

## Types of Sine Bar Chucks

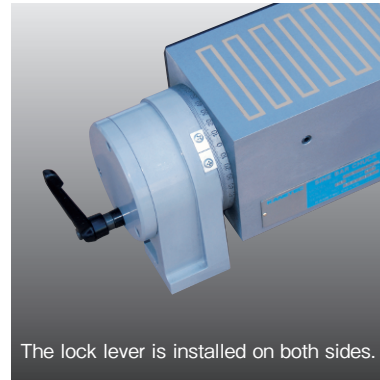
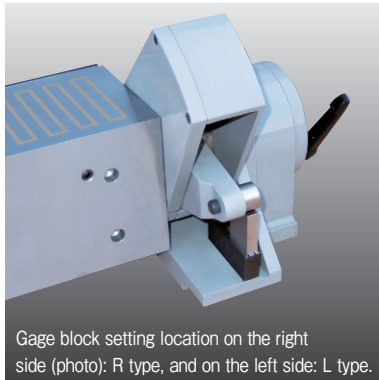
The sine bar chucks are used to set accurate angles of workpieces for highly precise grinding or as an inspection fixture. This is a type of chuck that utilizes angle setting by a sine bar and the chuck work face can be set to angles efficiently.

### Feature

The sine bar chucks come in various types such as electromagnetic, water-cooling, permanent magnetic and in various sizes.

Type	Model	Features	Remarks
Rotary Type Electromagnetic Sine Bar Chuck	SBE-U	Dust cover provided for gage blocks	
Rotary Type Water-Cooling Electromagnetic Sine Bar Chuck	SBC-U	High precision water-cooling type	
Rotary Type Permanent Electromagnetic Sine Bar Chuck	SBEP-U	Momentary power application for minimized heat generation	
Permanent Electromagnetic Sine Bar Chuck	SBP-U	Dust cover provided for gage blocks	
Sine Bar Chuck Compound Type	SBP-R-LS	Thin compound type	
Sine Bar Chuck Single Type	SBP-R-S	Thin single type	
	SBP-R-L	Tilting in longitudinal direction	

※The permanent magnetic sine bar chuck comes with a gage block (for 0° setting) of 25.882 mm of JIS Class B.



## Model SBE-U ROTARY TYPE ELECTROMAGNETIC SINE BAR CHUCK



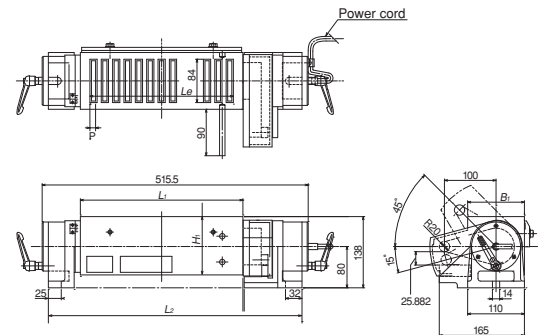
Chuck controller required additionally

### [Application]

Suitable for high precision angle grinding of molds and jigs.

### [Features]

- The gage block can be set on either the right side (R) or left side (L) to meet the rotating direction of the grinding wheel of the grinder.
- The chuck can be smoothly tilted and easily operated.
- An angle can be set finely by one try with the clamp system.
- The position can be changed and secured by pulling the lever in the axial direction.
- When the dustproof cover of the gage block is opened beyond about 60 degrees, it is locked to facilitate set-up and cleaning.



Model	Nominal Dimensions	Top Plate				Pole Pitch P	Length L <sub>2</sub>	Height		Tilting Angle	Angle Accuracy	Voltage	Current	Mass	Electro Chuck Master	Remarks
		B <sub>1</sub>	L <sub>1</sub>	L <sub>e</sub>	H <sub>1</sub>			Min	Max							
SBE-1131UR-C	110(4.33) × 315(12.4)	110(4.33)	315(12.4)	278(10.9)	110(4.33)	11(3+8)0.43(0.11+0.31)	492(19.3)	135(5.31)	210(8.26)	-15°~+45°	0.007/100 max.	90 VDC	0.3A	36kg/79 lb	ES-M103B ES-M305B EH-V105D EH-V205D	※For models with a combination of a rectifier and demagnetizer, see pages of "Chuck Controllers."
SBE-1131UL-C	110(4.33) × 315(12.4)	110(4.33)	315(12.4)	278(10.9)	110(4.33)	11(3+8)0.43(0.11+0.31)	492(19.3)	135(5.31)	210(8.26)	-15°~+45°	0.007/100 max.	90 VDC	0.3A	36kg/79 lb	ES-M103B ES-M305B EH-V105D EH-V205D	※For models with a combination of a rectifier and demagnetizer, see pages of "Chuck Controllers."

