Valve Manifold Integrated with Ejector System

Compact All-in-One Manifold

The devices have been integrated into one for applications in which an actuator and vacuum suction are used together.

Compatible Protocol
EtherCAT

Material handling

- Metal workpiece with holes and complicated shape
  - Magnet gripper + Vacuum pad, etc.
- Small robot
  - Air gripper + Vacuum pad, etc.
- Pick and place
  - Slide table + Vacuum pad, etc.

Small box making process

- Cartoner
  - Cylinder + Vacuum pad, etc.

JSY1000-E Series

CAT.ES11-119A
Wiring/Piping Saving through Use of All-in-One Manifold
The devices for control of actuators and vacuum suction are integrated into one to reduce the wiring and piping.

Vacuum Generation (5-port valve/Ejector)

- **New** 4-position 5-port
  - 2-position single
  - 2-position double
  - 3-position closed center
  p. 12

- **New** Spacer Type Ejector
  - Selectable
  - With check valve, With silencer,
    With ø6 One-touch fitting
  (With ejector exhaust port)
  p. 17

Suction Verification (Pressure sensor)

- **New** Manifold base with built-in pressure sensor
  p. 38

Actuator Drive (5-port valve)

- 2-position single
- 2-position double
- 3-position
- 4-position dual 3-port

Control Signal Communication (Input/Output Unit)

- Integrated dedicated SI Unit (For Input/Output)
  p. 38

Related Product

Protection of valve/ejector and improved ease of maintenance

In-line Air Filter ZFC Series

More information can be viewed here.
The devices for control of actuators and vacuum suction are integrated into one to reduce the installation area and weight.

**Installation area**  
64% reduction  
JSY1000-E: 18,587 mm², Existing model: 51,287 mm²  

**Weight**  
42% reduction  
JSY1000-E: 1,100 g, Existing model: 1,883 g

Conditions for comparison
For 4-station ejector and 8-station solenoid valve manifold  
Each of the conventional products consists of a set of components that fulfill the functions of a single all-in-one manifold.  
* Excludes wiring and piping

[Image]
through Use of All-in-One Manifold

JSY1000-E Series

Valve manifold (12 stations)

[Component]

- Ejector x 4 pcs. (With silencer)
- Pressure sensor x 4 pcs.
- Check valve x 4 pcs.
- Union tee x 8 pcs.

Input unit x 1 pc. (Commercially available)
Energy Saving Function

Reduces air consumption at the time of vacuum generation in spacer type ejectors by combining the ejector with a check valve and built-in pressure sensor

**CO₂ emissions (Air consumption)**

90% reduction *1

*1 Based on SMC’s measurement conditions

**Energy saving function ON**

Air is supplied and exhausted intermittently when the vacuum decreases.

**Energy saving function OFF**

Air is supplied and exhausted continuously during the adsorption of the workpiece.

---

**Target ejector models**

JSY11M-EP-3VA-S

JSY11M-EP-4VA-S

*2 Specifications of supply valves of selectable ejectors

N.C.: 3-position closed center

N.O.: 4-position 5-port valve *3

*3 However, as the operation switches to N.C. operation at the time of vacuum release, the ejector will not operate.

(With supply valves including conventional N.O. three-port valve, vacuum is generated with no energization at the time of vacuum release to consume air.)

---

**Valve Protection**

If the supply valve reaches the set number of operations while the energy-saving function is in use, the energy-saving function automatically turns OFF and switches to continuous adsorption to prevent excessive valve operation.
New Pilot Air Control Unit

A single-station unit, in which a dedicated manifold block and a 3-port valve are combined, has the following features:

- Enables restriction of the valve operation
  - In the event of emergency stop or in other occasions, the product discharges the pilot pressure in the manifold to disable the electrical signal from switching the valve.

- Contributes to fast recovery at the time of restoration
  - As the valve cannot be switched due to the operation restriction, it is possible to immediately return to the state from before the emergency stop (for two-position single and double).

- Enables remote monitoring of the restriction status of valve operation
  - The dedicated manifold block is incorporated with a pressure sensor.
  - It is possible to confirm the supply and discharge of pilot pressure via the network.

- Allows selection and mixed mounting of valves subject to operation restrictions on the same manifold
  - Valves subject to operation restriction: valves with external pilot specifications
  - Valves not subject to operation restriction: valves with internal pilot specifications

The pilot air control unit supplies/discharges pilot air only to/from the valve with external pilot specifications among valves mounted on the manifold. By discharging the pilot air at the time of emergency stop or in other cases, it prevents operations via electrical signals and manual operations from being made and maintains the valve switching state*. The pilot air control unit is also incorporated with a pressure sensor, enabling monitoring of the pilot air supply status.

* However, when a 3-position and 4-position 5-port valve is energized, the valve switches to the neutral position by means of the return spring.

Circuit Example

The pilot air control unit supplies/discharges pilot air only to/from the valve with external pilot specifications among valves mounted on the manifold. By discharging the pilot air at the time of emergency stop or in other cases, it prevents operations via electrical signals and manual operations from being made and maintains the valve switching state*. The pilot air control unit is also incorporated with a pressure sensor, enabling monitoring of the pilot air supply status.

* However, when a 3-position and 4-position 5-port valve is energized, the valve switches to the neutral position by means of the return spring.
Spacer Type Ejector

Combination of a newly-developed spacer type ejector and a solenoid valve, makes it possible to selectively use ejectors in accordance with the application.

**Spacer Type Ejector/Solenoid Valve [Variations/Combinations]**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solenoid valve used</td>
<td>4-position 5-port supply pressure vacuum release</td>
<td>4-position 5-port atmospheric pressure vacuum release</td>
<td>3-position closed center</td>
</tr>
<tr>
<td>Symbol</td>
<td>(A)4 2(B) (EA)5 1-3(EB) (P)</td>
<td>(A)5 2(B) (EA)5 1-3(EB) (P)</td>
<td>(A)4 2(B) (EA)5 1-3(EB) (P)</td>
</tr>
</tbody>
</table>

**New 4-Position 5-Port Valve**

Combination with spacer type ejector can achieve the following:

- **Air-saving and stable workpiece holding, and positive workpiece release with only a single station.**
  - Vacuum suction and vacuum holding is achieved through energy saving control by the dedicated SI Unit.
  - It is possible to select supply pressure type or atmospheric pressure type for the vacuum release air supply.
- **In an emergency stop state, positive workpiece holding and release is possible.**
  - Supply valve operation with Normally Open (N.O.) specification
  - Atmospheric release takes place when the vacuum release air supply stops (standby).

**Emergency stop at the time of suction (A on)**

Prevents the sudden dropping of workpieces

At the time of non-conductance due to emergency stop, the mode switches to vacuum generation due to the N.O. specification to retain the workpiece suction.

**Releasing of workpiece at the time of vacuum release (B on)**

Prevents dropping or blowing away of workpiece

With a supply pressure vacuum release type, the built-in restrictor restricts the vacuum release air flow to stably release the workpiece.

**Emergency stop at the time of vacuum release (B on ➔ B off)**

Prevents holding of workpiece

Even when the mode has been switched to the vacuum release air stop, due to the spring return in the event of emergency stop, the workpiece is positively released because atmospheric release takes place.

**Energy saving function**

When the vacuum pressure reaches the set pressure, this function stops the ejector and retains the vacuum state, thus contributing to reduction of air consumption by the ejector.

**Vacuum release air control**

With the supply pressure vacuum release type, it is possible to switch the vacuum release air supply between the supply pressure and atmospheric pressure (atmospheric release).
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### Optimum Actuation Size Chart of Air Cylinder

**For JSY1000, A, B port: ø4**

<table>
<thead>
<tr>
<th>Series</th>
<th>Pressure: 0.5 MPa</th>
<th>Load ratio: 50%</th>
<th>Stroke: 60 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>Pressure: 0.5 MPa</th>
<th>Load ratio: 50%</th>
<th>Stroke: 300 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>Pressure: 0.5 MPa</th>
<th>Load ratio: 50%</th>
<th>Stroke: 500 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Values at extension of a directly coupled cylinder when meter-out speed controllers are used with the needle full open.
- The average speed of the cylinder is obtained by dividing the stroke by the total stroke time.
- Formula for load ratio: Load ratio = (Load mass x 9.8)/Theoretical output x 100%
- Cylinder for horizontal use are based on the coefficient of rolling friction 0.1.
- Operating piston speed is different depending on the applicable cylinder. Refer to the cylinder catalog for details.
Optimum Actuation Size Chart of Air Cylinder

For JSY1000, A, B port: ø6

Average speed [mm/s] 0 100 200 300 400 500 600 700 800

**CJ2 series**
Pressure: 0.5 MPa
Load ratio: 50%
Stroke: 60 mm

- ø6
- ø10
- ø16

**CM2 series**
Pressure: 0.5 MPa
Load ratio: 50%
Stroke: 300 mm

- ø20
- ø25
- ø32
- ø40

**CA2 series**
Pressure: 0.5 MPa
Load ratio: 50%
Stroke: 500 mm

- ø50
- ø63
- ø80
- ø100

---

* Values at extension of a directly coupled cylinder when meter-out speed controllers are used with the needle full open.
* The average speed of the cylinder is obtained by dividing the stroke by the total stroke time.
* Formula for load ratio: Load ratio = ((Load mass x 9.8)/Theoretical output) x 100%
* Cylinder for horizontal use are based on the coefficient of rolling friction 0.1.
* Operating piston speed is different depending on the applicable cylinder. Refer to the cylinder catalog for details.
## JSY1000-E Series

### Common Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal pilot operating pressure range (MPa)</td>
<td>0.15 to 0.7 (0.6)(^1)</td>
</tr>
<tr>
<td>2-position single</td>
<td>0.15 to 0.7 (0.6)(^1)</td>
</tr>
<tr>
<td>2-position double</td>
<td>0.2 to 0.7 (0.6)(^1)</td>
</tr>
<tr>
<td>3-position</td>
<td>0.15 to 0.7</td>
</tr>
<tr>
<td>4-position dual 3-port</td>
<td>0.2 to 0.6(^2)</td>
</tr>
<tr>
<td>4-position 5-port</td>
<td>0.25 to 0.7</td>
</tr>
<tr>
<td>2-position 3-port</td>
<td>–100 kPa to 0.7 (0.1 to 0.6)(^{4})</td>
</tr>
</tbody>
</table>

