020~0.0047	(2) 0.0020~0.0059	(2) 0.0020~0.0059	(2) 0.0031~0.0059	(2) 0.0031~0.0059	(2) 0.0031~0.0059		
				(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0197	(3) Max. 0.0315	(3) Max. 0.0315	(3) Max. 0.0315		

*Use PR2025, PR1225, KW10 for turning with edge width 1mm. (GE^{R/L}100-005A/100-005B)

Lineup

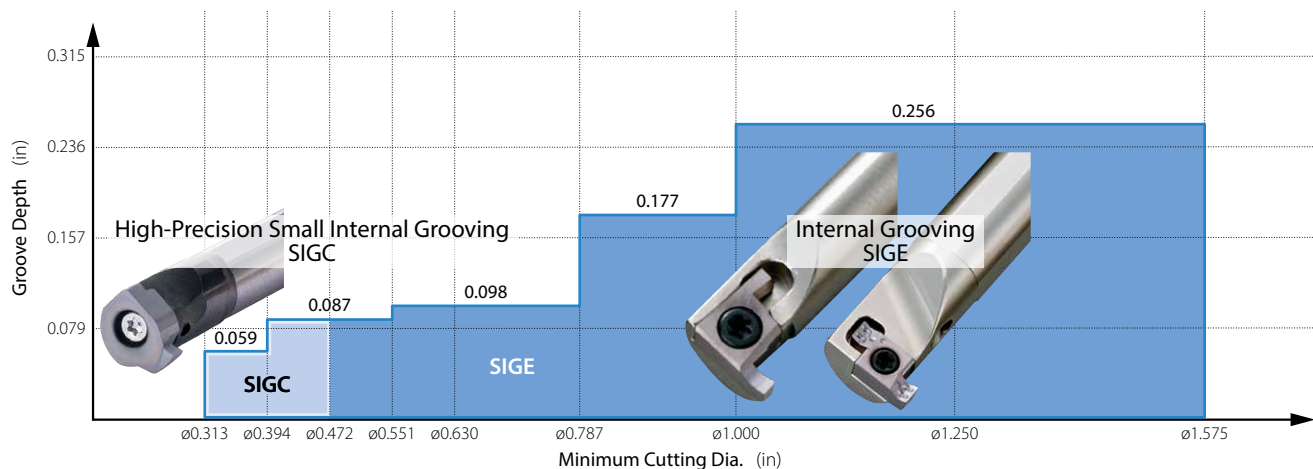
Insert	Shape	 Ground Chipbreaker				 Molded Chipbreaker							 Ground Chipbreaker													
	Description	GE%...A GER...AR	GE%...B	GER...BR	GER...CM	GER...DM		GER...EM			GE%...C	GER...CR	GE%...D			GER...DR		GE%...E								
	Groove Width (in)	0.039 0.079	0.039 0.118	0.039 0.079	0.059 0.138	0.059 0.098	0.079 0.118	0.079 0.157	0.059 0.079	0.098 0.118	0.138 0.157	0.177 0.197	0.039 0.138	0.079 0.118	0.039 0.057	0.059 0.078	0.079 0.110	0.118 0.157	0.079 0.118	0.039 0.078	0.059 0.091	0.079 0.130	0.098 0.169	0.138 0.197	0.177 0.197	
	Groove Width (mm)	1.0 2.0	1.0 3.0	1.0 2.0	1.5 3.5	1.5	2.0 2.5	3.0 4.0	1.5	2.0	2.5 3.0	3.5 4.0	4.5 5.0	1.0 3.5	2.0 3.0	1.0 1.45	1.5 1.95	2.0 2.8	3.0 4.0	2.0 3.0	1.0	1.5 1.95	2.0 2.3	2.5 3.3	3.5 4.3	4.5 5.0
	Available Groove Depth (mm)	7											6.5													6.5
		6																								
		5							4.5																	5.5
4										4.5								4.5					4.5			
3			2.2	2.2	2.5	3.0	3.2		3.0	3.2				2.5	2.5	2.5	3.0	3.2	3.2		2.5	3.0	3.2			
2	1.5																									
1																										
Toolholder	Min. Cutting Dia. (in)	ø0.313	ø0.394		ø0.551, ø0.630		ø0.790		ø1.000, ø1.250, ø1.575			ø0.551, ø0.630		ø0.790			ø1.000, ø1.250, ø1.575									
	Min. Cutting Dia. (mm)	ø8	ø10, ø12		ø14, ø16		ø20		ø25, ø32, ø40			ø14, ø16		ø20			ø25, ø32, ø40									
	Excellent Bar	SIGE% 05EH SIGE% 0808A-EH	SIGE%06EH SIGE%...B-EH		SIGE%... C-EH		SIGE%... D-EH		SIGER...E-EH			SIGE%...C-EH		SIGE%...D-EH			SIGE%...E-EH									
	Carbide Shank Bar	SIGE% 0808A-WH	SIGE%... B-WH(-90)		SIGE%... C-WH(-90)		-		-			SIGE%... C-WH(-90)		-			-									

