3 Port Solenoid Valve

Power Consumption
0.1 W
With Power Saving Circuit

Series SYJ300/500/700

Improved pilot valve
Pilot valve cover is stronger using stainless steel. Mounting thread is also reinforced from size M1.7 to M2.

Flow Characteristics

<table>
<thead>
<tr>
<th>Series</th>
<th>C [dm³/(s·bar)]</th>
<th>b</th>
<th>Cv</th>
<th>ej/min(ANR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ300</td>
<td>0.36</td>
<td>0.31</td>
<td>0.089</td>
<td>92</td>
</tr>
<tr>
<td>SYJ500</td>
<td>1.2</td>
<td>0.41</td>
<td>0.32</td>
<td>329</td>
</tr>
<tr>
<td>SYJ700</td>
<td>2.7</td>
<td>0.38</td>
<td>0.72</td>
<td>724</td>
</tr>
</tbody>
</table>
## Variations

<table>
<thead>
<tr>
<th>Series</th>
<th>Port size</th>
<th>Sonic conductance C [dm³/(s·bar)]</th>
<th>Type of actuation</th>
<th>Voltage</th>
<th>Electrical entry</th>
<th>Option</th>
<th>Manual override</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ300</td>
<td>M3</td>
<td>Effective area: 0.9 mm² 2→3 (A→R)</td>
<td>For DC</td>
<td>24 VDC</td>
<td></td>
<td>Grommet</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJ500</td>
<td>M5</td>
<td>0.66 2→3 (A→R)</td>
<td>For AC</td>
<td>100 VAC</td>
<td></td>
<td>L plug connector</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% 50 Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% 60 Hz</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% 220 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJ700</td>
<td>1/8</td>
<td>2.5 2→3 (A→R)</td>
<td>For DC</td>
<td>24 VDC</td>
<td></td>
<td>M plug connector</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJ300</td>
<td>M5</td>
<td>0.36 2→3 (A→R)</td>
<td>For DC</td>
<td>24 VAC</td>
<td></td>
<td>DIN terminal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJ500</td>
<td>1/8</td>
<td>1.2 2→3 (A→R)</td>
<td>For DC</td>
<td>24 VDC</td>
<td></td>
<td>(SYJ500, 700 only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12 VDC</td>
<td></td>
<td>M8 connector</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>6 VDC</td>
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<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>5 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJ700</td>
<td>1/8, 1/4</td>
<td>2.7 2→3 (A→R)</td>
<td>For AC</td>
<td>100 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% 50 Hz</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>% 60 Hz</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% 220 V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** All AC voltage models have built-in surge voltage suppressor.

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Front matter 1
## Manifold Variations

<table>
<thead>
<tr>
<th>Valve series</th>
<th>A port location</th>
<th>P, R ports size</th>
<th>A port size</th>
<th>With one-touch fitting</th>
<th>Applicable tubing O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>M3</td>
<td>M5</td>
<td>1/8</td>
</tr>
<tr>
<td><strong>SYJ300</strong></td>
<td>Top</td>
<td>M5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>SYJ500</strong></td>
<td>Top</td>
<td>1/8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>SYJ700</strong></td>
<td>Top</td>
<td>1/8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/4</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>SYJ300</strong></td>
<td>Side</td>
<td>M5</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>SYJ500</strong></td>
<td>Bottom</td>
<td>1/8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Side</td>
<td></td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>SYJ700</strong></td>
<td>Bottom</td>
<td>1/8</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Side</td>
<td>1/4</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Note 1) Only for internal pilot  
Note 2) Only for external pilot

---

[Images of SYJ300 valves]

Series SYJ300  
Series SYJ500  
Series SYJ700
# Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating pressure range (MPa)</strong></td>
<td>Internal pilot</td>
</tr>
<tr>
<td></td>
<td>0.15 to 0.7</td>
</tr>
<tr>
<td><strong>Ambient and fluid temperature (°C)</strong></td>
<td>–10 to 50 (No freezing. Refer to back page 2.)</td>
</tr>
<tr>
<td><strong>Response time ms (at 0.5 MPa)</strong></td>
<td>15 or less</td>
</tr>
<tr>
<td><strong>Max. operating frequency (Hz)</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>Manual override (Manual operation)</strong></td>
<td>Non-locking push type, push-turn locking slotted type, push-turn locking lever type</td>
</tr>
<tr>
<td><strong>Pilot exhaust method</strong></td>
<td>Individual exhaust for the pilot valve, common exhaust for the pilot and main valve</td>
</tr>
<tr>
<td><strong>Lubrication</strong></td>
<td>Not required</td>
</tr>
<tr>
<td><strong>Mounting orientation</strong></td>
<td>unrestricted</td>
</tr>
<tr>
<td><strong>Shock/Vibration resistance (m/s²)</strong></td>
<td>150/30</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Dust proof (* M8 connector conforms to IP65.)</td>
</tr>
</tbody>
</table>

