New

Manual Robotic Hand Changer

Best Suitable to Collaborative Robot
Allows for Single-Setup by Hand

Model SXR
Robotic Hand Changer Series

Manual
Robotic Hand Changer
Model SXR

Manual Single-Setup Possible!
Robotic Hand Changer Best Suitable to Collaborative Robot

Best Suitable to Collaborative Robot

Single-Setup by Hand
Operation Description (Installation/Removal Method)

Push in the two pushers to install/remove a tool.

Set the tool.

Setup Completed
※ It becomes the locked state with built-in spring when releasing the pushers.
Model No. Indication : Changer Body

**SXRx 001 0 - T F4**

1. Payload
   - 001: Payload 0.5 ~ 1kg
   - 003: Payload 3 ~ 5kg

2. Design No.
   - 0: Revision Number

3. Category
   - M: Master Cylinder
   - T: Tool Adapter

4. Option
   - Blank: Standard
   - F4: Tool Side
     Applicable to Mounting Interface 4

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>SXRx0010</th>
<th>SXRx0030</th>
<th>SXRx0030 F4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payload</td>
<td>kg</td>
<td>0.5 ~ 1</td>
<td>3 ~ 5</td>
</tr>
<tr>
<td>Repeatability</td>
<td>mm</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Allowable Static Moment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bending</td>
<td>N·m</td>
<td>1.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Twisting</td>
<td>N·m</td>
<td>2.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Product Weight (Body Part)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master Cylinder</td>
<td>g</td>
<td>About 41</td>
<td>About 75</td>
</tr>
<tr>
<td>Tool Adapter</td>
<td>g</td>
<td>About 23</td>
<td>About 43</td>
</tr>
<tr>
<td>Conversion Plate</td>
<td>g</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pusher Pressing Force (Required Releasing Force)</td>
<td>N</td>
<td>Max. 15</td>
<td>About 20</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>°C</td>
<td>0 ~ 70</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. It shows the weight of Conversion Plate (SXRx0030-MF4) only.
2. Touching the product under high temperature causes a burn.
External Dimensions: SXR0010

- This drawing shows the released state of SXR0010.

Master Cylinder
SXR0010-M

- Release
- Pusher

4-\( \phi 3.4 \) Through Hole
Spot Facing \( \phi 6 \)
(from the back)

\( \phi 42 \)
\( \phi 16 \pm 0.09 \)
\( \phi 12 \)
\( \phi 36 \)

\( \phi 45 \)
\( \phi 16 \pm 0.09 \)

4-M3×0.5
Thread Depth 4

1-\( \phi 3\)\( \pm 0.05 \) Depth 3

Note:
- \( \#1 \): It becomes the locked state with internal spring force and the released state by pushing in the two pushers.
**External Dimensions : SXR0030**

This drawing shows the full stroke state of SXR0030.

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**Tool Adapter SXR0030-T**

Note:

1. It becomes the locked state with internal spring force and the released state by pushing in the two pushers.
External Dimensions: SXR0030-M+SXRZ0030-MF4 / SXR0030-TF4 (Applicable to Interface 4)

This drawing shows the full stroke state of SXR0030-M+SXRZ0030-MF4 / SXR0030-TF4.

Master Cylinder
SXR0030-M

Conversion Plate
SXRZ0030-MF4

Pusher 90°

Release

4-Φ6.8 Through Hole
Spot Facing 10.5
(from the back)

Φ63

Φ 31.5 80

5.5

35.1

35.1

25

25

Release

1-Φ6 0.05 Depth 6

1-Φ6 Parallel Pin (Included)

4-M6×1×10
Mounting Low Head Cap Screw (Included)

1-Φ5 Parallel Pin
(Included)

4-M5×0.8×14
Mounting Bolt (Included)

Dimension when Connected: 36

Notes:
1. It becomes the locked state with internal spring force and the released state by pushing in the two pushers.
2. Installation to a robot flange: mount SXRZ0030-MF4 (Conversion Plate) before mounting SXR0030-M (Master Cylinder).
 Compatibility List of Mechanical Interface

<table>
<thead>
<tr>
<th>Interface No.</th>
<th>Master Cylinder</th>
<th>Tool Adapter</th>
<th>Conversion Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SXR0010-M</td>
<td>SXR0030-M</td>
<td>SXR0010-T</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

 Collaborative Robot Installation Examples

[Images of collaborative robot installation examples]

Applicable Robot Model : COBOTTA (As of December 2019)

Able to mount directly to the robots corresponding to Robot Flange Interface 4.

Applicable Robot Models : UR3, UR3e, URS, URS5e, TMS (As of December 2019)
Standard Shape of Mechanical Interface

Notes:
1. Please refer to the following drawings and external dimensions of SXR when designing a conversion plate.
2. The drawings are for reference. Please design a conversion plate considering plate thickness, mounting direction, robot environment and others according to specifications and dimensions of each robot.

Mechanical Interface Number : 2

![Mechanical Interface Diagram 2]

Mechanical Interface Number : 4

![Mechanical Interface Diagram 4]
Cautions

Notes for Design

1) Check Specifications
   - Please use each product according to the specifications.
   - This product becomes locked state with internal spring force and released state by pushing in two pushers.
     (Please push in the pushers when locking from full stroke state.)

2) Combination of Master Cylinder and Tool Adapter
   - The combination of master cylinder and tool adapter should be as follows.

