Lifting Hole Clamp

Model SWJ

Lift Cylinder + Locating Pin + Hole Clamp

Lifts and locates the pallet, then clamps by expanding inside a hole of the pallet.

PAT.P.

Lifting Hole Clamp

Model SWJ

Three Functions in One Cylinder

Lift Cylinder • Locating Pin • Hole Clamp
Advantages of Lifting Hole Clamp

Arranging the lift cylinders / linear guides / locating pins in one fixture

- Takes time to design a complex fixture
- Increases the number of parts
- Increases the number of maintenance parts
- Requires large space
- Increases parts tolerance

Lifting Hole Clamp with the functions of the lift cylinders / linear guides / locating pins allows for

- Simple Design
- Minimal number of parts
- Reduced number of maintenance parts
- Minimal Space
- Minimal parts tolerance
Auto Switch

This product is able to detect the lifting action by using an auto switch (prepared by customer).

<table>
<thead>
<tr>
<th>Auto Switch Model No.</th>
<th>JEP0000-A2</th>
<th>JEP0000-A2L</th>
<th>JEP0000-B2</th>
<th>JEP0000-B2L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch Type</td>
<td>Reed Auto Switch</td>
<td>Solid State Auto Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring Method</td>
<td>2-Wire</td>
<td>3-Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Length</td>
<td>1m</td>
<td>1m</td>
<td>3m</td>
<td>3m</td>
</tr>
<tr>
<td>Specifications</td>
<td>Refer to P.406</td>
<td>Refer to P.407</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Electric Circuit Diagram</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**External Dimensions**

![Auto Switch Diagram](image)

**[Applicable Auto Switch]**

Refer to P.405 - P.414 for detailed specifications.
(When using an auto switch not made by Kosmek, check specifications of each manufacture.)

<table>
<thead>
<tr>
<th>Auto Switch Model No.</th>
<th>JEP0000-A2V</th>
<th>JEP0000-A2VL</th>
<th>JEP0000-B3</th>
<th>JEP0000-B3L</th>
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</thead>
<tbody>
<tr>
<td>Switch Type</td>
<td>Reed Auto Switch</td>
<td>Solid State Auto Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring Method</td>
<td>2-Wire</td>
<td>3-Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Length</td>
<td>1m</td>
<td>1m</td>
<td>3m</td>
<td>3m</td>
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<tr>
<td>Specifications</td>
<td>Refer to P.406</td>
<td>Refer to P.408</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Electric Circuit Diagram</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**External Dimensions**

![Auto Switch Diagram](image)
**Model No. Indication**

**SWJ 2000 - S10**

1. **Body Size**
   - 200 : 200

2. **Design No.**
   - 0 : Revision Number

3. **Tip Shape**
   - S10 : For φ10 Hole

**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>SWJ2000-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workpiece Hole Diameter</td>
<td>mm</td>
</tr>
<tr>
<td>Clamping Diameter</td>
<td>at Release</td>
</tr>
<tr>
<td></td>
<td>at Lock (w/o Workpiece)</td>
</tr>
<tr>
<td>Repeatability</td>
<td>mm</td>
</tr>
<tr>
<td>Pallet Pulling Stroke</td>
<td>mm</td>
</tr>
<tr>
<td>Lifting Stroke</td>
<td>mm</td>
</tr>
<tr>
<td>Lifting Force (at Extend)</td>
<td>N</td>
</tr>
<tr>
<td>Lifting Force (at 0.5MPa after operation)</td>
<td>N</td>
</tr>
<tr>
<td>Cylinder Capacity</td>
<td>Release Side</td>
</tr>
<tr>
<td></td>
<td>Lock Side</td>
</tr>
<tr>
<td>Maximum Operating Pressure</td>
<td>MPa</td>
</tr>
<tr>
<td>Minimum Releasing Pressure</td>
<td>MPa</td>
</tr>
<tr>
<td>Withstanding Pressure</td>
<td>MPa</td>
</tr>
<tr>
<td>Usable Fluid</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Performance Curve**

Notes:
1. The gripping force shows the expanding force that holds the workpiece hole acting perpendicular to the clamp’s center axis. The clamping force shows the pressing force against the seating surface.
2. The performance curve (of Gripping Force and Clamping Force) shows the calculated value.
3. Each gripping force and clamping force varies according to workpiece material and roughness/lubricated condition of workpiece hole. Make sure to conduct test clamping and adjust supply pressure accordingly.
**External Dimensions: SWJ2000-S10 (for φ 10 Hole)**

This drawing shows the external dimensions of SWJ2000-S10.

