

TAC Boring Bars

Stream Jet Bars MINI (SJB)

for small diameter machining applications!

**Highly Rigid Internal Toolholders
with Excellent Chip Evacuation**



Stream Jet Bars MINI

Extensive simulation analysis has enabled Tungaloy to develop a highly-rigid Stream Jet Bar with the ideal tool geometry for excellent chip evacuation.

Stream Jet Bar MINI
for small diameter machining applications!

Features

1 Excellent performance for small diameter machining operations

- ▼ Minimum bore diameter from $\varnothing 4.5$ mm
- ▼ Steel and carbide shank available
- ▼ Straight shank type available
- ▼ Can be used with internal coolant supply
- ▼ Well designed chip pocket for excellent chip evacuation
- ▼ Easy to adjust overhang due to marked scale on shank
- ▼ Improved rigidity for minimizing bar deflection and chatter by FEM (Finite Element Method)
- ▼ Added Z cutting edge style for back boring

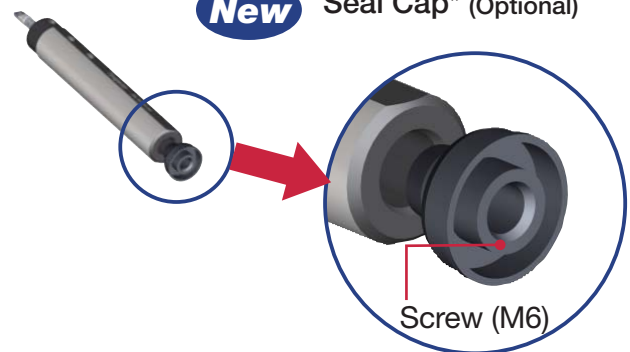


2 Applicable for a wide variety of machines

- ▼ Applicable sleeve for a variety of small lathes
- ▼ Supplied with Seal cap* (optional)
- ▼ Suitably designed sleeve for directed external coolant flow (see picture below)



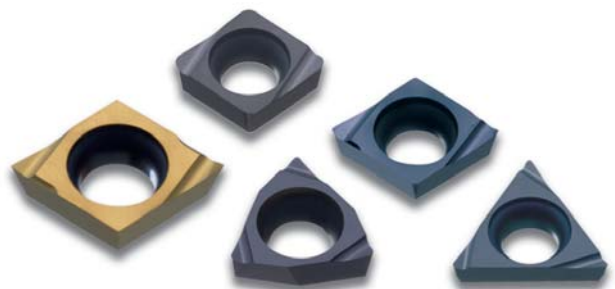
New Seal Cap* (Optional)



Attention: Please use the installation tools (e.g. a plastic hammer etc.), if difficult to ensure proper alignment

3 Stable tool life and excellent chip control

- ▼ W08 type chipbreaker
- ▼ Superior cutting edge due to fine grain carbide grade
- ▼ Two grades of inserts: **SH730** (for general purpose), **TH10** (for non-ferrous)
- ▼ Expansion of corner R0.1 spec on “**EPGT04**” and “**WBG03**” insert types

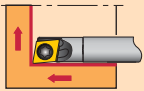
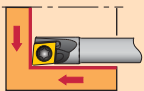
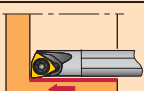
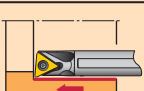
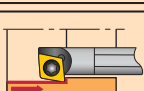


*optional parts: available from Feb. 2010

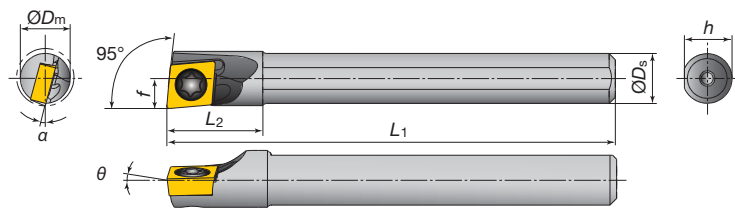
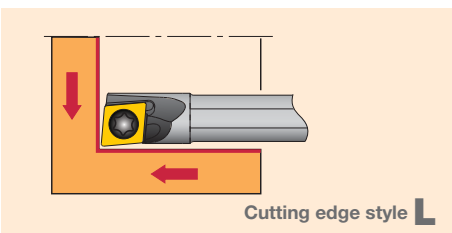
List of Stream Jet Bars MINI A wide range of styles and sizes available



