

## CBN Small Hole Boring Bar Systems

# BSME Series

# SEXC Series



- BSME** • Series with brazed CBN cutting edge
- Minimum bore diameter = 2,5mm
- SEXC** • Series with indexable CBN insert
- Minimum bore diameter = 4,0mm

**SUMITOMO**

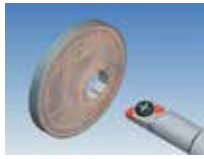
CARBIDE - CBN - DIAMOND

# CBN Small Hole Boring Bar Systems

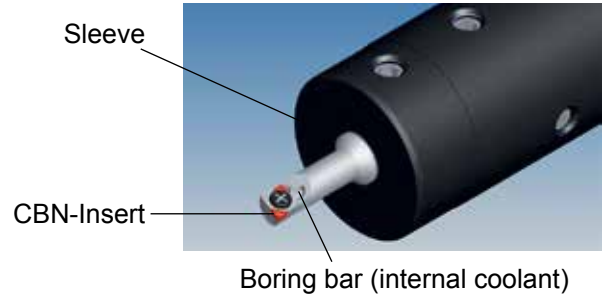
## BSME/SEXC Series

### ■ Features

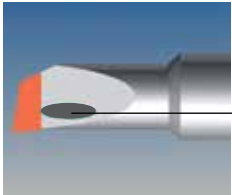
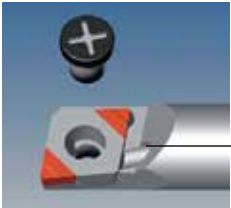
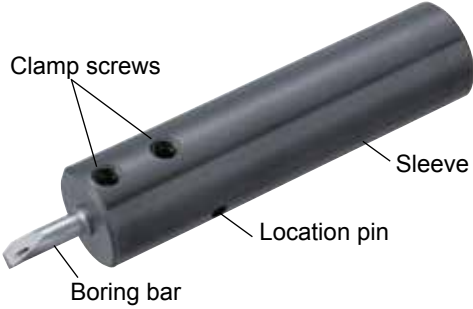
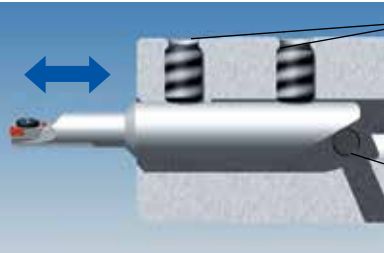
- New ultra small boring bar with CBN cutting edge
- Internal coolant
- Easy setting and handling
- High accuracy
- Carbide body for high rigidity
- One sleeve for different diameters



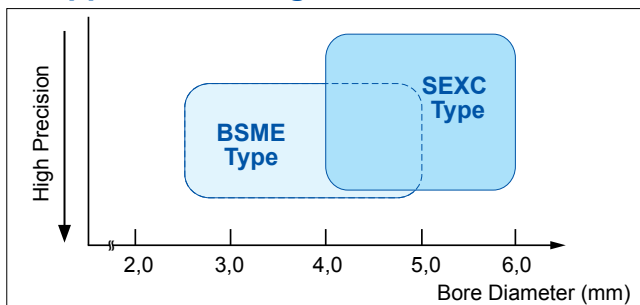
### ■ Basic System



### ■ 2 Types of CBN Small Hole Boring Bar System

BSME - CBN Brazed Cutting Edge Type	SEXC - Indexable CBN Insert Type
Min. bore diameter: $\varnothing 2,5-5,0\text{mm}$	Min. bore diameter: $\varnothing 4,0-6,0\text{mm}$
<p>Unique cutting edge shape with high quality and sharpness</p>  <p>Internal coolant hole (standard)</p>	<p>2 corner inserts</p>  <p>Internal coolant hole (standard)</p>
 <p>Clamp screws</p> <p>Sleeve</p> <p>Location pin</p> <p>Boring bar</p>	 <p>Clamp screws</p> <p>Sleeve</p> <p>Location pin</p> <p>Boring bar</p>
<p>Excellent repeatability of boring bar (deviation within 0,020mm)</p>  <p>Clamp screws</p> <p>Location pin for controlled cutting edge position</p>	

