



EZ Bar Series

Small Internal Machining

COMPLETE METALWORKING SOLUTIONS

(800) 991-4225

ISO Certified

www.ahbinc.com

customerservice@ahbinc.com



Complete Line of Small Internal Machining Tools

Selecting the proper tool in a simple step

Easy adjustment and high precision

Four chipbreakers for a wide range of machining applications



ø1.0mm/1.5mm min. bore diameter
for G chipbreaker now available



EZ Bar Series for Small Internal Machining

Large Tooling Lineup for a Wide Application Range

1 Machining Applications

2 Chipbreaker

3 Sleeve

4 Solid Bar

1 Large Tooling Lineup for Various Internal Machining Operations

Internal Turning

Supports a wide range of Internal Machining Applications

Boring

EZB → P9 ~ 13

Chipbreakers

H



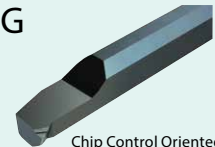
Tough Edge
(General Purpose)

1st Recommendation /
General Purpose
Extended reach
type available

→ P9,11 ~ 12

PR1725

G



Chip Control Oriented

Excellent Chip Control
Performance

→ P9

PR1725

F



Low Cutting Force

Finishing /
Sharpness Oriented

→ P10,12

PR1725

NB



Without Chipbreaker

GW05 Insert Grade for
Aluminum Machining

→ P13

45 Degree Chamfering

EZBC → P17

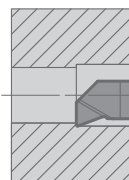
Copying

EZBP → P16

APMX 0.3 ~ 1.0 mm
Compatible with
45 degree copying

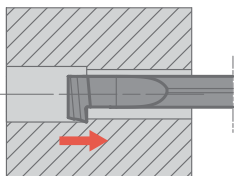
90 Degree Lead Angle

EZBF → P14



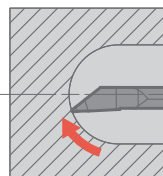
Back Boring

EZBT → P15



Internal Facing • Internal Profiling

EZVB → P15



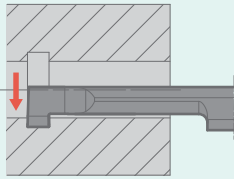
Grooving

High precision groove width tolerance $\pm 0.03\text{mm}$

Internal Grooving

EZG $\rightarrow$ P20

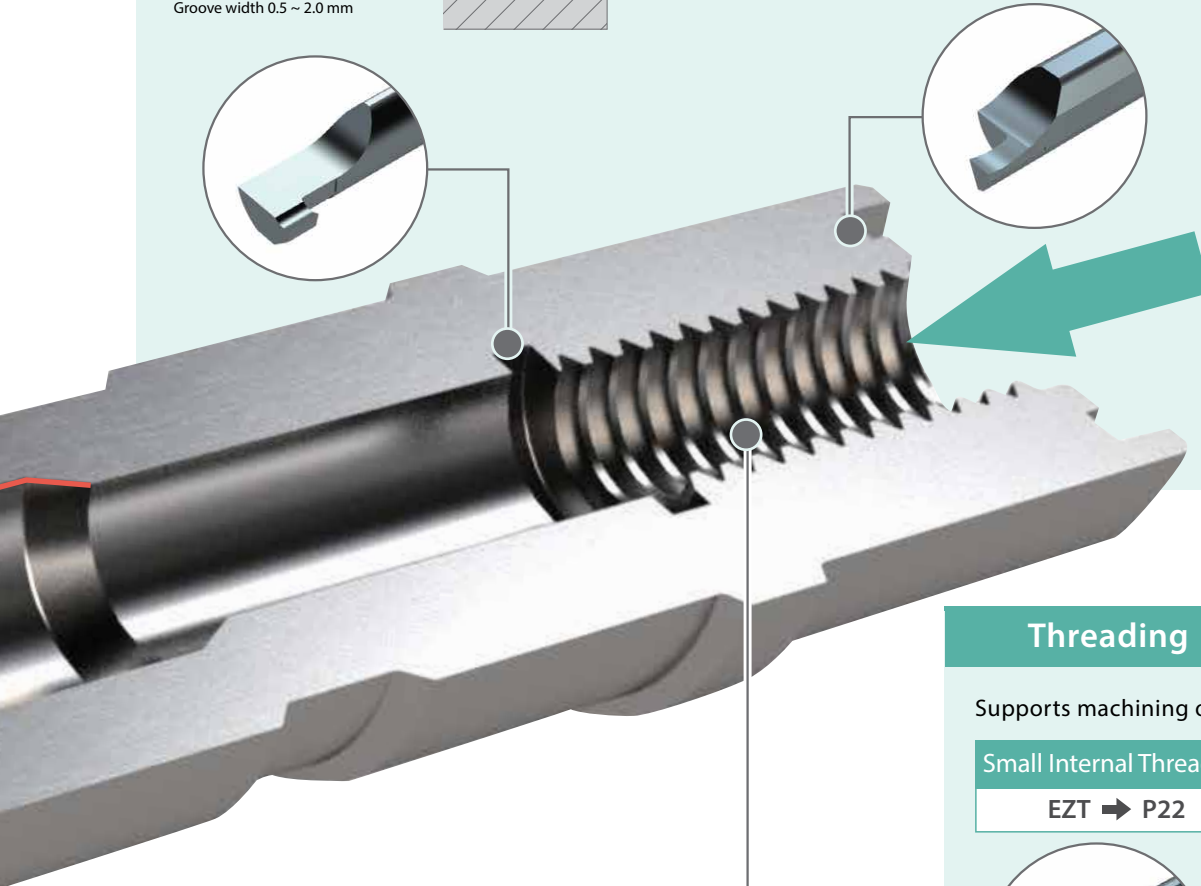
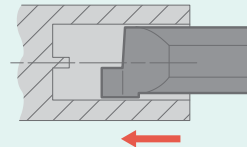
Two different overhang lengths (LU) are available
Groove width 0.5 ~ 2.0 mm



Face Grooving

EZFG $\rightarrow$ P21

Groove width 1.0 ~ 3.0 mm

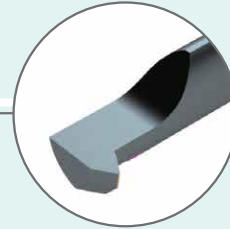
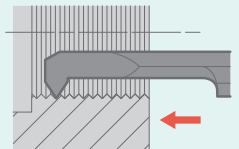


Threading

Supports machining of M4 metric screws

Small Internal Threading

EZT $\rightarrow$ P22



Supports a Wide Range of Small Machining Diameters

			Minimum Bore Dia. (mm)										
Application	Details	Style	Ø1	Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10
Internal Turning	Boring	EZB											
	90 Degree Lead Angle	EZBF											
	Back Boring	EZBT											
	Copying	EZBP											
	Internal Facing • Internal Profiling	EZVB											
	45 Degree Chamfering	EZBC											
	EZ Bar PLUS												
Grooving	Internal Grooving	EZG											
	Face Grooving*	EZFG											
Threading	Small Internal Threading*	EZT											

* For Face Grooving, indicates the Min. Face Grooving Dia.

* For Small Internal Threading, indicates the minimum pilot hole diameter.

2

4 Chipbreakers and New PVD Coating PR1725 for a Wide Range of Machining Processes

H Chipbreaker (without Lead Angle)

1st Recommendation / General Purpose



Recommended D.O.C. : More than 0.2mm

PR1725 Available

GW05 Insert Grade for Aluminum

Machining Available

Left-hand Available (HP Type)

F Chipbreaker (with Lead Angle)

Finishing / Sharpness Oriented



Recommended D.O.C. : Less than 0.2mm

PR1725 Available

NB Chipbreaker (without Chipbreaker)

Non-ferrous Metal Machining



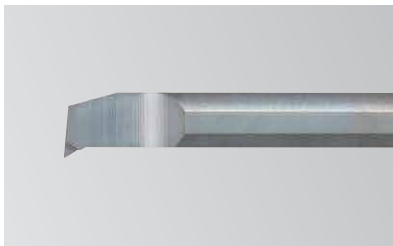
PCD/CBN Inserts Available

GW05 Insert Grade for Aluminum

Machining Available

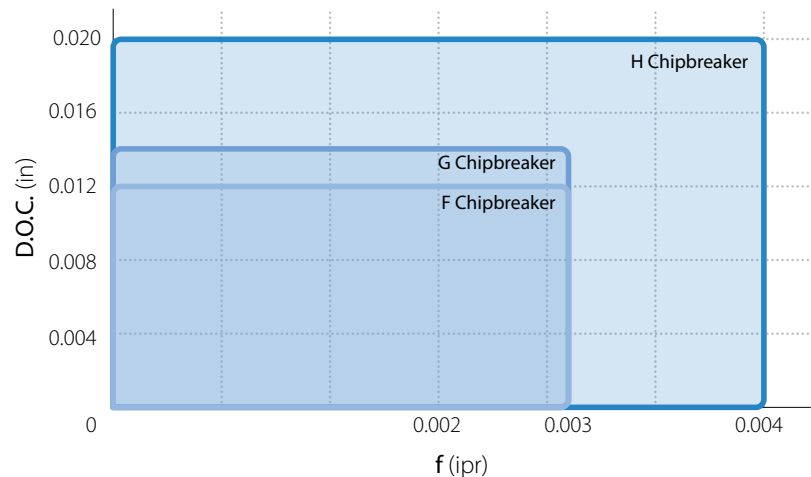
G Chipbreaker (with Lead Angle)

Chip Control Oriented



PR1725 Available

Applicable Chipbreaker Range

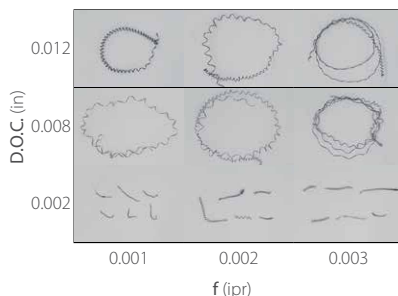


Cutting Performance Comparison

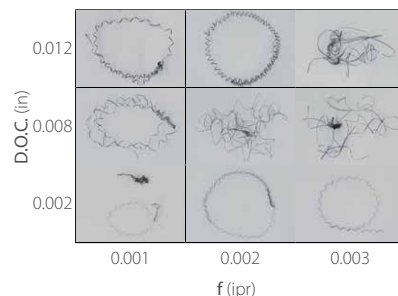
Chip Control Comparison

Stable Chip Curls and Good Chip Breaking

G Chipbreaker



Competitor (With Lead Angle)

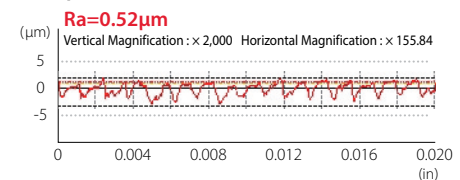


Cutting Conditions: Vc = 260 sfm, Wet Workpiece: 1045 (Internal evaluation)

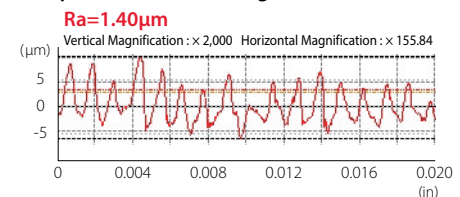
Surface Finish Comparison

Excellent Surface Finish

G Chipbreaker



Competitor (With Lead Angle)

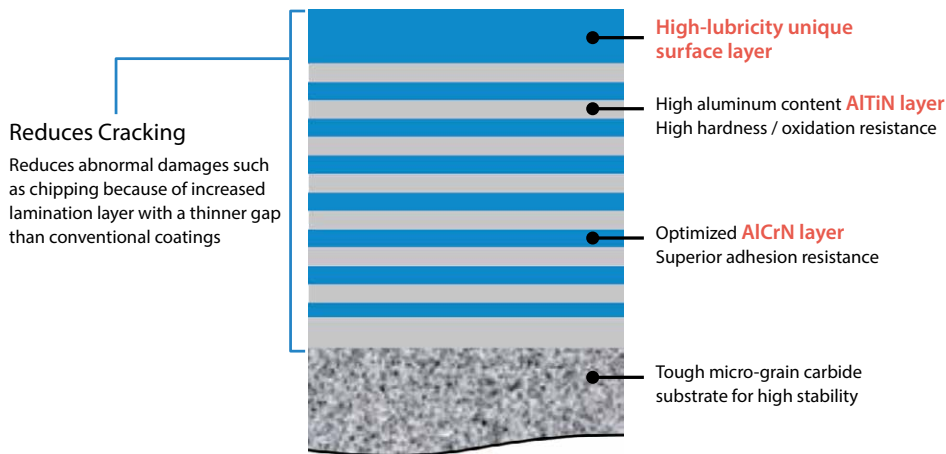
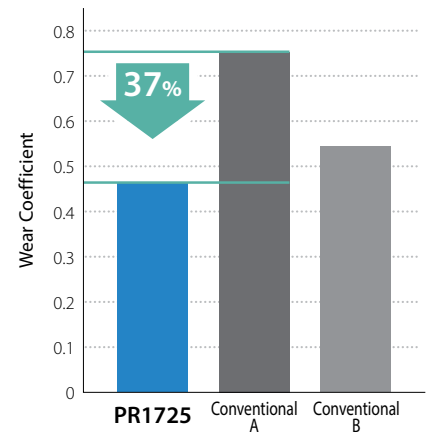


Using Tool : RE = 0.05 mm, Shank Diameter ø4 (Internal evaluation)

New PVD Coating

PR1725**MEGACOAT NANO PLUS Maintains Long Tool Life and Excellent Surface Finish
Great Performance in Small Parts Machining Applications****Long Tool Life for Improved Cycle Time****Excellent Surface Finish with No Tearing to Lower Quality Control Costs**

MEGACOAT NANO PLUS

AlTiN/AlCrN Nano laminated film with superior wear resistance and adhesion resistance
Excellent Surface Finish and Long Tool Life**Wear Coefficient Comparison**
(Internal Evaluation)**Superior Wear and Chipping Resistance**High hardness with nano laminated film layer properties
Internal stress optimization reduces chipping**Excellent Surface Finish**

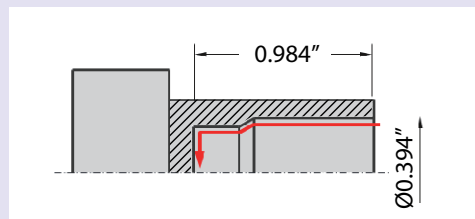
Special surface layer with great lubricity reduces adhesion

Applicable to Various Workpiece MaterialsExcellent oxidation resistance
Superior high temperature properties maintains good performance in steel, stainless steel and free-cutting steel**High Machining Stability**

Tough micro-grain carbide substrate provides stable machining

SOLUTION 1

Improved machining efficiency. 2.8 times longer tool life

Automotive Parts (1045)Vc = 160 sfm
D.O.C. = 0.008"
f = 0.0018 ipr
Wet
EZBR035035HP-015F PR1725**SOLUTION**
EZ Bar PR1725**18,000 pcs/edge****x2.8**
Tool Life**Conventional**
Conventional C**6,300 pcs/edge**The EZ Bar (PR1725) showed **2.8 times**
longer tool life than the conventional C

(User Evaluation)

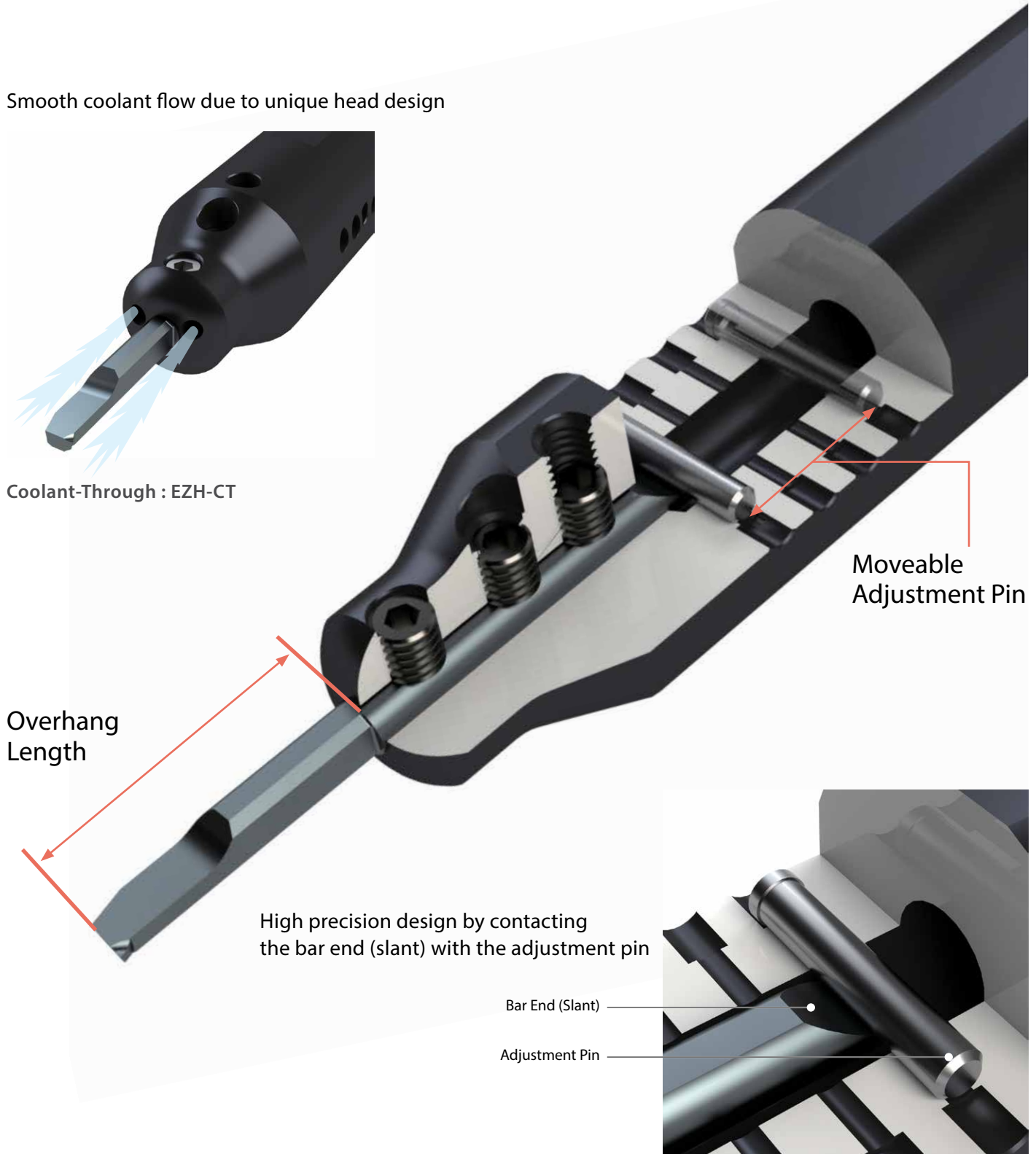
3 Easy Adjustment and High Precision

For CT sleeves with coolant holes and HP sleeves with positioning function, the overhang length can be set by moving adjustment pins