### External pilot operating pressure range (MPa)

<table>
<thead>
<tr>
<th>Pilot pressure range</th>
<th>2-position single</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-position double</td>
<td>0.25 to 0.7</td>
</tr>
<tr>
<td>3-position</td>
<td>–100 kPa to 0.7</td>
</tr>
<tr>
<td>4-position 5-port</td>
<td>–100 kPa to 0.7</td>
</tr>
</tbody>
</table>

### Fluids

- **Air**
- **Internal pilot operating pressure range (MPa)**
  - 2-position single: 0.15 to 0.7 (0.6)\(^1\)
  - 2-position double: 0.15 to 0.7 (0.6)\(^1\)
  - 3-position: 0.2 to 0.7 (0.6)\(^1\)
  - 4-position dual 3-port: 0.15 to 0.7
  - 4-position 5-port: 0.2 to 0.6\(^2\)
  - 2-position 3-port: 0.25 to 0.7
  - Operating pressure range: –100 kPa to 0.7 (0.1 to 0.6)\(^{4}\)

### External pilot operating pressure range (MPa)

<table>
<thead>
<tr>
<th>Pilot pressure range</th>
<th>2-position single</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-position double</td>
<td>0.25 to 0.7</td>
</tr>
<tr>
<td>3-position</td>
<td>–100 kPa to 0.7</td>
</tr>
<tr>
<td>4-position 5-port</td>
<td>–100 kPa to 0.7</td>
</tr>
</tbody>
</table>

### Ambient and fluid temperatures (°C)

- –5 to 50 (No freezing)

### Lubrication

- Not required

### Mounting orientation

- Unrestricted

### Impact/Vibration resistance (m/s\(^2\))

- 150/30

### Enclosure

- IP40

---

\(^1\) The values in the parentheses indicate the maximum operating pressures when the spacer type ejector is mounted.

\(^2\) The 4-position 5-port valve is dedicated for mounting on the spacer type ejector.

\(^3\) External pilot specification is not applicable for 4-position dual 3-port valves and 2-position 3-port valves.

\(^4\) The values in the parentheses indicate the operating pressures range when the spacer type ejector is mounted.

\(^5\) Impact resistance: No malfunction occurred when tested in the axial direction and at a right angle to the main valve and armature in both an energized and a de-energized state, once in each condition. (Value in the initial state)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz in the axial direction and at a right angle to the main valve and armature in both an energized and a de-energized state, once in each condition. (Value in the initial state)
JSY1000-E Series
Valve Specifications

Valve Specifications

<table>
<thead>
<tr>
<th>Valve type</th>
<th>Rubber seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating frequency [Hz]</td>
<td></td>
</tr>
<tr>
<td>2-position single</td>
<td></td>
</tr>
<tr>
<td>2-position double</td>
<td></td>
</tr>
<tr>
<td>4-position dual 3-port</td>
<td></td>
</tr>
<tr>
<td>2-position 3-port</td>
<td></td>
</tr>
<tr>
<td>3-position</td>
<td></td>
</tr>
<tr>
<td>4-position 5-port</td>
<td></td>
</tr>
<tr>
<td>Manual override</td>
<td></td>
</tr>
<tr>
<td>Non-locking push type</td>
<td></td>
</tr>
<tr>
<td>Push-turn locking slotted type</td>
<td></td>
</tr>
<tr>
<td>Pilot exhaust type</td>
<td></td>
</tr>
<tr>
<td>Internal pilot</td>
<td></td>
</tr>
<tr>
<td>External pilot</td>
<td></td>
</tr>
<tr>
<td>Coil rated voltage [DC]</td>
<td>24 V</td>
</tr>
<tr>
<td>Allowable voltage fluctuation [V]</td>
<td>±10% of the rated voltage</td>
</tr>
<tr>
<td>Power consumption [W]</td>
<td></td>
</tr>
<tr>
<td>With power-saving circuit</td>
<td>0.2*1 [Inrush 0.5, Holding 0.2]</td>
</tr>
<tr>
<td>Surge voltage suppressor</td>
<td></td>
</tr>
<tr>
<td>Indicator light</td>
<td>Diode</td>
</tr>
</tbody>
</table>

*1 The JSY1000 series is only available as the power-saving type. Standard type (without power-saving circuit) cannot be selected.

Response Time

<table>
<thead>
<tr>
<th>Series</th>
<th>Model</th>
<th>Type of actuation</th>
<th>Response time [ms]*1</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY1000</td>
<td>JSY1100</td>
<td>2-position single</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>JSY1200</td>
<td>2-position double</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>JSY13/4/500</td>
<td>3-position</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>JSY1A/B/C00</td>
<td>4-position dual 3-port</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>JSY1E/P00</td>
<td>4-position 5-port</td>
<td>A on: 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A off: 37</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B on: 11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B off: 2</td>
</tr>
<tr>
<td></td>
<td>JSY110-B</td>
<td>2-position 3-port</td>
<td>18</td>
</tr>
</tbody>
</table>

*1 Based on the dynamic performance test, JIS B 8419-2010 (Coil temperature: 20°C, at rated voltage)

Valve Weight

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Type of actuation</th>
<th>Weight [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY1□□□□</td>
<td>Single</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Double</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>3-port</td>
<td>24</td>
</tr>
<tr>
<td>3-position</td>
<td>Closed center</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Exhaust center</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pressure center</td>
<td></td>
</tr>
<tr>
<td>4-position</td>
<td>Dual 3-port</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>5-port</td>
<td>30</td>
</tr>
</tbody>
</table>
JSY1000-E Series
Valve Construction

Rubber Seal

2-position single

2-position double

3-position closed center/exhaust center/pressure center

4-position dual 3-port

3-position closed center

3-position exhaust center

3-position pressure center

4-position dual 3-port

N.C. x 2 pcs.

N.O. x 2 pcs.

N.C., N.O. x 1 pc. of each
Rubber Seal

2-position 3-port

4-position 5-port

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Aluminum die-casted</td>
</tr>
<tr>
<td>2</td>
<td>Spool valve</td>
<td>Aluminum/HNBR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4-position dual 3-port valve: Resin/HNBR)</td>
</tr>
<tr>
<td>3</td>
<td>Piston</td>
<td>Resin</td>
</tr>
<tr>
<td>4</td>
<td>Pilot valve assembly</td>
<td>—</td>
</tr>
</tbody>
</table>

* The pilot valve of the JSY1000 cannot be removed. This is irreparable.
**JSY1000-E Series**

Valve Manifold Integrated with Ejector System

**Plug-in Connector Connecting Base**

### Manifold Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Serial wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX260 dedicated to valve manifold integrated with ejector system</td>
<td></td>
</tr>
</tbody>
</table>

- **Model type**: Plug-in connector connecting base, Side ported
- **SUP/EXH port type**: Common SUP/EXH (Common for the 3/5 port)
- **Valve stations**: 2 to 24 stations
- **Internal wiring**: Negative common
- **Built-in pressure sensor**: 1 to 5 units
- **Port size**:
  - 1(P), 3/5(E) port
  - ø8 One-touch fitting
  - 4(A), 2(B) port
  - ø2 One-touch fitting, ø4 One-touch fitting, ø6 One-touch fitting

### Manifold Weight

<table>
<thead>
<tr>
<th>Model</th>
<th>Per station</th>
<th>Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY1000</td>
<td>21.3</td>
<td>448</td>
</tr>
<tr>
<td></td>
<td>26.9</td>
<td></td>
</tr>
</tbody>
</table>

**Formula for manifold weight[^1]**

\[
W = 1 \times n1 + 2 \quad (n1: \text{stations})
\]

[^1]: Weight: "W" is the value for the internal pilot specification, the max. fitting size, and the manifold only. The valve weight is not included. To calculate the weight of a product mounted with valves, add the weight of the valves on stations based on the valve weights on page 12, and to calculate the weight of a product mounted with spacer type ejectors, add the weight of spacer type ejectors on stations based on the spacer type ejector weights on page 17.

### Manifold Flow Rate Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Port size</th>
<th>Valve flow rate characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1, 3/5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(P, E)</td>
<td>1 → 4/2 (P → A/B)</td>
</tr>
<tr>
<td></td>
<td>(A, B)</td>
<td>4/2 → 3/5 (A/B → E)</td>
</tr>
<tr>
<td>JJ5SY1-E10</td>
<td>C8</td>
<td>C [dm³/(s·bar)] b C [dm³/(s·bar)] b</td>
</tr>
<tr>
<td></td>
<td>C4</td>
<td>0.63 0.46 0.87 0.47</td>
</tr>
<tr>
<td></td>
<td>C6</td>
<td>0.96 0.30 0.91 0.48</td>
</tr>
</tbody>
</table>

### Pilot Air Control Unit

The pilot air control unit supplies/discharges pilot air only to/from the valve with external pilot specifications among valves mounted on the manifold. By discharging the pilot air at the time of emergency stop or in other cases, it prevents operations via electrical signals and manual operations from being made and maintains the valve switching state[^1]. The pilot air control unit is also incorporated with a pressure sensor, enabling monitoring of the pilot air supply status.

[^1]: However, when a 3-position and 4-position 5-port valve is energized, the valve switches to the neutral position by means of the return spring.

---

[^1]: Weight: "W" is the value for the internal pilot specification, the max. fitting size, and the manifold only. The valve weight is not included. To calculate the weight of a product mounted with valves, add the weight of the valves on stations based on the valve weights on page 12, and to calculate the weight of a product mounted with spacer type ejectors, add the weight of spacer type ejectors on stations based on the spacer type ejector weights on page 17.

**Formula for manifold weight[^1]**

\[
W = 1 \times n1 + 2 \quad (n1: \text{stations})
\]

However, when a 3-position and 4-position 5-port valve is energized, the valve switches to the neutral position by means of the return spring.
Connector Wiring Layout

Additional valves are sequentially assigned pins on the serial unit. This makes it completely unnecessary to disassemble the connector unit.

The built-in pressure sensor as well, assign sensor signals to the serial unit side in order in the same manner. When a manifold block not equipped with a pressure sensor is present, connect the sensor signal wiring to the subsequent manifold block as is. The wiring of the pilot air control unit is single wiring even with the double wiring specifications.

- For all double wiring with pilot air control unit (Manifold specification sheet is not necessary.)

- Single solenoid valve is installed to all double wiring. (Manifold specification sheet is not necessary.)

- When single wiring and double wiring are mixed, and the pressure sensor layout is specified (Manifold specification sheet is necessary.)