※The model having a gage block setting area on the right side is indicated by "R" and that on the left side indicated by "L".

※The chuck controller and clamp parts are not included. The KANETEC chucks work best when a KANETEC chuck controller is used.

※A block gage (25.882 mm) for 0° is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

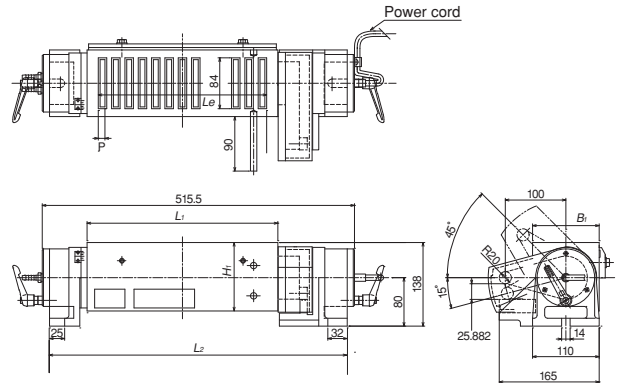
[mm (in)]

Model **SBC-U** ROTARY TYPE WATER-COOLING ELECTROMAGNETIC SINE BAR CHUCK



SBC-1131UL-C

Chuck controller required additionally



[Application]

Constructed to enable real-time internal cooling of heat generated when power is applied to the electromagnet, making these models suitable for higher precision grinding requirements.

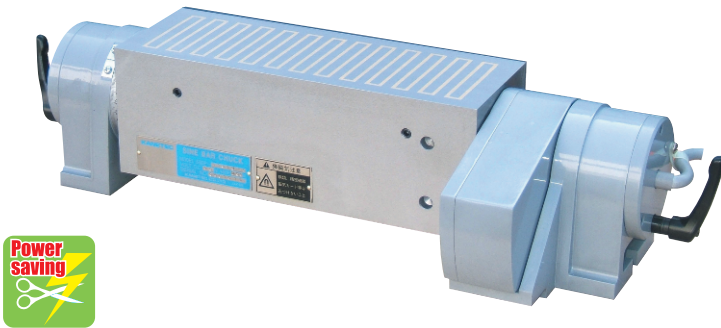
[Features]

- Change in precision is minimized by feeding the coolant inside chuck to cool the coil and prevent temperature rise. Water flow 2 to 4 L/min.
- The mechanical functions and features are almost the same as those of Model SBE chucks.

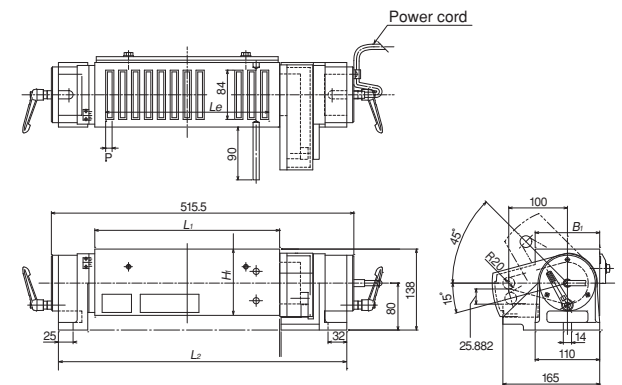
Model	Nominal Dimensions	Top Plate				Pole Pitch	Length	Height		Tilting Angle	Angle Accuracy	Voltage	Current	Mass	Electro Chuck Master	Remarks
		B <sub>1</sub>	L <sub>1</sub>	L <sub>e</sub>	H <sub>1</sub>	P		Min	Max							
SBC-1131UR-C	110(4.33) × 315(12.4)	110(4.33)	315(12.4)	278(10.9)	110(4.33)	11(3+8) 0.43(0.11+0.31)	492(19.3)	138(5.43)	210(8.26)	-15°—+45°	0.007/100 max.	90 VDC	0.3A	36kg/79 lb	ES-M103B ES-M305B EH-V105D EH-V205D	※For models with a combination of a rectifier and demagnetizer, see pages of "Chuck Controllers." P17—P20
SBC-1131UL-C																

※The model having a gage block setting area on the right side is indicated by "R" and that on the left side indicated by "L". ※A cooler unit is required additionally.  
 ※The chuck controller and clamp parts are not included. The KANETEC chucks work best when a KANETEC chuck controller is used.  
 ※A block gage (25.882 mm) for 0° is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting. Conversion table is based on metric, not inch.