**Notes:**
1. This drawing shows the dimensions when the mounting plate is 15mm.
2. Do not disassemble or modify. Contains a powerful spring which is dangerous.
3. Adjust the operating speed so that no impact applies on the pallet when lifting up.
   ※1. ※1 shows the seating height from the product mounting surface when locked (lifted up).
<table>
<thead>
<tr>
<th>Features</th>
<th>Action Description</th>
<th>Auto Switch</th>
<th>Model No. Indication</th>
<th>Specifications Performance Curve</th>
<th>External Dimensions</th>
<th>Cautions</th>
</tr>
</thead>
</table>

**Locating**

- Clamp

**Support**

**Valve • Coupler**

**Cautions • Others**

- Pallet Gripper
  - WVA
  - Locating Pin Clamp
    - SWP
  - High-Power
    - Pull Stud Clamp
      - WPT
      - JES
  - FA Pneumatic Hole Clamp
    - WHK

**Lifting Hole Clamp**

- SWJ
  - Ball Lock Cylinder
    - WKA
  - Pneumatic Robotic Hands
    - WFW-C
    - WPS-C
    - WPA
    - WPH
    - WPF
    - WFQ
  - Auto Switch Proximity Switch
    - JEP
  - High Power Pneumatic Hole Clamp
    - SWE
  - High Power Pneumatic Swing Clamp
    - WHE
  - High Power Pneumatic Link Clamp
    - WCE
  - Pneumatic Hole Clamp
    - SWA
  - Pneumatic Swing Clamp
    - WHA
  - Double Piston Pneumatic Swing Clamp
    - WHD
  - Pneumatic Link Clamp
    - WCA
  - Air Flow Control Valve
    - BZW
  - Manifold Block
    - WHZ-MD
C. Cautions

1. Notes for Design
   1) Check Specifications
      (Specifications for custom made model may be different.)
      - Maximum operating pressure is 0.5MPa. Minimum releasing pressure is 0.25MPa.
      - This product locks and releases with air pressure. (Air double action)
      - Release Action : Goes down with the gripper retracted.
      - Lock Action : Lifts the pallet up and clamps the workpiece hole.

2) Reference Surface (Seating Surface) towards Z-axis
   - This product has the seating surface for workpiece and locates in Z direction after lifting up (Refer to P.308).

3) Thickness around Workpiece Hole
   - Workpiece hole that is extremely thin or made of soft material could be deformed by clamping action, and repeatability, gripping force and clamping force does not fill the specification.
   - Make sure to conduct test clamping and adjust supply air pressure accordingly.
   - Insufficient gripping force and clamping force lead to locating failure and/or workpiece detachment.

4) Installation of the Product
   - When using more than two of these products, the center distance accuracy of each clamp installation and each workpiece hole should be better than ±0.02mm.

5) Gripping Force and Clamping Force
   - Gripping force is the expanding force that holds the workpiece hole acting perpendicular to the clamp's center axis.
   - Clamping force is the pressing force against the seating surface.
   - Each gripping force and clamping force varies according to workpiece material and roughness/lubricated condition of workpiece hole. Make sure to conduct test clamping and adjust supply pressure accordingly.
   - Insufficient gripping force and clamping force lead to locating failure and/or workpiece detachment.

6) Speed Adjustment
   - Adjust the operating speed so that no impact applies on the pallet when lifting up.

7) Pallet Holding Position
   - Variance of holding position while pallet loading should be less than the allowable misalignment shown below.

\[
\text{Allowable Misalignment} = \frac{\text{Min. Workpiece Hole Diam.} - \text{Guide Tip Diam.}}{2}
\]

(See 'External Dimensions' for the guide tip diameter.)

8) Do not apply excessive load or impact on the product when lifted.
   - Otherwise, it will cause malfunction, accuracy failure and/or damage on the internal parts.

9) Workpiece hole size should be within the range of the specification.
   - When workpiece hole diameter is larger than specification.
   - Leads to falling of the pallet.

10) All clamps must be fully released before loading and unloading a pallet.
    - When a pallet is loaded and unloaded during lock or release operation, it will lead to damage of clamp or fall of pallet.

11) For Use of Auto Switch
    - This product is able to detect the lifting up/down action by installing an auto switch to the installation slots.
    - When using an auto switch not made by Kosmek, check specifications of each manufacturer.