* These diagrams are for the purpose of explanation, and differ from the actual connector wiring.
JSY1000-E Series
Spacer Type Ejector

Ejector Specifications\(^{1, 2}\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal nozzle size [mm]</th>
<th>Supply pressure range [MPa]</th>
<th>Achievable vacuum pressure [kPa]</th>
<th>Max. suction flow [L/min (ANR)]</th>
<th>Air consumption [L/min (ANR)]</th>
<th>Noise level(^{3, 4}) [dB(A)]</th>
<th>Max. number of manifold stations that can operate simultaneously [units](^{5})</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY11M-EP-A-07S</td>
<td>0.7</td>
<td>0.1 to 0.6</td>
<td>−90</td>
<td>11.5</td>
<td>27</td>
<td>68</td>
<td>8</td>
</tr>
<tr>
<td>JSY11M-EP-A-10S</td>
<td>1.0</td>
<td></td>
<td>-</td>
<td>21</td>
<td>52</td>
<td>80</td>
<td>2</td>
</tr>
</tbody>
</table>

\(^{1}\) The values indicating characteristics are representative values and may vary depending on the atmospheric pressure (weather, altitude, etc.).

\(^{2}\) Supply pressure: 0.45 MPa

\(^{3}\) Actual values under SMC’s measurement conditions (Not guaranteed values)

\(^{4}\) This is a value obtained with a single ejector performing vacuum suction in the silencer air discharge system.

\(^{5}\) This is the maximum number of stations that can simultaneously operate when vacuum is simultaneously generated by the ejectors only (excluding the solenoid valve for actuator). When a solenoid valve for actuator and a spacer type ejector are mounted on the same manifold, simultaneously operating them may affect each other and degrade their performances. As a countermeasure against this problem, by using a single SUP spacer (mountable only on the solenoid valve for actuator) and a SUP blocking disk, separate air supply to those components (refer to page 35).

Ejector Weight

<table>
<thead>
<tr>
<th>Spacing type Ejector model</th>
<th>Exhaust type</th>
<th>Weight [g]</th>
</tr>
</thead>
</table>

Supply Valve/Release Valve Flow Rate Characteristics

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Port size</th>
<th>Valve flow rate characteristics</th>
<th>Passage</th>
<th>C [dm³/(s·bar)]</th>
<th>b</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY1150</td>
<td>1, 3/5</td>
<td>(P, E)</td>
<td>C8</td>
<td>0.98</td>
<td>0.30</td>
</tr>
<tr>
<td>JSY1200</td>
<td>1</td>
<td>4/2 (P → A/B)</td>
<td></td>
<td>0.91</td>
<td>0.48</td>
</tr>
<tr>
<td>JSY1300</td>
<td>1</td>
<td>4/2 (P → A/B)</td>
<td></td>
<td>0.64</td>
<td>0.37</td>
</tr>
<tr>
<td>JSY1E00</td>
<td>1</td>
<td>4/2 (P → A/B)</td>
<td></td>
<td>0.66</td>
<td>0.46</td>
</tr>
<tr>
<td>JSY1P00</td>
<td>1</td>
<td>3 (P → A)</td>
<td></td>
<td>0.57</td>
<td>0.31</td>
</tr>
<tr>
<td>JSY1150</td>
<td>1</td>
<td>3 (P → A)</td>
<td></td>
<td>0.78</td>
<td>0.20</td>
</tr>
<tr>
<td>JSY1200</td>
<td>1</td>
<td>4/2 (P → A)</td>
<td></td>
<td>0.57</td>
<td>0.31</td>
</tr>
<tr>
<td>JSY1300</td>
<td>1</td>
<td>2 (P → B)</td>
<td></td>
<td>0.15</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Exhaust Characteristics/Flow Rate Characteristics (Representative value)


07 Specification: Exhaust Characteristics

07 Specification: Flow Rate Characteristics


10 Specification: Exhaust Characteristics

10 Specification: Flow Rate Characteristics
Construction

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Resin</td>
</tr>
<tr>
<td>2</td>
<td>Nozzle</td>
<td>Resin</td>
</tr>
<tr>
<td>3</td>
<td>Diffuser</td>
<td>Resin</td>
</tr>
<tr>
<td>4</td>
<td>Check valve</td>
<td>HNBR</td>
</tr>
<tr>
<td>5</td>
<td>Silencer</td>
<td>Resin</td>
</tr>
<tr>
<td>6</td>
<td>Clip</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>7</td>
<td>Base gasket</td>
<td>HNBR</td>
</tr>
</tbody>
</table>

Circuit Diagrams

**JSY11M-EP-1A-S**

2-position single

Supply valve [N.C.] specification ejector

**JSY11M-EP-2A-S**

2-position single

Supply valve [N.O.] specification ejector

**JSY11M-EP-3A-S**

3-position closed center

Supply valve [N.C.]/Release valve [N.C.] specification ejector

**JSY11M-EP-3VA-S**

3-position closed center

Supply valve [N.C.]/Release valve [N.C.] specification ejector
With check valve

**JSY11M-EP-4VA-S**

4-position 5-port

Supply valve [N.O.]/Release valve [N.C.] specification ejector
With check valve
### Atmospheric Pressure Vacuum Release Specification 4-Position 5-Port Valve/Spacer Type Ejector Operation Diagrams

<table>
<thead>
<tr>
<th>Step</th>
<th>Pilot valve</th>
<th>Operation status</th>
<th>Description</th>
<th>Air circuit diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOL.a: ON</td>
<td>Vacuum generation</td>
<td>When electric power to the pilot valve A is turned ON in the standby state (B side is OFF) and then OFF, compressed air is supplied to the ejector and vacuum pressure is generated. As the generated vacuum pressure is supplied to the vacuum pad, the workpiece is suctioned, and it is possible to monitor the vacuum pad pressure value by means of the built-in pressure sensor.</td>
<td><img src="image1" alt="Air circuit diagram for Step 1" /></td>
</tr>
<tr>
<td>2</td>
<td>SOL.a: ON</td>
<td>Vacuum holding (Energy saving)</td>
<td>After the workpiece is suctioned, when the vacuum pressure value in the vacuum pad exceeds the set threshold value, the control circuit of the SI Unit turns ON the power supply to the pilot valve A and stops the operation of the ejector. While the vacuum pressure in the vacuum pad is retained as the check valve seals the pressure, if the vacuum pressure drops to the set threshold value due to air leakage from the vacuum pad or for other reason, the control circuit of the SI Unit turns OFF the power supply to the pilot valve A and the ejector generates vacuum pressure again to retain the vacuum pressure necessary for suctioning. Repetition of the above actions can reduce wasteful air consumption. If the power supply is shut off due to power failure or for other reason, the power supply to the pilot valve A is turned OFF and the ejector generates vacuum pressure to prevent the workpiece from falling.</td>
<td><img src="image2" alt="Air circuit diagram for Step 2" /></td>
</tr>
<tr>
<td>3</td>
<td>SOL.b: ON</td>
<td>Vacuum release (Atmospheric pressure)</td>
<td>When the power supply to the pilot valve B is turned ON, atmospheric air (manifold exhaust port) is supplied to the vacuum pad to release the workpiece. Vacuum release by atmospheric pressure allows workpieces to be released without scattering.</td>
<td><img src="image3" alt="Air circuit diagram for Step 3" /></td>
</tr>
<tr>
<td>4</td>
<td>SOL.b: OFF</td>
<td>Vacuum release stop Atmospheric release (Standby)</td>
<td>After the workpiece is released, turning OFF the power supply to the pilot valve B stops vacuum release. As atmospheric pressure is supplied to the vacuum pad even in this state, in case where the workpiece is left suctioned because of insufficient vacuum release time or other reasons, it is possible to release the workpiece.</td>
<td><img src="image4" alt="Air circuit diagram for Step 4" /></td>
</tr>
</tbody>
</table>
### Vacuum Release Specification 4-Position 5-Port Valve/Spacer Type Ejector Operation Diagrams

<table>
<thead>
<tr>
<th>Step</th>
<th>Pilot valve</th>
<th>Operation status</th>
<th>Description</th>
<th>Air circuit diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOL.a: ON</td>
<td>Vacuum generation</td>
<td>When electric power to the pilot valve A is turned ON in the standby state (B side is OFF) and then OFF, compressed air is supplied to the ejector and vacuum pressure is generated. As the generated vacuum pressure is supplied to the vacuum pad, the workpiece is suctioned, and it is possible to monitor the vacuum pad pressure value by means of the built-in pressure sensor.</td>
<td><img src="chart1.png" alt="Air circuit diagram" /></td>
</tr>
<tr>
<td>2</td>
<td>SOL.a: ON</td>
<td>Vacuum holding (Energy saving)</td>
<td>After the workpiece is suctioned, when the vacuum pressure value in the vacuum pad exceeds the set threshold value, the control circuit of the SI Unit turns ON the power supply to the pilot valve A and stops the operation of the ejector. While the vacuum pressure in the vacuum pad is retained as the check valve seals the pressure, if the vacuum pressure drops to the set threshold value due to air leakage from the vacuum pad or for other reason, the control circuit of the SI Unit turns OFF the power supply to the pilot valve A and the ejector generates the vacuum pressure again to retain the vacuum pressure necessary for suctioning. Repetition of the above actions can reduce wasteful air consumption. If the power supply is shut off due to power failure or for other reason, the power supply to the pilot valve A is turned OFF and the ejector generates vacuum pressure to prevent the workpiece from falling.</td>
<td><img src="chart2.png" alt="Air circuit diagram" /></td>
</tr>
<tr>
<td>3</td>
<td>SOL.b: ON</td>
<td>Vacuum release (Supply pressure)</td>
<td>When the power supply to the pilot valve B is turned ON, compressed air is supplied to the vacuum pad to release the workpiece. Narrowing the main valve opening through which vacuum release air passes (equivalent to ø1.3 orifice) restricts the flow rate and reduces the blow away of the workpiece. If the power supply is shut off due to power failure or for other reason, the power supply to the pilot valve B is turned OFF and the vacuum release air supply is stopped.</td>
<td><img src="chart3.png" alt="Air circuit diagram" /></td>
</tr>
<tr>
<td>4</td>
<td>SOL.b: OFF</td>
<td>Atmospheric release (Standby)</td>
<td>After the workpiece is released, turning OFF the power supply to the pilot valve B stops vacuum release. As atmospheric pressure is supplied to the vacuum pad in this state, in case where the workpiece is left suctioned because of insufficient vacuum release time or other reasons, it is possible to release the workpiece.</td>
<td><img src="chart4.png" alt="Air circuit diagram" /></td>
</tr>
</tbody>
</table>
Valve Manifold Integrated with Ejector System

**Plug-in Connector Connecting Base**

**JSY1000-E Series**

**Type 10 Side Ported**

**Internal Pilot**

**How to Order Manifolds**

**Identification symbol for valve manifold integrated with ejector system**

```
JJ5SY 1-E 10 S DN - 05 D - 5 AX - C4
```

1. **Series**
   - 1: JSY1000

2. **Type**
   - 10: Side ported

3. **P, E port entry**
   - Symbol: P, E port entry
     - U: U side (2 to 10 stations)
     - D: D side (2 to 10 stations)
     - B: Both sides (2 to 24 stations)

4. **SI Unit**
   - Symbol: SI unit
     - 0: Without SI Unit
     - DN: EtherCAT M8: 2 pcs., M8: 2 pcs.