Smooth coolant flow due to unique head design



Coolant-Through : EZH-CT



Moveable Adjustment Pin

Overhang Length

High precision design by contacting the bar end (slant) with the adjustment pin

Bar End (Slant)

Adjustment Pin

With EZ Adjust Structure : EZH-CT, EZH-HP

Large Tooling Lineup that can be Customized for Your Machining Demands

How to select sleeves

Select between three types of sleeves

EZH-CT

With EZ Adjust Structure
Coolant-Through



EZH-HP

With EZ Adjust Structure



EZH-ST

Without EZ Adjust Structure

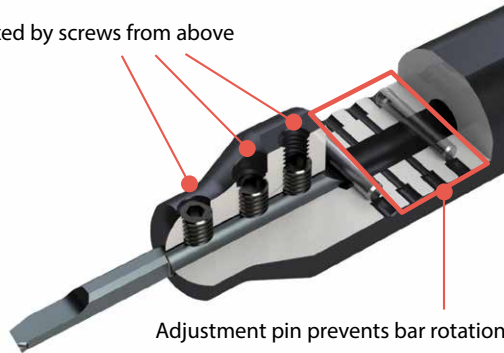


The EZ Bar prevents deviation with high-rigidity clamping

The adjustment pin prevents the bar from rotating during machining

EZ Bar

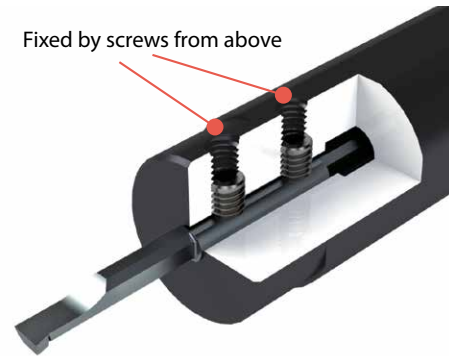
Fixed by screws from above



Adjustment pin prevents bar rotation

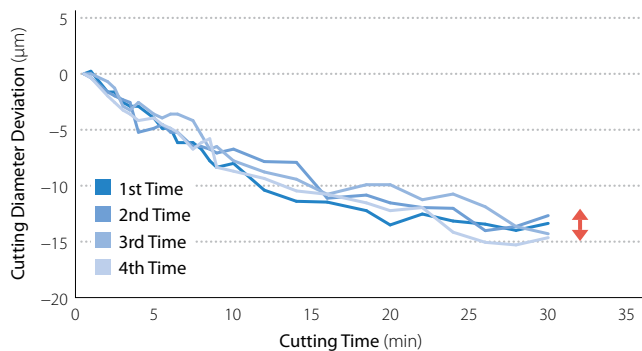
Competitor

Fixed by screws from above

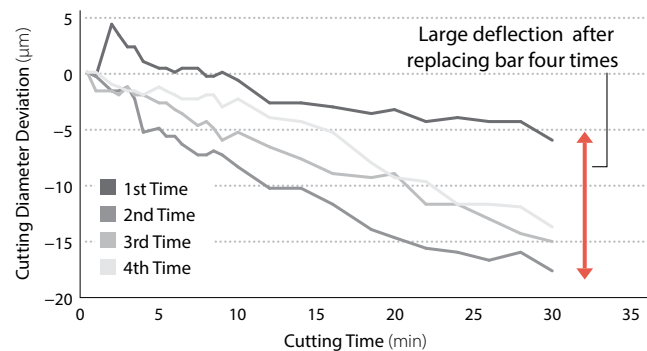


Cutting Diameter Deviation Comparison (Internal Evaluation)

EZ Bar



Competitor A



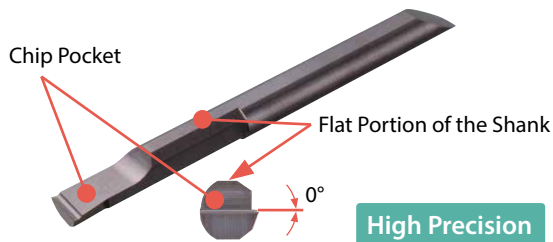
Cutting Conditions : $V_c = 220 \text{ sfm}$, $D.O.C. = 0.004"$, $f = 0.0008 \text{ ipr}$, Coolant (Oil-based) Workpiece : W1-9

4

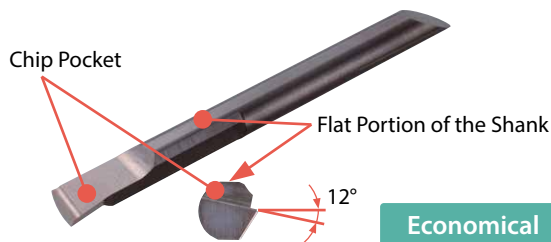
HP Bar for High Precision and ST Bar for Cost-Oriented Boring Applications

(Tolerances are Different)

HP (EZB-HP)



ST (EZB-ST)



Bar Tolerances

	Bar Style	Offset (WF)	Longitudinal Direction (L)	Cutting Edge Height (Y)	Min. Bore Dia.
	HP*	± 0.025 mm	± 0.05 mm	+ 0.05 mm / 0 mm	Same as Shank Dia.
	ST	± 0.06 mm	± 0.1 mm	+ 0.06 mm / 0 mm	Different from Shank Dia.

*For [EZBR010040HP-005G-04 to EZBR015040HP-005G-06], the following tolerances apply:
Offset ±0.020mm, Overall Length ±0.04mm, Edge Height +0.03mm/0mm

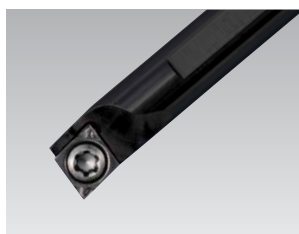
EZ Bar PLUS → P24 ~ 25

High Precision Solid Bar with the Convenience of Indexable Inserts
Reduce Machining Costs



Minimum Bore Diameter 5mm

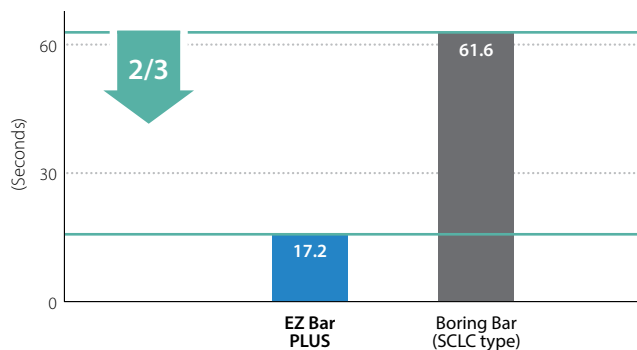
Carbide or steel bars are available depending on the machining scenario



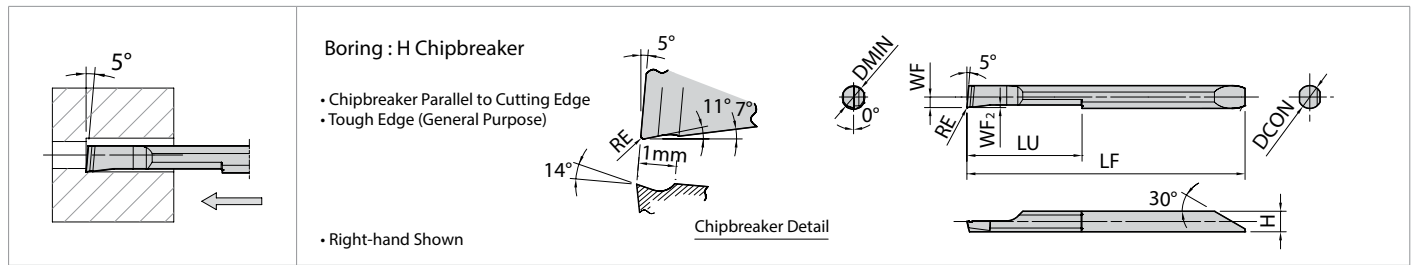
Reduces Installation Times by 1/3

The EZ adjust structure features much lower mounting times compared to conventional boring bars

Mounting Time Comparison (Internal Evaluation)



*Average values from 5 tests



EZ Bar Dimensions HP

High Precision

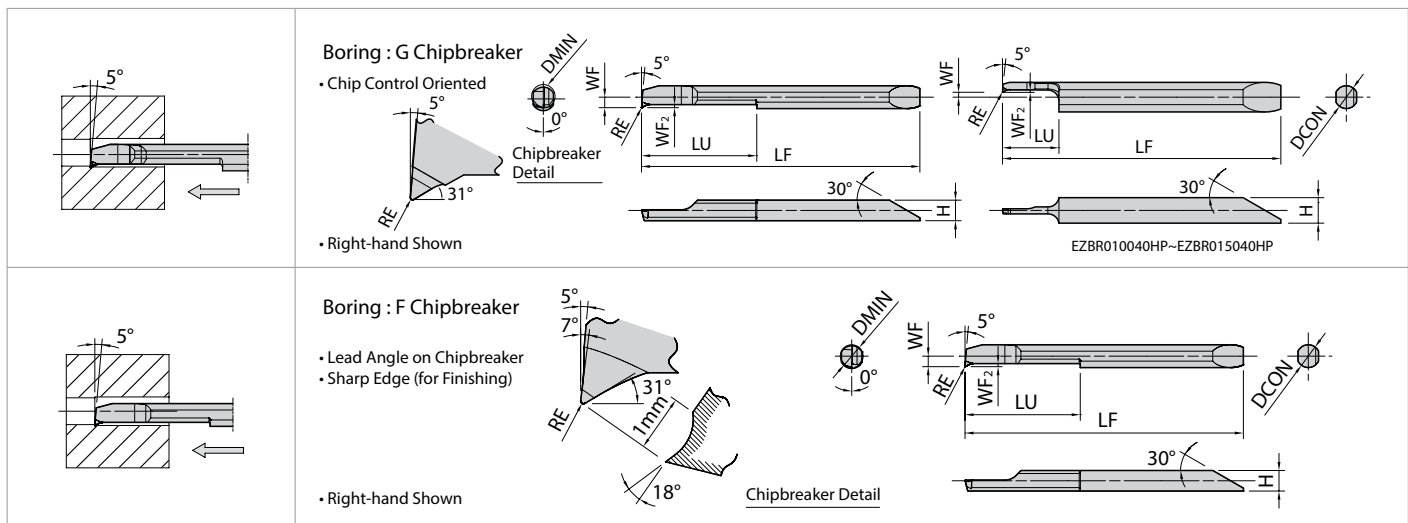
Part Number	Min. Bore Dia.	Dimensions (mm)							Grades						Applicable Sleeve See P25-P31	
									MEGACOAT NANO PLUS		MEGACOAT		Carbide			
		DMIN	DCON	H	LF	LU	WF	WF ₂	RE	PR1725		PR1225		GW05		
										R	L	R	L	R		L
EZB [®] 020020HP-008H	2	2	1.8	32	8	0.85	0.25	0.08 ±0.015	●		●	●	●		EZH020...	
	025025HP-008H	2.5	2.5	2.3	35	10.5	1.1	0.25	0.08 ±0.015	●		●	●	●	EZH025...	
0.15 ±0.020									●		●					
030030HP-008H	3	3	2.7	38.9	13	1.35	0.3	0.08 ±0.015	●		●	●	●		EZH030...	
								0.15 ±0.020	●		●					
035035HP-008H	3.5	3.5	3.2	41.9	15	1.6	0.4	0.08 ±0.015	●		●	●	●		EZH035...	
								0.15 ±0.020	●		●					
040040HP-008H	4	4	3.6	48.8	20	1.85	0.4	0.08 ±0.015	●		●	●	●		EZH040...	
								0.15 ±0.020	●		●					
045045HP-008H	4.5	4.5	4.1	51.1	22.5	2.1	0.5	0.08 ±0.015	●		●	●	●		EZH045...	
								0.15 ±0.020	●		●					
050050HP-008H	5	5	4.6	58.1	25	2.35	0.5	0.08 ±0.015	●		●	●	●		EZH050...	
								0.15 ±0.020	●		●					
060060HP-008H	6	6	5.6	66.1	30	2.85	0.6	0.08 ±0.015	●		●	●	●		EZH060...	
								0.15 ±0.020	●		●					
070070HP-008H	7	7	6.3	73.8	35	3.3	0.7	0.08 ±0.015	●		●	●	●		EZH070...	
								0.15 ±0.020	●		●					
080080HP-008H	8	8	7.2	84.8	40	3.75	0.8	0.08 ±0.015	●		●	●	●		EZH080...	
								0.15 ±0.020	●		●					

Tolerance: Offset ±0.025mm (of the reference pin), overall length ±0.05mm, edge height +0.05/0mm
 Tolerances Details [P8](#)

Recommended Cutting Conditions [P18](#)

EZ Bars Sold in 1 Piece Boxes

● : Standard Item



EZ Bar Dimensions HP High Precision

Part Number	Min. Bore Dia.	Dimensions (mm)							Grades						Applicable Sleeve See P25-P31	
									MEGACOAT NANO PLUS		MEGACOAT		Carbide			
		DMIN	DCON	H	LF	LU	WF	WF ₂	RE	PR1725		PR1225		GW05		
										R	L	R	L	R		L
NEW 010040HP-005G-04 NEW 010040HP-005G-06 NEW 015040HP-005G-04 NEW 015040HP-005G-06 020020HP-005G 025025HP-005G 025025HP-015G 030030HP-005G 030030HP-015G 035035HP-005G 035035HP-015G 040040HP-005G 040040HP-015G 045045HP-005G 045045HP-015G 050050HP-005G 050050HP-015G 060060HP-005G 060060HP-015G 070070HP-005G 070070HP-015G 080080HP-005G 080080HP-015G	1	4	3.45	35.7	4	1.1	0.25	0.05 ±0.010	●						EZH040...	
				37.7	6	0.65		0.05 ±0.010	●							
	1.5	4	3.45	37.7	6	0.65	0.25	0.05 ±0.010	●						EZH040...	
				40.7	9			0.55	0.05 ±0.010	●						
	2	2	1.65	31.8	8	0.55	0.25	0.05 ±0.010	●						EZH020...	
	2.5	2.5	2.15	34.8	10.5	0.8	0.3	0.05 ±0.010	●						EZH025...	
								0.15 ±0.020	●							
	3	3	2.5	38.7	13	1.05	0.4	0.05 ±0.010	●						EZH030...	
								0.15 ±0.020	●							
	3.5	3.5	3	41.7	15	1.3	0.5	0.05 ±0.010	●						EZH035...	
								0.15 ±0.020	●							
	4	4	3.45	48.7	20	1.55	0.5	0.05 ±0.010	●						EZH040...	
								0.15 ±0.020	●							
	4.5	4.5	3.95	50.9	22.5	1.8	0.7	0.05 ±0.010	●						EZH045...	
								0.15 ±0.020	●							
	5	5	4.3	57.8	25	2.05	0.7	0.05 ±0.010	●						EZH050...	
								0.15 ±0.020	●							
	6	6	5.15	65.7	30	2.55	0.9	0.05 ±0.010	●						EZH060...	
								0.15 ±0.020	●							
	7	7	6.15	73.7	35	3.05	1	0.05 ±0.010	●						EZH070...	
								0.15 ±0.020	●							
	8	8	7.1	84.8	40	3.55	1	0.05 ±0.010	●						EZH080...	
								0.15 ±0.020	●							
EZBR	2	2	1.8	32	8	0.85	0.25	0.05 ±0.010	●		●				EZH020...	
	2.5	2.5	2.3	35	10.5	1.1	0.3	0.05 ±0.010	●		●			EZH025...		
								0.15 ±0.020	●		●					
	3	3	2.7	38.9	13	1.35	0.4	0.05 ±0.010	●		●			EZH030...		
								0.15 ±0.020	●		●					
	3.5	3.5	3.2	41.9	15	1.6	0.5	0.05 ±0.010	●		●			EZH035...		
								0.15 ±0.020	●		●					
	4	4	3.6	48.8	20	1.85	0.5	0.05 ±0.010	●		●			EZH040...		
								0.15 ±0.020	●		●					
	4.5	4.5	4.1	51.1	22.5	2.1	0.7	0.05 ±0.010	●		●			EZH045...		
								0.15 ±0.020	●		●					
	5	5	4.6	58.1	25	2.35	0.7	0.05 ±0.010	●		●			EZH050...		
								0.15 ±0.020	●		●					
	6	6	5.6	66.1	30	2.85	0.9	0.05 ±0.010	●		●			EZH060...		
								0.15 ±0.020	●		●					
	7	7	6.3	73.8	35	3.3	1	0.05 ±0.010	●		●			EZH070...		
								0.15 ±0.020	●		●					
	8	8	7.2	84.8	40	3.75	1	0.05 ±0.010	●		●			EZH080...		
								0.15 ±0.020	●		●					