    Applicable Auto Switch
    - JEP Series (Kosmek)
      - Refer to the instruction manual of JEP for detailed specifications.
    - Magnetic Field Resistant Model : D-P3DWA (Made by SMC)

    The detection part (magnet) of the auto switch of SWJ operates according to the internal piston movement, so it does not detect the gripper movement directly.

12) Fall Prevention Measures
    - In case of accident such as detachment of a pallet, please prepare fall prevention measures for safety.
13) Operating Environment
- This product has no function that prevents contaminants. Do not use under environment with coolant and cutting chips.

![Diagram of operating environment]

- Installation Notes
  1) Usable Fluid
  - Please supply filtered clean dry compressed air.
  - Install the drain removing device such as an aftercooler and air dryer, etc.
  - Since the initial lubricant is applied, oil supply with a lubricator etc. is unnecessary. If oil is supplied with a lubricator, the product ability decreases and the operation may be unstable due to the loss of the initial lubricant.

  2) Preparation for Piping
  - The pipeline, piping connector and fixture circuits should be cleaned and flushed thoroughly.
  - Cutting chips in the circuit may lead to fluid leakage and malfunction. (There is no filter provided with this product for prevention of contaminants in the air circuit.)

  3) Applying Sealing Tape
  - When using sealing tape, wrap it with 1 to 2 times following the screwing direction.
  - When piping, be careful that contaminants such as sealing tape do not enter in products. Pieces of the sealing tape can cause air leaks and malfunction.

  4) Product Installation
  - Please use four hexagonal socket bolts (with tensile strength of A2-70 or greater), and tighten the product with the tightening torque shown below.
  - Tightening with greater torque than recommended can damage the thread, dent the seating surface and/or seize the bolt.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Bolt Size</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWJ2000</td>
<td>M4 × 0.7</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>M5 × 0.8</td>
<td>5.0</td>
</tr>
</tbody>
</table>

  5) Port Position
  - The name of each port is marked on the flange surface.
  - Be careful with the mounting direction of piping.
  (LOCK : Air Lock Port, RELEASE : Air Release Port)
Cautions

- Notes on Handling

1) It should be operated by qualified personnel.
- The hydraulic machine and air compressor should be operated and maintained by qualified personnel.

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

3) Do not touch a pallet or a clamp while they are operating.
   - Otherwise, your hands may be injured.

4) During pallet transfer, make sure the safety of environment in case of a pallet detachment.

5) Do not disassemble or modify.
   - Built-in spring is very strong and can be dangerous.
   - If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.
**Maintenance and Inspection**

1) **Removal of the Product and Shut-off of Pressure Source**
- Before removing the product, make sure that the safety devices are in place. Shut off pressure and power sources and make sure no pressure exists in hydraulic and air circuits.
- Make sure there is no trouble/issue in the bolts and respective parts before restarting.

2) **Regularly clean the clamping part and the seating surface.**
- Using the product contaminated with dirt may lead to damage of the product or detachment of a workpiece due to lack of gripping force/clamping force, malfunctioning, accuracy failure and air leaks, etc.

![Diagram of clamping parts](image)

If there is malfunction even after cleaning the product from outside, there may be contaminants or damage within internal parts. In this case, overhaul is required. Please call us for overhaul. If overhauled by unauthorized personnel, the warranty will be void even the period is still active.

3) **Regularly tighten pipe, mounting bolt and others to ensure proper use.**

4) **Expansion stroke and/or clamping force will be decreased due to friction of a gripper surface caused by repeated operation.**
- Replacement period differs depending on operating air pressure, pallet material, and shape of hole.
  - When you find friction on gripper surface, the gripper needs to be replaced. Please contact us for replacement.

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

6) **The products should be stored in the cool and dark place without direct sunshine or moisture.**

7) **Please contact us for overhaul and repair.**

   *Built-in spring is very strong and can be dangerous.*

---

*Please refer to P.716 for common cautions.* • Warranty
### Model No. Indication

**JEP 000 0 - A1L**

1. **Design No.**
   - **0**: Revision Number

2. **Switch Type**
   - A1: 2-Wire Reed Auto Switch
   - A2: 2-Wire Reed Auto Switch
   - A2V: 2-Wire L-Shaped Reed Auto Switch
   - B1: 3-Wire Solid State Auto Switch
   - B2: 3-Wire Solid State Auto Switch
   - B3: 3-Wire L-Shaped Solid State Auto Switch
   - P: 3-Wire Proximity Switch for Gripping Detection (Length 32mm)
   - P2: 3-Wire Proximity Switch for Gripping Detection (Length 16mm)