5. **SUP/EXH block assembly**
   - Symbol: SUP/EXH block assembly
     - Nil: Internal pilot
     - S: Internal pilot, Built-in silencer

6. **Number of pressure sensors**
   - Symbol: Number of pressure sensors
     - Stations
     - 1: 1 station
     - 2: 2 stations
     - 5: 5 stations

7. **Pilot air control - block with built-in pressure sensor / pressure detection port**
   - Symbol: Pressure detection port
     - A port (B port: Plug)
     - B port (A port: Plug)
     - X port

8. **A, B port size (Metric/One-touch fitting)**
   - Symbol: A, B port
     - C2: ø2 Straight
     - C4: ø4 Straight
     - C6: ø6 Straight
     - CM: Straight port, mixed sizes

9. **Valve stations**
   - Symbol: Valve stations
     - 02: 2 stations
     - 12: 12 stations
     - 24: 24 stations

10. **A/B port pressurization**
    - Symbol: A/B port pressurization
      - D: DIN rail mounting
      - Nil: Direct mounting

11. **DIN rail option**
    - Symbol: DIN rail
      - 0: Without
      - 3: For 3 stations
      - 24: For 24 stations

12. **Valve station specifications**
    - Note: Double wiring
    - Specified layout
    - Up to 24 solenoids available

- 1- With a 2-position 5-port valve, the A port flow rate decreases by approximately 9%.
- 2- Only one unit (first station) can be mounted on one manifold. For SUP/EXH block assembly specifications, select the internal pilot specifications. The wiring specification is single wiring only.
- 3- To specify position, select mixing specifications (symbol M) and use Manifold Specifications Sheet.
- 4- The block incorporated with an A or B port pressure sensor is mounted at the position closest to the U side. To specify its position, please specify it by means of the manifold specification sheet.
- 5- To specify the A and B port sensor specifications along with the pilot air control specifications, enter "AX" or "BX."
How to Order Valves (With mounting screw)

**JSY1000 Series**

<table>
<thead>
<tr>
<th>1</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>JSY1000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Type of actuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-position Single</td>
</tr>
<tr>
<td>2</td>
<td>2-position Double</td>
</tr>
<tr>
<td>3</td>
<td>3-position Closed center</td>
</tr>
<tr>
<td>4</td>
<td>3-position Exhaust center</td>
</tr>
<tr>
<td>5</td>
<td>3-position Pressure center</td>
</tr>
<tr>
<td>6</td>
<td>4-position dual 3-port N.C./N.O.</td>
</tr>
<tr>
<td>7</td>
<td>4-position dual 3-port N.O./N.O.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Pilot type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Internal pilot</td>
</tr>
<tr>
<td>R</td>
<td>External pilot</td>
</tr>
</tbody>
</table>

- Select the external pilot specifications for a valve that is controlled by the pilot air control unit.
- For other valves or when there is no pilot air control unit, select the internal pilot.
- External pilot specification is not applicable for 4-position dual 3-port valves.

<table>
<thead>
<tr>
<th>5</th>
<th>Rated voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>24 VDC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Light/surge voltage suppressor and common specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
<td>With light</td>
</tr>
<tr>
<td>NZ</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>Manual override</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil:</td>
<td>Non-locking push type</td>
</tr>
<tr>
<td>D:</td>
<td>Push-turn locking slotted type</td>
</tr>
</tbody>
</table>

- When ordering a valve individually, the base gasket is not included.
  Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to page 30 for base gasket and mounting screw part numbers.

**Pilot Air Control Unit**

**2-Position 3-Port Valve**

<table>
<thead>
<tr>
<th>1</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>JSY1000 Base mounted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Type of actuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N.C./Single solenoid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Pilot type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Internal pilot</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Rated voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>24 VDC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Light/surge voltage suppressor and common specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
<td>With light</td>
</tr>
<tr>
<td>NZ</td>
<td>●</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>Manual override</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil:</td>
<td>Non-locking push type</td>
</tr>
<tr>
<td>D:</td>
<td>Push-turn locking slotted type</td>
</tr>
</tbody>
</table>

- When ordering a valve individually, the base gasket is not included.
  Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to page 30 for base gasket and mounting screw part numbers.

- The 2-position 3-port valve is for the pilot air control unit.
  Be sure to use it by mounting it on a manifold block for pilot air control.
**JSY1000-E Series**

**How to Order Spacer Type Ejector (With mounting screw)**

**Spacer Type Ejector**

<table>
<thead>
<tr>
<th>Optional specifications</th>
<th>JSY11M-EP-3V A-07 S C6</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Spacer type ejector</td>
</tr>
</tbody>
</table>

**Achievable vacuum pressure**

| S            | −90 kPa                  |

**Exhaust type**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Exhaust type</th>
<th>Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Silencer</td>
<td>Without</td>
</tr>
<tr>
<td>C6</td>
<td>ø6 One-touch fitting</td>
<td>—</td>
</tr>
</tbody>
</table>

**Body type and check valve for vacuum holding**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Body type</th>
<th>Check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supply valve (N.C.)</td>
<td>Without</td>
</tr>
<tr>
<td>2</td>
<td>Supply valve (N.O.)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Supply valve (N.C.)/Release valve (N.C.)</td>
<td>With</td>
</tr>
<tr>
<td>4V</td>
<td>Supply valve (N.O.)/Release valve (N.C.)</td>
<td></td>
</tr>
</tbody>
</table>

* For details on combinations of the ejector with energy saving function and supply valve/release valve, refer to the "Ejector Energy Saving Function Compatible Model and Combinations" section below.

**Nominal nozzle size**

| 07 | ø0.7 |
| 10 | ø1.0 |

**Ejector Supply Valve/Release Valve**

**(Mounting of spacer type ejector is recommended)**

<table>
<thead>
<tr>
<th>JSY1000 Series</th>
<th>JSY1 P00 T-5NZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>JSY100</td>
</tr>
<tr>
<td>Pilot type</td>
<td>Internal pilot</td>
</tr>
<tr>
<td>R</td>
<td>External pilot</td>
</tr>
</tbody>
</table>

* Select the external pilot specifications for a valve that is controlled by the pilot air control unit.

For other valves or when there is no pilot air control unit, select the internal pilot.

<table>
<thead>
<tr>
<th>Light/surge voltage suppressor and common specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
</tr>
<tr>
<td>NZ</td>
</tr>
</tbody>
</table>

**Type of actuation**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type of actuation</th>
<th>Applicable ejector body type symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2-position Single</td>
<td>1, 2</td>
</tr>
<tr>
<td>2</td>
<td>2-position Double</td>
<td>1, 2</td>
</tr>
<tr>
<td>3</td>
<td>3-position Closed center</td>
<td>3, 3 V</td>
</tr>
<tr>
<td>E</td>
<td>4-position 5-port</td>
<td>4 V</td>
</tr>
</tbody>
</table>

| P      | Supply pressure vacuum release  | 4 V                                 |

* The 4-position 5-port valve is dedicated as a supply/release valve on the spacer type ejector. Therefore, do not use it for other usages.

* For details on combinations of the ejector with energy saving function and supply valve/release valve, refer to the "Ejector Energy Saving Function Compatible Model and Combinations" section below.

**Manifold**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>With light</th>
<th>Surge voltage suppressor</th>
<th>Common specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>●</td>
<td>●</td>
<td>Negative common</td>
</tr>
</tbody>
</table>

**Rated voltage**

| 5     | 24 VDC     |

**Manual override**

| Nil: Non-locking push type |
| D: Push-turn locking slotted type |

* When ordering a valve individually, the base gasket is not included.

Since the base gasket is attached to the ejector, please order the base gasket separately if it is needed for maintenance. Refer to page 30 for base gasket and mounting screw part numbers.

**Ejector Energy Saving Function Compatible Model and Combinations**

<table>
<thead>
<tr>
<th>Supply valve specifications</th>
<th>N.C.</th>
<th>N.O.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacuum release pressure specifications</td>
<td>Supply pressure</td>
<td>Atmospheric pressure</td>
</tr>
<tr>
<td>Supply valve/release valve model</td>
<td>JSY1300T</td>
<td>JSY1E00T</td>
</tr>
<tr>
<td>Spacer type ejector model</td>
<td>JSY11M-EP-3VA-□□</td>
<td>JSY11M-EP-4VA-□□</td>
</tr>
<tr>
<td>Manifold</td>
<td>Built-in pressure sensor</td>
<td></td>
</tr>
</tbody>
</table>
How to Order Manifold Assembly

Example (JJ5SY1-E10SDN-□)

<table>
<thead>
<tr>
<th>Valve Operation</th>
<th>Diagrams</th>
<th>Spacer Type</th>
<th>Ejector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply valve</td>
<td></td>
<td>JSY1100RT-5NZ (1 set)</td>
<td>JSY11M-EP-1A-07S (1 set)</td>
</tr>
<tr>
<td>Supply/Release valve [N.C.]</td>
<td></td>
<td>JSY1300T-5NZ (1 set)</td>
<td>JSY1300T-5NZ (1 set)</td>
</tr>
<tr>
<td>Supply/Release valve [N.C.]</td>
<td></td>
<td>JSY1100RT-5NZ (1 set)</td>
<td>JSY1100RT-5NZ (1 set)</td>
</tr>
</tbody>
</table>

- The asterisk denotes the symbol for the assembly.
- Prefix the product number of the mounted valve or spacer type ejector with "∗.