Tolerance (of the reference pin) : [010040HP-005G-04~015040HP-005G-06]
[020020HP-005G~080080HP-015F]

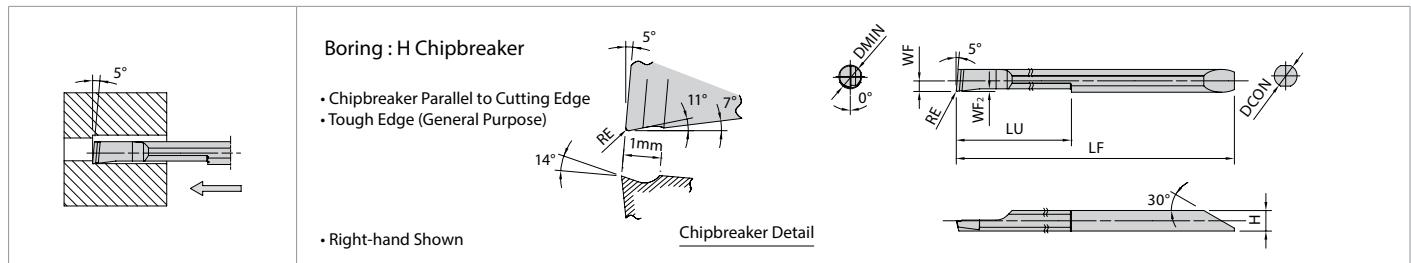
Offset ±0.020mm, Overall Length ±0.04mm, Edge Height +0.03/0mm
Offset ±0.025mm, Overall Length ±0.05mm, Edge Height +0.05/0mm

EZ Bars Sold in 1 Piece Boxes

Tolerances Details [P8](#)

● : Standard Item

Recommended Cutting Conditions [P18](#)



EZ Bar Dimensions HP High Precision Extended Reach Type

Part Number	Min. Bore Dia.	Dimensions (mm)										Grades	Applicable Sleeve See  P25-P31	
												MEGACOAT		
		DMIN	DCON	H	LF	LU	*Overhang Length				WF	WF ₂		RE
						No.1	No.2	No.3	No.4					
EZBR 020020HP-008H-LT	2	2	1.8	36	12	12.5	8.5	-	-	0.85	0.25	0.08 ^{+0.015}	●	EZH020...
025025HP-008H-LT	2.5	2.5	2.3	39.5	15	15.5	11.5	-	-	1.1			●	EZH025...
030030HP-008H-LT	3	3	2.7	47.9	18	*22.5	18.5	14.5	-	1.35	0.3		●	EZH030...
035035HP-008H-LT	3.5	3.5	3.2	51.9	21	*25.5	21.5	17.5	-	1.6	0.4		●	EZH035...
040040HP-008H-LT	4	4	3.6	60.8	28	*32.5	28.5	24.5	20.5	1.85			●	EZH040...
050050HP-008H-LT	5	5	4.6	73.1	35	*40.5	35.5	30.5	25.5	2.35	0.5		●	EZH050...
060060HP-008H-LT	6	6	5.6	83.1	42	*47.5	42.5	37.5	32.5	2.85	0.6		●	EZH060...

Tolerance: Offset ±0.025mm (of the reference pin), overall length ±0.05mm, edge height +0.05/0mm

* To use full overhang, bars with modified LU dimension are required.

Recommended Cutting Conditions P18

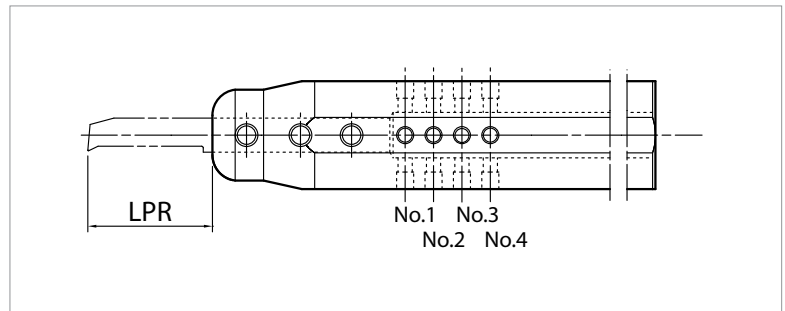
EZ Bars Sold in 1 Piece Boxes

● : Standard Item

Extended Reach (...HP...-LT) Bar Overhang Length LPR (mm)

Part Number	Adjustment Pin Setting			
	No.1	No.2	No.3	No.4
EZBR 020020HP-008H-LT	12.5	8.5	-	-
025025HP-008H-LT	15.5	11.5	-	-
030030HP-008H-LT	*22.5	18.5	14.5	-
035035HP-008H-LT	*25.5	21.5	17.5	-
040040HP-008H-LT	*32.5	28.5	24.5	20.5
050050HP-008H-LT	*40.5	35.5	30.5	25.5
060060HP-008H-LT	*47.5	42.5	37.5	32.5

* To use full overhang, bars with modified LU dimension are required.



EZ Bar Compatibility

EZ Bar is Compatible with Conventional Tip Bars

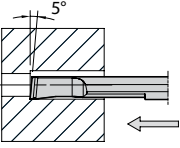
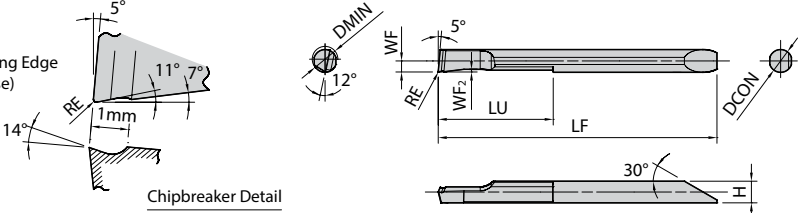
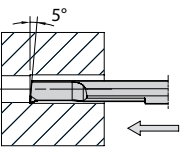
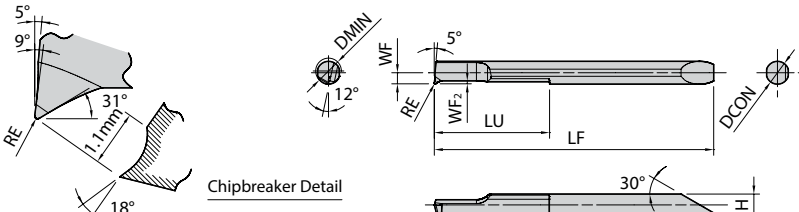
Sleeve	Bar	EZB ... HP	EZB ... ST	HPB ... (Conventional)
EZH ... CT		✓	✓	*1 *2 ✓ (Compatible)
EZH ... HP		✓	✓	*1 *2 ✓ (Compatible)
EZH ... ST		✓	✓	*1 ✓ (Compatible)
HPB ... (Conventional)		*1 ✓ (Compatible)	*1 ✓ (Compatible)	✓

*1: Some diameters of conventional tip bars are incompatible.

*2: Use conventional tip bars without adjustment pins. The overhang length of bar is not adjustable.

EZ Bar Identification System

EZ	B	R	020	020	HP	-	008	H
Bar Symbol (EZ Bar)	Application B : Boring Bar	Bar Hand R : Right-hand L : Left-hand	Min. Bore Dia. 020 : 2.0mm 025 : 2.5mm	Shank Dia. 020 : 2mm 025 : 2.5mm	Precision HP : High Precision ST : Standard		Corner-R (RE) 008 : 0.08mm 015 : 0.15mm	Chipbreaker H: Chipbreaker (Without Lead Angle) H-LT: Chipbreaker (Extended Reach) G: Chipbreaker (With Lead Angle) F: Chipbreaker (With Lead Angle) NB: Without Chipbreaker

	Boring : H Chipbreaker - Chipbreaker Parallel to Cutting Edge - Tough Edge (General Purpose)  Chipbreaker Detail - Right-hand Shown
	Boring : F Chipbreaker - Lead Angle on Chipbreaker - Sharp Edge (for Finishing)  Chipbreaker Detail - Right-hand Shown

EZ Bar Dimensions ST

Cost Oriented

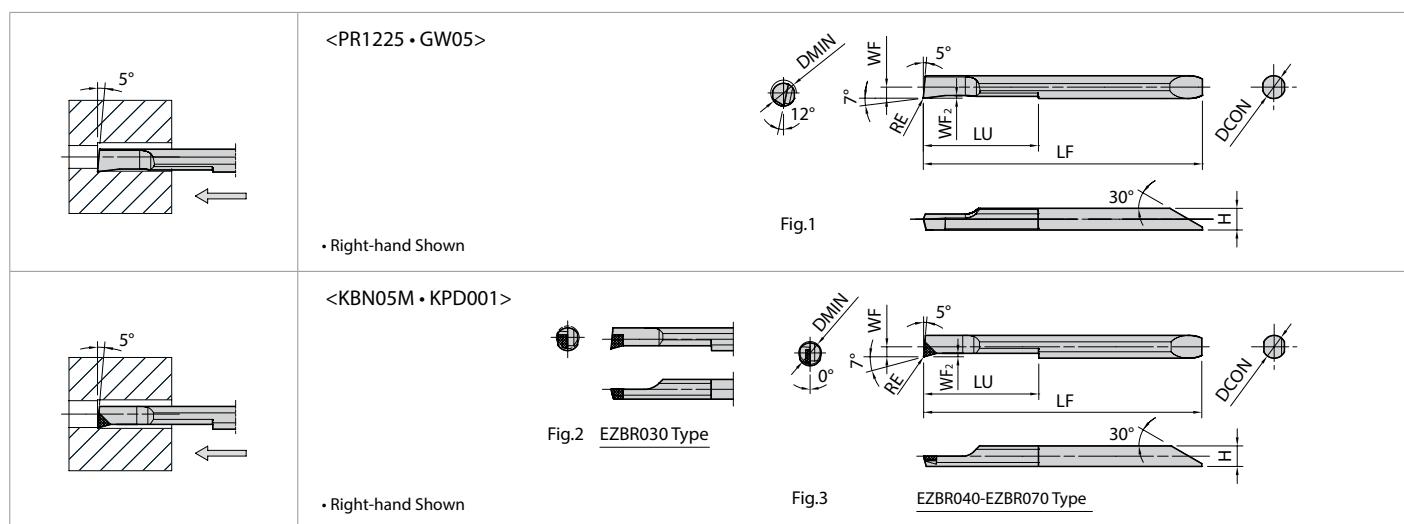
Part Number	Min. Bore Dia.	Dimensions (mm)							Grades		Applicable Sleeve See  P25-P31	
									MEGACOAT NANO PLUS	MEGACOAT		
	DMIN	DCON	H	LF	LU	WF	WF ₂	RE	PR1725	PR1225		
EZBR 020017ST-008H	2.0	1.7	1.50	27.3	7.0	0.79	0.19	0.08 ^{±0.015}	●	●	EZH017...	
	025020ST-008H	2.5	2.0	1.82	32.0	8.0	0.94	0.16	0.08 ^{±0.015}	●	●	EZH020...
									0.15 ^{±0.020}	●	●	
	030025ST-008H	3.0	2.5	2.30	35.0	10.5	1.19	0.15	0.08 ^{±0.015}	●	●	EZH025...
									0.15 ^{±0.020}	●	●	
	035030ST-008H	3.5	3.0	2.80	39.0	13.0	1.44	0.18	0.08 ^{±0.015}	●	●	EZH030...
									0.15 ^{±0.020}	●	●	
	040035ST-008H	4.0	3.5	3.30	42.0	15.0	1.69	0.24	0.08 ^{±0.015}	●	●	EZH035...
									0.15 ^{±0.020}	●	●	
	045040ST-008H	4.5	4.0	3.80	49.0	20.0	1.94	0.27	0.08 ^{±0.015}	●	●	EZH040...
									0.15 ^{±0.020}	●	●	
	055050ST-008H	5.5	5.0	4.80	58.2	25.0	2.44	0.33	0.08 ^{±0.015}	●	●	EZH050...
									0.15 ^{±0.020}	●	●	
	065060ST-008H	6.5	6.0	5.80	66.2	30.0	2.94	0.38	0.08 ^{±0.015}	●	●	EZH060...
									0.15 ^{±0.020}	●	●	
	075070ST-008H	7.5	7.0	6.80	74.2	35.0	3.44	0.44	0.08 ^{±0.015}	●	●	EZH070...
									0.15 ^{±0.020}	●	●	
	EZBR 020017ST-005F	2.0	1.7	1.50	27.3	7.0	0.79	0.20	0.05 ^{±0.010}	●	●	EZH017...
025020ST-005F		2.5	2.0	1.82	32.0	8.0	0.94	0.16	0.05 ^{±0.010}	●	●	EZH020...
									0.15 ^{±0.020}	●	●	
030025ST-005F		3.0	2.5	2.30	35.0	10.5	1.19	0.20	0.05 ^{±0.010}	●	●	EZH025...
									0.15 ^{±0.020}	●	●	
035030ST-005F		3.5	3.0	2.80	39.0	13.0	1.44	0.26	0.05 ^{±0.010}	●	●	EZH030...
									0.15 ^{±0.020}	●	●	
040035ST-005F		4.0	3.5	3.30	42.0	15.0	1.69	0.33	0.05 ^{±0.010}	●	●	EZH035...
									0.15 ^{±0.020}	●	●	
045040ST-005F		4.5	4.0	3.80	49.0	20.0	1.94	0.31	0.05 ^{±0.010}	●	●	EZH040...
									0.15 ^{±0.020}	●	●	
055050ST-005F		5.5	5.0	4.80	58.2	25.0	2.44	0.45	0.05 ^{±0.010}	●	●	EZH050...
									0.15 ^{±0.020}	●	●	
065060ST-005F		6.5	6.0	5.80	66.2	30.0	2.94	0.59	0.05 ^{±0.010}	●	●	EZH060...
									0.15 ^{±0.020}	●	●	
075070ST-005F		7.5	7.0	6.80	74.2	35.0	3.44	0.65	0.05 ^{±0.010}	●	●	EZH070...
									0.15 ^{±0.020}	●	●	

Tolerance: Offset ±0.06mm, overall length ±0.1mm, edge height +0.06/0mm

Tolerances Details [P8](#)Recommended Cutting Conditions [P18](#)

EZ Bars Sold in 1 Piece Boxes

● : Standard Item



EZ Bar Dimensions Without Chipbreaker (PCD / CBN)

Part Number	Min. Bore Dia.	Dimensions (mm)							Drawing	Grades				Applicable Sleeve See P25-P31
										MEGACOAT	Uncoated Carbide	MEGACOAT CBN	PCD	
		DMIN	DCON	H	LF	LU	WF	WF ₂		PR1225	GW05	KBN05M	KPD001	
EZBR 020017-005NB	2.0	1.7	1.50	27.3	7.0	0.79	0.20	0.05 ±0.015	Fig.1	●	●			EZH017...
025020-005NB	2.5	2.0	1.82	32.0	8.0	0.94	0.16			●	●			EZH020...
030025-005NB	3.0	2.5	2.30	35.0	10.5	1.19	0.16			●	●			EZH025...
035030-005NB	3.5	3.0	2.80	39.0	13.0	1.44	0.19			●	●			EZH030...
040035-005NB	4.0	3.5	3.30	42.0	15.0	1.69	0.25			●	●			EZH035...
045040-005NB	4.5	4.0	3.80	49.0	20.0	1.94	0.28			●	●			EZH040...
055050-005NB	5.5	5.0	4.80	58.2	25.0	2.44	0.33			●	●			EZH050...
065060-005NB	6.5	6.0	5.80	66.2	30.0	2.94	0.39			●	●			EZH060...
075070-005NB	7.5	7.0	6.80	74.2	35.0	3.44	0.45			●	●			EZH070...
EZBR 030030-003NB	3.0	3.0	2.60	38.8	13.0	1.25	0.30	0.035 ±0.015	Fig.2			●		EZH030...
040040-003NB	4.0	4.0	3.60	48.8	20.0	1.75	0.50	0.035 ±0.015	Fig.3			●		EZH040...
050050-003NB	5.0	5.0	4.60	58.1	25.0	2.25	0.50					●		EZH050...
060060-003NB	6.0	6.0	5.60	66.1	30.0	2.75	0.50					●		EZH060...
070070-003NB	7.0	7.0	6.60	74.1	35.0	3.25	0.50					●		EZH070...
EZBR 040040-003NB	4.0	4.0	3.60	48.8	20.0	1.75	0.50	0.035 ±0.015	Fig.3				●	EZH040...
050050-003NB	5.0	5.0	4.60	58.1	25.0	2.25	0.50						●	EZH050...
060060-003NB	6.0	6.0	5.60	66.1	30.0	2.75	0.50						●	EZH060...
070070-003NB	7.0	7.0	6.60	74.1	35.0	3.25	0.50						●	EZH070...