3. **Electric Cable Length**
   - **Blank**: 1m
   - **L**: 3m

### Application Table

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>2-Wire Reed Auto Switch</th>
<th>3-Wire Solid State Auto Switch</th>
<th>3-Wire Proximity Switch for Gripping Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model No.</strong></td>
<td>JEP0000-A1</td>
<td>JEP0000-A2</td>
<td>JEP0000-B1</td>
</tr>
<tr>
<td>SWJ2000</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>SWP050</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>SWP100</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WKH2000</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPA0120</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPA0160</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPA0200</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPA0250</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPH0100</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPH0160</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPH0200</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPS0160-C</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPS0200-C</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>WPSW0500-C</td>
<td>●</td>
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<td>●</td>
</tr>
<tr>
<td>WPW0600-C</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

*Note: 3. Electric Cable Length is chosen only for A□/B□ Auto Switch of 2 Switch Type. For P□: Proximity Switch for Gripping Detection, electric cable length is all 2m.*
**JEP0000-A (2-Wire Reed Auto Switch)**

**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JEP0000-A1</th>
<th>JEP0000-A1L</th>
<th>JEP0000-A2</th>
<th>JEP0000-A2L</th>
<th>JEP0000-A2V</th>
<th>JEP0000-A2VL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Reed Auto Switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring Type</td>
<td>2-Wire</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable Load</td>
<td>Relay, Programmable Logic Controller (PLC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Voltage / Load Current</td>
<td>Less than DC24V / 40mA</td>
<td>Less than AC100V / 20mA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Voltage Drop</td>
<td>Less than 3V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Time</td>
<td>1ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-10 ~ 70°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withstand Voltage</td>
<td>AC1500V (There should be no abnormalities in 1 min. application.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leakage Current</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>30G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection Circuit</td>
<td>None</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection Grade</td>
<td>IP67 (IEC Standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator Light</td>
<td>Red LED illuminates when turned ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric Cable Length</td>
<td>1m</td>
<td>3m</td>
<td>1m</td>
<td>3m</td>
<td>1m</td>
<td>3m</td>
</tr>
</tbody>
</table>

**Electric Circuit Diagram**

Note:
1. Auto switch will instantly break due to over loading current if turning on the auto switches without connecting the load. (Refer to Notes on Wiring 4) and 5) on P.413.)

**External Dimensions : JEP0000-A1**

![External Dimensions: JEP0000-A1](image)

**External Dimensions : JEP0000-A2**

![External Dimensions: JEP0000-A2](image)

**External Dimensions : JEP0000-A2V**

![External Dimensions: JEP0000-A2V](image)
JEP0000-B□ (3-Wire Solid State Auto Switch)

Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JEP0000-B1</th>
<th>JEP0000-B1L</th>
<th>JEP0000-B2</th>
<th>JEP0000-B2L</th>
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</thead>
<tbody>
<tr>
<td>Name</td>
<td>Solid State Auto Switch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wiring Type</td>
<td>3-Wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable Load</td>
<td>Relay, Programmable Logic Controller (PLC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Type</td>
<td>NPN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Voltage / Load Current</td>
<td>Less than DC10 ~ 24V / 100mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Voltage Drop</td>
<td>Less than 0.7V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Time</td>
<td>1ms</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ambient Temperature</td>
<td>-10 ~ 70°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Withstand Voltage</td>
<td>AC2000V (There should be no abnormalities in 1 min. application.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leakage Current</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>30G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection Grade</td>
<td>IP67 (IEC Standard)</td>
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<td></td>
</tr>
<tr>
<td>Indicator Light</td>
<td>Red LED illuminates when turned ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electric Cable Length</td>
<td>1m 3m 1m 3m</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electric Circuit Diagram