- For the valve arrangement, the valves closest to the D side are considered the 1st stations respectively.
- Below the manifold part number, write down the valves and spacer type ejectors to be mounted in order from the first station as shown in the figure.
- Write down spacer type ejectors next to the valves they are to be combined with.
- If no layout is specified, the pilot air control block is mounted on the first station and the manifold block incorporated with a pressure sensor is mounted closest to the U side on the manifold.
- If the layout is complicated or you want to specify a desired layout, please specify it by means of the manifold specification sheet.
- On the manifold block for pilot air control, be sure to mount a 2-position 3-port valve to use it as a pilot air control unit.
Type 10/Side Ported
Model integrated with ejector system

L1 = 6.5 x n1 + 9 x n2 + 86.2
L2 = 6.5 x n1 + 9 x n2 + 43.4
M = L1 / 12.5 + 1
Decimal fractions are truncated.
L3 = 12.5 x M + 23
L4 = L3 − 10.5
L5 = (L3 − L1) / 2

n1: Number of 6.5 mm pitch manifold block stations (Without pressure sensor, Applicable fitting: ø2, ø4)
n2: Number of 9 mm pitch manifold block stations (Built-in pressure sensor, Applicable fitting: ø4)
Valve Manifold Integrated with Ejector System
Plug-in Connector Connecting Base EX260

**JSY1000-E Series**

**Dimensions: JSY1000-E Series**
Model integrated with ejector system

JJ5SY1-E10SDN - Stations U - C6(D)

![Diagram of valve manifold with ejector system]

- **Type 10/Side Ported**
- **Valve Operation Diagrams**
- **Spacer Type Ejector**

**Explanations:**
- These figures show the "JJ5SY1-E10SDN-C6(D)."
- Refer to page 28 for dimensions of external pilot and built-in silencer.

**Dimensions:**

<table>
<thead>
<tr>
<th>Station</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>104.2</td>
<td>61.4</td>
<td>135.5</td>
<td>125</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>113.2</td>
<td>70.4</td>
<td>148</td>
<td>137.5</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>122.2</td>
<td>79.4</td>
<td>148</td>
<td>137.5</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>131.2</td>
<td>86.4</td>
<td>160.5</td>
<td>150</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>140.2</td>
<td>97.4</td>
<td>173</td>
<td>162.5</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>149.2</td>
<td>106.4</td>
<td>173</td>
<td>162.5</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>158.2</td>
<td>115.4</td>
<td>185.5</td>
<td>175</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>167.2</td>
<td>124.4</td>
<td>198</td>
<td>187.5</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>176.2</td>
<td>133.4</td>
<td>210.5</td>
<td>200</td>
<td>15</td>
</tr>
<tr>
<td>11</td>
<td>185.2</td>
<td>142.4</td>
<td>210.5</td>
<td>200</td>
<td>16</td>
</tr>
<tr>
<td>12</td>
<td>194.2</td>
<td>151.4</td>
<td>223</td>
<td>212.5</td>
<td>17</td>
</tr>
<tr>
<td>13</td>
<td>203.2</td>
<td>160.4</td>
<td>235.5</td>
<td>225</td>
<td>18</td>
</tr>
<tr>
<td>14</td>
<td>212.2</td>
<td>169.4</td>
<td>235.5</td>
<td>225</td>
<td>21</td>
</tr>
<tr>
<td>15</td>
<td>221.2</td>
<td>178.4</td>
<td>248</td>
<td>237.5</td>
<td>23</td>
</tr>
<tr>
<td>16</td>
<td>230.2</td>
<td>187.4</td>
<td>260.5</td>
<td>250</td>
<td>24</td>
</tr>
</tbody>
</table>

- **Nil:** Double wiring
- **S:** Single wiring

**Notes:**
- Applies to manifold internal wiring specifications.

---

*These figures show the "JJ5SY1-E10SDN-C6(D)."
*Refer to page 28 for dimensions of external pilot and built-in silencer.*
These figures show the “JJ5SY1-E10SDN-05D-2AX-CM.”
Refer to page 28 for dimensions of external pilot and built-in silencer.

L1 = 6.5 \times n1 + 9 \times n2 + 86.2
L2 = 6.5 \times n1 + 9 \times n2 + 43.4
M = \frac{L1}{12.5 + 1} \quad \text{Decimal fractions are truncated.}
L3 = 12.5 \times M + 23
L4 = L3 - 10.5
L5 = \frac{L3 - L1}{2}

n1: Number of 6.5 mm pitch manifold block stations (Without pressure sensor, Applicable fitting: ø2, ø4)
n2: Number of 9 mm pitch manifold block stations (Built-in pressure sensor, Applicable fitting: ø4, ø6/Without pressure sensor, Applicable fitting: ø6)
Valve Manifold Integrated with Ejector System

**Dimensions: JSY1000-E Series**

**Type 10/Side Ported**

**External Pilot, Built-in Silencer**

**JJSY1E10SDN - Stations [U](S,R) - C2 (D)**

External pilot (Made to Order)

P, E port entry: D

**Calculation formula for L dimensions**

\[ L = 6.5 \times n_1 + 9 \times n_2 + 39.6 \]

- **n1:** Number of 6.5 mm pitch manifold block stations
  (Without pressure sensor, Applicable fitting: ø2, ø4)
- **n2:** Number of 9 mm pitch manifold block stations (Built-in pressure sensor,
  Applicable fitting: ø4, ø6/Without pressure sensor, Applicable fitting: ø6)

*These figures show the “JJSY1E10SDN-05DR-3AX-CM.”

---

**Built-in silencer**

*Internal pilot*

P, E port entry: D

**Silencer (Exhaust port)**

(Built-in silencer specification)
**Type 10: How to Increase Connector Type Manifolds**

1. Loosen the **U**-side tension bolt **a**, and remove the **B** SUP/EXH end block assembly.

2. Screw in **A-3** tie-rods for additional stations to the **5** tie-rod of the manifold. 
   (Screw them in until there is no gap between the tie-rods.)

3. Connect the **A** manifold block assembly to be added, and **B** SUP/EXH end block assembly and tighten the tension bolt **a**.

   **Tightening torque for tension bolt **a** (M3): 0.8 N·m**

**Caution**

1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping, and manifold, confirm that the air is completely exhausted before performing any work.

2. When disassembly and assembly are performed, air leakage may result if the tightening of the tension bolt is inadequate.

---

**Manifold Exploded View**

* Refer to page 30 for order numbers.
* Refer to page 31 for ordering single unit.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A-1</strong></td>
<td>Gasket</td>
<td>1 pc. of each</td>
<td>For base and manifold block</td>
</tr>
<tr>
<td><strong>A-3</strong></td>
<td>Tie-rod for additional stations</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
For the JJ5SY1-E10

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>JSY1000</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>Base gasket (for connector connecting base)</td>
<td>JSY11M-9P-1A</td>
<td>6.5 mm pitch</td>
</tr>
<tr>
<td>A-2</td>
<td>Manifold block gasket</td>
<td>JSY11M-9P-2</td>
<td>9 mm pitch</td>
</tr>
<tr>
<td>A-3</td>
<td>Tie-rod for additional stations</td>
<td>JSY11M-49P-1-1-A</td>
<td>6.5 mm pitch</td>
</tr>
<tr>
<td>4</td>
<td>Spacer type ejector mounting screw</td>
<td>Z2-SR1-A</td>
<td>3 pcs. supplied</td>
</tr>
<tr>
<td>5</td>
<td>Tie-rod</td>
<td>JSY11M-49P-1-□-A</td>
<td>6.5 mm pitch</td>
</tr>
<tr>
<td>6</td>
<td>Valve mounting screw</td>
<td>JSY11V-23-1A</td>
<td>(M4 x 21.5)</td>
</tr>
<tr>
<td>7</td>
<td>DIN rail</td>
<td>VZ1000-11-1-□-A</td>
<td>Refer to page 34.</td>
</tr>
<tr>
<td>8</td>
<td>Clamp bracket (for connector connecting base)</td>
<td>JSY11M-15P-1A</td>
<td>Supplied individually</td>
</tr>
</tbody>
</table>

*1 The manifold of the JSY1000 (JJ5SY1-E10) can be assembled by connecting the tie-rods for number of manifold stations.

Manifold Parts Nos.

1. SUP/EXH block assembly  Dedicated to model integrated with ejector system

2. EX260 SI Unit  Dedicated to model integrated with ejector system

**Caution**

As the SUP/EXH block and the manifold block for the valve manifold integrated with ejector system are dedicated components, do not combine them with other JSY1000 series product. Failure to follow this instruction may lead to a breakage. For the identification purpose, the substrate is colored in blue. As the substrates of other JSY1000 series products are colored in green, be sure to check the color before use. As the SUP/EXH end block is not incorporated with any substrate, it can be used with other JSY1000 series products.

**Caution**

This product is dedicated for use with the valve manifold integrated with ejector system. It cannot be used on other manifolds.

1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
2. When disassembly and assembly are performed, air leakage may result if the tightening of the cover and port block assemblies are inadequate.
JSY1000-E Series

Manifold Parts Nos.

Manifold block assembly

Dedicated to model integrated with ejector system

**JSY 11M-2P-4DA-C4**

**Series**

1 JSY1000

**Manifold block specifications**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pitch 6.5 mm</th>
<th>9 mm</th>
<th>Built-in pressure sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>4</td>
<td>●</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>●</td>
<td>-</td>
</tr>
</tbody>
</table>

**Wiring type**

- S Single wiring
- D Double wiring

**Pressure sensor specifications**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pressure detection port</th>
<th>Applicable manifold block specification symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>A port</td>
<td>4, 5</td>
</tr>
<tr>
<td>2</td>
<td>B port (Option)*1</td>
<td>(Built-in pressure sensor)</td>
</tr>
</tbody>
</table>

*1 The flow rate at port A decreases by approximately 9%. (When 2-position single/double solenoid valve is mounted)

**A, B port size (One-touch fittings)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>A, B port</th>
<th>6.5 mm pitch</th>
<th>9 mm pitch</th>
<th>Without pressure sensor</th>
<th>Built-in pressure sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>ø2 One-touch fitting</td>
<td>●</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C4</td>
<td>ø4 One-touch fitting</td>
<td>●</td>
<td>-</td>
<td>-</td>
<td>●</td>
</tr>
<tr>
<td>C6</td>
<td>ø6 One-touch fitting</td>
<td>-</td>
<td>●</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**[For pilot air control] Manifold block assembly**

Dedicated to model integrated with ejector system

**JSY 11M-2P-3SA-3-00**

**Series**

1 JSY1000

**A, B port size**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>A, B port</th>
<th>Plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Pressure sensor specifications**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pressure detection port</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>X port</td>
</tr>
</tbody>
</table>

**Wiring type**

- S Single wiring

**Manifold block specifications**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pitch 6.5 mm</th>
<th>9 mm</th>
<th>Built-in pressure sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>-</td>
<td>●</td>
<td>-</td>
</tr>
</tbody>
</table>

**Caution**

As the SUP/EXH block and the manifold block for the valve manifold integrated with ejector system are dedicated components, do not combine them with other JSY1000 series products. Failure to follow this instruction may lead to a breakage. For the identification purpose, the substrate is colored in blue. As the substrates of other JSY1000 series products are colored in green, be sure to check the color before use.