Applicable Insert & Rake Angle (α) after Installement of Insert

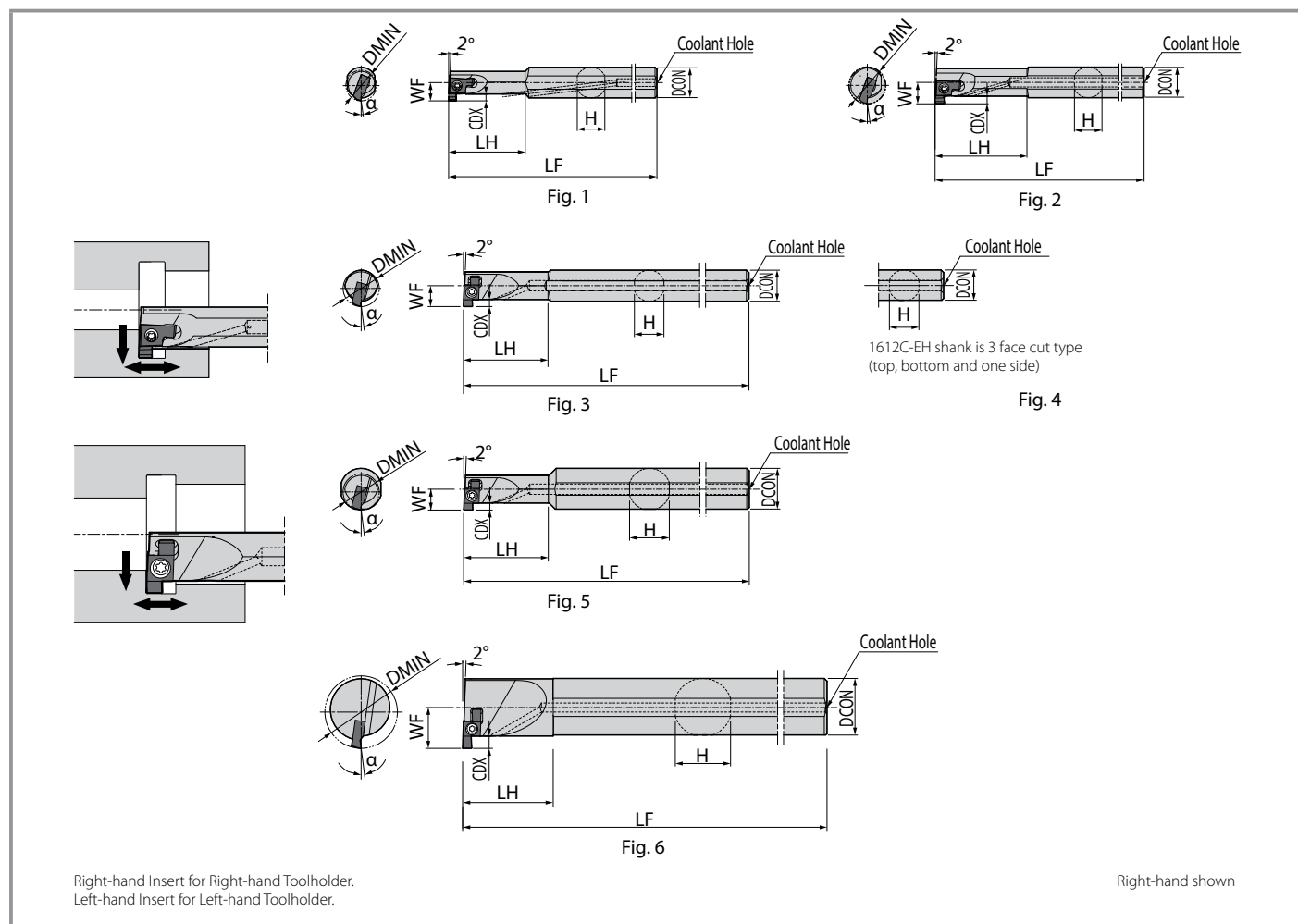
Description	Ground Chipbreaker	α	Molded Chipbreaker	α
SIGE%	05EH	GE% 100-005A ~ GE% 200-010A GER100-050AR ~ GER200-100AR	-	-
	0808A-EH			
	06EH	GE% 100-005B ~ GE% 300-020B GER100-050BR ~ GER200-100BR	-	-
	1010B-EH			
	1210B-EH			
	0809C-EH	GE% 100-005C ~ GE% 350-020C GER200-100CR ~ GER300-150CR	GER150-010CM ~ GER350-020CM	10°
	0810C-EH			
	1412C-EH			
	1612C-EH			
	1616C-EH	GE% 100-005D ~ GE% 400-020D GER200-100DR ~ GER300-150DR	GER150-010DM ~ GER400-020DM	10°
	1213D-EH			
	2020D-EH			
	1616E-EH	GE% 100-005E ~ GE% 500-020E	GER150-010EM ~ GER500-020EM	10°
	2020E-EH			
	2025E-EH			
	2525E-EH			
	3232E-EH			
	4032E-EH			
SIGE%	0808A-WH	GE% 100-005A ~ GE% 200-010A GER100-050AR ~ GER200-100AR	-	-
	1010B-WH	GE% 100-005B ~ GE% 300-020B GER100-050BR ~ GER200-100BR	-	-
	1210B-WH			
	1008B-WH-90			
	1210B-WH-90	GE% 100-005C ~ GE% 350-020C GER200-100CR ~ GER300-150CR	GER150-010CM ~ GER350-020CM	10°
	1412C-WH			
	1612C-WH			
	1412C-WH-90			