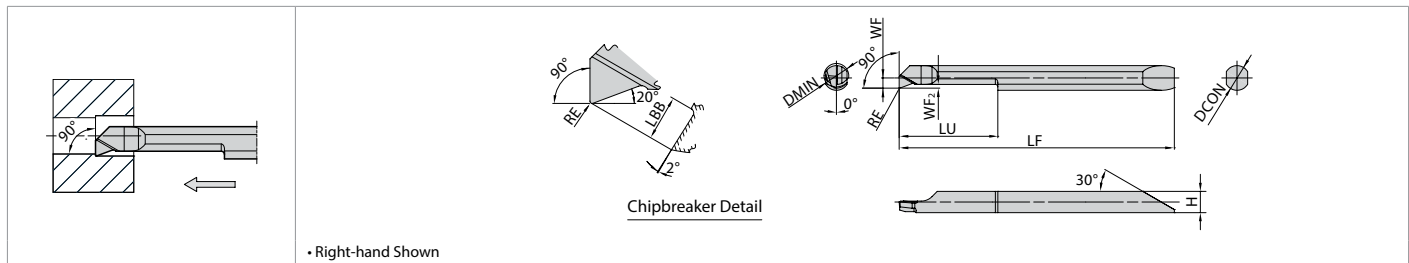
Recommended Cutting Conditions [P18](#)

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

Edge Preparation

Carbide	Edge Preparation	Notes
PR1225 / GW05	Sharp Edge	-
KBN05M	T00315	0.08mm × 15° Chamfered Cutting Edge
KPD001	Sharp Edge	-



EZ Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)								Grades	Applicable Sleeve See  P25-P31
										MEGACOAT	
	DMIN	DCON	H	LF	LU	WF	WF ₂	LBB	RE	PR1225	
EZBFR 030030-008	3	3	2.5	37.7	12	1.2	0.45	1.5	0.08 ^{±0.015}	●	EZH030...
040040-008	4	4	3.45	44.6	16	1.65	0.55	2.0	0.08 ^{±0.015}	●	EZH040...
050050-015	5	5	4.3	52.7	20	2.15	0.7	2.4	0.15 ^{±0.020}	●	EZH050...
060060-015	6	6	5.15	59.6	24	2.55	0.85	2.8	0.15 ^{±0.020}	●	EZH060...

Tolerance: Offset ±0.05mm, overall length ±0.05mm, edge height +0.05/0mm

Tolerances Details [P8](#)

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

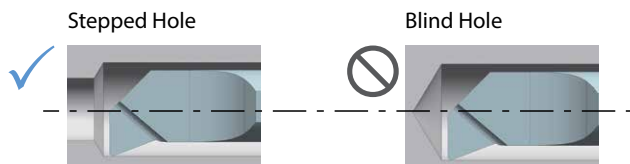
Recommended Cutting Conditions

Workpiece	Insert Grade (Vc : sfm)	EZBFR030		EZBFR040		EZBFR050/060		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	Wet
Stainless Steel	100 - 260	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	

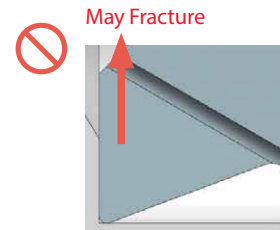
EZBF Machining Notes

✓ Recommended ⊘ Not Recommended ⊘ High Defect Probability

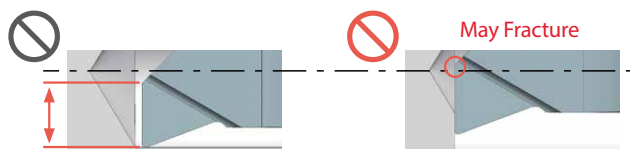
1. Machining into blind holes is not recommended



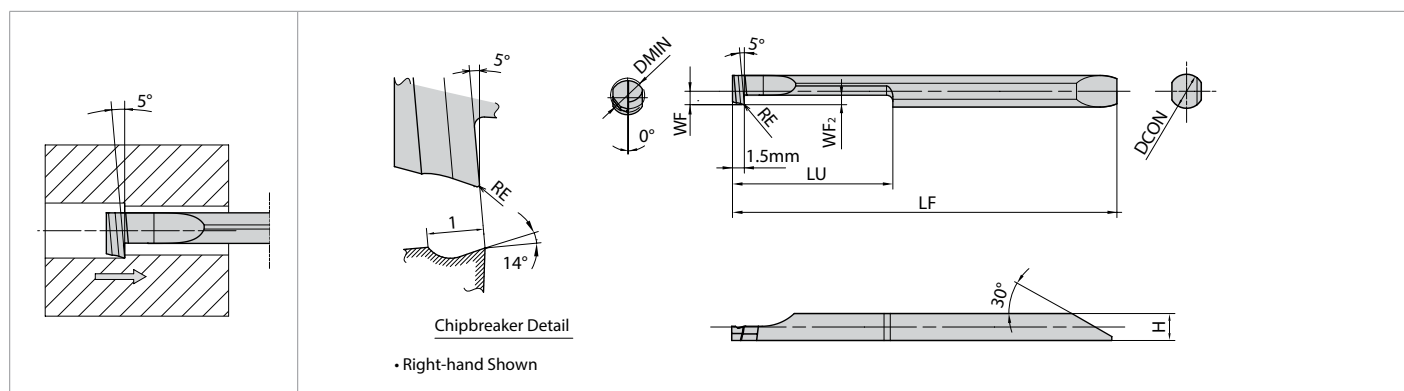
3. Up facing is not recommended



2. If front cutting edge exceeds beyond workpiece center line, fracturing may occur



For Min Bore Diameter: Ø4mm, Front cutting edge length: 1.9mm

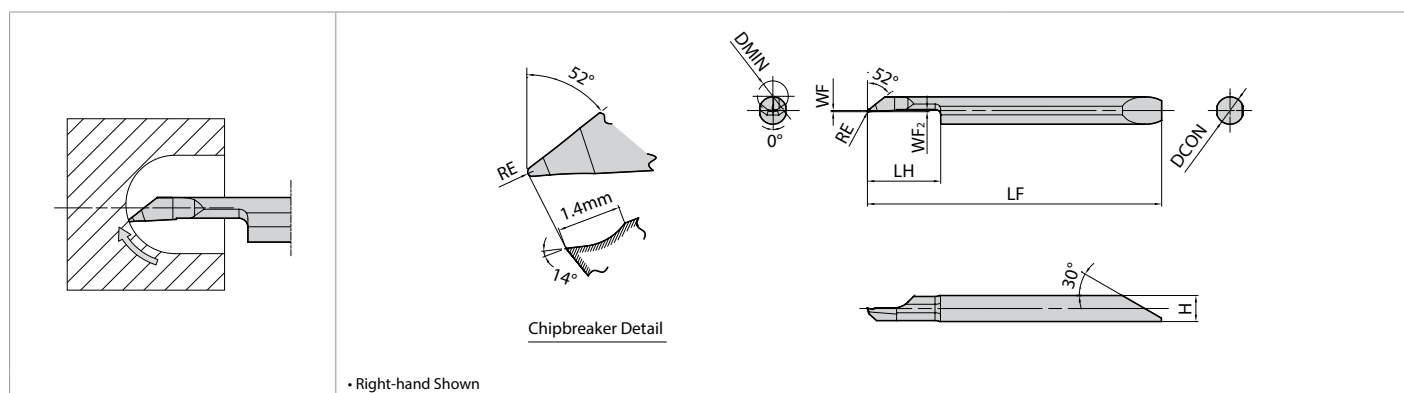


EZ Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)							Grades		Applicable Sleeve See P25-P31
									MEGACOAT	Uncoated Carbide	
EZBTR 040040-005	4	4	3.45	48.7	20	1.7	1.2	0.05 ⁺⁰ _{-0.020}	●	●	EZH040...
050050-005	5	5	4.3	58.7	25	2.15	1.5		●	●	EZH050...

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

Recommended Cutting Conditions [P19](#)

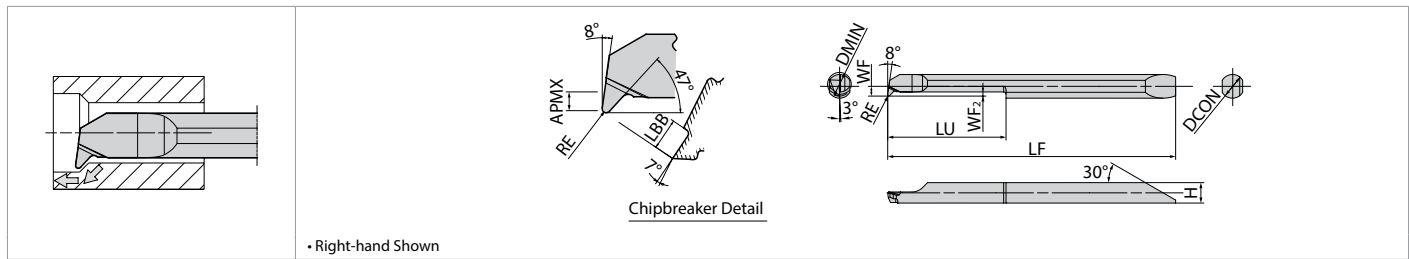
EZ Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)							Grades		Applicable Sleeve See P25-P31
									MEGACOAT	Uncoated Carbide	
EZVBR 035030-010	3.5	3	2.8	38.0	8	0.17	0.22	0.10 ^{±0.015}	●	●	EZH030...
045040-010	4.5	4	3.8	43.0	10	0.17	0.26		●	●	EZH040...
055050-010	5.5	5	4.8	50.2	12	0.17	0.29		●	●	EZH050...
065060-010	6.5	6	5.8	55.2	14	0.17	0.32		●	●	EZH060...

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

Recommended Cutting Conditions [P19](#)



EZ Bar Dimensions

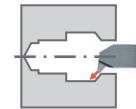
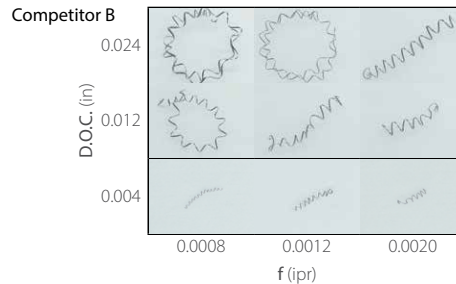
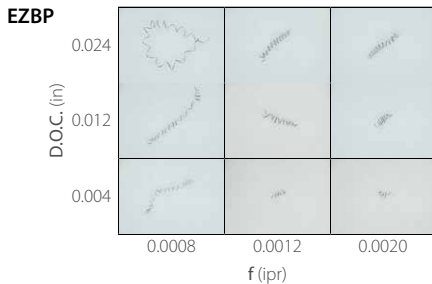
Part Number	Min. Bore Dia.	Dimensions (mm)									Grades	Applicable Sleeve See P25-P31
		DMIN	DCON	H	LF	LU	WF	WF ₂	LBB	RE	APMX	MEGACOAT
												PR1225
EZBPR 020020-005-08	2	2	1.65	31.8	8	0.55	0.35	1.0	0.05 ±0.01	0.3	●	EZH020...
020020-005-10												
020020-005-12												
030030-005-12	3	3	2.5	37.7	12	1.05	0.45	1.2	0.05 ±0.01	0.4	●	EZH030...
030030-005-15												
040040-015	4	4	3.45	48.7	20	1.65	0.65	1.5	0.15 ±0.02	0.6	●	EZH040...
050050-015	5	5	4.3	57.8	25	2	1.1	2.2	0.15 ±0.02	0.8	●	EZH050...
060060-015	6	6	5.15	65.7	30	2.45	1.35	2.5	0.15 ±0.02	1	●	EZH060...

Chip Control Comparison (Internal Evaluation)

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

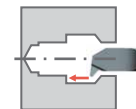
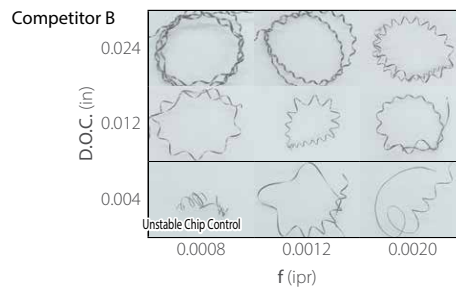
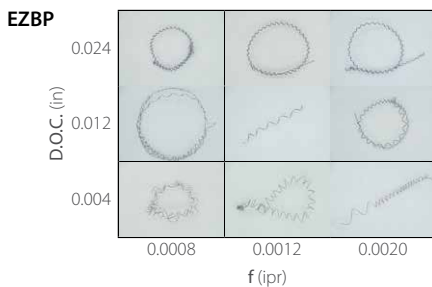
Copying



Cutting Conditions : Vc = 260 sfm, Wet
Workpiece : 1045 (Ø14mm)
EZBPR040040-015 PR1225

EZBP showed better chip breaking in a wide range of machining applications compared to competitor B

Boring

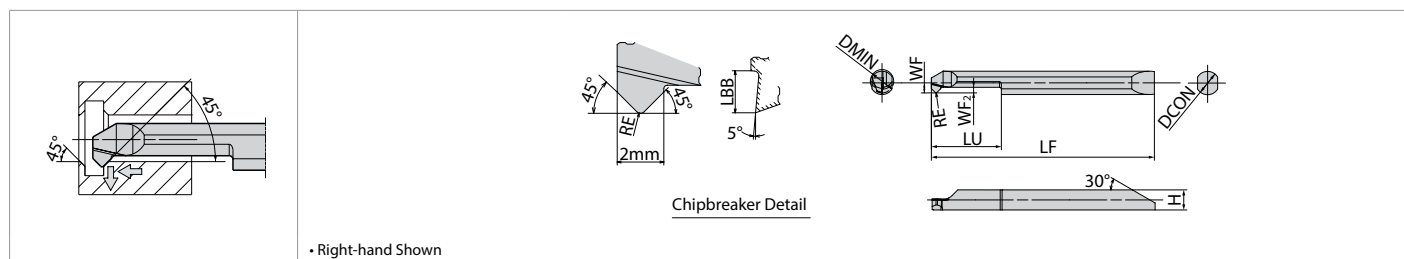


Cutting Conditions : Vc = 260 sfm, Wet
Workpiece : 1045 (Ø14mm)
EZBPR040040-015 PR1225

EZBP showed better chip control than competitor B

Recommended Cutting Conditions

Workpiece	Insert Grade (Vc : sfm)	EZBPR020020-005-08/10/12		EZBPR030030-005-12/15		EZBPR040040-015		EZBPR050050-015		EZBPR060060-015		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)										
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	~ 0.0118	~ 0.0020	~ 0.0157	~ 0.0020	~ 0.0236	~ 0.0020	~ 0.0315	~ 0.0020	~ 0.0394	~ 0.0020	Wet
Stainless Steel	100 - 260	~ 0.0118	~ 0.0020	~ 0.0157	~ 0.0020	~ 0.0236	~ 0.0020	~ 0.0315	~ 0.0020	~ 0.0394	~ 0.0020	



EZ Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)								Grades	Applicable Sleeve See  P25-P31
										MEGACOAT	
	DMIN	DCON	H	LF	LU	WF	WF ₂	LBB	RE	PR1225	
EZBCR 050050-020-15	5	5	4.3	47.8	15	2.15	1.2	1.8	0.02 ^{±0.02}	●	EZH050...
050050-020-20				52.8	20					●	
060060-020-18	6	6	5.15	53.7	18	2.65	1.9	2.5		●	EZH060...
060060-020-24				59.7	24					●	
070070-020-21	7	7	6.2	59.7	21	3	2.5	3.1		●	EZH070...
070070-020-42				80.7	28					●	

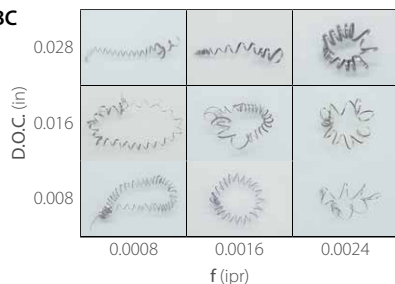
Chip Control Comparison (Internal evaluation)

EZ Bars Sold in 1 Piece Boxes

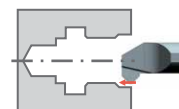
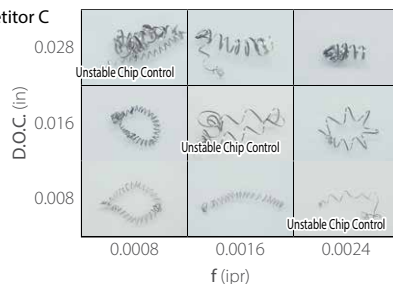
● : Standard Item

Boring

EZBC



Competitor C

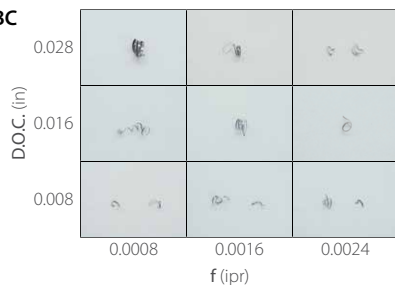


Cutting Conditions : Vc = 260 sfm, Wet
Workpiece : 304 (Ø14mm)
EZBCR050050-020-15 PR1225

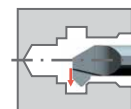
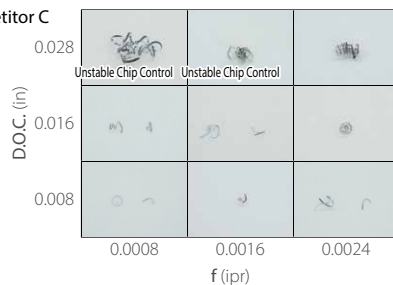
EZBC reduced chip clogging and showed stable chip control

Chamfering

EZBC



Competitor C



Cutting Conditions : Vc = 260 sfm, Wet
Workpiece : 304 (Ø14mm)
EZBCR050050-020-15 PR1225

EZBC showed improved chip evacuation and better chip control at large D.O.C. compared to competitor C

Recommended Cutting Conditions

Workpiece	Insert Grade (Vc : sfm)	EZBC050050-020-15/20		EZBC060060-020-18/24		EZBC070070-020-21/42		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	Wet
Stainless Steel	100 - 260	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	

Recommended Cutting Conditions

H Chipbreaker EZB-HP...H Type / EZB-ST...H Type

Workpiece	Insert Grade (Vc : sfm)			EZB%020/025		EZB%030/035		EZB%040/045		EZB%050/055/060/ 065/070/075/080		Notes
	MEGACOAT NANO PLUS	MEGACOAT	Carbide	D.O.C. : (inch), f : (ipr)								
	PR1725	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~390	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Wet
Stainless Steel	100~330	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-ferrous Metals	-	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

