

# Option for *SPEEDIO* Rotary Table **T-200**

## Global Service Sites

Local dealers are available to provide services in each region, in addition to the sites below.

### U. S. A.

**BROTHER INTERNATIONAL CORP.**  
**MACHINE TOOLS DIV. TECHNICAL CENTER**  
2200 North Stonington Avenue, Suite 270, Hoffman Estates, IL 60169, U.S.A.  
PHONE:(1)224-653-8415 FAX:(1)224-653-8821

### Germany

**BROTHER INTERNATIONALE INDUSTRIEMASCHINEN GmbH**  
**MACHINE TOOLS DIVISION FRANKFURT TECHNICAL CENTER**  
Hoechster Str.94, 65835 Liederbach, Germany  
PHONE:(49)69-977-6708-0 FAX:(49)69-977-6708-80

### India

**BROTHER INTERNATIONAL (INDIA) PVT LTD.**  
**Machine Tools Bengaluru Technical Center**  
Park Landing, Ground Floor, Municipal No.5AC-709, 2nd Block, HRBR Extension,  
Bengaluru - 560 043 Karnataka, India  
PHONE:(91)80-6405-7999

### China

**BROTHER MACHINERY (SHANGHAI) LTD.**  
**(MACHINE TOOLS DIV.) SHANGHAI TECHNICAL CENTER**  
Room B, 3/F., No.567, West Tianshan Rd., ChangNing District, Shanghai 200335, P.R.China  
PHONE:(86)21-2225-6666 FAX:(86)21-2225-6688

### China

**BROTHER MACHINERY (SHANGHAI) LTD.**  
**CHONGQING BRANCH (MACHINE TOOLS DIV.) CHONGQING TECHNICAL CENTER**  
Room 105, No.51 Xuefudadao, Nan'an District, Chongqing Province, 400074, P.R.China  
PHONE:(86)23-6865-5600 FAX:(86)23-6865-5560

### Mexico

**BROTHER INTERNATIONAL DE MÉXICO, S.A. DE C.V.**  
**División de Maquinaria Industrial Centro Técnico Querétaro**  
Calle 1 No.310 Int 15, Zona Industrial Jurica, Parque Industrial Jurica,  
Querétaro, QRO C.P. 76100 México  
PHONE:(52)55-8503-8760 FAX:(52)442-483-2667

### Thailand

**BROTHER COMMERCIAL (THAILAND) LTD.**  
**MACHINE TOOLS TECHNICAL CENTER**  
317 Pattanakarn Road, Pravet Sub-District, Pravet District, Bangkok 10250, Thailand  
PHONE:(66)2321-5910 FAX:(66)2321-5913

### India

**BROTHER INTERNATIONAL (INDIA) PVT LTD.**  
**Machine Tools Gurugram Technical Center**  
Level 20, Tower C, Building No 5, DLF Epitome, DLF Cyber City Phase III,  
Gurugram - 122002 Haryana - India  
PHONE:(91)80-6405-7999

### China

**BROTHER MACHINERY (SHANGHAI) LTD.**  
**DONGGUAN BRANCH (MACHINE TOOLS DIV.) DONGGUAN TECHNICAL CENTER**  
1F, Fuyuan Business Center Building, No.1 Lane 13, Maiyuan Road, Xin'an community,  
Chang'an Town, Dongguan City, Guangdong Province, 523008, P.R.China  
PHONE:(86)769-2238-1505 FAX:(86)769-2238-1506

Figures in brackets ( ) are the country codes.

- For safe use of our products, please read the Instruction Manual and Safety Manual before commencing operation. Please consult your local distributor if you have any questions.
- When exporting this product, be sure to check the end user and their purpose of use from the viewpoint of security trade control.

Specifications may be subject to change without any notice.