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

Internal Grooving Range for SIGE and SIGC Tools



SIGE-EH Excellent Bar (with Coolant Hole)



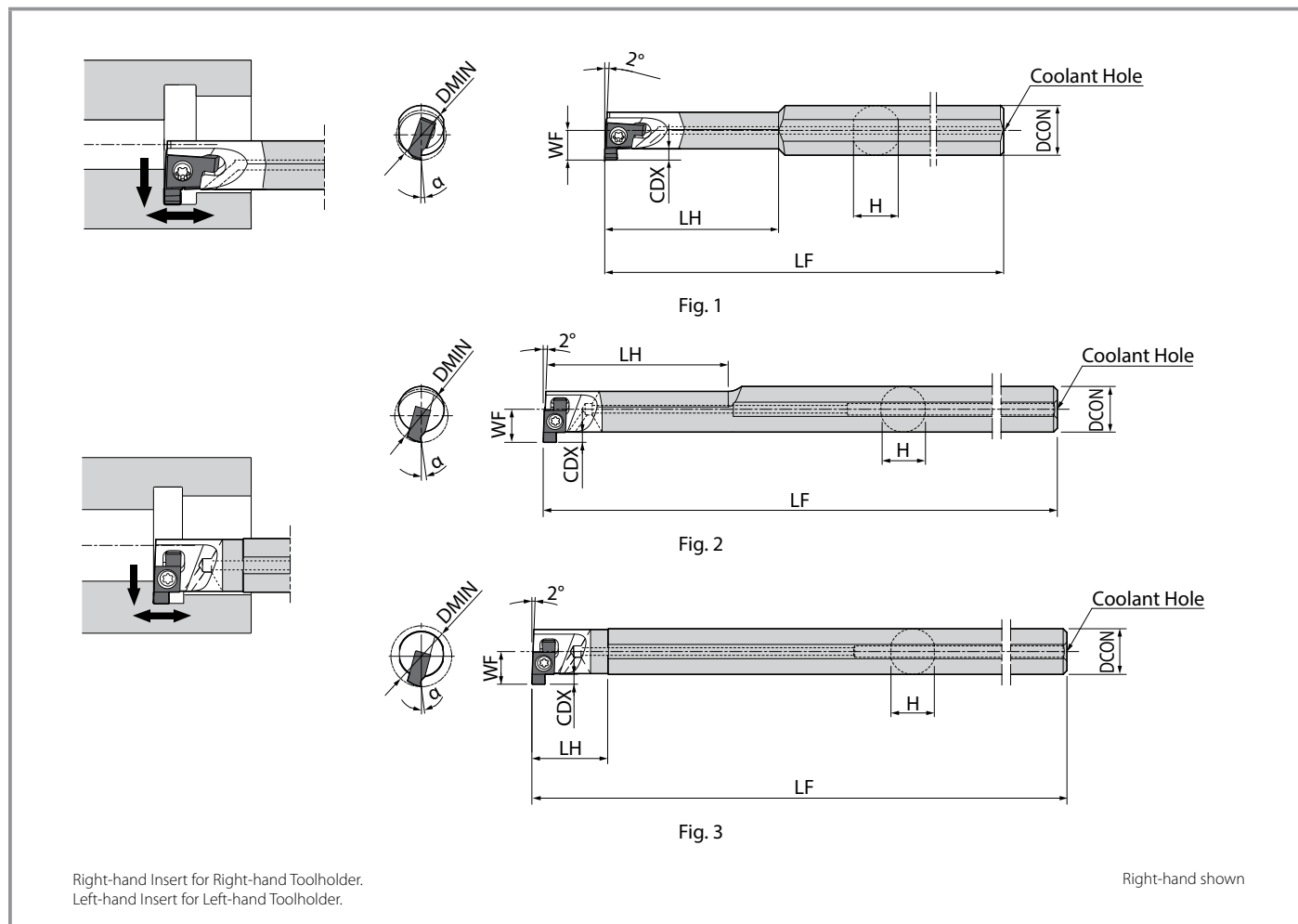
Toolholder Dimentions

Description		Stock		Unit	Min Bore Dia.	Dimensions					Coolant Hole	Shape	Spare Parts				Applicable Insert		
		R	L			DMIN	DCON	H	LF	LH			WF	CDX		Wrench			
																			
SIGE%	05EH	●	●	inch	0.313	0.313	0.283	3.94	0.787	0.177	0.059	Yes	Fig.1	SB-2045TRN	-	-	FT-6	GE%...A/AR	
	06EH	●	●		0.394	0.375	0.354	4.92	0.984	0.232	0.087	Yes	Fig.1	SB-2255TR	-	DT-7	-	GE%...B GE%...BR	
	0809C-EH	●	●		0.551	0.500	0.460	5.90	1.300	0.315	0.098	Yes	Fig.3	SB-2570TR	-	-	FT-8	GE%...C GER%...CM GE%...CR	
	0810C-EH	●	●		0.630	0.500	0.460	5.90	0.788	0.335	0.098								
	1213D-EH	●	●		0.790	0.750	0.710	7.09	1.575	0.477	0.177	Yes	Fig.5	SB-3080TR	-	-	FT-10	GE%...D/DM/DR	
	1616E-EH	●	●		1.000	1.000	0.960	7.88	1.772	0.614	0.255	Yes	Fig.5	SB-4085TR	FT-15	-	-	GE%...E GER...EM	