As the SUP/EXH end block is not incorporated with any substrate, it can be used with other JSY1000 series products.

**Accessories**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Base gasket</td>
<td>1 pc.</td>
</tr>
<tr>
<td>A-2 Manifold block gasket</td>
<td>1 pc.</td>
</tr>
<tr>
<td>A-3 Tie-rod for additional stations</td>
<td>3 pcs.</td>
</tr>
</tbody>
</table>

* On a manifold block for pilot air control, be sure to mount a 2-position 3-port valve.

**Caution**

1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
2. When disassembly and assembly are performed, air leakage may result if the tightening of the cover and port block assemblies are inadequate.
Valve Manifold Integrated with Ejector System
JSY1000-E Series

Manifold Parts Nos.

**SUP/EXH end block assembly**

**JSY 11M-3P-1A**

- Series: 1 JSY1000

**Pilot, Silencer type**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pilot type</th>
<th>Built-in silencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Internal</td>
<td>—</td>
</tr>
<tr>
<td>S</td>
<td>Internal</td>
<td>—</td>
</tr>
<tr>
<td>R</td>
<td>Internal</td>
<td>—</td>
</tr>
</tbody>
</table>

* The 3/5(E) port is plugged for the built-in silencer type.

**P, E port size**

(One-touch fittings)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>P, E port</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>ø8 One-touch fitting</td>
</tr>
<tr>
<td>00</td>
<td>Plug</td>
</tr>
</tbody>
</table>

* Can be selected when the pilot, silencer type symbol is “Nil” or “S”. Not available for “R” type

**Mounting**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Direct mounting</td>
</tr>
<tr>
<td>D0</td>
<td>DIN rail mounting (Without Din rail)</td>
</tr>
</tbody>
</table>

**SUP/EXH end block assembly accessories and the number of accessories**

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tension bolt</td>
<td>3 pcs.</td>
</tr>
<tr>
<td>Manifold block gasket</td>
<td>1 pc.</td>
</tr>
</tbody>
</table>

* Gasket is mounted.

**Clamp bracket**

<table>
<thead>
<tr>
<th>Series</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY1000</td>
<td>JSY11M-15P-1A</td>
</tr>
</tbody>
</table>

* The part number is for 1 piece.

**Cover, Silencer cover, Port block for SUP/EXH (end) block assembly**

**Cover** (Internal pilot)

**Silencer cover** (Internal pilot, Built-in silencer)

**Port block** (External pilot: Made to Order)

* Cover, silencer cover, and port block are included in the SUP/EXH (end) block assembly, but they need to be ordered for piping specification change.

**Mounting screws (2 pcs.) for SUP/EXH end block assembly are included.

**Caution**

As the SUP/EXH block and the manifold block for the valve manifold integrated with ejector system are dedicated components, do not combine them with other JSY1000 series product. Failure to follow this instruction may lead to a breakage.

For the identification purpose, the substrate is colored in blue. As the substrates of other JSY1000 series products are colored in green, be sure to check the color before use.

As the SUP/EXH end block is not incorporated with any substrate, it can be used with other JSY1000 series products.

**Caution**

1. Be sure to shut off the power and air supplies before disassembly.
2. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
3. When disassembly and assembly are performed, air leakage may result if the tightening of the cover and port block assemblies are inadequate.

Tightening torque for mounting screw
JSY1000 (M2.5): 0.32 N·m

Specific Product Precautions
JSY1000-E Series

One-touch Fittings, Plug, Clip, Port Plate, Tube Releasing Tool

Refer to “How to Replace One-touch Fittings” on page 42 for the replacement method.

1. One-touch Fittings and Silencer

<table>
<thead>
<tr>
<th>Port size/Silencer</th>
<th>JSY1000</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B port 6.5 mm pitch</td>
<td>Ø2</td>
<td>JSY1000-02-C2</td>
</tr>
<tr>
<td>A, B port 9 mm pitch</td>
<td>Ø4</td>
<td>JSY1000-04-C4-X1336</td>
</tr>
<tr>
<td>A, B port 5.5 mm pitch</td>
<td>Ø6</td>
<td>JSY1000-06-C6-X1336</td>
</tr>
<tr>
<td>P, E port 6.5 mm pitch</td>
<td>Ø8</td>
<td>JSY1000-08-C8-X1336</td>
</tr>
<tr>
<td>P, E port 9 mm pitch</td>
<td>Ø6</td>
<td>JSY1000-06-C6-X1336</td>
</tr>
<tr>
<td>Ejector E port Silencer</td>
<td></td>
<td>Z2-SC1-A</td>
</tr>
</tbody>
</table>

* Refer to page 42 for assembling when a fitting is replaced.

2. Plug

<table>
<thead>
<tr>
<th>Piping port</th>
<th>JSY1000</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>P, E port 6.5 mm pitch</td>
<td>JSY1100-62P-1A</td>
<td>The part number is for 1 piece.</td>
</tr>
<tr>
<td>A, B port 9 mm pitch</td>
<td>JSY1100-62P-3A</td>
<td>The part number is for 1 piece.</td>
</tr>
</tbody>
</table>

* As there is no plug for 6.5-mm pitch fitting for A and B ports, use the KQ2P series products.

3. Clip, Port Plate

<table>
<thead>
<tr>
<th>Piping port</th>
<th>JSY1000</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B port (Clip) 6.5 mm pitch fittings</td>
<td>SJ1000-CL-1</td>
<td>The part number is for 10 pieces.</td>
</tr>
<tr>
<td>A, B port (Clip) 9 mm pitch fittings</td>
<td>JSY1100-19P-1A</td>
<td>The part number is for 1 pieces.</td>
</tr>
<tr>
<td>P, E port (Port plate)</td>
<td>JSY1100-10P-1</td>
<td>The part number is for 1 piece.</td>
</tr>
<tr>
<td>Ejector E port (Clip)</td>
<td>Z2-CL1-A</td>
<td>The part number is for 1 piece.</td>
</tr>
</tbody>
</table>

* Refer to page 42 for assembling when a fitting is replaced.

Tube Releasing Tool (This tool can be used to remove tubes from ports A and B.)

<table>
<thead>
<tr>
<th>Series</th>
<th>For JSY1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part no.</td>
<td>TG-0204</td>
</tr>
<tr>
<td>Applicable tubing O.D.</td>
<td>Ø2/Ø4</td>
</tr>
</tbody>
</table>

Tube removal procedure

1. Set the release tool to the outside diameter surface.
2. Push the fitting release bushing using the release tool.
3. Remove the tube.
### DIN rail dimensions/weight for the JSY1000 Plug-in connector connecting base

**VZ1000-11-1**

* After confirming the L3 dimension in the dimensions table of each series, refer to the DIN rail dimensions table below and specify the number in the box □.

![DIN rail dimensions diagram](image)

<table>
<thead>
<tr>
<th>No.</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>L</td>
<td>98</td>
<td>110.5</td>
<td>123</td>
<td>135.5</td>
<td>148</td>
<td>160.5</td>
<td>173</td>
<td>185.5</td>
<td>198</td>
<td>210.5</td>
<td>223</td>
<td>235.5</td>
<td>248</td>
<td>260.5</td>
<td>273</td>
<td>285.5</td>
<td>298</td>
<td>310.5</td>
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</tr>
<tr>
<td>Weight [g]</td>
<td>17.6</td>
<td>19.9</td>
<td>22.1</td>
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<td>37.9</td>
<td>40.1</td>
<td>42.4</td>
<td>44.6</td>
<td>46.9</td>
<td>49.1</td>
<td>51.4</td>
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<td>385.5</td>
<td>398</td>
<td>410.5</td>
<td>423</td>
<td>435.5</td>
<td>448</td>
<td>460.5</td>
<td>473</td>
<td>485.5</td>
<td>498</td>
<td>510.5</td>
<td>523</td>
<td>535.5</td>
<td>548</td>
<td>560.5</td>
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<tr>
<td>Weight [g]</td>
<td>60.4</td>
<td>62.5</td>
<td>64.9</td>
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<td>80.6</td>
<td>82.9</td>
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<td>598</td>
<td>610.5</td>
<td>623</td>
<td>635.5</td>
<td>648</td>
<td>660.5</td>
<td>673</td>
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<td>748</td>
<td>760.5</td>
<td>773</td>
<td>785.5</td>
<td>798</td>
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<tr>
<td>Weight [g]</td>
<td>103.1</td>
<td>105.4</td>
<td>107.6</td>
<td>109.9</td>
<td>112.1</td>
<td>114.4</td>
<td>116.8</td>
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<td>121.1</td>
<td>123.4</td>
<td>125.6</td>
<td>127.9</td>
<td>130.1</td>
<td>132.4</td>
<td>134.6</td>
<td>136.9</td>
<td>139.1</td>
<td>141.4</td>
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</table>

<table>
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<td>L</td>
<td>810.5</td>
<td>823</td>
<td>835.5</td>
<td>848</td>
<td>860.5</td>
<td>873</td>
<td>885.5</td>
<td>898</td>
<td>910.5</td>
<td>923</td>
<td>935.5</td>
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<td>960.5</td>
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<td>985.5</td>
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<tr>
<td>Weight [g]</td>
<td>145.9</td>
<td>148.1</td>
<td>150.4</td>
<td>152.6</td>
<td>154.9</td>
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<td>168.4</td>
<td>170.6</td>
<td>172.9</td>
<td>175.1</td>
<td>177.4</td>
</tr>
</tbody>
</table>

---

### Caution

 Tightening torque for mounting screw

M1.4: 0.06 N·m

---

### Blanking plate

[With two mounting screws]

Used when valve additions are expected or for maintenance

**JSY11M – 26P – 1A**

![Mounting screw (2 pcs.)](image)

**Circuit diagram**

---

**Manifold Options**

* Refer to page 36 for dimensions.