* Based on IEC60529
Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)
Note 2) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energised and de-energised states every once for each condition. (Value in the initial state)
Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)

## Solenoid Specifications

<table>
<thead>
<tr>
<th>Electrical entry</th>
<th>Grommet (G), (H), L plug connector (L), M plug connector (M), M8 connector (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coil rated voltage (V)</strong></td>
<td>DC</td>
</tr>
<tr>
<td></td>
<td>24, 12, 6, 5, 3</td>
</tr>
</tbody>
</table>
| **Allowable voltage fluctuation** | 10% of rated voltage *
| **Power consumption (W)** | DC With power saving circuit |
| | 0.35 (With light: 0.4) |
| | 0.1 (With light only) |
| **Surge voltage suppressor** | Diode (varistor when non-polar types) |
| **Indicator light** | LED |

* S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.
S and Z type: 24 VDC: –7% to +10%
12 VDC: –4% to +10%
T type: 24 VDC: –8% to +10%
12 VDC: –6% to +10%
Flow Characteristics/Weight

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Type of actuation</th>
<th>Port size</th>
<th>Flow characteristics</th>
<th>Effective area (mm²)</th>
<th>Weight (g)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ312</td>
<td>N.C.</td>
<td>M3 x 0.5</td>
<td>1→2 (P→A)</td>
<td>b</td>
<td>Cv</td>
<td>η</td>
</tr>
<tr>
<td>SYJ322</td>
<td>N.O.</td>
<td>M3 x 0.5</td>
<td>1→2 (P→A)</td>
<td>b</td>
<td>Cv</td>
<td>η</td>
</tr>
<tr>
<td>Base mounted (with sub-plate)</td>
<td>SYJ312</td>
<td>N.C.</td>
<td>M5 x 0.8</td>
<td>0.41</td>
<td>0.18</td>
<td>0.086</td>
</tr>
<tr>
<td>Base mounted (with sub-plate)</td>
<td>SYJ322</td>
<td>N.O.</td>
<td>M5 x 0.8</td>
<td>0.36</td>
<td>0.31</td>
<td>0.089</td>
</tr>
</tbody>
</table>

Note) (): Without sub-plate.

*These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

External Pilot

SYJ300R

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to –100 kPa) or low pressure line with 0.15 MPa or less.

Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>Base mounted (SYJ314R, SYJ324R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure range</td>
<td>Main pressure</td>
</tr>
<tr>
<td>MPa</td>
<td>External pilot pressure</td>
</tr>
</tbody>
</table>

Note 1) For manifold base, refer to page 7.
Note 2) External pilot type body ported valves (SYJ322R) can only be used on the manifold.
### How to Order

#### Type of actuation

<table>
<thead>
<tr>
<th>1</th>
<th>Normally closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Normally open</td>
</tr>
</tbody>
</table>

#### Rated voltage

<table>
<thead>
<tr>
<th>DC</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>24 VDC</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>12 VDC</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>6 VDC</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>5 VDC</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>3 VDC</td>
<td></td>
</tr>
</tbody>
</table>

#### Light/surge voltage suppressor

- Without light/surge voltage suppressor
- With surge voltage suppressor
- With light/surge voltage suppressor
- With surge voltage suppressor (Non-polar type)
- With light/surge voltage suppressor (Non-polar type)

Note: Power saving circuit is only available in the "Z" type.

#### Bracket

- Without bracket
- With bracket

- Bracket is mounted.
- Brackets cannot be retrofitted.
- External pilot type is not available.

#### Port size

- Without sub-plate
- M5: M5 port
- With sub-plate

(With gasket and screws)

#### Body option

- Individual pilot exhaust type
- Common exhaust for the pilot and main valve
- Pilot valve exhaust is centralised to main valve.
- External pilot type

- SYJ3-2R is only for manifold use.

#### Coil specifications

**Nil**

**With power saving circuit (24, 12 VDC only)**

Note: Power saving circuit is not available in the case of W type.

#### Electrical entry

<table>
<thead>
<tr>
<th>24, 12, 6, 5, 3 VDC</th>
<th>24, 12, 6, 5, 3 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>G: Lead wire length 300 mm</td>
<td></td>
</tr>
<tr>
<td>L: With lead wire (Length 300 mm)</td>
<td></td>
</tr>
<tr>
<td>M: With lead wire (Length 300 mm)</td>
<td></td>
</tr>
<tr>
<td>MN: Without lead wire</td>
<td></td>
</tr>
<tr>
<td>WO: Without connector</td>
<td></td>
</tr>
<tr>
<td>W: With connector cable (Note 1)</td>
<td></td>
</tr>
</tbody>
</table>

#### Manual override

- Non-locking push type
- Push-turn locking slotted type
- Push-turn locking lever type

Note: When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 8.)