External Dimensions : JEP0000-B1□

External Dimensions : JEP0000-B2□
### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JEP0000-B3</th>
<th>JEP0000-B3L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Solid State Auto Switch</td>
<td></td>
</tr>
<tr>
<td>Wiring Type</td>
<td>3-Wire</td>
<td></td>
</tr>
<tr>
<td>Applicable Load</td>
<td>Relay, Programmable Logic Controller (PLC)</td>
<td></td>
</tr>
<tr>
<td>Output Type</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>Load Voltage / Load Current</td>
<td>Less than DC5 ~ 28V / 0.1 ~ 40mA</td>
<td></td>
</tr>
<tr>
<td>Internal Voltage Drop</td>
<td>Max. 0.5V</td>
<td></td>
</tr>
<tr>
<td>Leakage Current</td>
<td>Max. 50 μA (DC24V)</td>
<td></td>
</tr>
<tr>
<td>Current Consumption</td>
<td>Max. 10 mA</td>
<td></td>
</tr>
<tr>
<td>Response Time</td>
<td>Max. 1 ms</td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>0 ~ 60°C</td>
<td></td>
</tr>
<tr>
<td>Withstand Voltage</td>
<td>AC1500V (There should be no abnormalities in 1 min. application.)</td>
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<tr>
<td>Insulation Resistance</td>
<td>More than 100MΩ / DC500V (Between the Case and Signal Cable)</td>
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<tr>
<td>Shock Resistance</td>
<td>30G</td>
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<tr>
<td>Protection Grade</td>
<td>IP67 (IEC Standard)</td>
<td></td>
</tr>
<tr>
<td>Indicator Light</td>
<td>Red LED illuminates when turned ON</td>
<td></td>
</tr>
<tr>
<td>Electric Cable Length</td>
<td>1m</td>
<td>3m</td>
</tr>
</tbody>
</table>

### Electric Circuit Diagram

![Electric Circuit Diagram](image)

### External Dimensions : JEP0000-B3

![External Dimensions](image)
**JEP0000-P□ (3-Wire Proximity Switch for Gripping Detection)**

### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>JEP0000-P</th>
<th>JEP0000-P2</th>
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<tbody>
<tr>
<td>Name</td>
<td>Proximity Switch for Gripping Detection</td>
<td></td>
</tr>
<tr>
<td>Wiring Type</td>
<td>3-Wire</td>
<td></td>
</tr>
<tr>
<td>Output Type</td>
<td>NPN</td>
<td></td>
</tr>
<tr>
<td>Moving Distance</td>
<td>1.5 ±0.15mm</td>
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</tr>
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<td>Voltage Range</td>
<td>DC10 ~ 30V</td>
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<tr>
<td>Opening / Closing Voltage</td>
<td>Less than 200mA</td>
<td></td>
</tr>
<tr>
<td>Current Consumption</td>
<td>Less than 10mA</td>
<td></td>
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<tr>
<td>Response Frequency</td>
<td>800Hz</td>
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<tr>
<td>Ambient Temperature</td>
<td>-25 ~ 70°C</td>
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<tr>
<td>Withstand Voltage</td>
<td>AC2000V (There should be no abnormalities in 1 min. application.)</td>
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<tr>
<td>Protection Grade</td>
<td>IP67 (IEC Standard)</td>
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</tr>
<tr>
<td>Indicator Light</td>
<td>Red LED illuminates when turned ON</td>
<td></td>
</tr>
<tr>
<td>Electric Cable Length</td>
<td>2m</td>
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</tr>
</tbody>
</table>

### Electric Circuit Diagram

![Diagram](image)

### External Dimensions : JEP0000-P

![Dimension Diagram](image)

### External Dimensions : JEP0000-P2

![Dimension Diagram](image)
## MEMO

### Pallet Gripper
- WVA

### Locating
- Pin Clamp
  - SWP

### High-Power
- Pull Stud Clamp
  - WPT
  - JES

### FA Pneumatic
- Hole Clamp
  - WKH

### Lifting
- Hole Clamp
  - SWJ

### Ball Lock Cylinder
- WKA

### Pneumatic Robotic Hands
- WFW-C
- WPS-C
- WPA
- WPH
- WPP
- WPQ

### Auto Switch

#### Proximity Switch
- JEP
  - High-Power Pneumatic
    - Hole Clamp
      - SWE
  - High-Power Pneumatic
    - Swing Clamp
      - WHE
  - High-Power Pneumatic
    - Link Clamp
      - WCE
  - Pneumatic
    - Hole Clamp
      - SWA
  - Pneumatic
    - Swing Clamp
      - WHA
  - Double Piston
    - Pneumatic
      - Swing Clamp
      - WHD
  - Pneumatic
    - Link Clamp
      - WCA
  - Air Flow
    - Control Valve
      - BZW
  - Manifold Block
    - WHZ-MD
**Cautions**

**Notes for Design**

1) Check the Specifications

- Please use each product according to the specifications. The product may be damaged or malfunction if used outside the range of load or specifications.