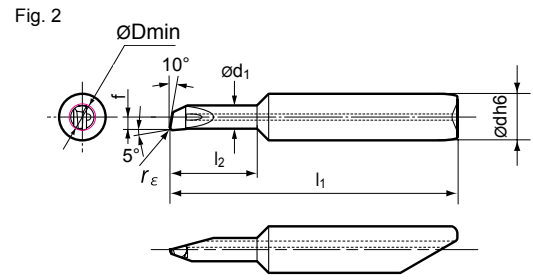
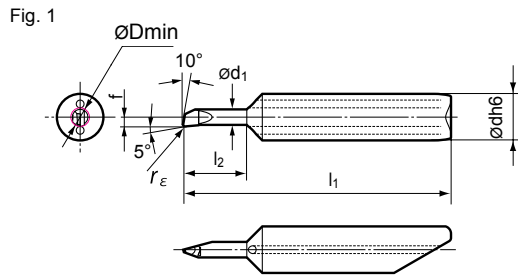
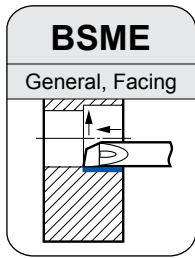
### ■ Application Range



### ■ Recommended Cutting Conditions

Spindle Speed (n)	>2000min <sup>-1</sup>	Low speed may cause chattering and chipping on the cutting edge.
Depth of Cut (a <sub>p</sub> )	0,01 - 0,15mm	Excessive depth of cut may cause larger tool deflection resulting in deterioration of bore accuracy.
Feed Rate (f)	0,01 - 0,1mm/rev	-

### BSME-Type with Internal Coolant



Sharp edge (no honing)

### Boring Bar

Description	Grade		Dimensions (mm)						Fig.	Applicable Sleeve	
	BN2000		$\varnothing D_{min}$	$\varnothing d_1$	f	$l_2$	$l_1$	$\varnothing dh6$			$r_\epsilon$
	R	L									
BSMER/L 25020D2S6	●	●	2,5	2,0	1,20	5,3	32,0	6,0	0,2	1	HBSM6020
BSMER/L 25020D3S6	●	●									
BSMER/L 25020D4S6	○	○									
BSMER/L 30020D2S6	●	●	3,0	2,5	1,45	6,3	32,8	6,0	0,2	2	
BSMER/L 30020D3S6	●	●									
BSMER/L 30020D4S6	○	○									
BSMER/L 35020D2S6	●	●	3,5	3,0	1,70	7,3	33,5	6,0	0,2	2	
BSMER/L 35020D3S6	●	●									
BSMER/L 35020D4S6	○	○									
BSMER/L 40020D2S6	●	●	4,0	3,5	1,95	8,3	33,9	6,0	0,2	2	
BSMER/L 40020D3S6	●	●									
BSMER/L 40020D4S6	○	○									
BSMER/L 45020D2S6	●	●	4,5	4,0	2,20	9,3	35,0	6,0	0,2	2	
BSMER/L 45020D3S6	●	●									
BSMER/L 45020D4S6	○	○									
BSMER/L 50020D2S6	●	●	5,0	4,5	2,45	10,3	35,8	6,0	0,2	2	
BSMER/L 50020D3S6	●	●									
BSMER/L 50020D4S6	○	○									

● Euro stock

○ Delivery on request

### Adapter Sleeve and Parts

Description	Stock	Dimensions (mm)		Sleeve Screw	Wrench
		$\varnothing D_s$	$l_1$		
HBSM6020	●	6,0	80	BT0506	TH025

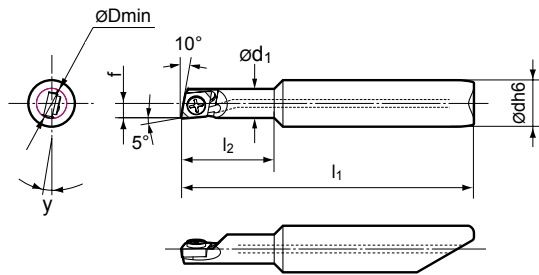
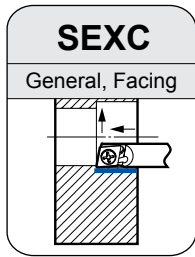
### Alignment Tool