Model **SBEP-U** ROTARY TYPE PERMANENT ELECTROMAGNETIC SINE BAR CHUCK



Chuck controller required additionally



[Application]

These chucks are recommended for angle grinding of molds and jigs. Since magnetization is carried out by momentary power application, almost no heat is generated to make this model suitable for high precision grinding.

[Features]

- Electricity is applied momentarily. No electricity is required to maintain the holding power during grinding, thus saving energy.
- The holding power is maintained in the event of power failure during grinding, enhancing safety.
- The mechanical functions and the features are almost the same as those of Model SBE.

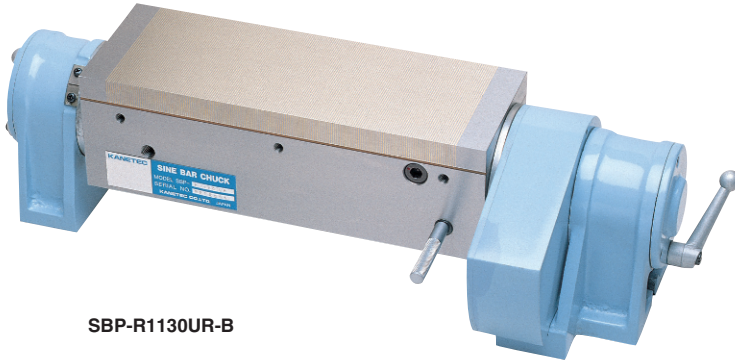
Model	Nominal Dimensions	Top Plate				Pole Pitch	Length	Height		Tilting Angle	Angle Accuracy	Voltage	Current	Mass	Electro Chuck Master
		B <sub>1</sub>	L <sub>1</sub>	L <sub>e</sub>	H <sub>1</sub>	P		Min	Max						
SBEP-1131UR-C	315(12.4)	110(4.33)	315(12.4)	278(10.9)	110(4.33)	11(3+8) 0.43(0.11+0.31)	492(19.3)	138(5.43)	210(8.26)	-15°—+45°	0.007/100 max.	DC90V	2.1A	36kg/79 lb	EPS-215B
SBEP-1131UL-C															

※The model having a gage block setting area on the right side is indicated by "R" and that on the left side indicated by "L".  
 ※The chuck controller and clamp parts are not included. The KANETEC chucks work best when a KANETEC chuck controller is used.  
 ※A block gage (25.882 mm) for 0° is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

ELECTROMAGNETIC CHUCKS  
 CHUCK CONTROLLERS  
 PERMANENT ELECTROMAGNETIC CHUCKS  
 PERMANENT ELECTROMAGNETIC CHUCKS  
 BLOCKS FOR MC  
 VACUUM CHUCKS  
 PROMELTA SYSTEM  
 SINE BAR CHUCKS  
 MAGNETIC BLOCKS  
 WORKING TOOLS  
 MEASURING TOOL HOLDERS  
 MAGNETIC HOLDERS  
 MAGNETIC TOOLS

## Model SBP-R·UR ROTARY TYPE PERMANENT MAGNETIC SINE BAR CHUCK

ELECTROMAGNETIC CHUCK CONTROLLERS  
PERMANENT MAGNETIC CHUCKS  
PERMANENT MAGNETIC CHUCKS  
ELECTROMAGNETIC CHUCKS



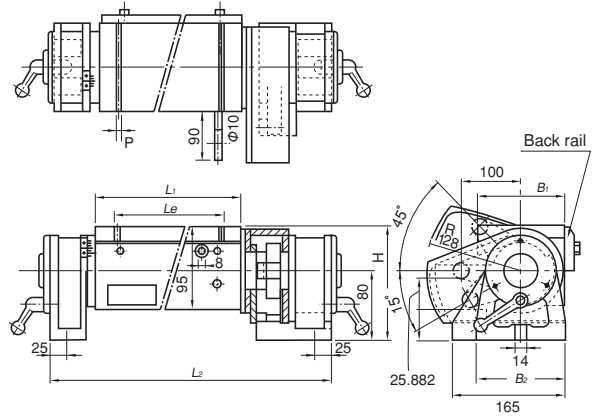
SBP-R1130UR-B

**[Application]**

Suitable for grinding molds and jigs including relatively small and thin ones that require high precision.