**brother**

**BROTHER INDUSTRIES, LTD.**  
Machinery Business Division

1-5, Kitajizoyama, Noda-cho, Kariya-shi,  
Aichi-ken 448-0803, Japan  
PHONE: 81-566-95-0075  
FAX : 81-566-25-3721

<http://www.brother.com>







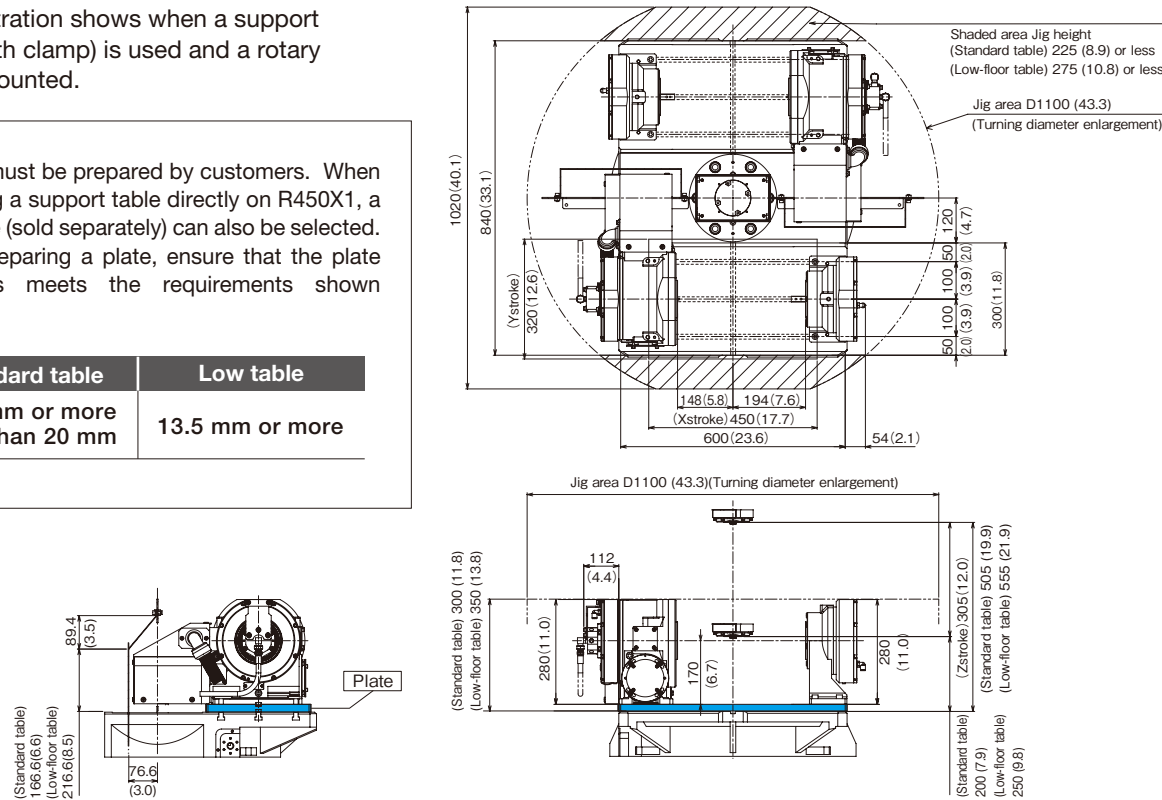


## Mounting layout R450X1

● The illustration shows when a support table (with clamp) is used and a rotary joint is mounted.

A plate must be prepared by customers. When mounting a support table directly on R450X1, a sub plate (sold separately) can also be selected. When preparing a plate, ensure that the plate thickness meets the requirements shown below.