Positive type

Style	Shank type	Shank diameter	Minimum bore diameter (mm)						
			0	10	20	30	40	50	
 SEXPR/L ⇒ P. 5 Boring and facing Insert type: EP□□	Steel	ø4 ~ ø6	ø4.5	ø7					
	Carbide	ø4 ~ ø6	ø4.5	ø7					
 SCLCR/L ⇒ P. 3 Boring and facing Insert type: CC□□	Steel	ø4 ~ ø7	ø5	ø8					
	Carbide	ø4 ~ ø7	ø5	ø8					
 SWUBR/L ⇒ P. 4 Boring Insert type: WB□□	Steel	ø5 ~ ø7	ø6	ø8					
	Carbide	ø5 ~ ø7	ø6	ø8					
 STUPR/L ⇒ P. 4 Boring Insert type: TP□□	Steel	ø7	ø8						
	Carbide	ø7	ø8						
 SEZPR/L ⇒ P. 5 Internal retracting Insert type: EP□□	Steel	ø4 ~ ø5	ø5.5	ø6.5					
	Carbide	ø4 ~ ø5	ø5.5	ø6.5					

SCLCR/L Boring & internal facing S-type (Positive, screw-on)



Right hand (R) shown

Steel shank

Toolholder Cat. No.	Stock		Min. bore dia. ØDm	Dimensions (mm)							Std. corner radius rE	Applicable inserts	Parts		Torque (N·m)	
	R	L		ØDs	f	L1	L2	h	f2	θ			α	Clamping screw		Wrench
A04F-SCLCR/L03-D050	●	●	5	4	2.5	80	8	3.8	-	0°	-15°	0.2	CC□□03X1	CSTA-1.6	T-6F	0.6
A05F-SCLCR/L03-D060	●	●	6	5	3	80	9	4.8	-	0°	-13°					
A06G-SCLCR/L04-D070	●	●	7	6	3.5	90	11	5.75	-	0°	-13°	0.2	CC□□04T1	CSTB-2	T-6F	0.6
A07G-SCLCR/L04-D080	●	●	8	7	4	90	12	6.75	-	0°	-11°					

Carbide shank

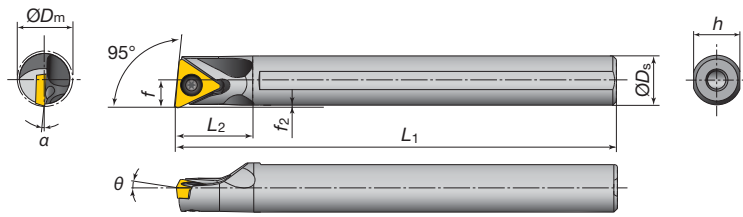
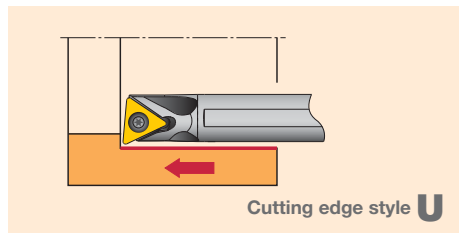
Toolholder Cat. No.	Stock		Min. bore dia. ØDm	Dimensions (mm)							Std. corner radius rE	Applicable inserts	Parts		Torque (N·m)	
	R	L		ØDs	f	L1	L2	h	f2	θ			α	Clamping screw		Wrench
E04G-SCLCR/L03-D050	●	●	5	4	2.5	90	9	3.8	-	0°	-15°	0.2	CC□□03X1	CSTA-1.6	T-6F	0.6
E05G-SCLCR/L03-D060	●	●	6	5	3	90	10	4.8	-	0°	-13°					
E06H-SCLCR/L04-D070	●	●	7	6	3.5	100	12	5.75	-	0°	-13°	0.2	CC□□04T1	CSTB-2	T-6F	0.6
E07H-SCLCR/L04-D080	●	●	8	7	4	100	14	6.75	-	0°	-11°					

When using a right or left hand insert, the right hand insert is used for the left hand toolholders (SCLCL □□ type), and the left hand insert is used for the right hand toolholders (SCLCR □□ type).