**[Features]**

- No electricity is needed, thus no heat is generated.
- The mechanical functions and the features are almost the same as those of Model SBE.



BLOCKS FOR MC

Model	Nominal Dimensions	Top Plate			Pole Pitch	Mounting Section		Height	Height at Max. Tilting	Tilting Angle	Angle Accuracy	Mass
		B <sub>1</sub>	L <sub>1</sub>	Le	H <sub>1</sub>	B <sub>2</sub>	L <sub>2</sub>	H				
SBP-R1130UR-B	105(4.13) × 300(11.8)	105 (4.13)	300 (11.8)	256 (10.0)	3(1+2) 0.11(0.03+0.07)	110 (4.33)	477 (18.7)	135 (5.31)	210(8.26)	-15°—+45°	0.007/100 max.	35kg/77 lb

\*A block gage (25.882 mm) for 0° is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

VACUUM CHUCKS

## Model SBP-R·LS SINE BAR CHUCK COMPOUND TYPE

**W type**



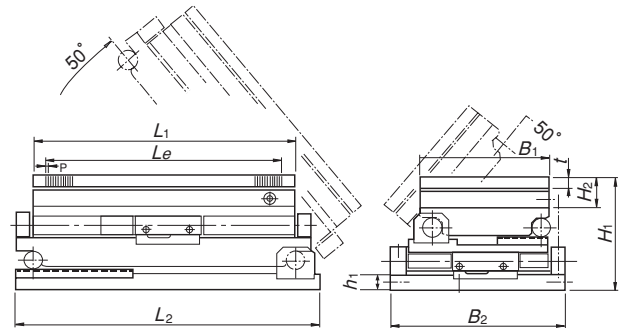
SBP-R1530LS-A

**[Application]**

A permanent magnetic chuck to enable highly accurate composite inclination on the X and Y axis.

**[Features]**

- When one side is closed, the chuck acts as a single vertical or horizontal type.
- The whole part of the sine bar is made of special steel, which has been precisely ground after hardening.
- The major parts have been lapped to ensure highly precise grinding and measurement over a long period of time.
- Since thin permanent magnetic chucks are used, this model is easy to handle and provides a wider machining space.



PROMELTA SYSTEM

SINE BAR CHUCKS

MAGNETIC BLOCKS

WORKING TOOLS

MEASURING TOOL HOLDERS

MAGNETIC HOLDERS

MAGNETIC TOOLS

Gage block not included.

Model	Nominal Dimensions	Top Plate				Pole Pitch	Mounting Section		Height		Height at Max. Tilting 45°	Tilting Angle	Angle Accuracy	Roller's Center Distance	Mass	
		B <sub>1</sub>	L <sub>1</sub>	t	Le	P	B <sub>2</sub>	L <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>						
SBP-R1018LS-A	105(4.13) × 175(6.89)	105 (4.13)	175 (6.89)	18	143 (5.63)	3(1+2) 0.11 (0.03+0.07)	166 (6.53)	200 (7.87)	129 (5.07)	40 (1.57)	(248) (9.76)	0°—50° Accuracy guaranteed range 0°—45°	0.007/100 max.	Upper 75 (2.95)	18kg/39 lb	
SBP-R1325LS-A	130(5.11) × 250(9.84)	130 (5.11)	250 (9.84)	(0.70)	209 (8.22)		186 (7.32)	300 (11.8)	130 (5.11)		(323) (12.7)			Upper100 (3.93)	35kg/77 lb	
SBP-R1515LS-A	150(5.90) × 150(5.90)	150 (5.90)	150 (5.90)		119 (4.68)		200 (7.87)	210 (8.26)			130 (5.11)			(264) (10.3)	Upper125 (4.92)	25kg/55 lb
SBP-R1530LS-A	150(5.90) × 300(11.8)	150 (5.90)	300 (11.8)		257 (10.1)		206 (8.10)	345 (13.5)						130 (5.11)	(372) (14.6)	Lower150 (5.90)
		150 (5.90)	300 (11.8)		257 (10.1)		206 (8.10)	345 (13.5)			130 (5.11)				(372) (14.6)	Lower300 (11.8)

\*A hexagonal wrench key is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

\*The pole pitch may be 1.5(0.5+1.0).