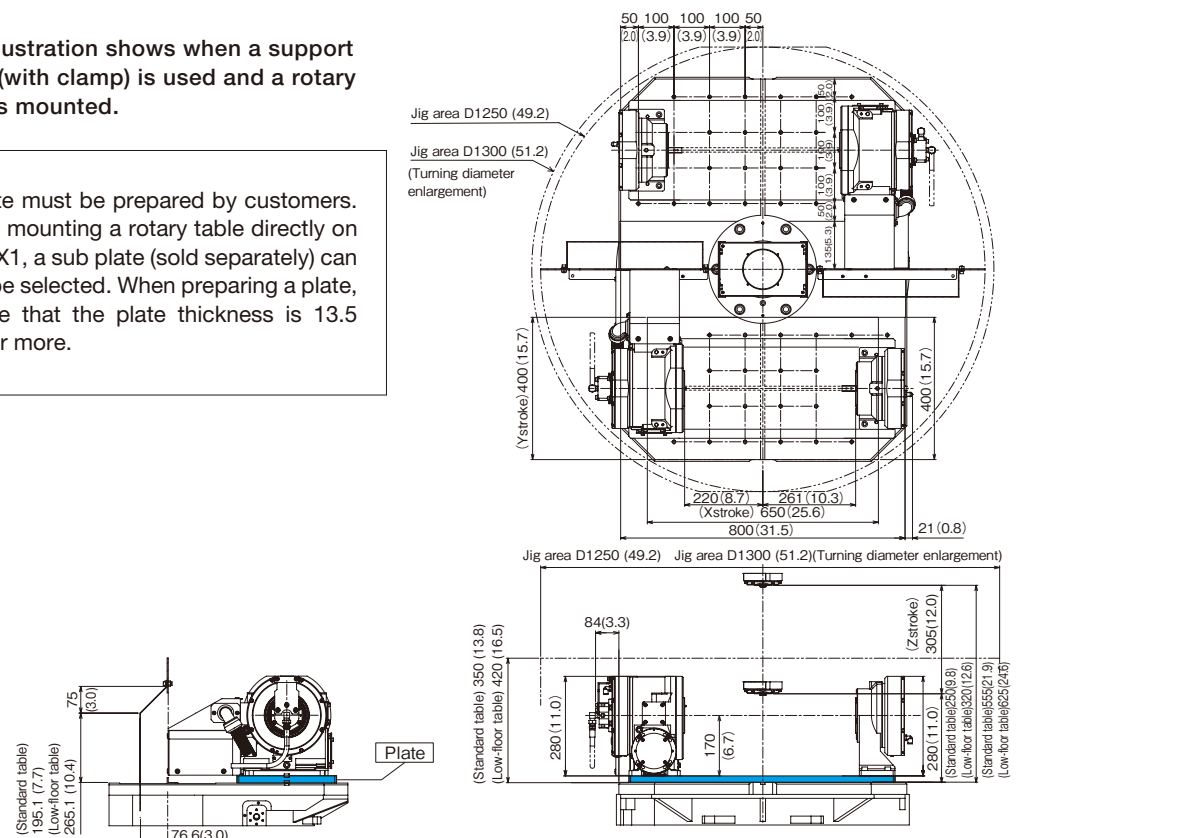
Standard table	Low table
13.5 mm or more Less than 20 mm	13.5 mm or more



## Mounting layout R650X1

● The illustration shows when a support table (with clamp) is used and a rotary joint is mounted.

A plate must be prepared by customers. When mounting a rotary table directly on R650X1, a sub plate (sold separately) can also be selected. When preparing a plate, ensure that the plate thickness is 13.5 mm or more.