	2020E-EH	●	●		1.250	1.250	1.170	8.66	2.166	0.748	0.255								
	2025E-EH	●	●		1.575	1.250	1.170	9.84	1.772	0.906	0.255								Fig.6
SIGE%	0808A-EH	●	●	mm	8	8	7.2	100	20	4.8	1.5	Yes	Fig. 1	SB-2045TRN	-	-	FT-6	GE%...A/AR	
	1010B-EH	●	●		10	10	9.0	125	25	6.2	2.2	Yes	Fig. 1	SB-2255TR	-	DT-7	-	GE%...B GE%...BR	
	1210B-EH	●	●		12	10	9.0	125	30	7.0	2.2		Fig. 2						
	1412C-EH	●	●		14	12	11.4	150	33	8.0	2.5	Yes	Fig. 3	SB-2570TR	-	-	FT-8	GE%...C GER...CM GER...CR	
	1612C-EH	●	●		16	12	11.4	150	20	8.5	2.5		Fig. 4						
	1616C-EH	●	●		16	16	15.0	160	36	9.0	2.5		Fig. 5						
	2020D-EH	●	●		20	20	19.0	180	40	12.1	4.5	Yes	Fig. 5	SB-3080TR	-	-	FT-10	GE%...D/DM/DR	
	2525E-EH	●	●		25	25	24.0	200	45	15.6	6.5	Yes	Fig. 5	SB-4085TR	FT-15	-	-	GE%...E GER...EM	
	3232E-EH	●	●		32	32	30.4	220	55	19.0	6.5		Fig. 5						
	4032E-EH	●	●		40	32	30.4	250	45	23.0	6.5		Fig. 6						

CDX shows the distance from the toolholder to the cutting edge. See "CDX" of insert for available groove depth.

