SINE BAR CHUCKS

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.

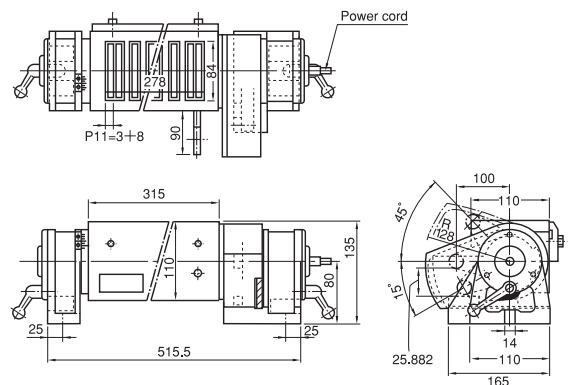| Type	Model	Features	Remarks
Rotary Type Electromagnetic Sine Bar Chuck	SBE-U	Dust cover provided for gage blocks	
Rotary Type Water-Cooling Electromagnetic Sine Bar Chuck	SBC-U	High precision water-cooling type	SBP-R713
Rotary Type Permanent Electromagnetic Sine Bar Chuck	SBEP-U	Momentary power application for minimized heat generation	SBE-U
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·LS SBP-R·L
	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.

Gage block setting location on the right side (photo): R type, and on the left side: L

The lock lever is installed on both sides.

Model SBE-U ROTARY TYPE ELECTROMAGNETIC SINE BAR CHUCK

Chuck controller required additionally

SBE-1131UR-C

Power cord

P11=3+8

[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.

[mm(in)]

Model	Nominal Dimensions	Top Plate				Pole Pitch	Length	Height		Tilting Angle	Angle Accuracy	Voltage	Current	Mass	Electro Chuck Master	Remarks
		B_1	L_1	Le	H_1	P	L_2	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-V105C EH-V205C	※For models with a combination of a rectifier and demagnetizer, see pages of "Chuck Controllers." P16—P20
SBE-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.

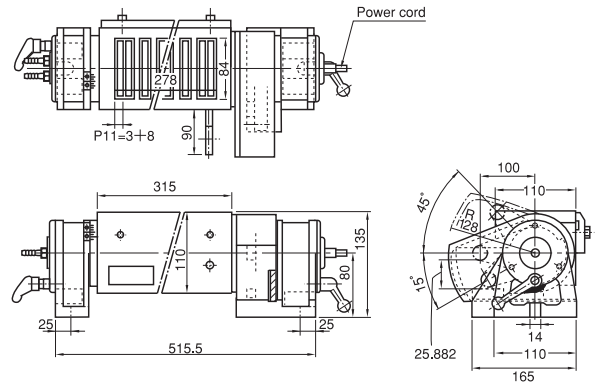# Model *SBC-U* ROTARY TYPE WATER-COOLING ELECTROMAGNETIC SINE BAR CHUCK

Chuck controller required additionally

SBC-1131UL-C

P11=3+8

278 / 84
90
315
110 / 135
80
25 / 25
515.5
25.882

100
110
45°
15°
R28
14
110
165

〔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.

[mm (in)]

Model	Nominal Dimensions	Top Plate				Pole Pitch	Length	Height		Tilting Angle	Angle Accuracy	Voltage	Current	Mass	Electro Chuck Master	Remarks
		B_1	L_1	Le	H_1	P	L_2	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)	135 (5.31)	210 (8.26)	−15°− +45°	0.007/100 max.	90 VDC	0.3A	36kg/ 79 lb	ES-M103B ES-M305B EH-V105E EH-V205E	※For models with a combination of a rectifier and demagnetizer, see pages of "Chuck Controllers." P16—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.