● : Stocked in Japan

Stream Jet Bars MINI

STUPR/L Boring S-type (Positive, screw-on)



Right hand (R) shown

Steel shank

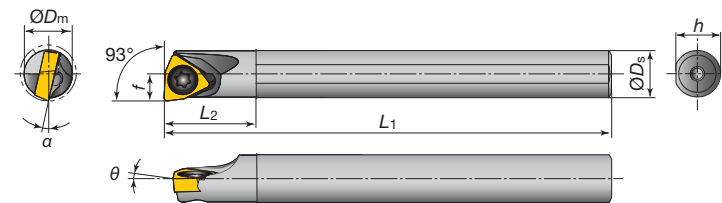
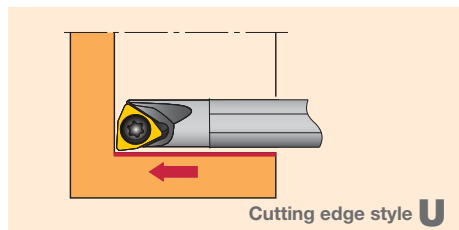
Toolholder Cat. No.	Stock		Min. bore dia. ϕD_m	Dimensions (mm)								Std. corner radius $r\epsilon$	Applicable inserts	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	a			Clamping screw	Wrench	
A07G-STUPR/L07-D080	●	●	8	7	4	90	12	6.75	0.4	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9

Carbide shank

Toolholder Cat. No.	Stock		Min. bore dia. ϕD_m	Dimensions (mm)								Std. corner radius $r\epsilon$	Applicable inserts	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	a			Clamping screw	Wrench	
E07H-STUPR/L07-D080	●	●	8	7	4	100	14	6.75	0.3	+5°	-10°	0.4	TP□□0701	CSTB-2.2L038	T-7F	0.9

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (STUPL □□ type), and the left hand insert (L) is used for the right hand toolholders (STUPR □□ type).

SWUBR/L Boring S-type (Positive, screw-on)



Right hand (R) shown

Steel shank

Toolholder Cat. No.	Stock		Min. bore dia. ϕD_m	Dimensions (mm)								Std. corner radius $r\epsilon$	Applicable inserts	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	a			Clamping screw	Wrench	
A05F-SWUBR/L03-D060	●	●	6	5	3	80	9	4.8			-13°	0.4	WB□□0301	CSTB-2	T-6F	0.6
A06G-SWUBR/L03-D070	●	●	7	6	3.5	90	11	5.75	-	0°	-12°					
A07G-SWUBR/L03-D080	●	●	8	7	4	90	12	6.75			-11°					

Carbide shank

Toolholder Cat. No.	Stock		Min. bore dia. ϕD_m	Dimensions (mm)								Std. corner radius $r\epsilon$	Applicable inserts	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	a			Clamping screw	Wrench	
E05G-SWUBR/L03-D060	●	●	6	5	3	90	10	4.8			-13°	0.4	WB□□0301	CSTB-2	T-6F	0.6
E06H-SWUBR/L03-D070	●	●	7	6	3.5	100	12	5.75	-	0°	-12°					
E07H-SWUBR/L03-D080	●	●	8	7	4	100	14	6.75			-11°					