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**Series SYJ300**

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**SMC**
### Series SYJ300

#### Construction

**N.C.**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**N.O.**

<p>| | | | | |</p>
<table>
<thead>
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<th></th>
<th></th>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Component Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Zinc die-casted</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>Piston plate</td>
<td>Resin</td>
<td>White</td>
</tr>
<tr>
<td>3</td>
<td>End cover</td>
<td>Resin</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Piston</td>
<td>Resin</td>
<td>White</td>
</tr>
<tr>
<td>5</td>
<td>Spool valve assembly</td>
<td>Aluminum, H-NBR</td>
<td>–</td>
</tr>
</tbody>
</table>

**Replacement Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>No.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Sub-plate</td>
<td>SYJ300-9-1-Q</td>
<td>Zinc die-casted</td>
</tr>
<tr>
<td>7</td>
<td>Pilot valve</td>
<td>V111(T)</td>
<td>–</td>
</tr>
</tbody>
</table>

#### How to Order Pilot Valve Assembly

**V111**

- **Coil specifications**
  - [ ] Standard
  - [X] With power saving circuit (24, 12 VDC only)
- **Rated voltage**
  - [ ] 24 VDC
  - [ ] 12 VDC
  - [ ] 6 VDC
  - [ ] 5 VDC
  - [ ] 3 VDC

#### How to Order Connector Assembly for L/M Plug Connector

**Lead wire length**

- [ ] 300 mm
- [ ] 600 mm
- [ ] 1000 mm
- [ ] 1500 mm
- [ ] 2000 mm
- [ ] 2500 mm
- [ ] 3000 mm
- [ ] 5000 mm

**SY100-30-A**

- **Without light/surge voltage suppressor**
- **With light/surge voltage suppressor (Non-polar type)**

#### How to Order M8 Connector Cable

**V100-49-1**

- **Cable length**
  - [ ] 300 mm
  - [ ] 500 mm
  - [ ] 1000 mm
  - [ ] 2000 mm
  - [ ] 5000 mm

- **Note 1:** Enter the cable length symbols in [ ]. Please be sure to fill in the blank referring to back page 10.

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For connector cable of M8 connector, refer to back page 9.
Series SYJ300

Body Ported

Grommet (G), (H): SYJ3□2-□□□□□□-M3-Q
With bracket: SYJ3□2-□□□□□□-M3-F-Q

L plug connector (L): SYJ3□2-□□□□□□-M3-Q
M plug connector (M): SYJ3□2-□□□□□□-M3-Q
M8 connector (WO): SYJ3□2-□□□□□□-M3-Q

(Refer to back page 10 for dimensions with connector cable.)
Series SYJ300

Base Mounted (With Sub-plate)

Grommet (G), (H): SYJ3□4-L□□□-M5-Q

L plug connector (L):
SYJ3□4-L□□□-M5-Q

M plug connector (M):
SYJ3□4-M□□□-M5-Q

M8 connector (WO):
SYJ3□4-WO□□□-M5-Q

* Refer to back page 10 for dimensions with connector cable.
## Manifold Specifications