● : Standard Item

SIGE-WH Carbide Shank Bar (with Coolant Hole)



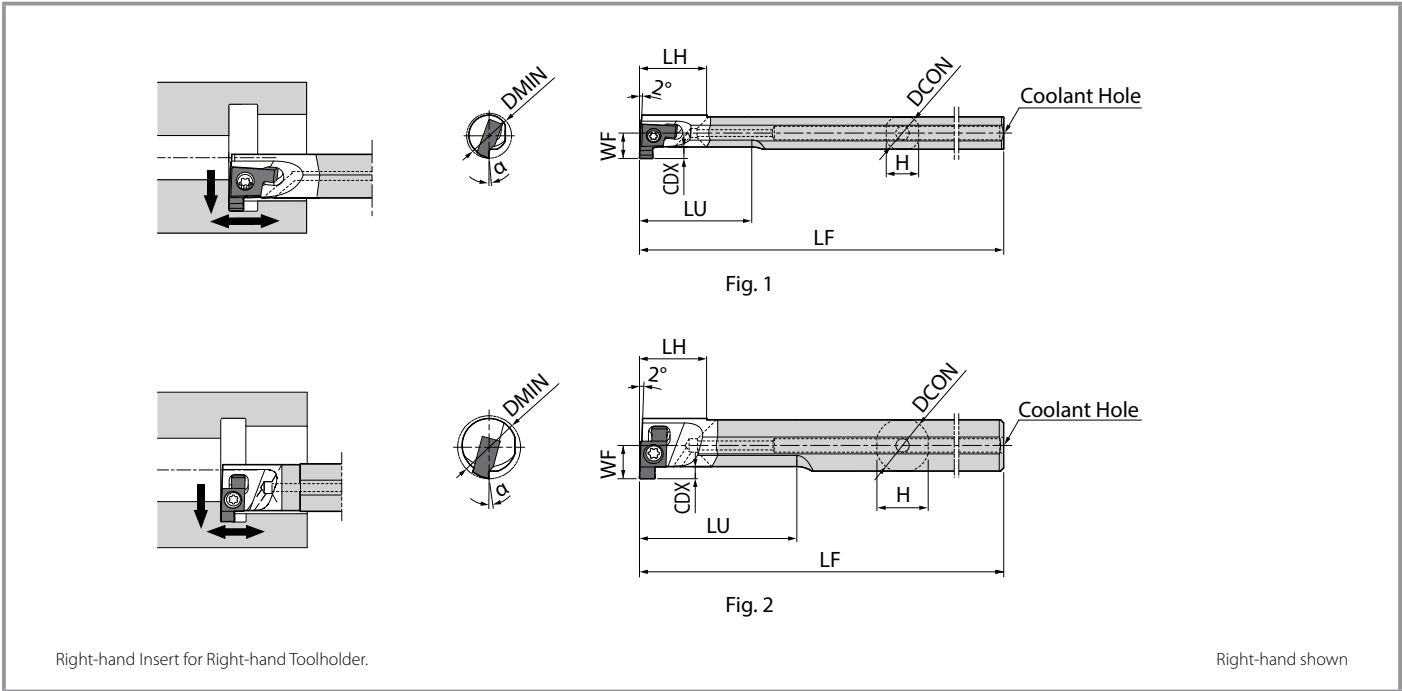
Toolholder Dimintions

Description	Stock		Min Bore Dia.	Dimensions (mm)						Coolant Hole	Shape	Spare Parts			Applicable Insert	
	R	L		DMIN	DCON	H	LF	LH	WF			CDX	Clamp Screw	Wrench		
																
SIGER 0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	Yes	Fig. 1	SB-2045TRN	-	FT-6	GER ...A/AR	
SIGER 1010B-WH	●	●	10	10	9	125	35	6.2	2.2	Yes	Fig. 1	SB-2255TR	DT-7	-	GER ...B GER ...BR	
1210B-WH	●	●	12			140	45	7								
SIGER 1412C-WH	●	●	14	12	11.4	150	50	8.7	2.5	Yes	Fig. 2	SB-2570TR	-	FT-8	GER ...C GER ...CM GER ...CR	
1612C-WH	●	●	16			180	20	8.5			Fig. 3					

CDX shows the distance from the toolholder to the cutting edge. See "CDX" of insert for available groove depth.

