### 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 a desired angle efficiently.

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>Features</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilt electromagnetic</td>
<td>SBE-U</td>
<td>Dust cover provided on gauge block</td>
<td></td>
</tr>
<tr>
<td>Tilt water-cooled electromagnetic</td>
<td>SBC-U</td>
<td>High precision water-cooled type</td>
<td></td>
</tr>
<tr>
<td>Tilt permanent electromagnetic</td>
<td>SBE-P-U</td>
<td>Momentary power application for minimized heat generation</td>
<td></td>
</tr>
<tr>
<td>Tilt permanent magnetic</td>
<td>SBP-U</td>
<td>Dust cover provided on gauge block</td>
<td></td>
</tr>
<tr>
<td>Sine bar chuck compound type</td>
<td>SBP-R-LS</td>
<td>Thin compound type</td>
<td></td>
</tr>
<tr>
<td>Sine bar chuck single type</td>
<td>SBP-R-S</td>
<td>Thin single type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SBP-R-L</td>
<td>Tilting in longitudinal direction</td>
<td></td>
</tr>
</tbody>
</table>

*The rotary tilting sine bar chuck comes with a gauge block (for 0° setting) of 25.882 mm of JIS Class B.*

![Image](image_url)

The lock lever is installed on both sides.

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

**[Application]**
Suitable for high precision angle grinding of molds and jigs.

**[Features]**
- The gauge 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 gauge block is opened beyond about 60 degrees, it is locked to facilitate setup and cleaning.
- A resin-bonded structural face plate having little environmental burden is employed.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Size</th>
<th>Work Face</th>
<th>Pole Pitch</th>
<th>Mounting Length</th>
<th>Height</th>
<th>Tilt Angle</th>
<th>Angle Accuracy</th>
<th>Voltage</th>
<th>Current</th>
<th>Mass</th>
<th>Electro Chuck Master</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBE-1131UF-C</td>
<td>110</td>
<td>4.33 x 315 (12.4)</td>
<td>110</td>
<td>4.33</td>
<td>315 (12.4)</td>
<td>278 (10.9)</td>
<td>113 (4.44)</td>
<td>11 (3.5)</td>
<td>0.45</td>
<td>0.11 + 0.33</td>
<td>492 (19.3)</td>
<td>138 (5.43)</td>
</tr>
</tbody>
</table>

*The type having the gauge 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 gauge block (25.882 mm) is added. For the mechanism of angle setting, see the bottom page on page 51. The conversion table included with the product facilitates angle setting.*
SINE BAR CHUCKS

Model SBC-U  TILT TYPE WATER-COOLED ELECTROMAGNETIC SINE BAR CHUCK

[Application]
Constructed to enable real-time internal cooling of heat generated when power is applied to the electromagnet, making these chucks suitable for higher precision grinding operation.

[Features]
● Change in accuracy is minimized by supplying coolant at a flow rate of 2 to 4 L/min to minimize coil heating.
● The mechanical functions and features are almost the same as those of Model SBE chucks.
● A resin-bonded structural face plate having little environmental burden is employed.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Size</th>
<th>Work Face</th>
<th>Pole Pitch</th>
<th>Mounting Length</th>
<th>Height</th>
<th>Tilt Angle</th>
<th>Angle Accuracy</th>
<th>Voltage</th>
<th>Current</th>
<th>Mass</th>
<th>Electro Chuck Master</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBC-1131UFR-C</td>
<td>110 x (12.4)</td>
<td>110 x (12.4)</td>
<td>315 x (10.8)</td>
<td>278 x (10.8)</td>
<td>113 x (3+8)</td>
<td>492</td>
<td>138</td>
<td>(5.45)</td>
<td>(8.26)</td>
<td>15° - 45°</td>
<td>0.001/100 max.</td>
</tr>
<tr>
<td>SBC-1131UFL-C</td>
<td>110 x (12.4)</td>
<td>110 x (12.4)</td>
<td>315 x (10.8)</td>
<td>278 x (10.8)</td>
<td>113 x (3+8)</td>
<td>492</td>
<td>138</td>
<td>(5.45)</td>
<td>(8.26)</td>
<td>15° - 45°</td>
<td>0.001/100 max.</td>
</tr>
</tbody>
</table>

[Features]
- The type having the gauge 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 gage block (25.882mm) for 0° is included. For the mechanism of angle setting, see the bottom part on page 51. The conversion table included with the product facilitates angle setting.

Model SBEP-U  TILT TYPE PERMANENT ELECTROMAGNETIC SINE BAR CHUCK

[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, thus enhancing safety.
● The mechanical functions and features are almost the same as those of Model SBE.
● A resin-bonded structural face plate having little environmental burden is employed.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Size</th>
<th>Work Face</th>
<th>Pole Pitch</th>
<th>Mounting Length</th>
<th>Height</th>
<th>Tilt Angle</th>
<th>Angle Accuracy</th>
<th>Voltage</th>
<th>Current</th>
<th>Mass</th>
<th>Electro Chuck Master</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBEP-1131UFR-C</td>
<td>110 x (12.4)</td>
<td>110 x (12.4)</td>
<td>315 x (10.8)</td>
<td>278 x (10.8)</td>
<td>113 x (3+8)</td>
<td>492</td>
<td>138</td>
<td>(5.45)</td>
<td>(8.26)</td>
<td>15° - 45°</td>
<td>0.001/100 max.</td>
</tr>
</tbody>
</table>

[Features]
- The type having the gauge 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 gage block (25.882mm) for 0° is included. For the mechanism of angle setting, see the bottom part on page 51. The conversion table included with the product facilitates angle setting.