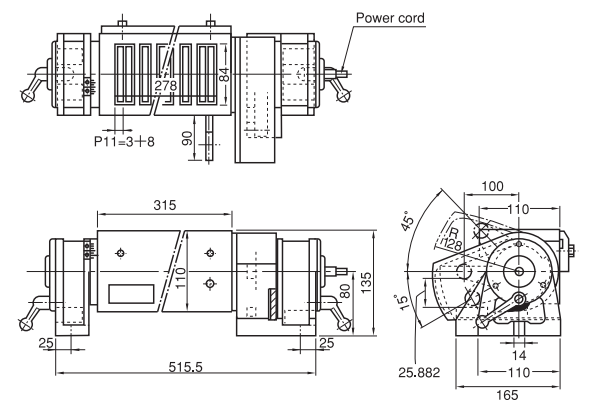# Model *SBEP-U* ROTARY TYPE PERMANENT ELECTROMAGNETIC SINE BAR CHUCK

Power saving

SBEP-1131UR-C

Chuck controller required additionally

P11=3+8

278 / 84
90
315
110 / 135
80
25 / 25
515.5
25.882

100
110
45°
15°
R28
14
110
165

〔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.

[mm (in)]

Model	Nominal Dimensions	Top Plate				Pole Pitch	Length	Height		Tilting Angle	Angle Accuracy	Voltage	Current	Mass	Electro Chuck Master
		B_1	L_1	Le	H_1	P	L_2	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)	135 (5.31)	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 MAGNETIC CHUCKS
PERMANENT ELECTROMAGNETIC CHUCKS
BLOCKS FOR MC
VACUUM CHUCKS
PROMELTA SYSTEM
SINE BAR CHUCKS
INJECTION MOLDING MACHINE MOLD FIXTURE
WORKING TOOLS
MAGNETIC BLOCKS
MEASURING TOOL HOLDERS
MEASURING TOOLS

ELECTROMAGNETIC CHUCK CHUCKS
CONTROLLERS MAGNETIC CHUCKS
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SINE BAR CHUCKS

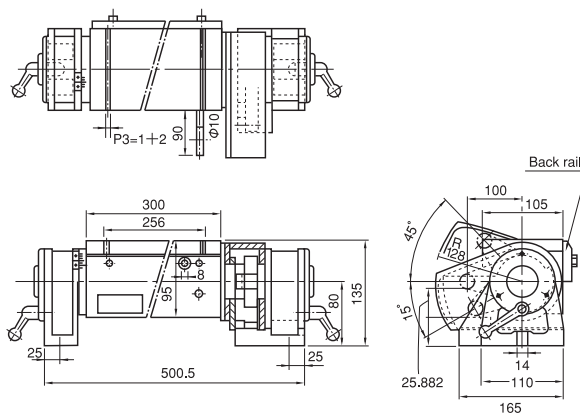## Model *SBP-R·UR* ROTARY TYPE PERMANENT MAGNETIC SINE BAR CHUCK
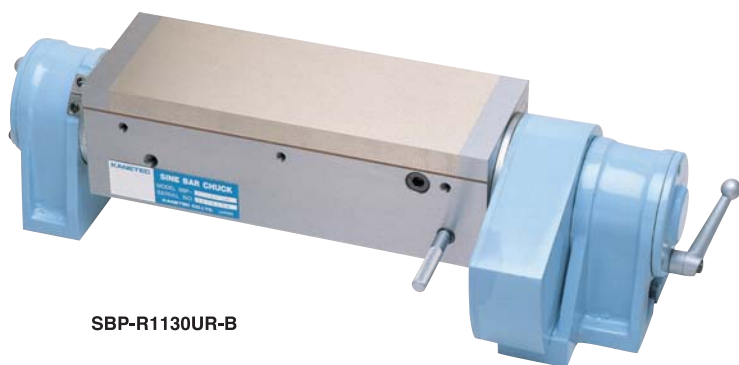
SBP-R1130UR-B

[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.

[mm (in)]

Model	Nominal Dimensions	Top Plate			Pole Pitch	Mounting Section		Height	Height at Max. Tilting	Tilting Angle	Angle Accuracy	Mass
		B_1	L_1	Le	P	B_2	L_2	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.
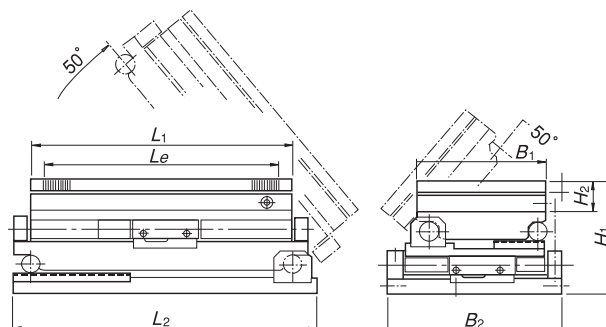
Model *SBP-R·LS* SINE BAR CHUCK COMPOUND TYPE

W type

SBP-R1530LS-A

Gage block not included.