Model **SBP-R·S** SINE BAR CHUCK SINGLE TYPE

S type



SBP-R1018S-B

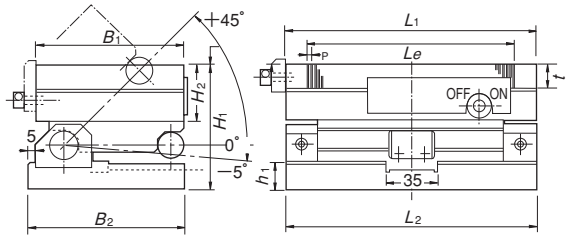
Gage block not included.

[Application]

A laterally long type with the long side as the tilting axis for precision grinding and measurement.

[Features]

- A flat type as thin as 89 mm to 100 mm for a wide range of applications. With a thin permanent chuck installed, this single model has been precisely finished to 0.007 mm or better.
- The whole part of the sine bar is made of special steel, which has been precisely ground after hardening.
- The major parts have been lapped to ensure highly precise grinding and measurement over a long period of time.
- Since a thin permanent magnetic chuck is used, this model is easy to handle and provides a wider machining space.
- Since a permanent magnet is used, no heat is generated to enable highly precise machining.



[mm(in)]

Model	Nominal Dimensions	Top Plate				Pole Pitch <i>P</i>	Mounting Section		Height		Height at Max. Tilting 45°	Tilting Angle	Angle Accuracy	Roller,s Center Distance	Mass
		<i>B</i> <sub>1</sub>	<i>L</i> <sub>1</sub>	<i>t</i>	<i>L</i> <sub>e</sub>		<i>B</i> <sub>2</sub>	<i>L</i> <sub>2</sub>	<i>H</i> <sub>1</sub>	<i>H</i> <sub>2</sub>					
SBP-R1018S-B	105(41.3) × 175(6.89)	105 (4.13)	175 (6.89)	18	142 (5.59)	3(1+2) 0.11 (0.03+0.07)	110 (4.33)	175 (6.89)	89 (3.50)	40	(117) (4.60)	-5°—45°	0.007 / 100 max.	75(2.95)	9kg/ 20 lb
SBP-R1530S-B	150(5.90) × 300(11.8)	150 (5.90)	300 (11.8)	(0.70)	256 (10.0)	160 (6.29)	300 (11.8)	96 (3.78)	157 (1.57)	(172) (6.77)	125(4.92)			27kg/ 60 lb	
SBP-R1545S-B	150(5.90) × 450(17.7)	150 (5.90)	450 (17.7)		394 (15.5)		450 (17.7)	100 (3.93)						48kg/ 106 lb	

※A hexagonal wrench key is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

Model **SBP-R·L** SINE BAR CHUCK SINGLE TYPE

L type



SBP-R1018L-B

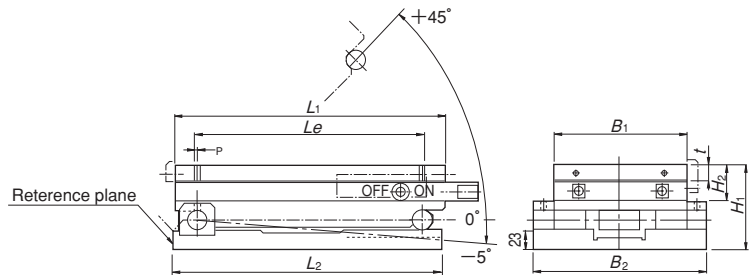
Gage block not included.

[Application]

A longitudinally long type with the short side as the tilting axis for precision grinding and measurement. Suitable for highly precise angle grinding on mold grinders, etc.

[Features]

- A grip is provided to facilitate angle setting in the longitudinal direction.