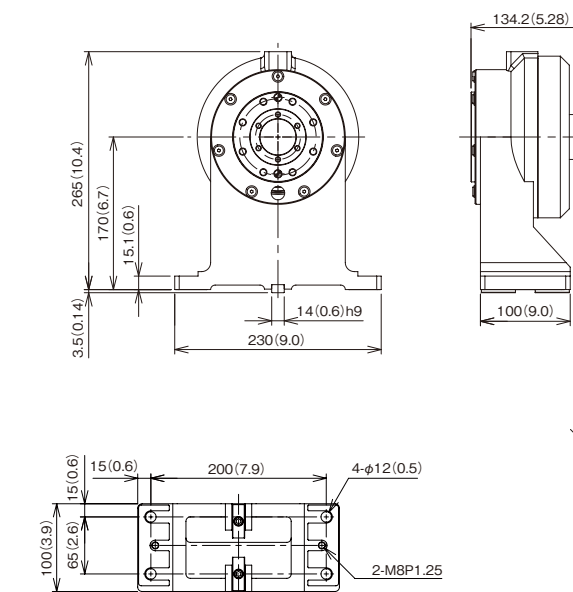
## Support table



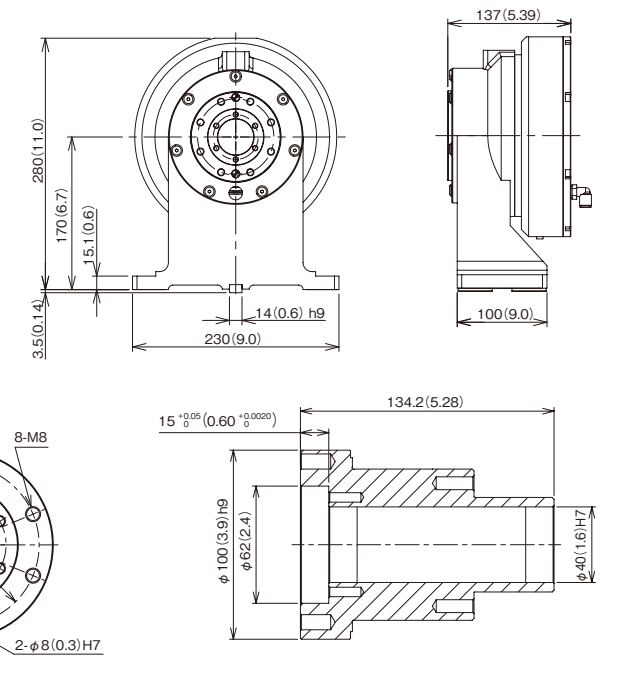
The support table with clamp

Specifications	Without clamp	With clamp
Through hole diameter (mm/inch)	40H7/1.6H7	
Center height (mm/inch)	170/6.7	
Clamp method	—	Pneumatic
Clamp torque (N·m/ft·lbs)	—	330/243 (at 0.5MPa)
Product weight (kg/lbs)	21/46	30/66

### ● Without clamp



### ● With clamp



## Rotary joint for T-200

Rotary joint with 6 + 1 ports is built into the rotary table.



- 6 ports: Hydraulic (7MPa), Pneumatic (1MPa)
- 1 port (center port): Coolant (0.3MPa)

\* Please consult us separately when using a rotary joint for a support table.

## Sub plate

Required when mounting a support table directly on S1000X1, R450X1, or R650X1.  
(149×280×19:mm)  
(5.8×11.0×0.9:inch)



\* Not required when a plate is prepared by customers.

## Specifications check list

	S300X1 / S500X1 / S700X1 / S1000X1	R450X1	R650X1
No. of axes	1	1 / 2	1 / 2
Machine type	—	Low table / Standard	Low table / Standard
Rotary table type	Right-handed / Left-handed	Right-handed	Right-handed
B-axis cord	○	○	○
Partition (with 12-Port pneumatic relay box)	—	○	○
Turning diameter enlargement	—	○	Not required / Required
Support table	Not required / Without clamp / With clamp	Not required / Without clamp / With clamp	Not required / Without clamp / With clamp
Sub plate	Not required / Required	Not required / Required	Not required / Required
Rotary joint for T-200	Not required / Required	Not required / Required	Not required / Required
Manual	Not required / Required	Not required / Required	Not required / Required

○: Included. Not need to order separately.



Specifications	
Type	Right-handed, Left-handed *1
Through hole diameter (mm/inch)	70H7/2.8H7
Center height (mm/inch)	170/6.7
Gear ratio	1/20
Maximum speed (min <sup>-1</sup> )	100 (50 *2)
Bi-directional positioning accuracy (ISO230-2 compliant) (s)	20 or less
Bi-directional positioning repeatability (ISO230-2 compliant)(s)	10 or less
Indexing accuracy (s) *3	10 or less
Repeatability (s) *3	4 or less
Maximum loading capacity (kg/lbs)	100/220 (200/440 *4)
Allowable work inertia (kg·m <sup>2</sup> /lbs·ft <sup>2</sup> )	1.0/23.7 (4.0/94.8 *2)
Allowable unbalanced load (kg·m/ft·lbs)	5.0/36.2
Clamp method	Pneumatic
Clamp torque (N·m/ft·lbs)	280/207 (at 0.5MPa)
Maximum holding torque (N·m/ft·lbs) *5	720/531 (at 0.5MPa)
Product weight (kg/lbs)	67/148
Applicable models	S300X1 / S500X1 / S700X1 / S1000X1 / R450X1 / R650X1

\*1. Only right-handed type available for R450X1 and R650X1. \*2. When high inertia mode (enabled by changing parameter setting) is used.  
\*3. Based on Brother measurement standard. \*4. When support table is used. \*5. Obtained by the clamp torque plus the motor's holding torque.