H Chipbreaker (EZB-HP...H-LT Long Type)

Workpiece	Insert Grade (Vc : sfm)	EZBR020/025/030/035		EZBR040/050/060		Notes
	MEGACOAT	D.O.C. : (inch), f : (ipr)				
	PR1225	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~200	~0.0118	~0.0020	~0.0157	~0.0039	Wet
Stainless Steel	70~130	~0.0098	~0.0020	~0.0118	~0.0028	

G Chipbreaker EZB-HP...G Type

Workpiece	Insert Grade (Vc : sfm)	EZBR010/015		EZBR020/025		EZBR030/035		EZBR040/045/050/ 060/070/080		Notes
	MEGACOAT NANO PLUS	D.O.C. : (inch), f : (ipr)								
	PR1725	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~390	~0.0079	~0.0008	~0.0098	~0.0012	~0.0118	~0.0020	~0.0138	~0.0028	Wet
Stainless Steel	100~330	~0.0059	~0.0006	~0.0079	~0.0008	~0.0098	~0.0012	~0.0118	~0.0020	

F Chipbreaker EZB-HP...F Type / EZB-ST...F Type

Workpiece	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/ 065/070/075/080		Notes
	MEGACOAT NANO PLUS	MEGACOAT	D.O.C. : (inch), f : (ipr)								
	PR1725	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~390	100~330	~0.0079	~0.0012	~0.0079	~0.0020	~0.0118	~0.0028	~0.0118	~0.0028	Wet
Stainless Steel	100~330	100~260	~0.0079	~0.0008	~0.0079	~0.0012	~0.0098	~0.0020	~0.0098	~0.0020	

NB Type (without Chipbreaker)

Workpiece	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/ 060/065/075		Notes
	MEGACOAT	Carbide	D.O.C. : (inch), f : (ipr)								
	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Wet
Stainless Steel	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-ferrous Metals	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0028	~0.0197	~0.0039	

Workpiece	Insert Grade (Vc : sfm)		EZBR030		EZBR040/045		EZBR050/060/070		Notes
	MEGACOAT CBN	PCD	D.O.C. : (inch), f : (ipr)						
	KBN05M	KPD001	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Non-ferrous Metals	-	~980	-	-	~0.0177	~0.0039	~0.0197	~0.0059	Wet
Hardened Materials (Heat-treated Steel)	~330	-	~0.0028	~0.0012	~0.0039	~0.0020	~0.0059	~0.0028	

Recommended Cutting Conditions

EZBF (90° Lead Boring)

Workpiece	Insert Grade (Vc : sfm)	EZBFR030		EZBFR040		EZBFR050/060		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	Wet
Stainless Steel	100 - 260	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	

EZBT (Back Boring)

Workpiece	Insert Grade (Vc : sfm)		EZBTR040		EZBTR050		Notes
	MEGACOAT	Carbide	D.O.C. : (inch), f : (ipr)				
	PR1225	GW05	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	-	- 0.012	- 0.0012	- 0.020	- 0.0039	Wet
Stainless Steel	100 - 260	-	- 0.008	- 0.0008	- 0.016	- 0.0028	
Non-ferrous Metals	-	- 330	- 0.012	- 0.0020	- 0.020	- 0.0059	

EZVB (Boring / Internal Facing / Internal Profiling)

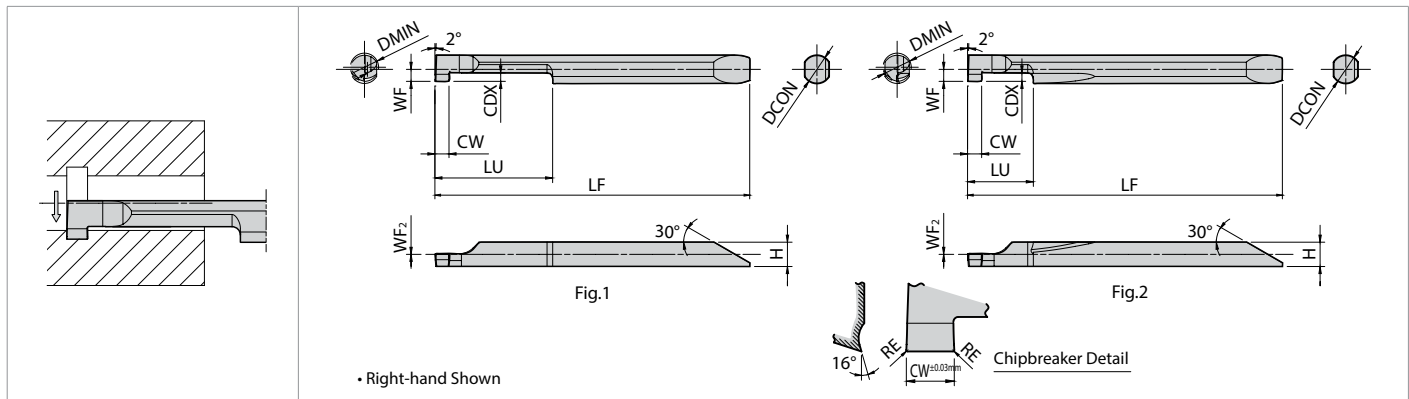
Workpiece	Insert Grade (Vc : sfm)	EZVBR035 Type		EZVBR045		EZVBR055/065		Notes
	MEGACOAT	D.O.C. : (inch), f : (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	~0.0020	~0.0016	~0.0028	~0.0028	~0.0039	~0.0028	Wet
Stainless Steel	100~260	~0.0012	~0.0012	~0.0020	~0.0020	~0.0028	~0.0020	

EZBP (Copying)

Workpiece	Insert Grade (Vc : sfm)	EZBPR020020-005-08/10/12		EZBPR030030-005-12/15		EZBPR040040-015		EZBPR050050-015		EZBPR060060-015		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)										
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	~ 0.0118	~ 0.0020	~ 0.0157	~ 0.0020	~ 0.0236	~ 0.0020	~ 0.0315	~ 0.0020	~ 0.0394	~ 0.0020	Wet
Stainless Steel	100 - 260	~ 0.0118	~ 0.0020	~ 0.0157	~ 0.0020	~ 0.0236	~ 0.0020	~ 0.0315	~ 0.0020	~ 0.0394	~ 0.0020	

EZBC (45° Chamfering)

Workpiece	Insert Grade (Vc : sfm)	EZBC050050-020-15/20		EZBC060060-020-18/24		EZBC070070-020-21/42		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100 - 330	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	Wet
Stainless Steel	100 - 260	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	~ 0.0276	~ 0.0024	



EZ Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)									Drawing	MEGACOAT		Carbide		Applicable Sleeve See P25-P31
		CW ± 0.03	RE	DCON	H	LF	LU	WF	L4	CDX		PR1225	GW05			
												R	L	R	L	
EZG ^R 040040-050 040040-100 040040-150 040040-200 050050-100 050050-150 050050-200 060060-100 060060-150 060060-200 070070-100 070070-150 070070-200 080070-100 080070-150 080070-200	4	0.5	0.05 ± 0.013	4	3.45	44.7	12	1.70	0	1.0	Fig.2	●	●	●		EZH040..
		1.0										●	●	●		
		1.5										●	●	●		
		2.0										●	●	●		
	5	1.0		5	4.30	52.8	20	2.15	0	1.5	Fig.1	●	●	●		EZH050..
		1.5										●	●	●		
		2.0										●	●	●		
		1.0										●	●	●		
	6	1.5		6	5.15	60.7	20	2.65	0	2.0	Fig.1	●	●	●		EZH060..
		2.0										●	●	●		
		1.0										●	●	●		
		1.5										●	●	●		
	7	1.5		7	6.20	63.7	25	3.05	0	2.0	Fig.1	●	●	●		EZH070..
		2.0										●	●	●		
		1.0										●	●	●		
		1.5										●	●	●		
8	1.5	7	6.20	63.7	25	3.45	0	2.0	Fig.1	●	●	●		EZH070..		
	2.0									●	●	●				
	1.0									●	●	●				
	1.5									●	●	●				
EZGR 030030-050S 030030-100S 040040-050S 040040-100S 040040-150S 040040-200S 050050-100S 050050-150S 050050-200S 060060-100S 060060-150S 060060-200S 070070-100S 070070-150S 070070-200S 080070-100S 080070-150S 080070-200S	3	0.5	0.05 ± 0.013	3	2.50	38.7	5	1.25	0	0.8	Fig.2	●				EZH030..
		1.0										●				
	4	0.5		4	3.45	44.7	8	1.70	0	1.0	Fig.2	●				EZH040..
		1.0										●				
		1.5										●				
		2.0										●				
	5	1.0		5	4.30	52.8	10	2.15	0	1.5	Fig.2	●				EZH050..
		1.5										●				
		2.0										●				
		1.0										●				
	6	1.5		6	5.15	60.7	10	2.65	0	2.0	Fig.2	●	●			EZH060..
		2.0										●				
		1.0										●				
		1.5										●				
	7	1.5		7	6.20	63.7	10	3.05	0	2.0	Fig.2	●				EZH070..
		2.0										●				
1.0		●														
1.5		●														
8	1.0	7	6.20	63.7	10	3.45	0	2.0	Fig.2	●				EZH070..		
	1.5									●						
	2.0									●						
	1.0									●						

Dimension CDX shows available grooving depth
 "S" in part number represents short length

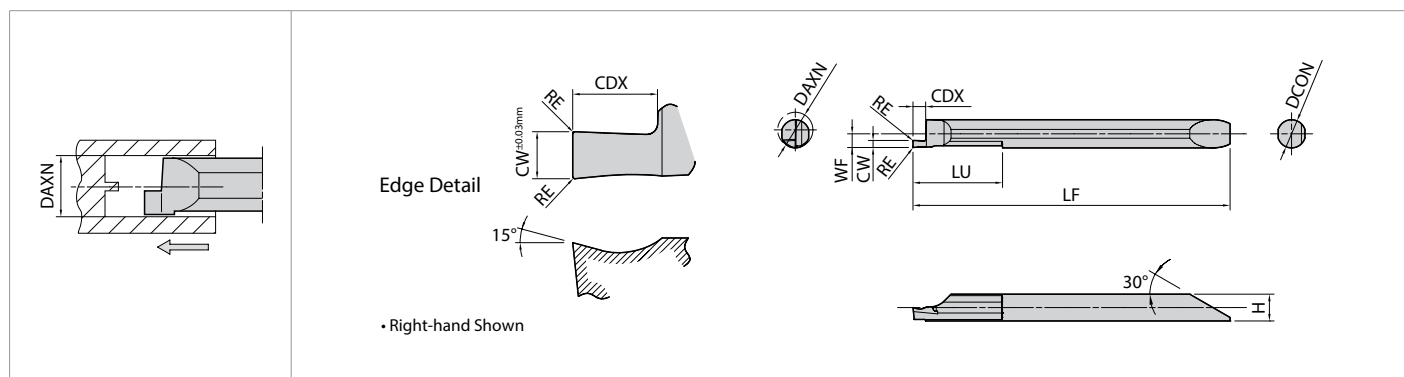
EZ Bars Sold in 1 Piece Boxes

● : Standard Item

Recommended Cutting Conditions

Workpiece	Insert Grade (Vc: sfm)		EZGR030030-...S (Short Length)	EZGR040040-... EZGR050050-... (Short Length)	EZGR060060-... EZGR070070-... EZGR080070-... (Short Length)	EZGR060060-...S EZGR070070-...S EZGR080070-...S (Short Length)	Notes
	MEGACOAT	Uncoated Carbide					
	PR1225	GW05					
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0020		Wet
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0012		
Non-ferrous Metals	-	★ ~980	-	~0.0020	~0.0031		

★ : 1st Recommendation



EZ Bar Dimensions

Part Number	Min. Face Groove Dia.	Dimensions (mm)								MEGACOAT		Carbide		Applicable Sleeve See P25-P31
		CW ^{±0.03}	RE	DCON	H	LF	LU	WF	CDX	PR1225		GW05		
	R									L	R	L		
EZFG [℥] 050040-100	5	1.0	0.05 ^{±0.013}	4	3.8	45.0	12	1.9	1.5	●	●	●	EZH040..	
050040-150		1.5							2.0	●	●	●		
EZFG [℥] 060050-100	6	1.0	0.05 ^{±0.013}	5	4.8	53.2	25	2.4	1.5	●	●	●	EZH050..	
060050-150		1.5							2.5	●	●	●		
060050-200		2.0							3.0	●	●	●		
EZFG [℥] 080070-100	8	1.0	0.05 ^{±0.013}	7	6.8	64.2	25	3.4	2.0	●	●	●	EZH070..	
080070-150		1.5							2.5	●	●	●		
080070-200		2.0							3.0	●	●	●		
080070-300		3.0							3.0	●	●	●		

Dimension CDX shows available grooving depth

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

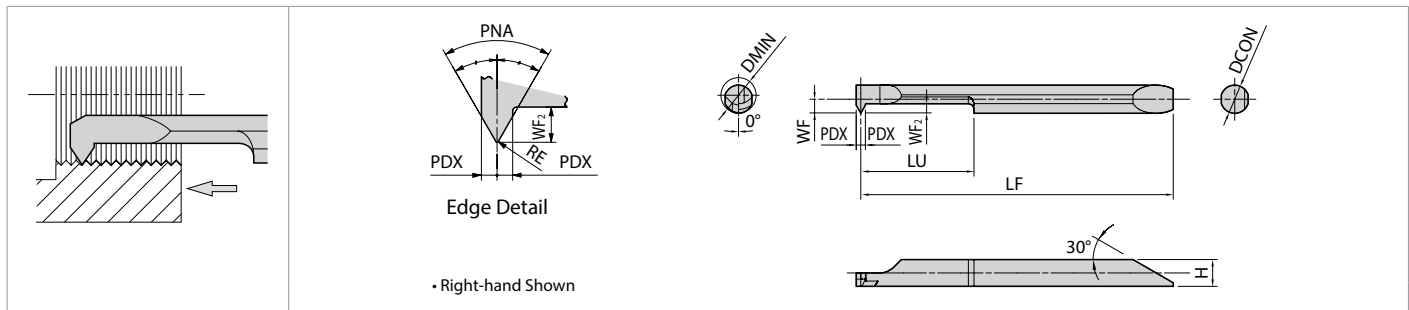
Recommended Cutting Conditions

Workpiece	Insert Grade (Vc : sfm)		EZFGR050040-100 EZFGR060050-100 EZFGR080070-100	EZFGR050040-150 EZFGR060050-150 EZFGR080070-150	EZFGR060050-200 EZFGR080070-200	EZFGR080070-300	Notes
	MEGACOAT	Uncoated Carbide					
	PR1225	GW05					
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0016	~0.0020	Wet
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0008	~0.0012	
Non-ferrous Metals	-	★ ~980	~0.0012	~0.0020	~0.0024	~0.0031	

★ : 1st Recommendation

Bar Identification System (Internal Grooving, Face Grooving)

EZ	G	R	030	030	050	S
Bar Symbol (EZ Bar)	Application G: Internal Grooving FG: Face Grooving	Bar Hand R: Right-hand L: Left-hand	Min. Bore Dia. 030 : 3mm : Face Grooving Dia. 050 : 5mm :	Shank Dia. 030 : 3mm :	Groove Width 050 : 0.5mm 100 : 1.0mm 150 : 1.5mm 200 : 2.0mm	Type S : Short Length (LU Dimension)



EZ Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)								MEGA COAT PR1225	Uncoated Carbide GW05	Applicable Threads							
												Metric		Unified		American National Pipe			
		DMIN	DCON	H	LF	LU	WF	S	PDX			RE	PNA	Applicable Thread	Pitch (mm)	Applicable Thread	Pitch (TPI)	Applicable Thread	Pitch (TPI)
EZTR 030025-60-002	3.0	2.5	2.3	35.0	6.5	1.19	1.0	0.50	0.020 ^{±0.010}	60°	●	●	M4 or more Fine Thread: M3.5 or more	P0.50~P0.80	No.8-32UNC No. 8-36UNF or more	36~32	-	-	
035030-60-002	3.5	3.0	2.8	39.0	9.0	1.44	1.2	0.60			●	●	M4.5 or more Fine Thread: M4.5 or more	P0.50~P1.00	No.10-24UNC No. 8-36UNF or more	36~24	-	-	
040035-60-004	4.0	3.5	3.3	42.0	11.0	1.69	1.2	0.60	0.040 ^{±0.010}	60°	●	●	M5 or more Fine Thread: M6 or more	P0.75~P1.25	No.12-24UNC No. 12-28UNF or more	28~20	-	-	
050040-60-004	5.0	4.0	3.8	45.0	16.0	1.94	1.3	0.65			●	●	M7 or more Fine Thread: M6 or more	P0.75~P1.50	1/4-20UNC 1/4-28UNF or more	28~18	-	-	
060050-60-004	6.0	5.0	4.8	53.2	20.0	2.44	1.6	0.80			●	●	M8 or more Fine Thread: M7 or more	P0.75~P1.50	5/16-18UNC 5/16-24UNF or more	24~16	1/4NPT 3/8NPT	18	
070060-60-004	7.0	6.0	5.8	61.2	25.0	2.94	2.0	1.00			●	●	M9 or more Fine Thread: M8 or more	P0.75~P1.75	3/8-16UNC 3/8-24UNF or more	24~16	1/4NPT or more	18,14	
														Whitworth		Parallel Pipe / Tapered Pipe			
EZTR 060050-55-008	6.0	5.0	4.8	53.2	20.0	2.44	1.6	0.80	0.085 ^{±0.015}	55°	●	●	W10 TPI 24 or more	24~20	G1/16 or more R1/16 or more	28	-	-	
080070-55-008	8.0	7.0	6.8	64.2	25.0	3.44	2.0	1.00			●	●	W11 TPI 220 or more	20~18	G1/8 or more R1/8 or more	28,19	-	-	

For American National Pipe (NPT), use EZTR...-60-004 [P23](#)
Applicable Sleeves [P25-P31](#)

EZ Bars Sold in 1 Piece Boxes

● : Standard Item

D.O.C. & Number of Passes (Metric)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass	20 Pass
0.50	0.30	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.70	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.80	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03				
1.75	1.10	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03		

D.O.C. & Number of Passes (Whitworth)

TPI	Total D.O.C. (in)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
24	0.026	13	0.0028	0.0028	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0016	0.0012	0.0012				
20	0.032	15	0.0028	0.0028	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0012	0.0012		
18	0.036	17	0.0028	0.0028	0.0028	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0012	0.0012	0.0012

D.O.C. & Number of Passes (Unified)

TPI	Total D.O.C. (in)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
36	0.017	10	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0012	0.0008	0.0008								
32	0.020	11	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0012	0.0012	0.0012							
28	0.022	12	0.0028	0.0024	0.0020	0.0020	0.0020	0.0020	0.0020	0.0016	0.0016	0.0012	0.0012	0.0012						
24	0.026	12	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0020	0.0016	0.0012						
20	0.031	14	0.0028	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0016	0.0016	0.0012				
18	0.035	17	0.0028	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0016	0.0016	0.0012	0.0012	
16	0.039	18	0.0028	0.0028	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0016	0.0020	0.0016	0.0016	0.0016	0.0012

Recommended Cutting Conditions

Workpiece	Recommended Insert Grade (Vc : sfm)	
	MEGACOAT	Uncoated Carbide
	PR1225	GW05
Carbon Steel / Alloy Steel	★ 100~160	-
Stainless Steel	★ 100~160	-
Non-ferrous Metals	-	★ 100~160

Note

- 1) The standard cutting speed is Vc = 100 - 160 sfm. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
- 2) Coolant is recommended.