<table>
<thead>
<tr>
<th>Master Cylinder</th>
<th>Tool Adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SXR0010-M</td>
<td>SXR0010-T</td>
</tr>
<tr>
<td>SXR0030-M</td>
<td>SXR0030-T</td>
</tr>
</tbody>
</table>
<pre><code> |                | SXR0030-TF4  |
</code></pre>

3) Allowable Static Moment
   - The allowable static moment should be within the range of the bending moment and the twisting moment.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Bending Moment</th>
<th>Twisting Moment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SXR0010</td>
<td>1 N·m</td>
<td>2 N·m</td>
</tr>
<tr>
<td>SXR0030</td>
<td>6 N·m</td>
<td>8 N·m</td>
</tr>
</tbody>
</table>

   In case both the bending moment and the twisting moment are applied to the product, please calculate the combined moment with the following calculation formula.
   Also, please select the size sufficient for the moment.

   \[ \sqrt{\text{Combined Moment}} = (\text{Bending Moment}^2 + \text{Twisting Moment}^2) \]

4) Hand Change (Attaching and Detaching)
   - Connect the master cylinder and the tool adapter horizontally.
     Connecting with a tilt may cause a twist or a bite of the device.
     Clamping with a bite will increase the pusher pressing force required for releasing.

5) Hand Change (Attaching and Detaching) in a Horizontal Direction
   - In case of attaching/detaching the manual robotic hand changer horizontally, make sure not to apply excessive moment.
   Please select the size sufficient for the payload.

Installation Notes

1) Installation/Removal of Master Cylinder/Tool Adapter

   - Tighten the mounting bolt with the following torque.
     When mounting, use the locating pins and tighten them with bolts evenly not to incline the master cylinder and tool adapter.
     Moment characteristic will not be guaranteed without locating pins.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Bolt Size</th>
<th>Bolt Qty.</th>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Cylinder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SXR0010-M</td>
<td>M3×0.5</td>
<td>4</td>
<td>1.3 N·m</td>
</tr>
<tr>
<td>SXR0030-M</td>
<td>M5×0.8</td>
<td>4</td>
<td>6.3 N·m</td>
</tr>
<tr>
<td>Tool Adapter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SXR0010-T</td>
<td>M3×0.5</td>
<td>4</td>
<td>1.3 N·m</td>
</tr>
<tr>
<td>SXR0030-T</td>
<td>M5×0.8</td>
<td>4</td>
<td>6.3 N·m</td>
</tr>
<tr>
<td>SXR0030-TF4</td>
<td>M6×1</td>
<td>4</td>
<td>10 N·m</td>
</tr>
<tr>
<td>Conversion Plate</td>
<td>SXRZ0030-MF4</td>
<td>M6×1</td>
<td>5.3 N·m</td>
</tr>
</tbody>
</table>
● Notes on Handling

1) Be careful not to drop a tool when changing (attaching and detaching) the hand.
   ● Ensure that a fall prevention measure of a tool is in place before releasing the manual robotic hand changer. Otherwise it may cause damage to the tool or an accident.

2) It should be operated by qualified personnel.
   ● The product and devices should be operated and maintained by qualified personnel.

3) Do not operate or remove the product unless the safety protocols are ensured.
   ① The machine and equipment can only be inspected or prepared when it is confirmed that the preventive devices are in place.
   ② Before the product is removed, make sure that the above-mentioned safety devices are in place.
   ③ After stopping the product, do not remove until the temperature drops.
   ④ Make sure there is no abnormality in the bolts and respective parts before restarting the machine or equipment.

4) Do not disassemble or modify.
   ● If the product is taken apart or modified, the warranty will be voided even within the warranty period.

● Maintenance • Inspection

1) Removal of the Product and Shut-off of Pressure Source
   ● Before removing the product, make sure that safety devices and preventive devices are in place. Make sure there is no abnormality in the bolts and other respective parts before restarting.

2) Cleaning of Master Cylinder and Tool Adapter
   ● Use of the master cylinder/tool adapter when they are contaminated with dirt or viscous substances will cause locating accuracy failure and malfunction.

3) Regularly tighten mounting bolts to ensure proper use.

4) Make sure there is smooth action without an irregular noise.
   ● Especially when it is restarted after left unused for a long period, make sure it can be operated properly.

5) The product should be stored in the cool and dark place without direct sunshine or moisture.

6) Please contact us for overhaul and repair.

● Warranty

1) Warranty Period
   ● The product warranty period is 18 months from shipment from our factory or 12 months from initial use, whichever is earlier.

2) Warranty Scope
   ● If the product is damaged or malfunctioned during the warranty period due to a faulty design, materials or workmanship, we will replace or repair the defective part at our expense. Defects or failures caused by the following are not covered.

   ① If the stipulated maintenance and inspection are not carried out.
   ② If the product is used while it is not suitable for use based on the operator’s judgment, resulting in defect.
   ③ If it is used or handled in inappropriate way by the operator.
      (Including damage caused by the misconduct of the third party.)
   ④ If the defect is caused by reasons other than our responsibility.
   ⑤ If repair or modifications are carried out by anyone other than Kosmek, or without our approval and confirmation, it will void warranty.
   ⑥ Other caused by natural disasters or calamities not attributable to our company.
   ⑦ Parts or replacement expenses due to parts consumption and deterioration.
      (Such as rubber, plastic, seal material and some electric components.)

   Damages excluding from direct result of a product defect shall be excluded from the warranty.