**JSY1000-E Series**

Manifold Options

EX260

Specific Product Precautions

Made to Order

Manifold Options

Fittings, Replacement Parts, Tools

Operational Diagrams

Space Type, Ejector

Valve

Chart

JSY1000-E
### JSY1000-E Series

**Manifold Options**

- **Individual SUP spacer**
  [With a plug-in spacer, a base gasket, and two mounting screws]
  When the same manifold is to be used for different pressures, an individual SUP spacer assembly can be used to act as a supply port for different pressures.

- **Individual EXH spacer**
  [With a plug-in spacer, a base gasket, and two mounting screws]
  When valve exhaust affects other stations due to the circuit configuration, this spacer can be used for individual valve exhaust.

**SUP/EXH blocking disk**

- **SUP blocking disk**
  Inserting an SUP blocking disk in the pressure supply passage of a manifold valve can allow for the use of 2 different pressures (high and low) in 1 manifold.

- **EXH blocking disk**
  Inserting an EXH blocking disk in the exhaust passage of a manifold valve can separate the exhaust from the valve so it does not affect the other valves. It can also be used in positive pressure and vacuum pressure mixed manifolds. (2 pieces are required to block both the EA and EB sides of the EXH.)

**Labels for blocking disks**

- These labels can be used to indicate and confirm where on the manifold the SUP/EXH blocking disk assemblies were inserted. (3 labels of each)

**Silencer**

- **(One-touch fitting connection type)**
  This silencer can be mounted to the 3/5 (E: EXH) port of the manifold in one step.

- **Refer to page 36 for dimensions.**

---

**Caution**

- **Tightening torque for mounting screw**
  M1.4: 0.06 N·m

---

**Series**

- **JSY**
  - **1M**
  - **38**
  - **P**
  - **1A**
  - **C4**

**Port size (One-touch fitting)**

- **Symbol**
  - **P, E port**

- **Series**
  - **JSY1000**

**Spacer type**

- **Individual SUP spacer**
- **Individual EXH spacer**
- **C4**

**Series**

- **SUP blocking disk**
- **EXH blocking disk**

<table>
<thead>
<tr>
<th>Series</th>
<th>SUP blocking disk</th>
<th>EXH blocking disk</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSY1000</td>
<td>JSY11M-40P-1A</td>
<td>JSY11M-40P-1A</td>
</tr>
</tbody>
</table>

---

**Labels for blocking disks**

- SUP/EXH blocking disk label
  - **Series**
    - **JSY1000**
  - SUP blocking disk label
  - EXH blocking disk label
  - **Part no.**
    - SJ0000-155-1A

---

**Silencer**

- **Series (ød)**
  - **Model**
  - **Effective area**
  - **A**
  - **B**
  - **C**

<table>
<thead>
<tr>
<th>Series (ød)</th>
<th>Model</th>
<th>Effective area</th>
</tr>
</thead>
<tbody>
<tr>
<td>For JSY1000 (ø8)</td>
<td>AN15-C08</td>
<td>20 mm²</td>
</tr>
<tr>
<td>20</td>
<td>45</td>
<td>13</td>
</tr>
</tbody>
</table>

---

* Shipped together with the product

---

* The body and plug-in spacer of the JSY1000 are separate. The connector gasket is not used.

---

If the blocking disk is ordered using the manifold specification sheet and ordered at the same time as the manifold, the position where the blocking disk is inserted will be labeled and shipped out.
Dimensions: Manifold Options

- Blanking plate
- Individual SUP/EXH spacer

### Blanking plate

**JSY1000 series**

![Blanking plate diagram]

**One-touch fitting**
(SUP, EXH port)

Applicable tubing O.D.: ø4

### Individual SUP/EXH spacer

**JSY1000 series**

![Individual SUP/EXH spacer diagram]
JSY1000-E Series
Made to Order
Please contact SMC for detailed dimensions, specifications, and delivery times.

1 External pilot

How to Order Manifolds
Refer to the How to Order manifolds.

JJ5SY1 - E10S [ ] [ ] R [ ] [ ]

SUP/EXH block assembly

R External pilot

* The combination of external pilot type “R” and silencer type “S” is not available.

How to Order Valves

JSY1 [ ] 00 R T [ ] [ ]

+ Pilot type
R External pilot

* External pilot specification is not applicable for 4-position dual 3-port valves and 2-position 3-port valves.
* When “R” is selected for the pilot specification, select the external pilot type “R” for the manifold SUP/EXH block assembly specifications as well, or select a manifold with the pilot air control unit.
EX260 Series
SI Unit/Pressure Sensor

How to Order SI Units

EX260 – PEC1

<table>
<thead>
<tr>
<th>Model</th>
<th>Symbol</th>
<th>Protocol</th>
<th>Communication connector</th>
<th>Power supply connector</th>
<th>Manifold symbol</th>
<th>Applicable manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEC1</td>
<td></td>
<td>EtherCAT</td>
<td>M8</td>
<td>M8</td>
<td>DN</td>
<td>JSY1000-E (Model integrated with ejector system)</td>
</tr>
</tbody>
</table>

SI Unit Specifications

Common Specifications

- Power supply for control/sensor
  - Power supply voltage: 24 VDC ±20%, −15%
  - Internal current consumption: 100 mA or less
- Power supply for solenoid valve
  - Power supply voltage: 24 VDC ±20%, −15%*1

Environmental resistance

- Enclosure (Based on IEC 60529): IP67*2
- Operating temperature range: −10 to +50°C
- Storage temperature range: −20 to +60°C
- Operating humidity range: 35 to 85% RH (No condensation)
- Withstand voltage: 500 VAC for 1 minute between external terminals and FE
- Insulation resistance: 500 VDC, 10 MΩ or more between external terminals and FE

Standards

- CE/UKCA marking
- Weight: 200 g

*1 This is the SI Unit power supply voltage. Supply power according to the type of solenoid valve used.
*2 When connected with a JSY1000-E manifold, the rating will be IP40.

Specifications by Model

<table>
<thead>
<tr>
<th>Model</th>
<th>EX260-PEC1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable system</td>
<td>Protocol</td>
</tr>
<tr>
<td>FoE</td>
<td>Yes</td>
</tr>
<tr>
<td>CoE</td>
<td>Yes</td>
</tr>
<tr>
<td>Communication speed</td>
<td>100 Mbps</td>
</tr>
</tbody>
</table>

Input

- Number of pressure sensors: Max. 5
- Connected load: Digital pressure sensor incorporated in manifold

Output

- Number of outputs: Max. 24 outputs
- Connected load: Solenoid valve with surge voltage suppressor of 24 VDC and 0.5 W or less (manufactured by SMC)

Accessories

- Mounting screw: Hexagon socket head cap screw M3 x 30 (2 pcs.)
- Seal cap: Seal cap for M8 connector (2 pcs.)

*1 Use a CAT5 or higher communication cable for EtherCAT.
*2 The configuration file can be downloaded from the SMC website: https://www.smcworld.com

Accessory (Order separately)

Seal Cap (10 pcs.)

Be sure to mount a seal cap on any unused communication/power supply connectors. Otherwise, the specified enclosure cannot be maintained.

Pressure Sensor Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated pressure range</td>
<td>−100 to 700 [kPa]</td>
</tr>
<tr>
<td>Withstand pressure</td>
<td>1.4 [MPa]</td>
</tr>
</tbody>
</table>

38
**EX260 Series**

**SI Unit**

### Dimensions

**M8 Communication/Power supply connector type**

![Dimensions Diagram]

### Parts Description

<table>
<thead>
<tr>
<th>Part no.</th>
<th>EX260-PEC1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protocol</strong></td>
<td>EtherCAT</td>
</tr>
<tr>
<td>Communication connector (M8) Port 1</td>
<td>4 pins, socket, A code</td>
</tr>
<tr>
<td>Communication connector (M8) Port 2</td>
<td>4 pins, socket, A code</td>
</tr>
<tr>
<td>Ground terminal</td>
<td>M3</td>
</tr>
<tr>
<td>Power supply connector (M8) PWR IN</td>
<td>4 pins, plug, A code</td>
</tr>
<tr>
<td>Power supply connector (M8) PWR OUT</td>
<td>4 pins, socket, A code</td>
</tr>
</tbody>
</table>

### LED Indicator

**For EtherCAT** EX260-PEC1

![LED Indicator Diagram]
**Warning**

1. Do not use valves in atmospheres of corrosive gases, chemicals, sea water, water, water vapor, or where there is direct contact with any of these.

**Valve Mounting**

**Caution**

Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown on the right.

**Manual Override**

**Warning**

Without electric signals to the solenoid valve, the manual override is used for switching the main valve. Connected actuator is started by manual operation. Use the manual override after confirming that there is no danger.

**Non-locking push type**

Push down on the manual override button until it stops.

**Push-turn locking slotted type [D type]**

Push down on the manual override with a small flat head screwdriver until it stops, and then turn it 90° clockwise. The manual override is then locked. To release it, turn it counterclockwise.

If it is not turned, it can be operated the same way as the non-locking push type.

**Caution**

Do not apply excessive torque when turning the manual override. [0.1 N·m]

When locking the manual override, be sure to push it down before turning. Turning without first pushing it down can cause damage to the manual override and other trouble such as air leakage, etc.

---

**JSY1000-E Series**

**Specific Product Precautions 1**

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 3/4/5-port solenoid valve and vacuum equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: https://www.smcworld.com

---

**Warning**

1. Do not use valves in atmospheres of corrosive gases, chemicals, sea water, water, water vapor, or where there is direct contact with any of these.

**Valve Mounting**

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Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown on the right.

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---

**Environment**

**Warning**

1. Do not use valves in atmospheres of corrosive gases, chemicals, sea water, water, water vapor, or where there is direct contact with any of these.

**Valve Mounting**

**Caution**

Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown on the right.

**Manual Override**

**Warning**

Without electric signals to the solenoid valve, the manual override is used for switching the main valve. Connected actuator is started by manual operation. Use the manual override after confirming that there is no danger.

**Non-locking push type**

Push down on the manual override button until it stops.

**Push-turn locking slotted type [D type]**

Push down on the manual override with a small flat head screwdriver until it stops, and then turn it 90° clockwise. The manual override is then locked. To release it, turn it counterclockwise.

If it is not turned, it can be operated the same way as the non-locking push type.

**Caution**

Do not apply excessive torque when turning the manual override. [0.1 N·m]

When locking the manual override, be sure to push it down before turning. Turning without first pushing it down can cause damage to the manual override and other trouble such as air leakage, etc.