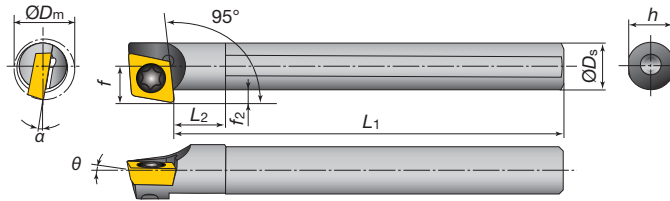
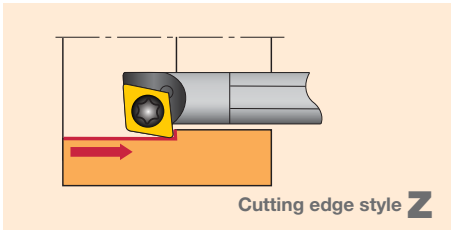
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SWUBL □□ type), and the left hand insert (L) is used for the right hand toolholders (SWUBR □□ type).

● : Stocked in Japan

SEZPR/L

Internal retracting

S-type (Positive, screw-on)



Right hand (R) shown

Steel shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)								Std. corner radius r_E	Applicable inserts	Parts		Torque (N·m)
	R	L		$\varnothing D_s$	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
A04F-SEZPR/L03-D055	●	●	5.5	4	3.2	80	4	3.8	1.2	0°	-8°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
A05F-SEZPR/L03-D065	●	●	6.5	5	3.7	80	5	4.8								

Carbide shank

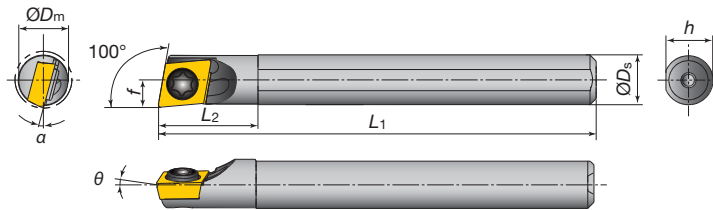
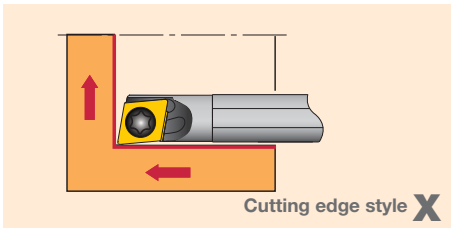
Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)								Std. corner radius r_E	Applicable inserts	Parts		Torque (N·m)
	R	L		$\varnothing D_s$	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
E04G-SEZPR/L03-D055	●	●	5.5	4	3.2	90	5	3.8	1.2	0°	-8°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
E05G-SEZPR/L03-D065	●	●	6.5	5	3.7	90	6	4.8								

When using a right or left hand insert, the right hand insert (R) is used for the right hand toolholders (SEZPR □□ type), and the left hand insert (L) is used for the left hand toolholders (SEZPL □□ type).

SEXPR/L

Boring & internal facing

S-type (Positive, screw-on)



Right hand (R) shown

Steel shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)								Std. corner radius r_E	Applicable inserts	Parts		Torque (N·m)
	R	L		$\varnothing D_s$	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
A04F-SEXPR/L03-D045	●	●	4.5	4	2.3	80	8	3.8	-	0°	-15°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
A04F-SEXPR/L03-D050	●	●	5	4	2.5	80	8	3.8	-	0°	-13°					
A05F-SEXPR/L04-D055	●	●	5.5	5	2.75	80	9	4.8	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
A06G-SEXPR/L04-D070	●	●	7	6	3.6	90	11	5.75	-	0°	-12°					

Carbide shank

Toolholder Cat. No.	Stock		Min bore dia. $\varnothing D_m$	Dimensions (mm)								Std. corner radius r_E	Applicable inserts	Parts		Torque (N·m)
	R	L		$\varnothing D_s$	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
E04G-SEXPR/L03-D045	●	●	4.5	4	2.3	90	9	3.8	-	0°	-15°	0.2	EP□□03X1	CSTA-1.6	T-6F	0.6
E04G-SEXPR/L03-D050	●	●	5	4	2.5	90	9	3.8	-	0°	-13°					
E05G-SEXPR/L04-D055	●	●	5.5	5	2.75	90	10	4.8	-	0°	-12°	0.4	EP□□0401	CSTB-2	T-6F	0.6
E06H-SEXPR/L04-D070	●	●	7	6	3.6	100	12	5.75	-	0°	-12°					