★ : 1st Recommendation

Application of Parallel Pipe & Tapered Pipe Thread

Parallel Pipe: G (PF), Rp (PS)

Applicable Thread	TPI	Internal Threading (G, Rp)		Same Root's Radius External Threading Internal Threading
Symbol		Insert	Bore Dia. (mm)	
G 1/16 (-)	28	EZTR	060050-55-008	0.12
G 1/8 (PF 1/8)			080070-55-008	
G 1/4 (PF 1/4)	19	EZTR	080070-55-008	0.18
G 3/8 (PF 3/8)				

Tapered Pipe: R, Rc (PT) (BSPT)

Applicable Thread	TPI	Internal Threading (Rc)		Same Root's Radius External Threading Internal Threading
Symbol		Insert	Bore Dia. (mm)	
R 1/16, Rc 1/16 (-)	28	EZTR	060050-55-008	0.12
R 1/8, Rc 1/8 (PT 1/8)			080070-55-008	
R 1/4, Rc 1/4 (PT 1/4)	19	EZTR	080070-55-008	0.18
R 3/8, Rc 3/8 (PT 3/8)				

When using "EZT" type for Parallel Pipe / Tapered Pipe threading, the thread's corners become sharp edged due to its partial profile, and the shape will not be the same as the standard shape for Parallel Pipe / Tapered Pipe.

D.O.C. & Number of Passes (Parallel Pipe / Tapered Pipe)

TPI	Total D.O.C. (in)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.024	12	0.0028	0.0028	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0012	0.0012						
19	0.037	18	0.0028	0.0028	0.0028	0.0028	0.0024	0.0024	0.0024	0.0024	0.0024	0.0020	0.0020	0.0020	0.0016	0.0016	0.0016	0.0016	0.0012	0.0012

Application of American National Pipe Thread (NPT)

Applicable Thread	TPI	Internal Threading		
		Toolholder	Insert	
			Partial Profile	Full Profile
1/16 NPT 1/8 NPT	27	No Tools Available		
1/4 NPT 3/8 NPT	18	EZH Sleeve	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	EZH Sleeve	EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	SINR1616S-16 SINR2016S-16	-	16IR14NPT

Application of NPTF Thread

NPTF is the thread for sealing pipes without using any sealing material.

Thread symbol is similar to NPT but the tolerance is different from that of NPT and the above bars are not available for NPTF.

D.O.C. & Number of Passes (American National Pipe Thread)

TPI	Total D.O.C. (in)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
18	0.048	16	0.0071	0.0055	0.0047	0.0047	0.0039	0.0035	0.0031	0.0031	0.0028	0.0024	0.0020	0.0016	0.0012	0.0012	0.0008	0.0008			
14	0.061	19	0.0071	0.0063	0.0055	0.0055	0.0047	0.0039	0.0035	0.0035	0.0031	0.0028	0.0028	0.0024	0.0020	0.0020	0.0016	0.0016	0.0012	0.0012	0.0008

Toolholder Dimensions (CC... Inserts)

Applicable Inserts: ...SCLCR03... = CC..1109..
 ...SCLCR04... = CC..1411..
 ...SCLCR06... = CC..215..

S-SCLC

Fig.1

Fig.2

Maximum overhang length - L/D = ~3

Fig.3

• Right-hand shown

• Left-hand insert for Right-hand Bar

C-SCLC

Fig.4

Fig.5

Maximum overhang length - L/D = ~5

Fig.6

• Right-hand shown

• Left-hand insert for Right-hand Bar

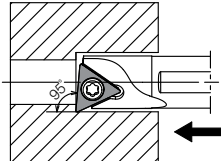
Part Number		Std. Item	Min. Bore Dia.	Dimensions (mm)				GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve See P25-P31	
												Clamp Screw	Wrench		
				R	DMIN	DCON	H	LF	LH	WF					
Steel	S045X-SCLCR03-050Ezp	●	5	4.5	4.3	42.4	-	2.5	15°	0.2	Fig.1	SB-1635TR	FT-6	EZH045...	
	S050X-SCLCR03-060Ezp	●	6	5.0	4.7	48.4	9.0	3.0	13°	0.2	Fig.2			EZH050...	
	S060X-SCLCR04-070Ezp	●	7	6.0	5.7	54.4	10.0	3.5	13°	0.2	Fig.2			EZH060...	
	S070X-SCLCR04-080Ezp	●	8	7.0	6.7	60.4	10.3	4.0	11°	0.2	Fig.2	SB-2035TR	FT-8	EZH070...	
	S080X-SCLCR06-100Ezp	●	10	8.0	7.5	69.5	13.3	5.0	14°	0.4	Fig.3			EZH080...	
Carbide	C045X-SCLCR03-050Ezp	●	5	4.5	4.3	51.4	-	2.5	15°	0.2	Fig.4	SB-1635TR	FT-6	EZH045...	
	C050X-SCLCR03-060Ezp	●	6	5.0	4.7	58.4	9.0	3.0	13°	0.2	Fig.5			EZH050...	
	C060X-SCLCR04-070Ezp	●	7	6.0	5.7	66.4	10.0	3.5	13°	0.2	Fig.5	SB-2035TR		EZH060...	
	C070X-SCLCR04-080Ezp	●	8	7.0	6.7	74.4	11.0	4.0	11°	0.2	Fig.5			EZH070...	
	C080X-SCLCR06-100Ezp	●	10	8.0	7.5	85.5	14.0	5.0	14°	0.4	Fig.6	SB-2545TR	FT-8	EZH080...	

● : Standard Item

Toolholder Dimensions (TB... / TP... Inserts)

Applicable Inserts: ...STLBR06... = TB..121..
 ...STLPR09... = TP..1815..

S-STLB(P)



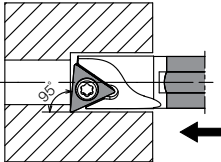
• Right-hand shown

Fig.1

Fig.2

• Left-hand insert for Right-hand Bar

C-STLB(P)



• Right-hand shown

Fig.3

Fig.4

• Left-hand insert for Right-hand Bar

Part Number		Std. Item	Min. Bore Dia.	Dimensions (mm)								θ	Standard Corner-R (rε)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve See P25-P31
		R	ØA	ØD	H	L1	L2	L3	L4	F	S					Clamp Screw	Wrench	
Steel	S070X-STLBR06-080Ezp*	●	8	7	6.7	60.4	10.3	-	12	4	0.4	12°	0.2	No	Fig.1	SB-2035TR	FT-6	EZH070...
	S080X-STLPR09-100Ezp	●	10	8	7.5	69.5	13.3	15	15	5	0.5	10°	0.4		Fig.2	SB-2545TR	FT-8	EZH080...
Carbide	C070X-STLBR06-080Ezp*	●	8	7	6.7	74.4	11.0	-	12	4	0.4	12°	0.2		Fig.3	SB-2035TR	FT-6	EZH070...
	C080X-STLPR09-100Ezp	●	10	8	7.5	85.5	14.0	15	15	5	0.5	10°	0.4		Fig.4	SB-2545TR	FT-8	EZH080...

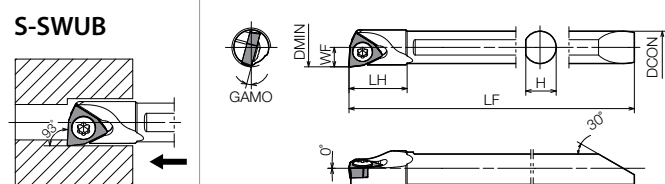
*TB**06**08 Inserts cannot be used

● : Standard Item

Toolholder Dimensions (WB... Inserts)

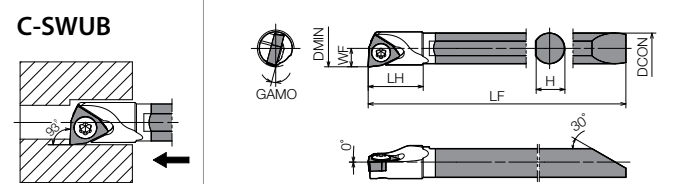
Applicable Inserts: ...SWUBR06... = WB..121..
...SWUBR08... = WB..1515..

S-SWUB



• Right-hand shown
• Left-hand insert for Right-hand bar

C-SWUB



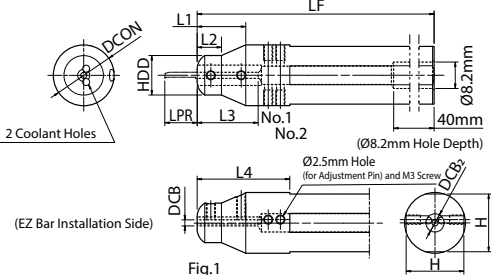
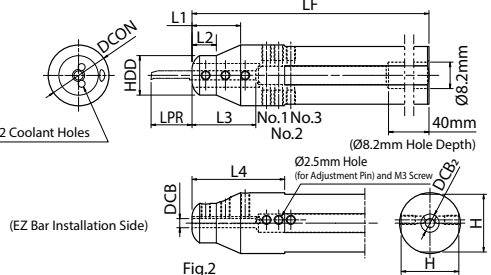
• Right-hand shown
• Left-hand insert for Right-hand bar

Part Number		Std. Item	Min. Bore Dia.	Dimensions (mm)				GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve See P25-P31	
		R	DMIN	DCON	H	LF	LH	WF				Clamp Screw	Wrench		
Steel	S050X-SWUBR06-060Ezp	●	6	5	4.7	48.4	9.0	3.0	15°	0.2	No	Fig.1	SB-2035TR	FT-6	EZH050...
	S060X-SWUBR06-070Ezp	●	7	6	5.7	54.4	10.0	3.5	13°	0.2					EZH060...
	S070X-SWUBR08-080Ezp	●	8	7	6.7	60.4	10.3	4.0	15°	0.2					EZH070...
Carbide	C050X-SWUBR06-060Ezp	●	6	5	4.7	58.4	9.0	3.0	15°	0.2		Fig.2	SB-2035TR	FT-6	EZH050...
	C060X-SWUBR06-070Ezp	●	7	6	5.7	66.4	10.0	3.5	13°	0.2					EZH060...
	C070X-SWUBR08-080Ezp	●	8	7	6.7	74.4	11.0	4.0	15°	0.2					EZH070...

● : Standard Item

Applicable Sleeves (EZH-CT Type)

With Coolant Hole and EZ Adjust Structure

Fig.1		Fig.2	
			

Sleeve Dimensions

Part Number		Std. Item	Dimensions (mm)										Bar Overhang Length *LPR (mm) Adjustment Pin Setting				Drawing	Applicable EZ Bar See P6-P16
			DCB	DCON	HDD	DCB2	H	LF	L1	L2	*L3	L4	No.1	No.2	No.3	No.4		
EZH	01719CT-120	●		0.750"			18.0	120				30.5					Fig.1	EZBR...017...
	01720CT-120	●		20.00			19.0	120				30.5						
	01722CT-135	●	1.7	22.00	13	6	21.0	135	16	8	16	41.5	7.5	3.5	-	-		
	01725.0CT-135	●		25.00			24.0	135				30.5						
	01725.4CT-120	●		1.000"			24.4	120				30.5						
EZH	02019CT-120	●		0.750"			18.0	120				30.5					Fig.1	EZB%...020... EZBPR...020...
	02020CT-120	●		20.00			19.0	120				30.5						
	02022CT-135	●	2.0	22.00	13	6	21.0	135	16	8	20	41.5	8.5	4.5	-	-		
	02025.0CT-135	●		25.00			24.0	135				30.5						
	02025.4CT-120	●		1.000"			24.4	120				30.5						
EZH	02519CT-120	●		0.750"			18.0	120				30.5					Fig.1	EZB%...025... EZTR...025...
	02520CT-120	●		20.00			19.0	120				30.5						
	02522CT-135	●	2.5	22.00	13	6	21.0	135	16	8	20	41.5	11	7	-	-		
	02525.0CT-135	●		25.00			24.0	135				30.5						
	02525.4CT-120	●		1.000"			24.4	120				30.5						
EZH	03019CT-120	●		0.750"			18.0	120				30.5					Fig.2	EZB%...030... EZBFR...030... EZVBR...030... EZBPR...030... EZGR...030... EZTR...030...
	03020CT-120	●		20.00			19.0	120				30.5						
	03022CT-135	●	3.0	22.00	13	6	21.0	135	16	8	21	41.5	13.5	9.5	5.5	-		
	03025.0CT-135	●		25.00			24.0	135				30.5						
	03025.4CT-120	●		1.000"			24.4	120				30.5						
EZH	03519CT-120	●		0.750"			18.0	120				31.1					Fig.2	EZB%...035... EZTR...035...
	03520CT-120	●		20.00			19.0	120				31.1						
	03522CT-135	●	3.5	22.00	13	6	21.0	135	16	8	21	41.5	15.5	11.5	7.5	-		
	03525.0CT-135	●		25.00			24.0	135				31.1						
	03525.4CT-120	●		1.000"			24.4	120				31.1						

*1: L3 shows DCB length. Choose sleeves (DCB) to match with DCON dimension of the bar

*2: Dimension LPR shows overhang length of the EZB Bar when attached to sleeve (with the exception of extended reach bars).

Ø8.2mm hole on the sleeve end is prepared with Rc1/8 threading. Please modify with additional machining if necessary. The sleeve hardness is 42HR.

● : Standard Item

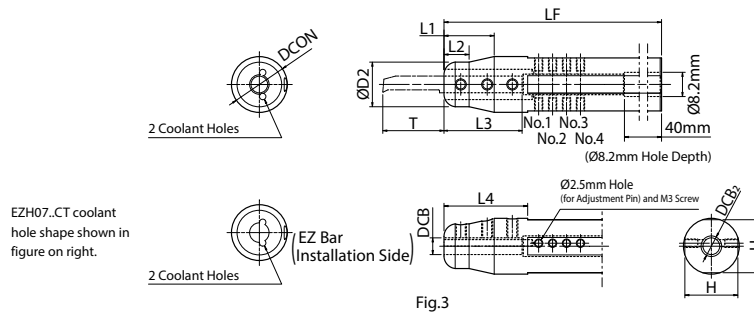


Fig. 3

Sleeve Dimensions

Part Number		Std. Item	Dimensions (mm)									Bar Overhang Length *LPR (mm)				Drawing	Applicable EZ Bar See  P6-P16	
												Adjustment Pin Setting						
			DCB	DCON	HDD	DCB ₂	H	LF	L1	L2	*L3	L4	No.1	No.2	No.3			No.4
EZH	04019CT-120	●		0.750"			18.0	120			32.7					Fig.3	EZBR010040... EZBR015040... EZB%L...040... EZBFR...040... EZBTR...040... EZVBR...040... EZBPR...040... EZG%L...040... EZFG%L...040... EZTR...040...	
	04020CT-120	●		20.00			19.0	120			32.7							
	04022CT-135	●	4	22.00	13	6.0	21.0	135	16	8	22	41.5	20.5	16.5	12.5			8.5
	04025.0CT-135	●		25.00			24.0	135			32.7							
	04025.0CT-135	●		1.000"			24.4	120			32.7							
EZH	04519CT-120	●		0.75"			18	120			30.0					Fig.3	EZB%L...045... _045X-...050EZP	
	04520CT-120	●		20			19	120			30.0							
	04522CT-135	●	4.5	22	16	6	21	135	18	9	23	44.0	23 (14)	18.5 (9.5)	14 (-)			9.5 (-)
	04525.0CT-135	●		25			24	135			30.0							
	04525.4CT-120	●		1.00"			24.4	120			30.0							
EZH	05019CT-120	●		0.750"			18.0	120			30.0					Fig.3	EZB%L...050... EZBFR...050... EZBTR...050... EZVBR...050... EZBPR...050... EZBCR...050... EZG%L...050... EZFG%L...050... EZTR...050-... _050X-...060EZP	
	05020CT-120	●		20.00			19.0	120			30.0							
	05022CT-135	●	5	22.00	16	6.0	21.0	135	18	9	26	44.0	25.5 (15.5)	20.5 (10.5)	15.5 (-)			10.5 (-)
	05025.0CT-135	●		25.00			24.0	135			30.0							
	05025.4CT-120	●		1.000"			24.4	120			30.0							
EZH	06019CT-120	●		0.750"			18.0	120			30.0					Fig.3	EZB%L...060... EZBFR...060... EZVBR...060... EZBPR...060... EZBCR...060... EZG%L...060-... EZTR...060-... _060X-...070EZP	
	06020CT-120	●		20.00			19.0	120			30.0							
	06022CT-135	●	6	22.00	16	7.4	21.0	135	18	9	28	41.5	30.5 (18.5)	25.5 (13.5)	20.5 (-)			15.5 (-)
	06025.0CT-135	●		25.00			24.0	135			30.0							
	06025.4CT-120	●		1.000"			24.4	120			30.0							
EZH	07019CT-120	●		0.750"			18.0	120			30.0					Fig.3	EZB%L...070... EZBCR...070... EZG%L...070-... EZFG%L...070-... EZTR...070-... _070X-...080EZP	
	07020CT-120	●		20.00			19.0	120			30.0							
	07022CT-135	●	7	22.00	16	7.4	21.0	135	18	9	29	44.0	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)			20.5 (-)
	07025.0CT-135	●		25.00			24.0	135			30.0							
	07025.4CT-120	●		1.000"			24.4	120			30.0							
EZH	08019CT-120	●		0.75"			18	120			34.0					Fig.3	EZB%L...080... _080X-...100EZP	
	08020CT-120	●		20			19	120			34.0							
	08022CT-135	●	8.0	22	16	8.6	21	135	18	9	33	44.0	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)			25.5 (-)
	08025.0CT-135	●		25			24	135			34.0							
	08025.4CT-120	●		1.00"			24.4	120			34.0							

*1: L3 shows DCB length.