Description	Stock
AFBSM60	●

### Identification

<b>B S M</b>	<b>E</b>	<b>R/L</b>	<b>3 5 0</b>	<b>2 0</b>	<b>D 3</b>	<b>S 6</b>
↓	↓	↓	↓	↓	↓	↓
Sumitomo CBN Product Special Mini	Solid Carbide Bar with Inner Coolant	R: Right Hand L: Left Hand	Minimum Bore Diameter ( $\varnothing 3,5\text{mm}$ )	Nose Radius of Edge ( $\varnothing 0,20\text{mm}$ )	L/D - Ratio of Working Length	Shank Diameter

### SEXC-Type with Internal Coolant



#### Boring Bar

Description	Stock		Dimensions (mm)							Applicable Sleeve	Insert Screw	Tightening Torque (N·m)	Wrench
	R	L	$\varnothing D_{min}$	$\varnothing d_1$	f	$l_2$	$l_1$	$\varnothing dh6$	y				
E06D2 SEXC/R/L03-04P	●	●	4,0	3,75	1,95	8	33,75	6,0	13°	HBSM6020	MIB1,6-2,0	0,2	SDBSM
E06D3 SEXC/R/L03-04P	●	●				12	37,75						
E06D2 SEXC/R/L03-05P	●	●	5,0	4,75	2,45	10	35,25						
E06D3 SEXC/R/L03-05P	●	●				15	40,25						
E06D2 SEXC/R/L03-06P	●	●	6,0	5,75	2,95	12	36,75	11°			MIB1,6-3,0		
E06D3 SEXC/R/L03-06P	●	●				18	42,75						

#### Spare Parts

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● Euro stock

#### Adapter Sleeve and Parts

Description	Stock	Dimensions (mm)		Sleeve Screw	Wrench
		$\varnothing D_s$	$l_1$		
HBSM6020	●	6,0	80	BT0506	TH025

#### Alignment Tool

Description	Stock
AFBSM60	●

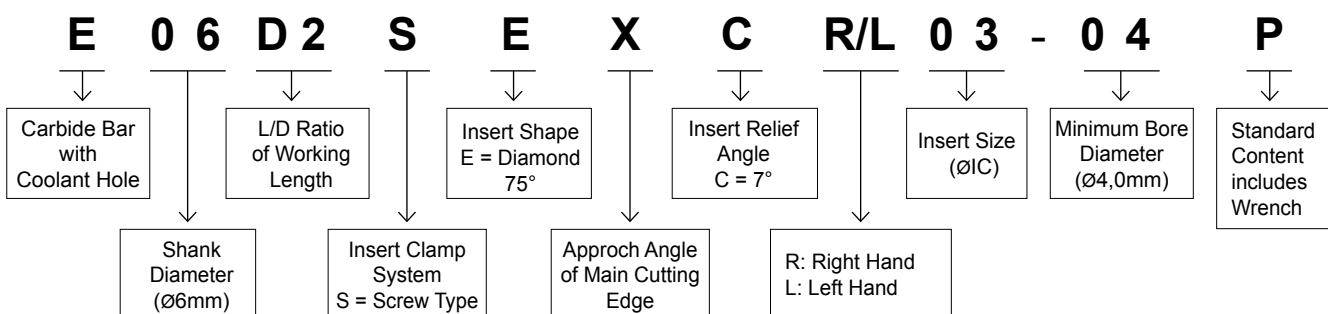
#### CBN Insert

Description	Grade		Nose Radius $r_\epsilon$ (mm)	Cutting Edge Preparation
	BN2000	BN7000		
ECXA030X02LE NU2	●		0,2	sharp + hone
ECXA030X02LF NU2	●	●	0,2	sharp