Model SBP-R-UR  TILT TYPE PERMANENT MAGNETIC SINE BAR CHUCK

[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 features are almost the same as those of Model SBE.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Size</th>
<th>Work Face</th>
<th>Pole Pitch</th>
<th>Mounting Face</th>
<th>Height</th>
<th>Height at Max. Tilt</th>
<th>Tilt Angle</th>
<th>Angle Accuracy</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP-R1130UR-B</td>
<td>105 x (11.8)</td>
<td>105 x (11.8)</td>
<td>300 x (10.0)</td>
<td>256 x (10.0)</td>
<td>310 x (11+2)</td>
<td>110 x (11+2)</td>
<td>135</td>
<td>(8.26)</td>
<td>15° - 45°</td>
</tr>
</tbody>
</table>

[Features]
- A gage block (25.882mm) for 0° is included. For the mechanism of angle setting, see the bottom part on page 51. The conversion table included with the product facilitates angle setting.
SBP-R1018S-B

COMPOUND TYPE PERMANENT MAGNETIC SINE BAR CHUCK

W type

Permanent magnetic chucks to enable highly accurate composite inclination on the X axis and Y axis.

Features

● When one side is closed, the chuck acts as a single vertical or horizontal type.
● The whole sine bar part 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.
● These chucks employ a permanent magnetic chuck and therefore no heat is generated, which enables highly precise grinding.

Model SBP-R1530LS-A

Gauge block not included.

Model SBP-R1018S-B

SINGLE TYPE PERMANENT MAGNETIC SINE BAR CHUCK

S type

A laterally long type with the long side as the tilting axis for highly precise 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 magnetic chuck mounted, this single type has been precisely finished to 0.007 mm or better.
● The whole sine bar part 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.
● These chucks employ a permanent magnet and therefore no heat is generated, which enables highly precise grinding.

Model SBP-R1530LS-A

Gauge block not included.

Model SBP-R1018S-B

L type

A longitudinally long type with the short side as the tilting axis for highly precise 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.

Model SBP-R1018S-B

Gauge block not included.
Model **SBP-R·L** MINI PERMANENT MAGNETIC SINE BAR CHUCK

**[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 also.
- The magnetic pole micro pitches on the chuck work face enable grinding of a wide range of workpieces from small workpieces to thick workpieces.

![Image of SBP-R·L Chuck]

**Gauge block not included.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Size</th>
<th>Work Face</th>
<th>Pole Pitch</th>
<th>Mounting Face</th>
<th>Height</th>
<th>Height at Max. Tilt</th>
<th>Tilt Angle</th>
<th>Angle Accuracy</th>
<th>Roller Center Distance</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP-R510L-B</td>
<td>45 (1.77) x 95 (3.74)</td>
<td>45 (1.77)</td>
<td>95 (3.74)</td>
<td>18 (0.70)</td>
<td>79 (3.11)</td>
<td>3 (1/2)</td>
<td>0.11 (0.003+0.007)</td>
<td>75 (2.95)</td>
<td>103 (4.05)</td>
<td>62 (2.44)</td>
</tr>
</tbody>
</table>

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

Model **SBP-R** SMALL PERMANENT MAGNETIC SINE BAR CHUCK

Two types are available; longitudinal type (Model SBP-R713S) and lateral type (Model SBP-R713L) relative to the tilting angle. The accuracy and durability are equivalent to those of the single type permanent magnetic sine bar chuck.

**[Application]**
Easy to use for highly precise angle grinding on mold grinders, etc.

**[Features]**
- The magnetic pole micro pitches on the chuck work face enable grinding of a wide range of workpieces from small workpieces to thick workpieces.

![Image of SBP-R Chuck]

**Gauge block not included.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Size</th>
<th>Work Face</th>
<th>Pole Pitch</th>
<th>Mounting Face</th>
<th>Height</th>
<th>Height at Max. Tilt</th>
<th>Tilt Angle</th>
<th>Angle Accuracy</th>
<th>Roller Center Distance</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP-R713S</td>
<td>75 (2.95) x 130 (5.11)</td>
<td>75 (2.95)</td>
<td>130 (5.11)</td>
<td>18 (0.70)</td>
<td>103 (4.05)</td>
<td>3 (1/2)</td>
<td>0.11 (0.003+0.007)</td>
<td>75 (2.95)</td>
<td>103 (4.05)</td>
<td>86 (3.38)</td>
</tr>
<tr>
<td>SBP-R713L</td>
<td>130 (5.11) x 75 (2.95)</td>
<td>130 (5.11)</td>
<td>75 (2.95)</td>
<td>18 (0.70)</td>
<td>103 (4.05)</td>
<td>3 (1/2)</td>
<td>0.11 (0.003+0.007)</td>
<td>75 (2.95)</td>
<td>103 (4.05)</td>
<td>86 (3.38)</td>
</tr>
</tbody>
</table>

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

**Mechanism of Angle Setting by Sine Bar Chuck**

A gauge block is used for setting the angle.

An angle is obtained by the trigonometric function using the gauge 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.

\[ \sin \theta = \frac{a}{c} \]

Select an approximate value from the function table for \( \theta \).

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