---

**Used as a 3-Port Valve**

**Caution**

1. In case of using a 5-port valve as a 3-port valve

The JSY1000 series can be used as normally closed (N.C.) or normally open (N.O.) 3-port port valves by closing one of the cylinder ports 4(A) or 2(B) with a plug. However, they should be used with the exhaust ports kept open. Use them when a double solenoid type 3-port valve is required.

**Light/Surge Voltage Suppressor**

**Caution**

1. With power-saving circuit

Power consumption is decreased to approx. 1/2.5 of the amount consumed at startup by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 67 ms at 24 VDC.)

The circuit shown above reduces the power consumption for holding in order to save energy. Refer to the electrical power waveform as shown below.

<Electrical power waveform with power-saving circuit>

**Chart**

**Valve Operation Diagrams**

**Spacer Type Ejector**

**Operation Diagrams**

**Manifold**

**Fittings, Replacement Parts, Tools**

**Made to Order**

**JSY1000-E**

**EX260**

**Specific Product Precautions**
JSY1000-E Series
Specific Product Precautions 2
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 3/4/5-port solenoid valve and vacuum equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: https://www.smcworld.com

Light/Surge Voltage Suppressor

⚠️ Caution
Residual voltage of the surge voltage suppressor
* If a diode surge voltage suppressor is used, there is some residual voltage to the protection element and rated voltage. Therefore, refer to the table below and pay attention to the surge voltage protection on the controller side.

Residual Voltage

<table>
<thead>
<tr>
<th>Surge voltage suppressor</th>
<th>24 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>Approx. 1 V</td>
</tr>
</tbody>
</table>

Energy of a 2-Position Double Solenoid Valve

⚠️ Caution
To avoid operation failure, do not energize the A side and B side of 2-position double solenoid valve at the same time.

Light Indication

⚠️ Caution
When equipped with indicator light and surge voltage suppressor, the light window turns orange when solenoid a is energized, and it turns green when solenoid b is energized.

<JSY1000 series>

Substrate inside Manifolds

⚠️ Caution
The substrate inside of manifolds cannot be taken apart. Attempting to do so may damage parts.

Securing the DIN Rail Mounting Type Manifold

⚠️ Caution
1. When the manifold is secured with bolts on a mounting surface, etc., it can be operated just by securing both ends of the DIN rail if the bottom surface of the DIN rail is entirely in contact with the mounting surface when mounted horizontally. However, if it is used with other mounting or with side or reverse mounting, secure the DIN rail with bolts at regular intervals. As a guide, insert bolts in 2 locations for 2-5 stations, 3 locations for 6-10 stations, 4 locations for 11-15 stations, 5 locations for 16-20 stations, and 6 locations for 21-24 stations.

2. When using the manifold with DIN rail in an environment where any vibration or impact is applied to it, the DIN rail itself may be broken. In particular, if the installation surface vibrates when mounting the manifold on the wall or if a load is directly applied to the manifold, the DIN rail may be broken, causing the manifold to drop. When any vibration, impact, or load is applied to the manifold, be sure to use the direct mounting manifold.
How to Replace One-touch Fittings

**Caution**

By replacing One-touch fittings of manifold base, it is possible to change the connection diameter of the 4(A), 2(B), 1(P), 3/5(E) ports.

When replacing the One-touch fittings, remove the clip or the plate before pulling the One-touch fittings off. Mount the One-touch fittings by following the removal procedure in reverse.

Use caution as it may cause air leakage if the clip and the plate are not inserted securely enough when they are switched. Refer to page 33 for part numbers of One-touch fittings.

**Connector connecting base**

- **SUP/EXH (end) block**
  - Fitting direction is specified when the fittings below are used. Assemble the fitting so that the D-cut surfaces of the fitting face up and down.
  - Fitting part no.: KQSY30-C8-X1336 (JSY1000)
- **Manifold block**
  - Assemble the fitting so that the D-cut surfaces of the fitting face sideways.
  - Fitting part no.: KQSY10-C4-X1336 (JSY1000)
  - KQSY11-C6-X1336 (JSY1000)

* In order to replace C2 or C4 with C6 for the JSY1000 series, the manifold block assembly needs to be replaced. Please select the manifold block assembly on page 91.
* Refer to page 33 for One-touch fitting, clip, and port plate part numbers.

Other Tube Brands

**Caution**

1. When using other than SMC brand tube, confirm that the following specifications are satisfied with respect to the tube outside diameter tolerance.
   1) Nylon tube within ±0.1 mm
   2) Soft nylon tube within ±0.1 mm
   3) Polyurethane tube within ±0.15 mm within −0.2 mm

Do not use tube which does not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tube pulling out after connection.

One-touch Fittings

**Caution**

1. **Tube attachment/detachment for One-touch fittings**
   1) **Tube attachment**
      1. Take a tube having no flaws on its periphery and cut it off at a right angle. When cutting the tube, use tube cutters TK-1, 2, or 3. Do not use pliers, nippers, scissors, etc. If cutting is done with tools other than tube cutters, the tube may be cut diagonally or become flattened, etc., making a secure installation impossible, and causing problems such as the tube pulling out after installation or air leakage. Allow some extra length in the tube.
      2. Grasp the tube and push it in slowly, inserting it securely all the way into the fitting.
      3. After inserting the tube, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tube pulling out.

2) **Tube detachment**

Use the release tool when the removal of tube is difficult due to the tube size. Refer to page 33 for releasing tools.

1. Push in the release button sufficiently, pushing its collar equally around the circumference.
2. Pull out the tube while holding down the release button so that it does not come out. If the release button is not pressed down sufficiently, there will be increased bite on the tube and it will become more difficult to pull it out.
3. When the removed tube is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tube is used as is, this can cause trouble such as air leakage or difficulty in removing the tube.

Installation

**Caution**

Even though the inlet pressure is within the operating pressure range, when the piping diameter is restricted due to size reduction of supply port (P), the flow will be insufficient. In this case, the valve does not switch completely and the cylinder may malfunction.
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 3/4/5-port solenoid valve and vacuum equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: https://www.smcworld.com

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**Design / Selection**

⚠️ **Warning**

1. **Vacuum adsorption**
   At the time of vacuum adsorption, be sure to supply a constant supply of vacuum. Failure to do so may result in foreign matter sticking to the adsorption pad or air leakage, causing the workpiece to drop.

2. **Ventilation**
   Provide ventilation when using a vacuum ejector in a confined area, such as in a closed control panel. For example, install a ventilation opening, etc., in order to prevent pressure from increasing inside of the confined area and to release the heat generated by the valve.

3. **Mounting the suction filter**
   This product is not mounted with a suction filter. The vacuum ejector suctions surrounding dust and water droplets during suctioning of the workpiece. Therefore, it is necessary to avoid the entry of the dust and water droplets into the product. We recommend that you separately install a suction filter in the vacuum side piping. If water droplets or others could be suctioned, please consider installation of a drain separator for vacuum or the like.

4. **Vacuum holding**
   Since valves are subject to air leakage, they cannot be used for applications such as holding vacuum in a pressure vessel. SMC can issue no guarantees regarding the maintenance of workpiece adsorption when using check valves. Take separate safety measures to prevent workpieces from dropping in the case of an electrical power outage, etc.

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**Spacer Type Ejector to Be Mounted**

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**Ejector Exhaust / Exhaust Noise**

⚠️ **Warning**

1. **Vacuum adsorption**
   At the time of vacuum adsorption, be sure to supply a constant supply of vacuum. Failure to do so may result in foreign matter sticking to the adsorption pad or air leakage, causing the workpiece to drop.

2. **Ventilation**
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4. **Vacuum holding**
   Since valves are subject to air leakage, they cannot be used for applications such as holding vacuum in a pressure vessel. SMC can issue no guarantees regarding the maintenance of workpiece adsorption when using check valves. Take separate safety measures to prevent workpieces from dropping in the case of an electrical power outage, etc.

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**Supply Valve / Release Valve**

⚠️ **Warning**

1. **Air leakage**
   Zero air leakage is not guaranteed for the supply valve or release valve. Be aware that because there is a chance of air and vacuum leakage, the pressure may change if the vacuum (A, B) port side is tightly sealed.

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**Ejector Exhaust / Exhaust Noise**

⚠️ **Caution**

1. **Ejector exhaust**
   The exhaust resistance should be as small as possible to obtain the full ejector performance. There should be no shield around the exhaust slit for silencer exhaust type.
   For port exhaust type, ensure that the back pressure does not exceed 5 kPa. Increased back pressure may lead to the reduction of suction flow and delays in the transport cycle time. Do not operate the ejector or apply pressure to the exhaust port with the exhaust port closed. This increases the pressure in the product and can damage the vacuum ejector.

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**How to Mount the Product**

⚠️ **Caution**

1. **Load the body**
   The product body is made of resin; therefore, do not apply load to the port after mounting. Prevent any kind of operation which generates moment as this may cause reduced performance or damage to the body.
Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 3/4/5-port solenoid valve and vacuum equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: https://www.smcworld.com

Spacer Type Ejector to Be Mounted

Piping

⚠️ Caution
When piping to the product, be careful not to confuse the vacuum port (A, B port) with the exhaust port of the vacuum ejector. Otherwise this can result in damage or reduced performance. Apply compressed air after confirming that the piping is connected correctly.
If each exhaust piping for the port exhaust ejectors are connected and made into centralized piping, the exhausted air will flow back into the exhaust path which is not operating, and will then be exhausted from the vacuum port. Exhaust individually.

Ejector Air Consumption

⚠️ Caution
When the ejector is generating vacuum, air is consumed. Therefore, if the air supply capacity is insufficient, the supply pressure may drop. As a guide for sufficient air supply capacity, we recommend that you secure a supply capacity three times or more the air consumption of the ejector.

SI Unit / Fieldbus System

⚠️ Caution
For details on the SI Unit/Fieldbus system, refer to the Operation Manual on the SMC website.
## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\(^1\), and other safety regulations.

- **Caution:** Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
- **Warning:** Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
- **Danger:** Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

### Caution

1. The product is provided for use in manufacturing industries.
   
   The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
   
   If anything is unclear, contact your nearest sales branch.

### Warning

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\(^2\) Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

### Danger

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.

### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

### Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

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\(^1\) ISO 4414: Pneumatic fluid power – General rules relating to systems.

\(^2\) ISO 4413: Hydraulic fluid power – General rules relating to systems.

IEC 60204-1: Safety of machinery – Electrical equipment of machines.

Part 1: General requirements

ISO 10218-1: Manipulating industrial robots – Safety, etc.