[mm(in)]

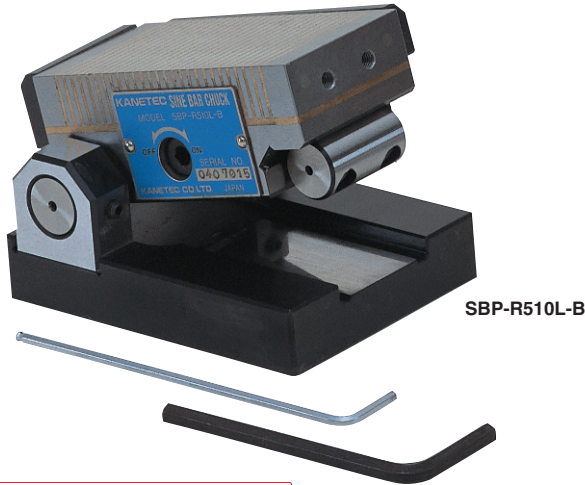
Model	Nominal Dimensions	Top Plate				Pole Pitch <i>P</i>	Mounting Section		Height		Height at Max. Tilting 45°	Tilting Angle	Angle Accuracy	Roller,s Center Distance	Mass
		<i>B</i> <sub>1</sub>	<i>L</i> <sub>1</sub>	<i>t</i>	<i>L</i> <sub>e</sub>		<i>B</i> <sub>2</sub>	<i>L</i> <sub>2</sub>	<i>H</i> <sub>1</sub>	<i>H</i> <sub>2</sub>					
SBP-R1018L-B	105(4.13) × 175(6.89)	105 (4.13)	175 (6.89)	18	142 (5.59)	3(1+2) 0.11 (0.03+0.07)	151 (5.94)	175 (6.89)	89 (3.50)	40	(175.5) (6.90)	-5°—45°	0.007 / 100 max.	125(4.92)	11kg/ 24 lb
SBP-R1530L-B	150(5.90) × 300(11.8)	150 (5.90)	300 (11.8)	(0.70)	256 (10.0)	196 (7.71)	300 (11.8)	103 (4.05)	157 (1.57)	(272) (10.7)	250(9.84)			32kg/ 71 lb	

※The tilting base fixing screws are 6 mm wide across flats. A hexagonal wrench key is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

ELECTROMAGNETIC CHUCKS  
CHUCK CONTROLLERS  
PERMANENT MAGNETIC CHUCKS  
PERMANENT ELECTROMAGNETIC CHUCKS  
BLOCKS FOR MC  
VACUUM CHUCKS  
PROMELTA SYSTEM  
SINE BAR CHUCKS  
MAGNETIC BLOCKS  
WORKING TOOLS  
MEASURING TOOL HOLDERS  
MAGNETIC HOLDERS  
MAGNETIC TOOLS

## Model SBP-R·L SINE BAR CHUCK MINI TYPE

ELECTROMAGNETIC CHUCK CONTROLLERS  
PERMANENT MAGNETIC CHUCKS  
PERMANENT ELECTROMAGNETIC CHUCKS

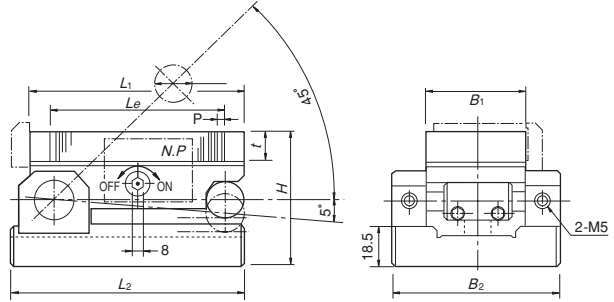


### [Application]

Designed for easy use in mold grinding and angle grinding of small workpieces.

### [Features]

- Compact and simple construction for easy handling.
- The shaft can be secured to use this chuck for grinding operations.
- Micro pitches on the chuck work face for grinding workpieces in a wide range from small workpieces to thick workpieces.



[mm (in)]

Gage block not included.