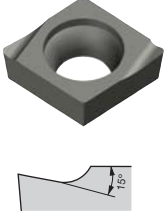
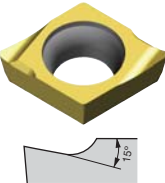
When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SEXPL □□ type), and the left hand insert (L) is used for the right hand toolholders (SEXPR □□ type).

● : Stocked in Japan

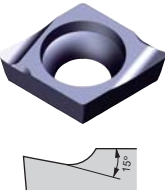
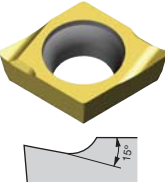
Stream Jet Bars MINI

Inserts for small diameter applications

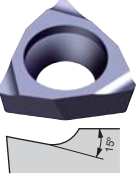
80° Rhombic, 7° positive with hole

Application	Chipbreaker	Insert Cat. No. (Metric)	Dimensions (mm)				Grades	
	Appearance (Cross section)		I.C. dia. ød	Thickness s	Hole dia.(Ø) ød1	Corner radius r ε	Coated	Carbide
							SH730	TH10
Finishing		W08	3.57	1.39	1.9	0.03	●	●
		CCGT03X100R-W08					●	●
		CCGT03X100L-W08					●	●
		CCGT03X101R-W08					●	●
		CCGT03X101L-W08					●	●
		CCGT03X102R-W08					●	●
		CCGT03X102L-W08					●	●
		CCGT03X104R-W08					●	●
		CCGT03X104L-W08					●	●
		CCGT04T100R-W08					●	●
		CCGT04T100L-W08					●	●
		CCGT04T101R-W08					●	●
		CCGT04T101L-W08					●	●
		CCGT04T102R-W08					●	●
		CCGT04T102L-W08					●	●
For small lathes with honing		J08	4.37	1.79	2.3	0.03	●	●
		CCGT04T100R-W08					●	●
		CCGT04T100L-W08					●	●
		CCGT04T101R-W08					●	●
		CCGT04T101L-W08					●	●
		CCGT04T102R-W08					●	●
		CCGT04T102L-W08					●	●
		CCGT04T104R-W08					●	●
		CCGT04T104L-W08					●	●

75° Rhombic, 11° positive with hole

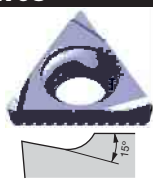
Application	Chipbreaker	Insert Cat. No. (Metric)	Dimensions (mm)				Grades									
	Appearance (Cross section)		I.C. dia. ød	Thickness s	Hole dia.(Ø) ød1	Corner radius r ε	Coated		Cermet	Carbide						
							SH730	J740	GH110	NS530	GT530	TH10	UX30			
Finishing		W08	3.57	1.39	1.9	0.03	●					●				
		EPGT03X100R-W08					●				●					
		EPGT03X100L-W08					●				●					
		EPGT03X101R-W08					●				●					
		EPGT03X101L-W08					●				●					
		EPGT03X102R-W08					●				●					
		EPGT03X102L-W08					●				●					
		EPGT03X104R-W08					●				●					
		EPGT03X104L-W08					●				●					
		EPGT040100R-W08					●				●	●	●	●	●	
		EPGT040100L-W08					●				●				●	
		EPGT040101R-W08					●				●				●	
		EPGT040101L-W08					●				●				●	
		EPGT040102R-W08					●				●	●	●	●	●	●
		EPGT040102L-W08					●				●				●	●
For small lathes with honing		J08	3.97	1.59	2.3	0.03	●	●								
		EPGT040100L-J08					●	●								
		EPGT040102L-J08					●	●								
		EPGT040104L-J08					●	●								