[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.

[mm (in)]

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_1	L_1	t	Le	P	B_2	L_2	H_1	H_2						
SBP-R1018LS-A	105 (4.13)×175 (6.89)	105 (4.13)	175 (6.89)		143 (5.63)	3 (1+2) 0.11 (0.03+0.07)	166 (6.53)	200 (7.87)	129 (5.07)		(248) (9.76)		0°—50° Accuracy guaranteed range 0°—45°	0.007/100 max.	Upper 75 (2.95) Lower150 (5.90)	18kg/ 39 lb
SBP-R1325LS-A	130 (5.11)×250 (9.84)	130 (5.11)	250 (9.84)	18 (0.70)	209 (8.22)		186 (7.32)	300 (11.8)	130 (5.11)	40 (1.57)	(323) (12.7)				Upper100 (3.93) Lower250 (9.84)	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)			(264) (10.3)				Upper125 (4.92) Lower150 (5.90)	25kg/ 55 lb
SBP-R1530LS-A	150 (5.90)×300 (11.8)		300 (11.8)		257 (10.1)		206 (8.10)	345 (13.5)			(372) (14.6)				Upper125 (4.92) Lower300 (11.8)	45kg/ 99 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.
※The pole pitch may be 1.5(0.5+1.0).

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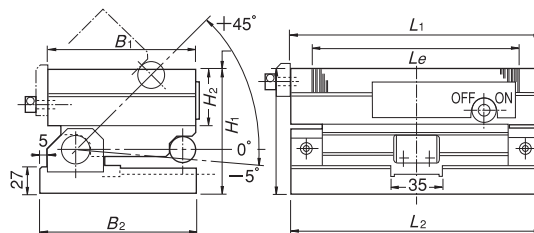
S type

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	Mounting Section		Height		Height at Max. Tilting 45°		Tilting Angle	Angle Accuracy	Roller's Center Distance	Mass
		B_1	L_1	t	Le	P	B_2	L_2	H_1	H_2						
SBP-R1018S-B	105 (41.3) × 175 (6.89)	105 (4.13)	175 (6.89)	18 (0.70)	142 (5.59)	3 (1+2) 0.11 (0.03+0.07)	110 (4.33)	175 (6.89)	89 (3.50)	40 (1.57)	(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)		256 (10.0)		160 (6.29)	300 (11.8)	96 (3.78)		(172) (6.77)				125 (4.92)	27kg/ 60 lb
SBP-R1545S-B	150 (5.90) × 450 (17.7)		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
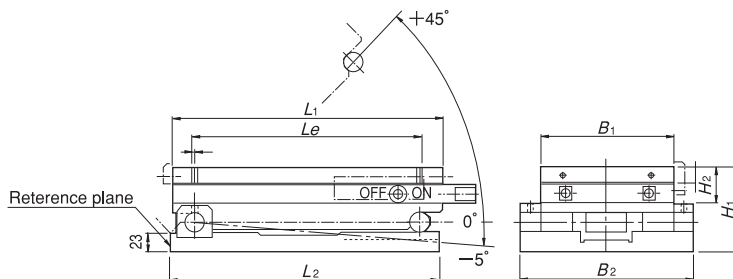
L type

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	Mounting Section		Height		Height at Max. Tilting 45°		Tilting Angle	Angle Accuracy	Roller's Center Distance	Mass
		B_1	L_1	t	Le	P	B_2	L_2	H_1	H_2						
SBP-R1018L-B	105 (4.13) × 175 (6.89)	105 (4.13)	175 (6.89)	18 (0.70)	142 (5.59)	3 (1+2) 0.11 (0.03+0.07)	151 (5.94)	175 (6.89)	89 (3.50)	40 (1.57)	(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)		256 (10.0)		196 (7.71)	300 (11.8)	103 (4.05)		(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