### Accuracy standards

Measurement items	Diagram	Allowable value (mm)
Deflection of table top surface		0.015
Deflection of table outer peripheral surface		0.010
Parallelism between rotation center and vertical mounting reference surface		0.020 for 150 mm
Squareness between table top surface and vertical mounting reference surface		0.020
Parallelism between rotary axis and guide block of vertical mounting reference surface		0.025 for 150 mm

<ul style="list-style-type: none"> <li>● <b>Positioning accuracy in one direction</b></li> </ul>	<p>Positioning at any 12 points in one direction (same direction), the differences between the command value input from NC and the actually positioned angle are measured, obtaining the difference between the measured maximum and minimum value of the 12 points. It is a commonly used measurement method which is not influenced by backlash because it rotates in one direction.</p>
<ul style="list-style-type: none"> <li>● <b>Positioning accuracy and repeatability in one direction</b></li> </ul>	<p>5 times positioning at any 1 point in one direction (same direction), the differences between the actually positioned angles are measured. This is performed at any 12 points, obtaining the maximum value of the differences at each point. It is a commonly used measurement method which is not influenced by backlash because it rotates in one direction.</p>
<ul style="list-style-type: none"> <li>● <b>Bi-directional positioning accuracy (Complies with ISO230-2)</b></li> </ul>	<p>Positioning at any 12 points is performed in the forward direction and then positioning at same 12 points are done from the reverse direction. The differences between the command value input from NC and the actually positioned angle are measured. This is performed 5 times at each point, obtaining the value accounted for variations in measured difference. The measurement is performed under more severe conditions than that of positioning accuracy in one direction, because backlash affects the result.</p>
<ul style="list-style-type: none"> <li>● <b>Bi-directional positioning accuracy and repeatability (Complies with ISO230-2)</b></li> </ul>	<p>5 times positioning at any 1 point in the forward direction and from the reverse direction, the differences between the actually positioned angles are measured. This is performed at any 12 points, obtaining the maximum value of the differences at each point. The measurement is performed under more severe conditions than that of positioning accuracy and repeatability in one direction, because backlash affects the result.</p>
<ul style="list-style-type: none"> <li>● <b>Clamp torque</b></li> </ul>	<p>Torque applied at the time when a minute positional deviation between the clamping part and the output shaft occurs, while removing the motor and the input shaft and applying a load to the output shaft with the clamp mechanism activated.</p>
<ul style="list-style-type: none"> <li>● <b>Maximum holding torque</b></li> </ul>	<p>Torque before the positional deviation occurs, with all parts mounted, while applying a load to the output shaft with the motor and the clamping mechanism activated.</p>
<ul style="list-style-type: none"> <li>● <b>Allowable workpiece inertia</b></li> </ul>	<p>Maximum value for inertia of object is attached to the fixture mounting face.</p>
<ul style="list-style-type: none"> <li>● <b>Allowable unbalanced load</b></li> </ul>	<p>Maximum value for offset of object attached to the fixture mounting face.  <math>U[\text{kg}\cdot\text{m}] = w[\text{kg}] \times L[\text{mm}] / 1000</math></p>
<ul style="list-style-type: none"> <li>● <b>Angle unit</b></li> </ul>	<p>1[°]=60[min]=3600[s]</p>
<ul style="list-style-type: none"> <li>● <b>Example of calculating</b></li> </ul>	<p>Q. When the indexing accuracy is 10 seconds, what is the error at the edge 100mm radius from the center of rotation?            A. <math>10[\text{s}] = 10/3600 \approx 0.0028[^\circ]</math>  <math>100[\text{mm}] \times \tan(0.0028^\circ) = 0.005[\text{mm}]</math>            When the rotation direction is displaced by 10 [s], the vertical deviation is 5 μm at the edge 100mm radius from the center of rotation.</p>