● : Standard Item

SIGE-WH-90 Carbide Shank Bar (with Coolant Hole - Small Parts Machining)



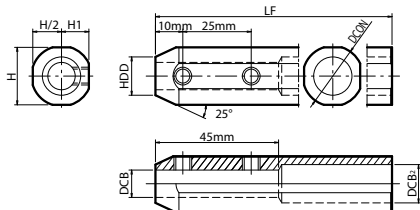
Toolholder Dimention See next page for applicable sleeves

Description	Stock	Min Bore Dia.	Dimensions (mm)							Coolant Hole	Shape	Spare Parts		Applicable Insert
												Clamp Screw	Wrench	
			R	DMIN	DCON	H	LF	LH	LU	WF	CDX			
SIGER 1008B-WH-90	●	10	8	7.2	90	15	25	5.6	2.2	Yes	Fig. 1	SB-2255TR	FT-7	GER...B GER...BR
1210B-WH-90	●	12	10	9.4										
SIGER 1412C-WH-90	●	14	12	11.4	90	15	35	7.4	2.5	Yes	Fig. 2	SB-2570TR	FT-8	GE...L...C/CM/CR

CDX shows the distance from the toolholder to the cutting edge. See "CDX" of insert for available groove depth.
LH shows minimum overhang length (Distance from the cutting edge to the rear flat cut end position).

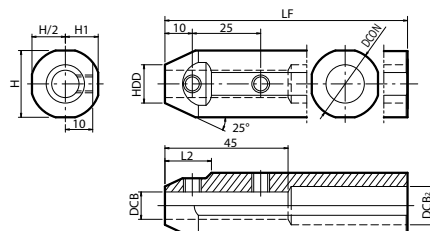
● : Standard Item

Applicable Sleeve (for Small Parts Machining)



Toolholder intallation side

Fig. 1



Toolholder intallation side

Fig. 2

Description		Stock	Dimensions (mm)								Shape	Spare parts		Applicable machine manufacturer (Random order)			
												Screw	Wrench				
			DCB	DCON	HDD	DCB ₂	H	H1	LF	L2							
SHA	0820-120	□	8	20	14	12	19	9.25	120	-	Fig. 1	HS6X4P	LW-3	EGURO TSUGAMI CITIZEN MACHINERY			
	1020-120	●	10														
SHA	0825.0-135	●	8	25	14	14	24	11.5	135	17	Fig. 2				HS6X4P	LW-3	EGURO TSUGAMI CITIZEN MACHINERY
	1025.0-135	●	10														
	1225.0-135	●	12														
SHA	0819-120	□	8	19.05	14	12	18	8.75	120	-	Fig. 1	HS6X4P	LW-3	CITIZEN MACHINERY			
	1019-120	□	10														
SHA	0820-120	□	8	20	14	12	19	9.25	120	-	Fig. 1				HS6X4P	LW-3	CITIZEN MACHINERY
	1020-120	●	10														
SHA	0825.4-120	●	8	25.4	14	14	24.4	12	120	17	Fig. 2						
	1025.4-120	●	10														
	1225.4-120	●	12														
SHA	0822-125	●	8	22	14	14	21	10	125	-	Fig. 1	HS6X4P	LW-3	STAR MICRONICS NOMURA DS			
	1022-125	●	10														
	1222-125	□	12														
SHA	0823-120	□	8	23	14	14	22	10.5	120	16	Fig. 2				HS6X4P	LW-3	NOMURA DS
	1023-120	□	10														
	1223-120	□	12														

Length of DCB ... 45mm (all SHA types)

Select the sleeve DCB to match the DCON dimension of the toolholder.

● : Standard Item □ : Made to Order



KYOCERA Precision Tools

238 Marc Drive
Cuyahoga Falls, OH 44223
Customer Service | 800.823.7284 - Option 1
Technical Support | 800.823.7284 - Option 2



Official Website | www.kyoceraprecisiontools.com
Distributor Website | portal.kyoceraprecisiontools.com
Email | cuttingtools@kyocerapti.com

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