*2: Dimension LPR shows overhang length of the EZB Bar when attached to sleeve (with the exception of extended reach bars).

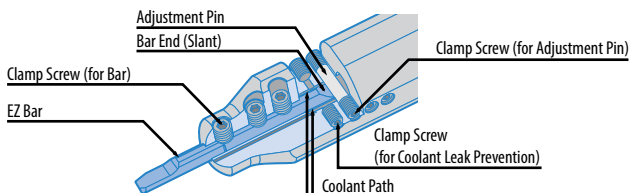
Dimension in () shows overhang length of the EZ Bar PLUS when installed into the sleeve.

Choose sleeves (DCB) that match DCON dimension of bar.

Ø8.2mm hole on the sleeve end is prepared with Rc1/8 threading. Please modify with additional machining if necessary. The sleeve hardness is 42HRC.

● : Standard Item

EZH-CT Internal Structure



Spare Parts (for EZH-CT Sleeves)

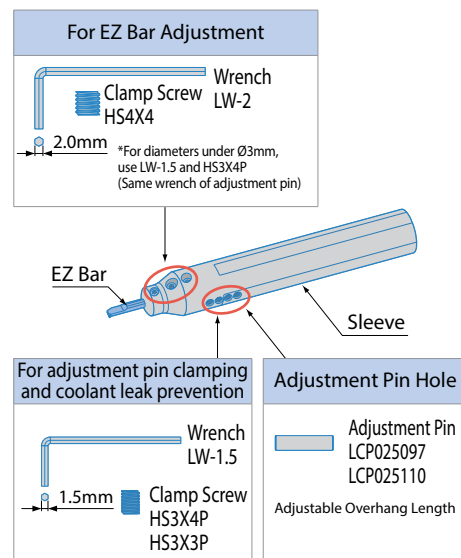
Part Number	Spare Parts				
	Adjustment Pin	Clamp Screw	Wrench	Clamp Screw	Wrench
					
EZH 017...CT-.. 020...CT-.. 025...CT-.. 030...CT-..	LCP025097	HS3X4P (For Adjustment Pin, Coolant Leak Prevention, and Bar)	LW-1.5 Tightening Torque 1 Nm	HS3X4P Tightening Torque 1 Nm	
EZH 035...CT-.. 040...CT-.. 045...CT-.. 050...CT-.. 060...CT-.. 070...CT-..	LCP025097	HS3X4P (For Adjustment Pin, Coolant Leak Prevention, and Bar)	LW-1.5 Tightening Torque 1 Nm	HS4X4P (For Bar) Tightening Torque 2 Nm	
080...CT-..	LCP025110	HS3X4P (For Adjustment Pin, Coolant Leak Prevention, and Bar)			

1) If shank dia. is $\varnothing 2.5\text{mm}$ or less, use 6 clamp screws (HS3X4P), distributed as follows:

For Adjustment Pin.....2pcs
For Coolant Leak Prevention2pcs
For Bar.....2pcs

2) If shank dia. is $\varnothing 3\text{mm}$, use 9 clamp screws (HS3X4P), distributed as follows:

For Adjustment Pin.....2pcs
For Coolant Leak Prevention4pcs
For Bar.....3pcs



How to Install Bar Into Sleeve

How to Use Adjustment Pin and Prevent Coolant Leakage (Fig.1)

- Put the adjustment pin into the hole according to the overhang length and push it into the sleeve using the wrench "LW-1.5".
- Tighten the clamp screw for the adjustment pin "HS3X4P" using the wrench "LW-1.5" from both sides of the sleeve.
- Put the additional clamp screws "HS3X4P" into the un-used adjustment pin holes to prevent coolant leakage using the wrench "LW-1.5" and fix them from both sides of the sleeve.

How to Secure the Bar (Fig.2)

- With the chip pocket upward, set the bar into the sleeve. Secure the slant face of the bar end against the adjustment pin. Make sure that the bar does not rotate. (Fig.3)
- Tighten the clamp screw with wrench "LW-2" and secure the bar. (Use "LW-1.5" if shank dia. is 3mm or less.)

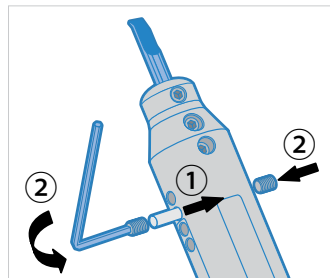


Fig. 1 How to Use Adjustment Pin

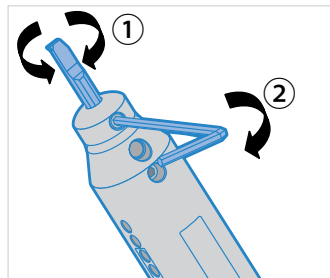


Fig. 2 How to Secure the Bar

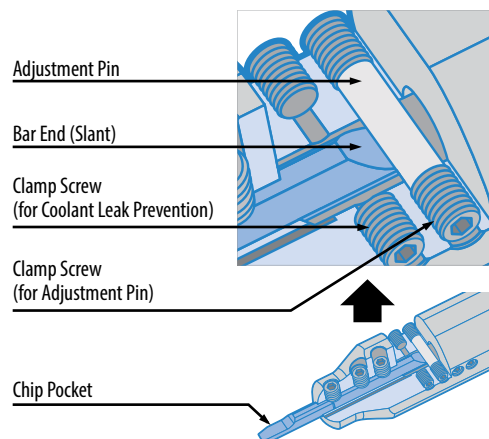


Fig. 3 Clamped Bar

Sleeve Identification System

EZ	H	020	19	CT	-	120
Bar Symbol (EZ Bar)	Application H-Sleeve	Shank Dia. of EZ Bar 020 : 2.0mm 025 : 2.5mm	Sleeve Shank Dia. 19 : 19.05mm 25.4 : 25.40mm	Precision Symbol CT: With Coolant Hole and EZ Adjust Structure HP: EZ Adjust Structure ST: Standard		Overall Length of Sleeve 120 : 120mm 135 : 135mm

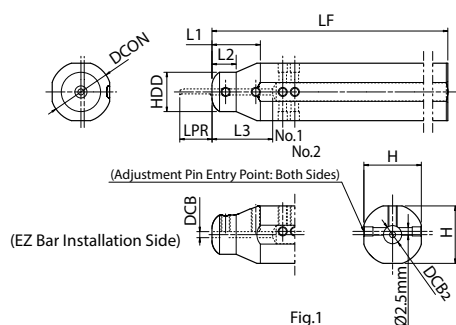


Fig.1

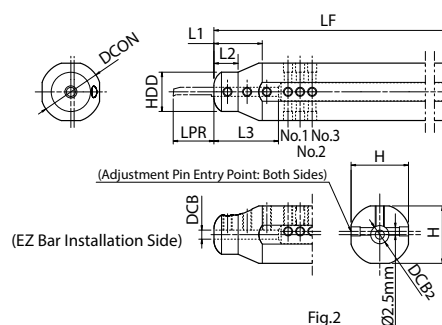


Fig.2

Sleeve Dimensions

Part Number		Std. Item	Dimensions (mm)									Bar Overhang Length*LPR (mm)				Drawing	Applicable EZ Bar
												Adjustment Pin Setting					
			DCB	DCON	HDD	DCB2	H	LF	L1	L2	*L3	No.1	No.2	No.3	No.4		
EZH	01716HP-100	●	1.7	16.00	13	6	15.0	100	16	8	16	7.5	3.5	-	-	Fig.1	EZBR...017...
	01719HP-120	●		0.750"			18.0	120									
	01720HP-120	●		20.00			19.0	120									
	01722HP-135	●		22.00			21.0	135									
	01725.0HP-135	●		25.00			24.0	135									
	01725.4HP-120	●		1.000"			24.4	120									
EZH	02016HP-100	●	2.0	16.00	13	6	15.0	100	16	8	20	8.5	4.5	-	-	Fig.1	EZB%...020...
	02019HP-120	●		0.750"			18.0	120									
	02020HP-120	●		20.00			19.0	120									
	02022HP-135	●		22.00			21.0	135									
	02025.0HP-135	●		25.00			24.0	135									
	02025.4HP-120	●		1.000"			24.4	120									
EZH	02516HP-100	●	2.5	16.00	13	6	15.0	100	16	8	20	11.0	7.0	-	-	Fig.1	EZB%...025... EZTR...025...
	02519HP-120	●		0.750"			18.0	120									
	02520HP-120	●		20.00			19.0	120									
	02522HP-135	●		22.00			21.0	135									
	02525.0HP-135	●		25.00			24.0	135									
	02525.4HP-120	●		1.000"			24.4	120									
EZH	03016HP-100	●	3.0	16.00	13	6	15.0	100	16	8	21	13.5	9.5	5.5	-	Fig.2	EZB%...030... EZBFR...030... EZVBR...030... EZBPR...030... EZGR...030... EZTR...030...
	03019HP-120	●		0.750"			18.0	120									
	03020HP-120	●		20.00			19.0	120									
	03022HP-135	●		22.00			21.0	135									
	03025.0HP-135	●		25.00			24.0	135									
	03025.4HP-120	●		1.000"			24.4	120									
EZH	03516HP-100	●	3.5	16.00	13	6	15.0	100	16	8	22	15.5	11.5	7.5	-	Fig.2	EZB%...035... EZTR...035...
	03519HP-120	●		0.750"			18.0	120									
	03520HP-120	●		20.00			19.0	120									
	03522HP-135	●		22.00			21.0	135									
	03525.0HP-135	●		25.00			24.0	135									
	03525.4HP-120	●		1.000"			24.4	120									
EZH	04016HP-100	●	4.0	16.00	13	6	15.0	100	16	8	24	20.5	16.5	12.5	8.5	Fig.4	EZBR010040... EZBR015040... EZB%...040... EZBFR...040... EZBTR...040... EZVBR...040... EZBPR...040... EZG%...040... EZFG%...040... EZTR...040...
	04019HP-120	●		0.750"			18.0	120									
	04020HP-120	●		20.00			19.0	120									
	04022HP-135	●		22.00			21.0	135									
	04025.0HP-135	●		25.00			24.0	135									
	04025.4HP-120	●		1.000"			24.4	120									

*1: L3 shows DCB length.

*2: Dimension LPR shows overhang length of the EZB Bar when attached to sleeve (with the exception of extended reach bars).

Choose sleeves (DCB) that match DCON dimension of bar.

● : Standard Item

Spare Parts (for EZH-HP Sleeves)

Part Number	Spare Parts				
	Adjustment Pin	Clamp Screw (for Adjustment Pin)	Wrench	Clamp Screw (for Bar)	Wrench
EZH 017...HP-...	LCP025140	HS3X4P (for Both Adjustment Pin and Bar)	LW-1.5 Tightening Torque 1 Nm	HS3X4P	LW-1.5 Tightening Torque 1 Nm
020...HP-...					
025...HP-...					
030...HP-...					
EZH 035...HP-...	LCP025140	HS3X4P	LW-1.5 Tightening Torque 1 Nm	HS4X4P (For Bar)	LW-2 Tightening Torque 2 Nm
040...HP-...					
045...HP-...					
050...HP-...					
060...HP-...					
070...HP-...					

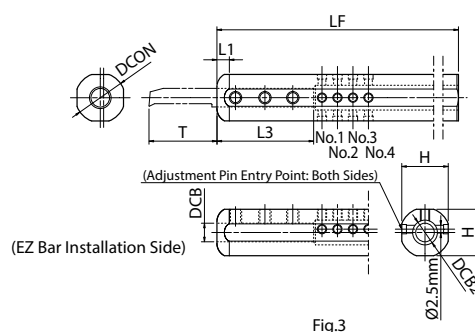


Fig.3

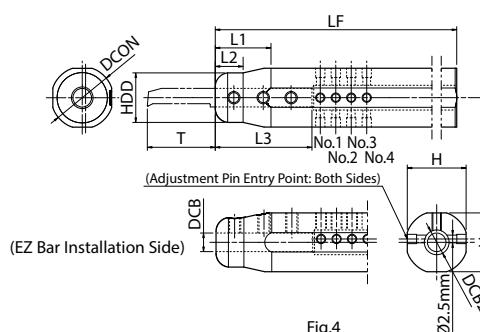


Fig.4

Sleeve Dimensions

Part Number		Std. Item	Dimensions (mm)									Bar Overhang Length*LPR (mm)				Drawing	Applicable EZ Bar			
			DCB	DCON	HDD	DCB ₂	H	LF	L1	L2	*L3	No.1	No.2	No.3	No.4					
EZH	04516HP-100	●	4.5	16.00	16	6.0	15.0	100	4	-	25.3	23 (14)	18.5 (9.5)	14 (-)	9.5 (-)	Fig.3	EZB%/_...045... _045X-...-050EZP			
	04519HP-120	●		0.750"			18.0	120												
	04520HP-120	●		20.00			19.0	120												
	04522HP-135	●	4.5	22.00	16	6.0	21.0	135	18	9	25.3									Fig.4
	04525.0HP-135	●		25.00			24.0	135												
	04525.4HP-120	●		1.000"			24.4	120												
EZH	05016HP-100	●	5.0	16.00	16	6.0	15.0	100	4	-	29.0	25.5 (15.5)	20.5 (10.5)	15.5 (-)	10.5 (-)	Fig.3	EZB%/_...050... EZBFR...050... EZBTR...050... EZVBR...050... EZBPR...050... EZBCR...050... EZG%/_...050... EZFG%/_...050... EZTR...050... _050X-...-060EZP			
	05019HP-120	●		0.750"			18.0	120												
	05020HP-120	●		20.00			19.0	120												
	05022HP-135	●	5.0	22.00	16	6.0	21.0	135	18	9	29.0									Fig.4
	05025.0HP-135	●		25.00			24.0	135												
	05025.4HP-120	●		1.000"			24.4	120												
EZH	06016HP-100	●	6.0	16.00	16	8.0	15.0	100	4	-	31.0	30.5 (18.5)	25.5 (13.5)	20.5 (-)	15.5 (-)	Fig.3	EZB%/_...060... EZBFR...060... EZVBR...060... EZBPR...060... EZBCR...060... EZG%/_...060... EZTR...060... _060X-...-070EZP			
	06019HP-120	●		0.750"			18.0	120												
	06020HP-120	●		20.00			19.0	120												
	06022HP-135	●	6.0	22.00	16	8.0	21.0	135	18	9	31.0									Fig.4
	06025.0HP-135	●		25.00			24.0	135												
	06025.4HP-120	●		1.000"			24.4	120												
EZH	07016HP-100	●	7.0	16.00	16	8.0	15.0	100	4	-	33.0	35.5 (21.5)	30.5 (16.5)	25.5 (11.5)	20.5 (-)	Fig.3	EZB%/_...070... EZBCR...070... EZG%/_...070... EZFG%/_...070... EZTR...070... _070X-...-080EZP			
	07019HP-120	●		0.750"			18.0	120												
	07020HP-120	●		20.00			19.0	120												
	07022HP-135	●	7.0	22.00	16	8.0	21.0	135	18	9	33.0									Fig.4
	07025.0HP-135	●		25.00			24.0	135												
	07025.4HP-120	●		1.000"			24.4	120												
EZH	08019HP-120	●	8.0	0.750"	16	8.4	18.0	120	18	9	37.0	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (-)	Fig.4	EZB%/_...080... _080X-...-100EZP			
	08020HP-120	●		20.00			19.0	120												
	08022HP-135	●		22.00			21.0	135												
	08025.0HP-135	●		25.00			24.0	135												
	08025.4HP-120	●		1.000"			24.4	120												

*1: L3 shows DCB length.

*2: Dimension LPR shows overhang length of the EZB Bar when attached to sleeve (with the exception of extended reach bars).

Dimension in () shows overhang length of the EZ Bar PLUS when installed into the sleeve.