INJECTION MOLDING MACHINE MOLD FIXTURE

WORKING TOOLS

MAGNETIC BLOCKS

MEASURING TOOL HOLDERS

MEASURING TOOLS

ELECTROMAGNETIC CHUCK CHUCKS
CONTROLLERS MAGNETIC CHUCKS PERMANENT
PERMANENT ELECTROMAGNETIC CHUCKS
BLOCKS FOR MC
VACUUM CHUCKS
PROMELTA SYSTEM
SINE BAR CHUCKS
INJECTION MOLDING MACHINE MOLD FIXTURE
WORKING TOOLS
MAGNETIC BLOCKS
MEASURING TOOL HOLDERS
MEASURING TOOLS

Model *SBP-R·L*　SINE BAR CHUCK MINI TYPE
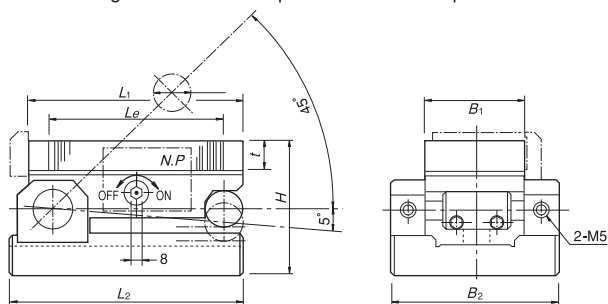
SBP-R510L-B

Gage block not included.

[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)]

Model	Nominal Dimensions	Top Plate				Pole Pitch	Mounting Section		Height	Height at Max. Tilting	Tilting Angle	Angle Accuracy	Roller's Center Distance	Mass
		B_1	L_1	t	Le	P	B_2	L_2	H					
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)	(114) (4.48)	−5°—45°	0.007/100 max.	75 (2.95)	3kg/6.6 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*　SINE BAR CHUCK SMALL TYPE
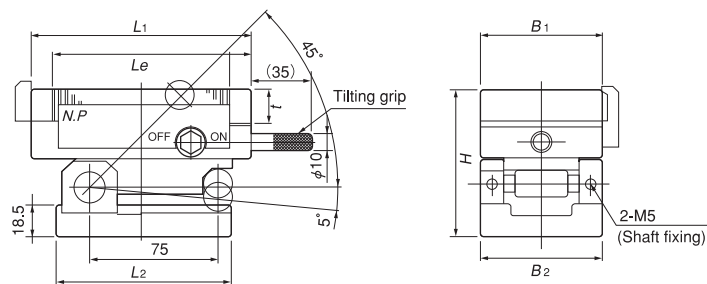
SBP-R713L-B

Gage block not included.

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 anglegrinding 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)]

Model	Nominal Dimensions	Top Plate				Pole Pitch	Mounting Section		Height	Height at Max. Tilting	Tilting Angle	Angle Accuracy	Roller's Center Distance	Mass
		B_1	L_1	t	Le	P	B_2	L_2	H					
SBP-R713L-B	75(2.95)×130(5.11)	75(2.95)	130(5.11)	18	106(4.17)	3(1+2) 0.11(0.03+0.07)	75 (2.95)	103 (4.05)	86 (3.38)	(124)(4.88)	−5°—45°	0.007/100 max.	75 (2.95)	7kg/ 15.5 lb
SBP-R713S-B	130(5.11)× 75(2.95)	130(5.11)	75(2.95)	(0.70)	106(4.17)					(114)(4.48)				

※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.

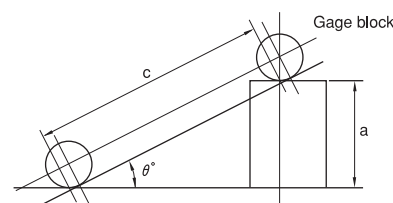### ■ Mechanism of Angle Setting by Sine Bar Chuck

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.

$$\operatorname{Sin}\theta°=\frac{a}{c}$$

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

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.

Attractive face

Gage block