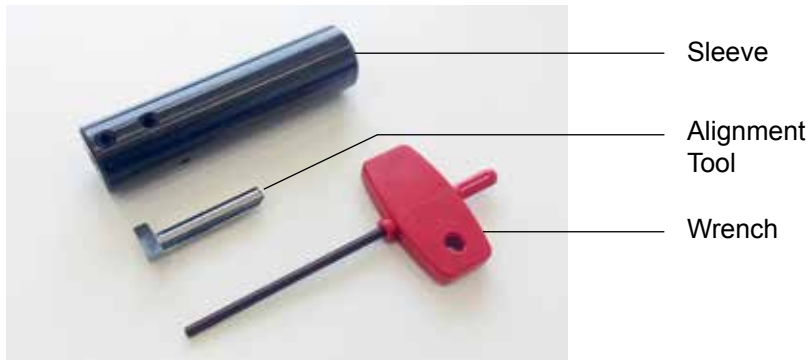
#### Notes:

Applicable wrench SDBSM is recommended when fastening the insert screw.  
Please check insert screw occasionally and replace it in time.

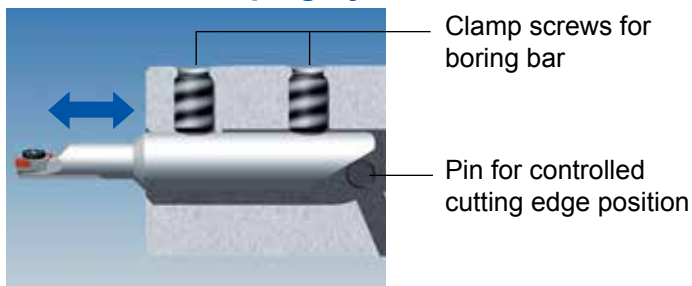
#### Identification






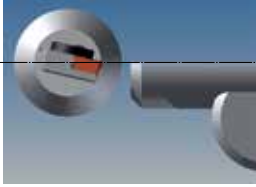
### ■ Accessories



### ■ Mechanism of the Clamping System



### ■ Mounting Instruction

<p>1. Insert alignment tool into the sleeve until you connect with the pin inside. Gently lock the screws to hold.</p>	
<p>2. Locate the sleeve into your tool-holding system. Gently lock the screws to hold.</p>	
<p>3. Clock the flat of the alignment tool into a straight position.</p> 	<p>After adjustment, equipped boring bar has automatically cutting peak height of zero on the center of tool.</p> 
<p>4. Use pre setting machine to set the diameter of the boring bar.</p>	



# CBN Small Hole Boring Bar Systems

## BSME/SEXC Series

### Application Example

Small Hard Boring for Machine Parts			
Work:	Threaded sleeve	Boring Bar:	BSMER30020D3S6
Material:	C60 HRC60		
Process:	Cone turning	Grade:	BN2000
Criteria:	Process stability / Tool life	Cutting Data:	$v_c = 28-48\text{m/min}$ $f = 0,02\text{mm/rev}$ $a_p = 0,02-0,05\text{mm}$
Machine:	Swiss type CNC lathe	Coolant:	Oil


  

Sumitomo	<b>3600pcs</b>		
Comp.	400 - 1500pcs		

Sumitomo boring bar gives customer a stable process. Very good handling and process stability.

Hard Boring for Small Automotive Parts			
Work:	Cupnut parts	Boring Bar:	E06D3 SEXC R0306P
Material:	100Cr6 700-800 HV10	Insert:	ECXA030X02LF NU2
Process:	Boring (Inner diameter $\varnothing 7,1 \pm 0,025\text{mm}$ )	Grade:	BN2000
Criteria:	Surface roughness / Tool life	Cutting Data:	$v_c = 156\text{m/min}$ (7000rpm) $f = 0,03\text{mm/rev}$ $a_p = 0,10\text{mm}$
Machine:	Swiss type CNC lathe	Coolant:	Emulsion

Sumitomo	<b>2700pcs</b>	
Comp.	600pcs	

Sumitomo boring bar system makes stable cutting process and huge cost saving.



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