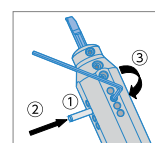
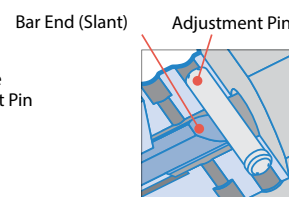
Choose sleeves (DCB) that match DCON dimension of bar.

● : Standard Item

How to Install Bar Into Sleeve

How to Use Adjustment Pin (Fig.1)

- Put the adjustment pin into the hole.
- Push it into the sleeve, using the wrench "LW-1.5".
- Tighten the clamp screw "HS3X4P" with wrench "LW-1.5" to fix the adjustment screw.


Fig.1
How to Use
Adjustment Pin

Fig.2
How to
Secure Bar

How to Secure Bar (Fig.2)

- With the chip pocket upward, set the bar in sleeve. Press the slant of the end of the bar against the adjustment pin. Make sure that the bar does not rotate (Fig.3)
- Tighten the clamp screw with wrench "LW-2" and secure the bar. (Use "LW-1.5" if shank dia. is 3mm or less.)

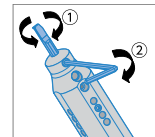


Fig. 3: Clamped Bar

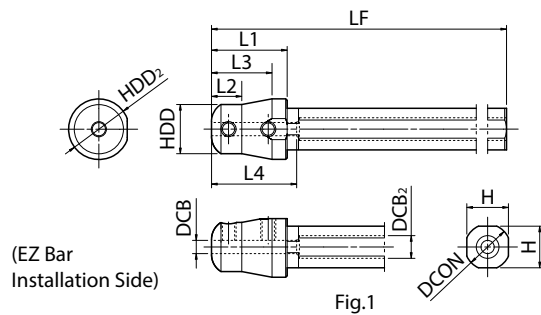


Fig.1

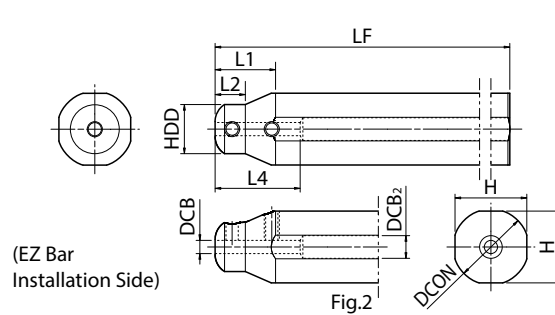


Fig.2

Sleeve Dimensions

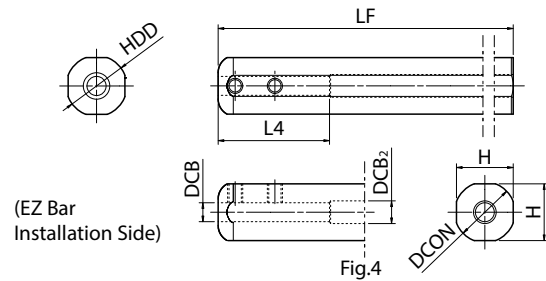
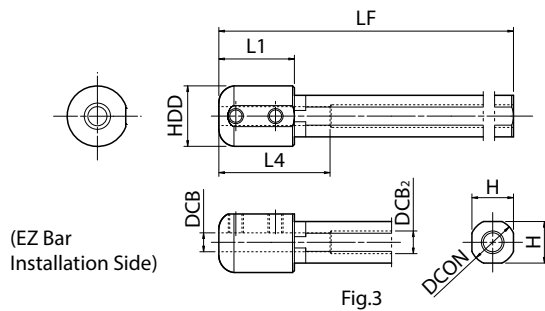
Part Number		Std. Item	Dimensions (mm)											Drawing	Applicable EZ Bar
			DCB	DCON	HDD	HDD2	DCB2	H	LF	L1	L2	L3	*L4		
EZH	01712ST-80	●	1.7	12	13	16	6	11	80	20	16	16	16	Fig.1	EZBR...017...
	01716ST-100	●		16		15		100							
	01719ST-120	●		0.750"		18		120							
	01720ST-120	●		20		19		120							
	01722ST-135	●		22		21		135							
	01725.0ST-135	●		25		24		135							
	01725.4ST-120	●		1.000"		24.4		120							
EZH	02012ST-80	●	2	12	13	16	6	11	80	20	16	16	20	Fig.1	EZB%L...020... EZBPR...020...
	02016ST-100	●		16		15		100							
	02019ST-120	●		0.750"		18		120							
	02020ST-120	●		20		19		120							
	02022ST-135	●		22		21		135							
	02025.0ST-135	●		25		24		135							
	02025.4ST-120	●		1.000"		24.4		120							
EZH	02512ST-80	●	2.5	12	13	16	6	11	80	20	16	16	20	Fig.1	EZB%L...025... EZTR...025...
	02516ST-100	●		16		15		100							
	02519ST-120	●		0.750"		18		120							
	02520ST-120	●		20		19		120							
	02522ST-135	●		22		21		135							
	02525.0ST-135	●		25		24		135							
	02525.4ST-120	●		1.000"		24.4		120							
EZH	03012ST-80	●	3	12	13	16	6	11	80	20	16	16	21	Fig.1	EZB%L...030... EZBFR...030... EZVBR...030... EZBPR...030... EZGR...030... EZTR...030...
	03016ST-100	●		16		15		100							
	03019ST-120	●		0.750"		18		120							
	03020ST-120	●		20		19		120							
	03022ST-135	●		22		21		135							
	03025.0ST-135	●		25		24		135							
	03025.4ST-120	●		1.000"		24.4		120							
EZH	03512ST-80	●	3.5	12	13	16	6	11	80	20	16	16	22	Fig.1	EZB%L...035... EZTR...035...
	03516ST-100	●		16		15		100							
	03519ST-120	●		0.750"		18		120							
	03520ST-120	●		20		19		120							
	03522ST-135	●		22		21		135							
	03525.0ST-135	●		25		24		135							
	03525.4ST-120	●		1.000"		24.4		120							
EZH	04012ST-80	●	4	12	13	16	6	11	80	20	16	16	24	Fig.1	EZBR010040... EZBR015040... EZB%L...040... EZBFR...040... EZBTR...040... EZVBR...040... EZBPR...040... EZG%L...040... EZFG%L...040... EZTR...040...
	04016ST-100	●		16		15		100							
	04019ST-120	●		0.750"		18		120							
	04020ST-120	●		20		19		120							
	04022ST-135	●		22		21		135							
	04025.0ST-135	●		25		24		135							
	04025.4ST-120	●		1.000"		24.4		120							

*L4 shows DCB length.

Choose sleeves (DCB) that match with DCON dimension of bar.

Adjustment Pin cannot be installed into EZH-ST sleeves. To adjust overhang of EZB bars, please use EZH-CT/HP sleeves.

● : Standard Item



Sleeve Dimensions

Part Number			Std. Item	Dimensions (mm)										Drawing	Applicable EZ Bar	
				DCB	DCON	HDD	HDD2	DCB2	H	LF	L1	L2	L3			*L4
EZH	05012ST-80	●	5	12	16	-	6	11	80	20	-	9	-	29	Fig.3	EZB%...050... EZBFR...050... EZBTR...050... EZVBR...050... EZBPR...050... EZBCR...050... EZG%...050... EZFG%...050... EZTR...050... _050X-...-060EZP
	05016ST-100	●		16				15	100	-						
	05019ST-120	●		0.750"				18	120	18						
	05020ST-120	●		20				19	120							
	05022ST-135	●		22				21	135							
	05025.0ST-135	●		25				24	135							
	05025.4ST-120	●		1.000"				24.4	120							
EZH	06012ST-80	●	6	12	16	-	8	11	80	20	-	9	-	31	Fig.3	EZB%...060... EZBFR...060... EZVBR...060... EZBPR...060... EZBCR...060... EZG%...060... EZTR...060... _060X-...-070EZP
	06016ST-100	●		16				15	100	-						
	06019ST-120	●		0.750"				18	120	18						
	06020ST-120	●		20				19	120							
	06022ST-135	●		22				21	135							
	06025.0ST-135	●		25				24	135							
	06025.4ST-120	●		1.000"				24.4	120							
EZH	07012ST-80	●	7	12	16	-	8	11	80	20	-	9	-	33	Fig.3	EZB%...070... EZBCR...070... EZG%...070... EZFG%...070... EZTR...060... _070X-...-080EZP
	07016ST-100	●		16				15	100	-						
	07019ST-120	●		0.750"				18	120	18						
	07020ST-120	●		20				19	120							
	07022ST-135	●		22				21	135							
	07025.0ST-135	●		25				24	135							
	07025.4ST-120	●		1.000"				24.4	120							
EZH	08016ST-100	●	8	16	16	-	8.4	15	100	-	-	9	-	37	Fig.4	EZB%...080... _080X-...-100EZP
	08019ST-120	●		0.750"				18	120	18						
	08020ST-120	●		20				19	120							
	08022ST-135	●		22				21	135							
	08025.0ST-135	●		25				24	135							
	08025.4ST-120	●		1.000"				24.4	120							

Spare Parts (for EZH-ST Sleeves)

Part Number	Spare Parts		Applicable EZ Bar			Applicable EZ Bar PLUS
	Clamp Screw	Wrench	EZB-HP EZB-HP-LT EZB-ST EZB-NB	EZBF EZVB EZBC EZFG	EZBT EZBP EZG EZT	S/C-SCLC S/C-STLB(P) S/C-SWUB
						
EZH 017...ST-..	HS3X4P	LW-1.5 Tightening Torque 1 Nm	EZBR...017...	-		-
020...ST-..			EZB%...020...	EZBPR...020-...		
025...ST-..			EZB%...025...	EZTR...025-...		
030...ST-..			EZB%...030...	EZ_R...030-...		
EZH 035...ST-..	HS4X4P	LW-2 Tightening Torque 2 Nm	EZB%...035...	EZTR...035-...		-
040...ST-..			EZB%...040...	EZ_R...040-...		-
050...ST-..			EZB%...050...	EZ_R...050-...		_050X-...-060EZP
060...ST-..			EZB%...060...	EZ_R...060-...		_060X-...-070EZP
070...ST-..			EZB%...070...	EZ_R...070-...		_070X-...-080EZP
080...ST-..			EZB%...080...	-		_080X-...-100EZP

Applicable Sleeves for Machine Manufacturers

Sleeve Part Number			Sleeve Shank Dia.	Applicable EZ Bar				Applicable Machine Manufacturer			
EZH-CT Adjustable Overhang Length with Coolant Hole	EZH-HP Adjustable Overhang Length	EZH-ST		EZB	EZBF / EZBT / EZVB EZBP / EZBC EZG / EZFG / EZT	EZ Bar PLUS	Shank Dia. DCON (mm)				
		EZH 01712ST-80	12	EZBR ...017...	-		1.7	(General Purpose)			
		02012ST-80		EZB% ...020...	EZBPR ...020...		2				
		02512ST-80		EZB% ...025...	EZ ...025...		2.5				
		03012ST-80		EZB% ...030...	EZ ...030...		3				
		03512ST-80		EZB% ...035...	EZ ...035...		3.5				
		04012ST-80		EZB% ...040...	EZ ...040...		4				
		05012ST-80		EZB% ...050...	EZ ...050...		5				
		06012ST-80		EZB% ...060...	EZ ...060...		6				
		07012ST-80	16	EZBR ...070...	EZ ...070...		7	(General Purpose)			
		07012ST-80		EZBR ...017...	-		1.7				
		02016HP-100		EZB% ...020...	EZBPR ...020...		2				
		02516HP-100		EZB% ...025...	EZ ...025...		2.5				
		03016HP-100		EZB% ...030...	EZ ...030...		3				
		03516HP-100		EZB% ...035...	EZ ...035...		3.5				
		04016HP-100		EZB% ...040...	EZ ...040...		4				
		04516HP-100		-	EZB% ...045...		-		045X- ...050EZP	4.5	
		05016HP-100		05016ST-100	EZB% ...050...		EZ ...050...		050X- ...060EZP	5	
		06016HP-100		06016ST-100	EZB% ...060...		EZ ...060...		060X- ...070EZP	6	
		07016HP-100		07016ST-100	EZBR ...070...		EZ ...070...		070X- ...080EZP	7	
		-		08016ST-100	EZB% ...080...		-		080X- ...100EZP	8	
EZH 01719CT-120	EZH 01719HP-120	EZH 01719ST-120	0.750"	EZBR ...017...	-		1.7	Citizen Machinery			
		02019CT-120		EZB% ...020...	EZBPR ...020...		2				
		02519CT-120		EZB% ...025...	EZ ...025...		2.5				
		03019CT-120		EZB% ...030...	EZ ...030...		3				
		03519CT-120		EZB% ...035...	EZ ...035...		3.5				
		04019CT-120		EZB% ...040...	EZ ...040...		4				
		04519CT-120		04519HP-120	-		EZB% ...045...		-	045X- ...050EZP	4.5
		05019CT-120		05019HP-120	05019ST-120		EZB% ...050...		EZ ...050...	050X- ...060EZP	5
		06019CT-120		06019HP-120	06019ST-120		EZB% ...060...		EZ ...060...	060X- ...070EZP	6
		07019CT-120		07019HP-120	07019ST-120		EZBR ...070...		EZ ...070...	070X- ...080EZP	7
		08019CT-120		08019HP-120	08019ST-120		EZB% ...080...		-	080X- ...100EZP	8
		EZH 01720CT-120		EZH 01720HP-120	EZH 01720ST-120		20		EZBR ...017...	-	
02020CT-120	EZB% ...020...		EZBPR ...020...		2						
02520CT-120	EZB% ...025...		EZ ...025...		2.5						
03020CT-120	EZB% ...030...		EZ ...030...		3						
03520CT-120	EZB% ...035...		EZ ...035...		3.5						
04020CT-120	EZB% ...040...		EZ ...040...		4						
04520CT-120	04520HP-120		-		EZB% ...045...	-		045X- ...050EZP	4.5		
05020CT-120	05020HP-120		05020ST-120		EZB% ...050...	EZ ...050...		050X- ...060EZP	5		
06020CT-120	06020HP-120		06020ST-120		EZB% ...060...	EZ ...060...		060X- ...070EZP	6		
07020CT-120	07020HP-120		07020ST-120		EZBR ...070...	EZ ...070...		070X- ...080EZP	7		
08020CT-120	08020HP-120		08020ST-120		EZB% ...080...	-		080X- ...100EZP	8		
EZH 01722CT-135	EZH 01722HP-135		EZH 01722ST-135		22	EZBR ...017...		-		1.7	
		02022CT-135	EZB% ...020...	EZBPR ...020...		2					
		02522CT-135	EZB% ...025...	EZ ...025...		2.5					
		03022CT-135	EZB% ...030...	EZ ...030...		3					
		03522CT-135	EZB% ...035...	EZ ...035...		3.5					
		04022CT-135	EZB% ...040...	EZ ...040...		4					
		04522CT-135	04522HP-135	-		EZB% ...045...	-	045X- ...050EZP		4.5	
		05022CT-135	05022HP-135	05022ST-135		EZB% ...050...	EZ ...050...	050X- ...060EZP		5	
		06022CT-135	06022HP-135	06022ST-135		EZB% ...060...	EZ ...060...	060X- ...070EZP		6	
		07022CT-135	07022HP-135	07022ST-135		EZBR ...070...	EZ ...070...	070X- ...080EZP		7	
		08022CT-135	08022HP-135	08022ST-135		EZB% ...080...	-	080X- ...100EZP		8	
		EZH 01725.0CT-135	EZH 01725.0HP-135	EZH 01725.0ST-135		25	EZBR ...017...	-			1.7
02025.0CT-135	EZB% ...020...			EZBPR ...020...	2						
02525.0CT-135	EZB% ...025...			EZ ...025...	2.5						
03025.0CT-135	EZB% ...030...			EZ ...030...	3						
03525.0CT-135	EZB% ...035...			EZ ...035...	3.5						
04025.0CT-135	EZB% ...040...			EZ ...040...	4						
04525.0CT-135	04525.0HP-135			-	EZB% ...045...		-	045X- ...050EZP	4.5		
05025.0CT-135	05025.0HP-135			05025.0ST-135	EZB% ...050...		EZ ...050...	050X- ...060EZP	5		
06025.0CT-135	06025.0HP-135			06025.0ST-135	EZB% ...060...		EZ ...060...	060X- ...070EZP	6		
07025.0CT-135	07025.0HP-135			07025.0ST-135	EZBR ...070...		EZ ...070...	070X- ...080EZP	7		
08025.0CT-135	08025.0HP-135			08025.0ST-135	EZB% ...080...		-	080X- ...100EZP	8		
EZH 01725.4CT-120	EZH 01725.4HP-120			EZH 01725.4ST-120	1.000"		EZBR ...017...	-			1.7
		02025.4CT-120	EZB% ...020...	EZBPR ...020...		2					
		02525.4CT-120	EZB% ...025...	EZ ...025...		2.5					
		03025.4CT-120	EZB% ...030...	EZ ...030...		3					
		03525.4CT-120	EZB% ...035...	EZ ...035...		3.5					
		04025.4CT-120	EZB% ...040...	EZ ...040...		4					
		04525.4CT-120	04525.4HP-120	-		EZB% ...045...	-	045X- ...050EZP		4.5	
		05025.4CT-120	05025.4HP-120	05025.4ST-120		EZB% ...050...	EZ ...050...	050X- ...060EZP		5	
		06025.4CT-120	06025.4HP-120	06025.4ST-120		EZB% ...060...	EZ ...060...	060X- ...070EZP		6	
		07025.4CT-120	07025.4HP-120	07025.4ST-120		EZBR ...070...	EZ ...070...	070X- ...080EZP		7	
		08025.4CT-120	08025.4HP-120	08025.4ST-120		EZB% ...080...	-	080X- ...100EZP		8	