2) Notes on Use in the Interlock Circuit

- When the auto switch is used for an interlock signal that requires high reliability, please use a double interlock system by providing a mechanical protection function. Or by using another switch (sensor) together with the auto switch. Also, please perform periodic maintenance and confirm proper operation.

3) Wiring should be prepared as short as possible.

- For the reed auto switch, if the wiring length to the load is longer, inrush current to the auto switch increases and the life span will be shortened. (Remains ON)

- If the wiring length of the solid state auto switch is long, we recommend installing the ferrite core on both ends of the electric cable for noise control.

4) Please avoid using loads that generate surge voltage.

- If driving loads that generate surge voltage such as relay, please use the auto switch equipped with junction protective circuit or install protective box.

- If surge voltage is repeatedly applied to the auto switch even with the Zener Diode for surge protection, it may damage the contact. When directly driving loads generating surge voltage, such as solenoid valves, use the auto switch equipped with surge absorption element.

- The magnet switch is equipped with surge absorption element. However, please provide an absorption element, such as varistor, if there is large surge-generating equipment.

Example: Motors or welding machines.

5) Leakage Current

- In case of 2-wire solid state auto switch, the leakage current that activates internal circuit of the auto switch may flow even in OFF state. If the load operating current (the controller is in OFF state) does not satisfy the specified leakage current, it may result in restoration defect (remains ON state).

- If it does not satisfy the specifications, please use 3-wire auto switch. Also, n parallel connections will multiply leakage current flowing to the load by n times.

6) Internal Voltage Drop of the Auto Switch

- Due to voltage drop (refer to internal voltage drop on the specifications) caused by internal resistance of LED, voltage drop of n auto switches connected in series will be multiplied by n times.

- As a result, in some cases the load will not activate even if the auto switch drives properly.

7) When wiring is disconnected, or when forcibly activating the auto switch for action confirmation, carefully design the circuit to avoid reverse current.

- The auto switch may malfunction or be damaged when reverse current occurs.

8) When multiple cylinders or robotic hands are placed close together.

- Please provide enough space when using multiple actuators such as cylinders or robotic hands equipped with auto switches. (If allowable distance of each actuator is specified please follow specified instructions.) If they are too close, auto switches may malfunction due to magnetic interference.

9) Secure space for maintenance and inspection

- Please secure space for maintenance and inspection of auto switches when setting actuators such as cylinders and robotic hands equipped with auto switches.
Notes on Operating Environment

1) Never use the product in an atmosphere with explosive gases.
2) Do not use the product in an area where a magnetic field is generated.
3) Do not use the product in an environment where the auto switches are continuously exposed to water or coolant.
4) Do not use the product in an environment with oil or chemicals.
5) Do not use the product in an environment subject to large temperature cycle.
6) Avoid accumulation of steel dust and close connection of magnetic materials.
7) Do not use the product in an environment with excessive impact.

Installation Notes

1) Do not drop or bump.
2) Tighten auto switches with appropriate tightening torque.
3) Do not carry cylinders or robotic hands by holding the electric cable of the auto switch.
4) Do not fix auto switches with the mounting screws other than attached in main body of the auto switches.
5) Install the auto switches at the center of the operating area.
6) Installation position of the auto switches should be adjusted by checking actual operating state.

<table>
<thead>
<tr>
<th>Mounting Screw Size</th>
<th>Tightening Torque (N·m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2 × 0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>M2.5 × 0.45</td>
<td>0.25</td>
</tr>
<tr>
<td>M3 × 0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Cautions

Notes on Wiring

1) Check the insulation of wiring.
- Insulation failure (interference with other circuit, ground fault, and insulation failure between terminals) may send excessive voltage or current to the auto switches causing damage.

2) Do not place wires and auto switch cables close to other cables and high voltage cables.
- Otherwise, surge voltages will be induced creating noise and leading to malfunctions.

3) Repeated bending stress or stretching force should be avoided on electric cables.
- Wiring with bending stress or stretching force repeatedly applied on electric cables will prematurely breakdown.
  - Bending stress or stretching force applied on the connecting area of electric cables and main body of the auto switches will damage the electric cables.
  - Auto switches or wires should not be moving especially near the connecting areas.

4) Make sure to check the load state (connection and current value) before turning on the power.
- For 2-Wire Type
  - Auto switches will instantly break due to over loading current if turning on the auto switches without connecting the load (Shorted Load Circuit). The above statement is also applied to the condition when the brown cable (+, output) of 2-wire type is directly connected to the (+) power terminal of a fixture and etc.