80° Hexagon, 5° positive with hole

Application	Chipbreaker	Insert Cat. No. (Metric)	Dimensions (mm)				Grades				
	Appearance (Cross section)		I.C. dia. ød	Thickness s	Hole dia.(Ø) ød1	Corner radius r ε	Coated		Cermet	Carbide	
							SH730	GH110	NS530	TH10	UX30
Finishing		W08	3.97	1.59	2.3	0.03	●		●	●	●
		WBG030100R-W08					●				
		WBG030100L-W08					●				
		WBG030101R-W08					●				
		WBG030101L-W08					●				
		WBG030102R-W08					●				
		WBG030102L-W08					●				
		WBG030104R-W08					●				
WBG030104L-W08	●										

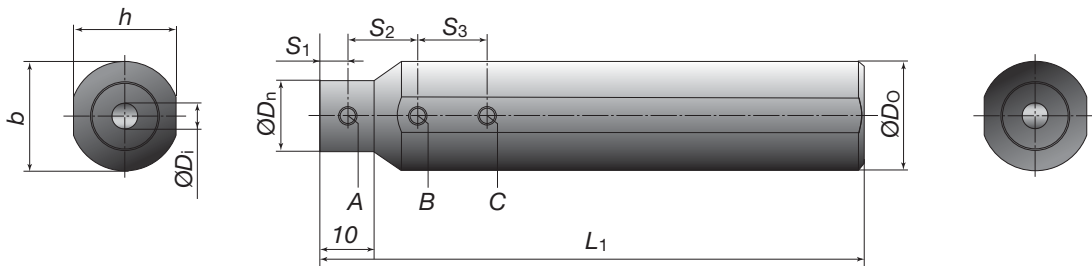
● : Stocked in Japan

60° Triangular, 11° positive with hole

Application	Chipbreaker	Insert Cat. No. (Metric)	Dimensions (mm)				Grades	
	Appearance (Cross section)		I.C. dia. ϕd	Thickness s	Hole dia.(ϕ) ϕd_1	Corner radius $r \ \epsilon$	Coated	Carbide
							SH730	TH10
Finishing		TPGT070100R-W08	4.37	1.59	2.58	0.03	●	●
		TPGT070100L-W08					●	●
		TPGT070101R-W08					●	●
		TPGT070101L-W08					●	●
		TPGT070102R-W08					●	●
		TPGT070102L-W08					●	●
		TPGT070104R-W08					●	●
		TPGT070104L-W08					●	●

Sleeves

BLM type (Round shank for Stream Jet Bar MINI)



Cat. No.	Stock	Dimensions (mm)									Replacement parts				
		ϕD_o	ϕD_i	ϕD_n	L_1	h	b	S_1	S_2	S_3	Clamping screws			Wrench	Seal cap* (Inner screw)
											A	B	C		
BLM159-04	●	15.875	4	15	100	15	15.875	5	15	15	SSH M4-4	SSH M4-4	SSH M4-4	P-2	CA-16 (M6)
BLM159-05	●		5						20	20					
BLM159-06	●		6						20	20					
BLM159-07	●		7						20	20					
BLM16-04	●	16	4	15	100	15	16	5	15	15	SSH M4-4	SSH M4-4	SSH M4-4	P-2	CA-16 (M6)
BLM16-05	●		5						20	20					
BLM16-06	●		6						20	20					
BLM16-07	●		7						20	20					
BLM19-04	●	19.05	4	18	100	18	19.05	5	15	15	SSH M4-4	SSH M4-6	SSH M4-6	P-2	CA-16 (M6)
BLM19-05	●		5						SSH M4-4	SSH M4-4					
BLM19-06	●		6						SSH M4-4	SSH M4-4					
BLM19-07	●		7						SSH M4-4	SSH M4-4					
BLM20-04	●	20	4	13	100	19	20	5	15	15	SSH M4-4	SSH M4-6	SSH M4-6	P-2	CA-16 (M6)
BLM20-05	●		5						SSH M4-4	SSH M4-4					
BLM20-06	●		6						SSH M4-4	SSH M4-4					
BLM20-07	●		7						SSH M4-4	SSH M4-4					
BLM22-04	●	22	4	13	125	21	22	5	15	15	SSH M4-4	SSH M4-6	SSH M4-6	P-2	CA-16 (M6)
BLM22-05	●		5						SSH M4-4	SSH M4-4					
BLM22-06	●		6						SSH M4-4	SSH M4-4					
BLM22-07	●		7						SSH M4-4	SSH M4-4					
BLM25-04	●	25	4	13	125	24	25	5	15	15	SSH M4-4	SSH M4-8	SSH M4-8	P-2	CA-16 (M6)
BLM25-05	●		5						SSH M4-4	SSH M4-4					
BLM25-06	●		6						SSH M4-4	SSH M4-4					
BLM25-07	●		7						SSH M4-4	SSH M4-4					
BLM254-04	●	25.4	4	13	125	24	25.4	5	15	15	SSH M4-4	SSH M4-8	SSH M4-8	P-2	CA-16 (M6)
BLM254-05	●		5						SSH M4-4	SSH M4-4					
BLM254-06	●		6						SSH M4-4	SSH M4-4					
BLM254-07	●		7						SSH M4-4	SSH M4-4					