Model	Nominal Dimensions	Top Plate				Pole Pitch <i>P</i>	Mounting Section		Height <i>H</i>	Height at Max. Tilting (114) (4.48)	Tilting Angle -5°-45°	Angle Accuracy 0.007/100 max.	Roller's Center Distance 75 (2.95)	Mass 3kg/6.6 lb
		<i>B</i> <sub>1</sub>	<i>L</i> <sub>1</sub>	<i>t</i>	<i>L</i> <sub>e</sub>		<i>B</i> <sub>2</sub>	<i>L</i> <sub>2</sub>						
SBP-R510L-B	45 (1.77) × 95 (3.74)	45 (1.77)	95 (3.74)	18 (0.70)	79 (3.11)	3 (1+2) 0.11 (0.03+0.07)	75 (2.95)	103 (4.05)	62 (2.44)					

\*A hexagonal wrench key is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

BLOCKS FOR MC

## Model SBP-R SINE BAR CHUCK SMALL TYPE

VACUUM CHUCKS  
PROMELTA SYSTEM  
SINE BAR CHUCKS



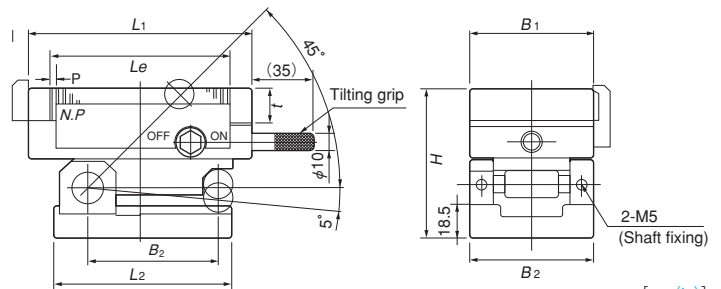
Two types are available; as lengthy type (Model SBP-R713S) and breadth type (Model SBP-R713L) relative to the tilting angle.

### [Application]

Easily usable for angle grinding for high precision on the mold grinder, etc.

### [Features]

- Micro pitches on the chuck work face for grinding workpieces in a wide range from small workpieces to thick workpieces.



[mm (in)]

Gage block not included.

Model	Nominal Dimensions	Top Plate				Pole Pitch <i>P</i>	Mounting Section		Height <i>H</i>	Height at Max. Tilting (124) (4.88) (114) (4.48)	Tilting Angle -5°-45°	Angle Accuracy 0.007/100 max.	Roller's Center Distance 75 (2.95)	Mass 7kg/15.5 lb
		<i>B</i> <sub>1</sub>	<i>L</i> <sub>1</sub>	<i>t</i>	<i>L</i> <sub>e</sub>		<i>B</i> <sub>2</sub>	<i>L</i> <sub>2</sub>						
SBP-R713L-B	75 (2.95) × 130 (5.11)	75 (2.95)	130 (5.11)	18 (0.70)	106 (4.17)	3 (1+2) 0.11 (0.03+0.07)	75 (2.95)	103 (4.05)	86 (3.38)					
SBP-R713S-B	130 (5.11) × 75 (2.95)	130 (5.11)	75 (2.95)	18 (0.70)	106 (4.17)	3 (1+2) 0.11 (0.03+0.07)	75 (2.95)	103 (4.05)	86 (3.38)					

\*Gange blocks are not included. A hexagonal wrench key is included. For the mechanism of angle setting, see the bottom part of page 45. The conversion table included with the product facilitates angle setting.

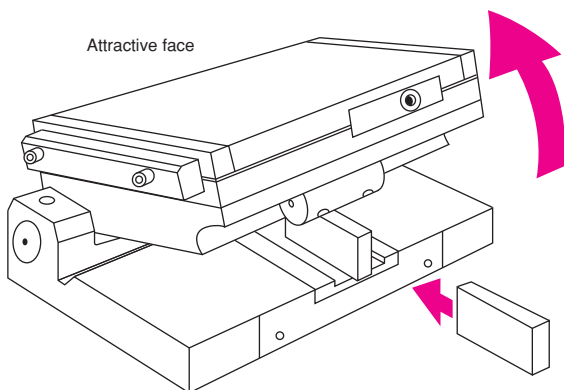
WORKING TOOLS

MEASURING TOOL HOLDERS

MAGNETIC HOLDERS

MAGNETIC TOOLS

Attractive face



### ■ Mechanism of Angle Setting by Sine Bar Chuck

A gage block is used for setting the angle.

An angle is obtained by the trigonometric function using the gage block dimension as the vertical side (*a*) and the roller center distance (from the center of open/close fulcrum shaft to the center of reference bar on the open/close side) as the hypotenuse (*c*), as shown on the left.

$$\sin \theta = \frac{a}{c}$$

Select an approximate value from the function table for  $\theta^\circ$ .

When using a special angle repeatedly, a method is available which uses a special master gage made to the dimension "*a*," which determines an angle, obtained from the function table in advance.

