Surface Plates

Cast Iron Precision Surface Plates

Instruction Manual

To ensure correct use, please read this instruction manual carefully before use. After reading, keep it in a safe place where the user can always refer to it.

OBISHI KEIKI SEISAKUSHO Co., Ltd.

Safety Precautions

※Before use, please read this instruction manual carefully and use the product correctly.

※The precautions shown here are intended to ensure the safe and proper use of the product and to prevent any potential hazards to the user.

※The precautions are categorized into three levels — **Danger, Warning, and Caution** — to clearly indicate the severity and urgency of potential harm or damage that may occur if the product is mishandled.

<table>
<tr><th colspan="3">For Safe and Proper Use</th></tr>
<tr><td colspan="3">This instruction manual includes various symbols and pictograms throughout the text to ensure correct use of the product and to prevent harm or damage to the user.

The symbols and their meanings are as follows.

● Please read the text after fully understanding the symbols and their meanings.
● After reading, be sure to keep this manual in a place where anyone using the product can easily refer to it at any time.
● All of these are safety-related instructions, so please be sure to follow them.</td></tr>
<tr><td colspan="2">Danger</td><td>This indicates situations where incorrect handling could result in imminent risk of death or serious injury.</td></tr>
<tr><td colspan="2">Warning</td><td>This indicates situations where incorrect handling could potentially result in death or serious injury.</td></tr>
<tr><td colspan="2">Caution</td><td>This indicates situations where incorrect handling may result in injury to persons or only property damage.</td></tr>
<tr><td rowspan="3">Examples of symbols</td><td>  </td><td>The △ symbol indicates the presence of danger, warning, or caution messages, with specific precautions described within the figure.
(The left figure is used to indicate general danger, warning, or caution without specifying details.)</td></tr>
<tr><td>  </td><td>The ○ symbol indicates prohibited actions, with specific precautions described within or below the figure.
(The figure on the left is used for general prohibition notices without specifying particular actions.)</td></tr>
<tr><td>  </td><td>The ● symbol indicates mandatory actions, with specific instructions detailed within the figure.
(The figure on the left is used for general mandatory actions or instructions without specifying details.)</td></tr>
</table>

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1. Product Features

・This is a high-precision surface plate suitable for stationary inspection use.

・To minimize distortion and temperature effects, it employs a rib-reinforced structure with sufficient wall thickness.

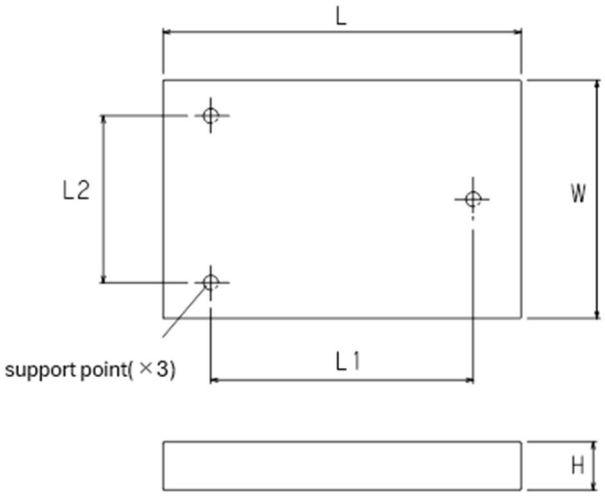
・For products with dimensions of 500 × 500 mm or larger, a box-type structure is used, and adjustment bolts and receiving plates are provided.

・The precision surface is finished by scraping.

・Dedicated stands made of square pipe are also available (600 × 450 mm and larger).

Note: Special stands such as custom-size specifications and those with fall-prevention mechanisms can also be manufactured.

2. Names of Parts and External View



3. Specifications

Grade / Size L×W×H(mm)	Grade0		Grade1		Grade2		Mass (kg)
	Code No.	Flatness (μm)	Code No.	Flatness (μm)	Code No.	Flatness (μm)	
150×100×45	BC101	3.0	BC201	6	BC301	12	3
200×150×60	BC102	3.5	BC202	7	BC302	14	6

300×200×75	BC103	3.5	BC203	7	BC303	15	16
300×300×85	BC104	4.0	BC204	8	BC304	16	20
400×300×95	BC105	4.0	BC205	8	BC305	16	35
400×400×100	BC106	4.5	BC206	9	BC306	17	40
500×350×110	BC107	4.5	BC207	9	BC307	18	50
500×400×115	BC108	4.5	BC208	9	BC308	18	62
500×500×125	BC109	5.0	BC209	10	BC309	20	100
600×450×130	BC110	5.0	BC210	10	BC310	20	119
600×600×140	BC111	5.0	BC211	10	BC311	21	140
750×500×140	BC112	5.5	BC212	11	BC312	22	155
750×750×160	BC113	6.0	BC213	12	BC313	23	220
1000×750×190	BC114	6.5	BC214	13	BC314	26	380
1000×1000×225	BC115	7.0	BC215	14	BC315	28	590
1500×1000×250	BC116	8.0	BC216	16	BC316	33	870
2000×1000×270	BC117	9.5	BC217	19	BC317	38	1150
2000×1200×290	BC118	9.5	BC218	19	BC318	39	1600
2000×1500×320	BC119	10.0	BC219	20	BC319	40	2300
2400×1200×320	BC120	10.5	BC220	21	BC320	42	2000
3000×1500×350	BC121	12.5	BC221	25	BC321	51	3200

4. Installation

【Installation Location】

・A place with minimal temperature change and humidity.