5) Avoid shorted load circuit.
- Reed Auto Switch
  - Auto switches will instantly break due to over loading current if turning on the auto switch in load short circuit condition.
- Solid State Auto Switch
  - Be aware of auto switch breakages when products with PNP output is not equipped with short-circuit protection.

6) Avoid wrong wiring
- Reed Auto Switch
  - The electric circuit has polarities. The brown cable is “+” , and the blue cable is “−” . The reed switch can operate even with reversed connection, but LED light will not illuminate.
  - Also, flowing excessive current will damage LED and it will not operate properly.
- Solid State Auto Switch
  - In case of 2-wire type, even if connected reversely, the auto switch will not be damaged due to protection circuit, but it is always ON.
  - If reversely connected under short circuit condition, the auto switch will be damaged.
  - In case of 3-wire type, even if the connections are reversed (power supply line “+” and “−” ), the auto switch will be protected by a protection circuit.
  - However, if connecting the power supply “+” to the blue cable and “−” to the black cable, the auto switch will be damaged.

Notes on Handling

1) It should be operated by qualified personnel.
- Machines and devices with hydraulic and pneumatic equipment should be operated and maintained by qualified personnel.

2) Do not operate or remove the product unless the safety protocols are ensured.
- The machine and equipment can only be inspected or prepared when it is confirmed that the safety devices are in place.
- Before the product is removed, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
- After stopping the product, do not remove until the temperature drops.
- Make sure there is no trouble/issue in the bolts and respective parts before restarting the machine or equipment.

3) Do not disassemble or modify.
- If the equipment is taken apart or modified, the warranty will be voided even within the warranty period.
● Maintenance • Inspection

Conduct the below maintenances and inspections periodically in order to avoid unintended malfunctions and to ensure the safety.

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. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
● Make sure there is no trouble/issue in the bolts and respective parts before restarting.

2) Never touch terminals while the power is on.
● It will cause electric shock, malfunction and damage to the auto switches.

3) Retightening of Mounting Screws
● Retighten the screws after adjusting the mounting position when the mounting position of the auto switches is shifted due to the looseness of the mounting screws.

4) Check if the electric cable is damaged or not.
● Damaged cables may cause insulation failure. Exchange the auto switch or repair the reed if there is damage on the electric cable.

5) Check the setting position of the detector.
● Confirm the set position is stopped at the center of the detecting range (the area that red LED illuminates).

6) Cleaning Auto Switches
● The auto switch should be clean. Do not use benzene, paint thinner or alcohol for cleaning. Doing so will cause scratches on the product and indications may be erased. If it is hard to remove stains from the product, wipe it out with a cloth soaked in a neutral detergent diluted with water. Wipe with a dry cloth to remove wet residue.

7) Product Storage
● Keep the product out of direct sunlight in a cool area where it is protected from water and humidity.

8) Please contact us for auto switch replacements.

※ Please refer to P.716 for common cautions.
Cautions

Notes on Handling

1) It should be operated by qualified personnel.
   ● The hydraulic machine and air compressor should be operated and maintained by qualified personnel.

2) 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 safety devices are in place.
   ② Before the product is removed, make sure that the above-mentioned safety devices are in place. Shut off the pressure and power source, and make sure no pressure exists in the air and hydraulic circuits.
   ③ After stopping the product, do not remove until the temperature drops.
   ④ Make sure there is no trouble/issue in the bolts and respective parts before restarting the machine or equipment.

3) Do not touch a clamp (cylinder) while it is working. Otherwise, your hands may be injured.

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

Maintenance and Inspection

1) Removal of the Machine and Shut-off of Pressure Source
   ● Before removing the product, make sure that the safety devices are in place. Shut off the pressure and power source and make sure no pressure exists in the air and hydraulic circuits.
   ● Make sure there is no trouble/issue in the bolts and respective parts before restarting.

2) Regularly clean the area around the piston rod and plunger.
   ● If it is used when the surface is contaminated with dirt, it may lead to packing seal damage, malfunctioning, fluid leakage.

   ● Locating products (except VRA/VRC/VX/VXE/XXF and SWR without air blow port) can remove contaminants with the cleaning function. When installing a workpiece or a pallet, make sure there are no contaminants such as thick sludge.
   ● Continuous use with dirt on components will lead to locating failure, fluid leakage and malfunction.

4) Regularly tighten pipe, mounting bolt, nut, snap ring, cylinder and others to ensure proper use.

5) Make sure the hydraulic fluid has not deteriorated.