*Seal cap (optional): available from Feb. 2010

● : Stocked in Japan

Standard cutting conditions

Work material	Chip-breaker	Grades	Cutting Speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)			
					R0.03	R0.1	R0.2	R0.4
Steels S45C, SCM435 etc.	W08 J08	SH730	50 - 100 - 150	0.05 - 0.5 - 1.0	0.005 ~ 0.01 ~ 0.02	0.01 ~ 0.03 ~ 0.05	0.02 ~ 0.06 ~ 0.10	0.05 ~ 0.10 ~ 0.15
Stainless steels SUS303, SUS304 etc.			30 - 100 - 150					
Grey cast irons Ductile cast irons FC250, FCD450 etc.		TH10	30 - 70 - 100					
Aluminium alloys Copper alloys Si < 13%			100 - 300 - 500					
Titanium Titanium alloys Ti-6Al-4V etc.		SH730	30 - 60 - 100					

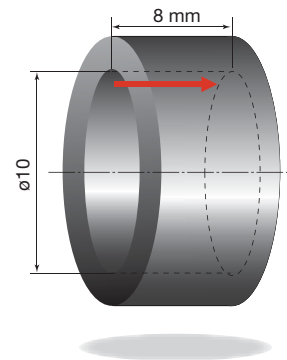
Practical examples

Toolholder : E07K-SCLCR04-D080
Insert : CCGT04T102L-W08 (SH730)

Work material : S45C
Cutting speed : Vc = 50 m/min
Depth of cut : ap = 0.15 mm
Feed : f = 0.06 mm/rev
Cutting fluid : Water soluble type
(Internal supply)

30 % increased tool life

Stream Jet Bar  400 pcs.
Competitor  300 pcs.

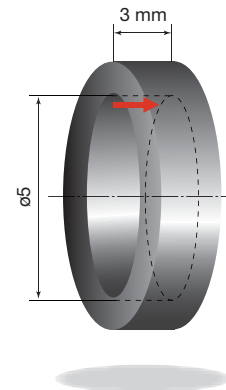


Toolholder : A04F-SCLCR03-D050
Insert : CCGT03X104L-W08 (SH730)

Work material : SCM415
Cutting speed : Vc = 25 m/min
Depth of cut : ap = 0.20 mm
Feed : f = 0.05 mm/rev
Cutting fluid : Cutting oil
(external supply)

Twice increased tool life

Stream Jet Bar  1000 pcs.
Competitor  500 pcs.



Results

SJB MINI accomplished 30% longer tool life with excellent surface roughness than the competitor's product.

In comparison with the competitor's item, SJB MINI showed double tool life due to demonstrate excellent chip evacuation and surface finish.



Tungaloy Corporation

<http://www.tungaloy.co.jp/>



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