・A place with little dust and vibration.

・A place with a solid foundation that will not deform or twist under the weight of the surface plate.

◎When using as a high-precision inspection surface plate, either construct a concrete installation base isolated from other structures and place the surface plate on it, or place the surface plate on a rigid and stable stand installed on an isolated concrete floor.

【Installation Method】

- Install the surface plate horizontally on a stable installation stand.
- When supported at three points and kept level, the accuracy will be maintained.
- As shown in the figure below, install the surface plate with three-point support (two points on the left and one point on the right), and adjust the level using adjustment bolts or leveling blocks.

Note: Always support the surface plate at three points, and use two auxiliary support points to prevent tipping.

Level Adjustment Procedure Using Adjustment Bolts

① Loosen all locknuts, retract the adjustment bolts of the auxiliary support points, and set the plate on three-point support.

② Place the level at the center of the left support points as shown in Figure a, and turn the adjustment bolt to level the plate.

③ Place the level at the center of the instrument as shown in Figure b, and turn the adjustment bolt to level the plate.

④ Repeat steps 2 and 3 to adjust the level.

Note: Only the three adjustment bolts of the support points are used for level adjustment.

Note: Be careful not to let the auxiliary support points contact the floor during adjustment.

⑤ Hold the adjustment bolts to prevent them from turning, and tighten the locknuts.

⑥ Check again to ensure that the level has not shifted. Tightening the locknuts may cause a change in level.

⑦ After level adjustment, turn the adjustment bolts of the auxiliary support points by hand to prevent tipping.

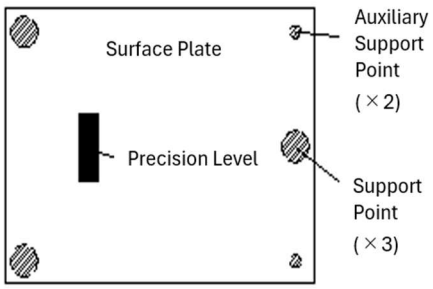


Figure a

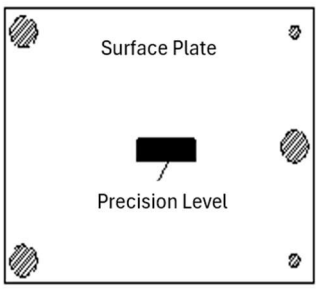
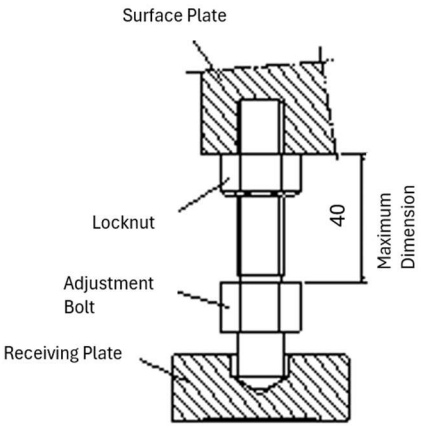


Figure b



Cast Iron Precision Surface Plate

5. Precautions for Use

① Clean the Precision Surface and the measurement surface of the workpiece before use.

● ② Handle the instrument carefully during use and storage to avoid impact or shock.

③ Allow the instrument to acclimate to the ambient temperature before use.

④ Do not use or store the instrument in places with drastic temperature changes.

⑤ Install this instrument on a solid foundation in a stable location free from twisting or tilting.

⑥ Do not place this instrument in locations subject to vibration or other similar conditions.

⑦ Do not apply excessive load or impact to the surface plate.

⑧ Avoid using only a specific area of the surface plate. Use the entire surface evenly.

⑨ After use, always perform rust prevention treatment on the instrument.

⑩ If there are scratches or damage, have the instrument repaired and inspected. Remove minor scratches on the Precision Surface locally with an Arkansas stone or similar before use.

⑪ Check the instrument for abnormalities before use in the following cases:

- When the instrument has been dropped.
- When an object has been dropped onto the instrument.

⑫ Check the accuracy regularly before using the product.

⑬ Do not leave workpieces or other items on the surface plate.

△ ⑭ If the product has sharp edges, handle it carefully to avoid injuring your fingers or other parts of your body.

⑮ For heavy products, handle placement and other operations with two or more people, and take care to avoid injury.

⑯ Use cloth or nylon sleeves for lifting. Do not use hard materials such as metal chains or wires, as they may cause scratches or cracks on the product and pose a risk of injury to the operator.

△ ⑰ Wear protective gloves and safety glasses as necessary to prevent injury while working.

△ ⑱ Do not use this product if it is damaged or deteriorated, as it may cause injury or accidents.

△ ⑲ If an injury occurs, give first aid immediately and seek medical attention if necessary.

Contact Information

JIS Certified Factory

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Head Office and Factory

Design, development, manufacturing, and calibration services for precision measuring instruments (levels, surface plates, straight edges, reference measuring instruments, square rulers, blocks, dial gauge stands, comparators, angle measuring instruments, bench centers, squareness measuring instruments).