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

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

8) 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 malfunctions during the warranty period due to 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. Failure caused by the use of the non-confirming state at the user’s discretion.
3. If it is used or operated in an 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.
## Sales Offices

### Sales Offices across the World

<table>
<thead>
<tr>
<th>Country</th>
<th>Address/Office</th>
<th>TEL.</th>
<th>FAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAPAN</td>
<td>HEAD OFFICE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overseas Sales</td>
<td>KOSMEK LTD. 1-5, 2-chome, Murotani, Nishi-ku, Kobe-city, Hyogo, Japan 651-2241</td>
<td>+81-78-991-5162</td>
<td>+81-78-991-8787</td>
</tr>
<tr>
<td>United States of America</td>
<td>KOSMEK (USA) LTD. 650 Springer Drive, Lombard, IL 60148 USA</td>
<td>+1-630-620-7650</td>
<td>+1-630-620-9015</td>
</tr>
<tr>
<td>MEXICO</td>
<td>REPRESENTATIVE OFFICE</td>
<td></td>
<td></td>
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<tr>
<td>KOSMEK USA Mexico Office</td>
<td>Av. Santa Fe #103 int 59 Col, Santa Fe Juriquilla C.P. 76230 Queretaro, Qro Mexico</td>
<td>+52-442-161-2347</td>
<td></td>
</tr>
<tr>
<td>EUROPE</td>
<td>SUBSIDIARY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KOSMEK EUROPE GmbH</td>
<td>Schleppenplatz 2 9020 Klagenfurt am Wörthersee Austria</td>
<td>+43-463-287587-20</td>
<td>+43-463-287587-20</td>
</tr>
<tr>
<td>CHINA</td>
<td>KOSMEK (CHINA) LTD.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>考世美(上海)贸易有限公司</td>
<td>Room601, RIVERSIDE PYRAMID No.55, Lane21, Pusan Rd, Pudong Shanghai 200125, China</td>
<td>+86-21-54253000</td>
<td>+86-21-54253709</td>
</tr>
<tr>
<td>INDIA</td>
<td>BRANCH OFFICE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KOSMEK LTD - INDIA</td>
<td>F 203, Level-2, First Floor, Prestige Center Point, Cunningham Road, Bangalore -560052 India</td>
<td>+91-9880561695</td>
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</tr>
<tr>
<td>THAILAND</td>
<td>REPRESENTATIVE OFFICE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KOSMEK Thailand Representation Office</td>
<td>67 Soi 58, RAMA 9 Rd., Suanluang, Suanluang, Bangkok 10250, Thailand</td>
<td>+66-2-300-5132</td>
<td>+66-2-300-5133</td>
</tr>
<tr>
<td>TAIWAN</td>
<td>(Taiwan Exclusive Distributor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Life Trading Co., Ltd.</td>
<td>16F-4, No.2, Jian Ba Rd, Zhonghe District, New Taipei City Taiwan 23511</td>
<td>+886-2-82261860</td>
<td>+886-2-82261890</td>
</tr>
<tr>
<td>PHILIPPINES</td>
<td>(Philippines Exclusive Distributor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.E.T. Inc, Phil.</td>
<td>Victoria Wave Special Economic Zone Mt. Apo Building, Brgy. 186, North Caloocan City, Metro Manila, Philippines 1427</td>
<td>+63-2-310-7286</td>
<td>+63-2-310-7286</td>
</tr>
<tr>
<td>INDONESIA</td>
<td>(Indonesia Exclusive Distributor)</td>
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## Sales Offices in Japan

### Head Office

<table>
<thead>
<tr>
<th>Address/Office</th>
<th>TEL.</th>
<th>FAX.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osaka Sales Office</td>
<td>078-991-5162</td>
<td>078-991-8787</td>
</tr>
<tr>
<td>Overseas Sales</td>
<td></td>
<td></td>
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<tr>
<td>Tokyo Sales Office</td>
<td>048-652-8839</td>
<td>048-652-8828</td>
</tr>
<tr>
<td>Nagoya Sales Office</td>
<td>0566-74-8778</td>
<td>0566-74-8808</td>
</tr>
<tr>
<td>Fukuoka Sales Office</td>
<td>092-433-0424</td>
<td>092-433-0426</td>
</tr>
</tbody>
</table>

### Notes

- Overseas Affiliates and Sales Offices
- Distributors
- Asia Detailed Map

For further information on unlisted specifications and sizes, please call us.

Specifications in this catalog are subject to change without notice.