### Flow Characteristics

<table>
<thead>
<tr>
<th>Manifold</th>
<th>Port size</th>
<th>1→2 (P→A)</th>
<th>2→3 (A→R)</th>
<th>Effective area (mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body ported for internal pilot</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type SS3YJ3-20</td>
<td>SYJ3:2</td>
<td>M5</td>
<td>M3</td>
<td>0.9</td>
</tr>
<tr>
<td>Type SS3YJ3-41</td>
<td>SYJ3:4</td>
<td>M5</td>
<td>M3</td>
<td>1.5</td>
</tr>
<tr>
<td>Type SS3YJ3-42-M5</td>
<td>SYJ3:4</td>
<td>1/8</td>
<td>M5</td>
<td></td>
</tr>
<tr>
<td>Type SS3YJ3-42-C4</td>
<td>SYJ3:4</td>
<td>C4</td>
<td>0.31</td>
<td></td>
</tr>
<tr>
<td><strong>Base mounted for internal pilot</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type SS3YJ3-20</td>
<td>SYJ3:2</td>
<td>M3</td>
<td>0.31</td>
<td>0.17</td>
</tr>
<tr>
<td>Type SS3YJ3-41</td>
<td>SYJ3:4</td>
<td>M3</td>
<td>0.33</td>
<td>0.36</td>
</tr>
<tr>
<td>Type SS3YJ3-42-M5</td>
<td>SYJ3:4</td>
<td>1/8</td>
<td>0.32</td>
<td>0.30</td>
</tr>
<tr>
<td>Type SS3YJ3-42-C4</td>
<td>SYJ3:4</td>
<td>C4</td>
<td>0.35</td>
<td>0.17</td>
</tr>
<tr>
<td><strong>Base ported for external pilot</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type SS3YJ3-20</td>
<td>SYJ3:2</td>
<td>M5</td>
<td>0.31</td>
<td>0.17</td>
</tr>
<tr>
<td>Type SS3YJ3-41</td>
<td>SYJ3:4</td>
<td>M5</td>
<td>0.33</td>
<td>0.30</td>
</tr>
<tr>
<td>Type SS3YJ3-42-M5</td>
<td>SYJ3:4</td>
<td>1/8</td>
<td>0.32</td>
<td>0.30</td>
</tr>
<tr>
<td>Type SS3YJ3-42-C4</td>
<td>SYJ3:4</td>
<td>C4</td>
<td>0.35</td>
<td>0.17</td>
</tr>
</tbody>
</table>

**Note:** Value at manifold base mounted, 2 position single acting.

*These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

How to Order Manifold (Example)

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

**(Example)**

- SS3YJ3-20-03-Q — 1 set (manifold base)
- SS3YJ3-42R-03-C4-Q — 1 set (manifold base)
- SYJ312-SLZ-M3-Q — 2 sets (valve)
- SYJ314R-5G-Q — 2 sets (valve)
- SYJ300-10-1A-Q — 1 set (blanking plate assembly)
- SYJ300-10-2A-Q — 1 set (blanking plate assembly)

*The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.*
Combinations of Solenoid Valve, Manifold Gasket and Manifold Base

Body ported
(Type SYJ3□2(R)-Q)

Base mounted
(Type SYJ3□4(R)-Q)

Applicable base
SS3YJ3-20-Q
SS3YJ3-20R-Q
Manifold base

Applicable base
Sub-plate
SS3YJ3-41-Q
SS3YJ3-41-Q
SS3YJ3-42-Q
SS3YJ3-42-Q
SS3YJ3-42R-Q
SS3YJ3-42R-Q

Manifold gasket
SYJ300-5-6

Round head combination screw
SY100-33-3
(M1.7 x 17, Matt nickel plated)

Applicable base
SS3YJ3-41-Q
SS3YJ3-41-Q
SS3YJ3-42-Q
SS3YJ3-42-Q
SS3YJ3-42R-Q
SS3YJ3-42R-Q

Manifold gasket
SYJ300-5-4

Blanking Plate Assembly

Model no.: SYJ300-10-1A-Q

Model no.: SYJ300-10-2A-Q

Applicable base
SS3YJ3-20-Q
SS3YJ3-20R-Q
Manifold base

Applicable base
Sub-plate
SS3YJ3-41-Q
SS3YJ3-41-Q
SS3YJ3-42-Q
SS3YJ3-42-Q
SS3YJ3-42R-Q
SS3YJ3-42R-Q

Manifold gasket
SYJ300-5-4

Blanking plate

Round head combination screw

Caution

Mounting screw tightening torques
M1.7: 0.12 N·m

Use caution to the assembly orientation for solenoid valves, gasket, and optional parts.
### Series SYJ300

#### Manifold for Internal Pilot Type

**Type 20**

How to Order:

SS3YJ3–20–\( \text{Stations} \)–\( \text{Q} \)

- Without bracket

Applicable blanking plate assembly:

SYJ300-10-1A-Q

Note: For more than 10 stations, supply air to both sides of P port and exhaust air from both sides of R port.

**Type 41**

How to Order:

SS3YJ3–\( \text{Stations} \)–M–\( \text{Q} \)

- Without bracket

Applicable blanking plate assembly:

SYJ300-10-2A-Q

Note: For more than 10 stations, supply air to both sides of P port and exhaust air from both sides of R port.

#### Manifold for External Pilot Type

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to –100 kPa) or low pressure line with 0.15 MPa or less.

**Type 20R**

How to Order:

SS3YJ3–20–\( \text{Stations} \)–\( \text{Q} \)

- Without bracket

Applicable blanking plate assembly:

SYJ300-10-1A-Q

Note: For more than 10 stations, supply/exhaust air to/from both sides of P port and R port.

**Type 42R**

How to Order:

SS3YJ3–\( \text{Stations} \)–\( \text{Q} \)

- Without bracket

Applicable blanking plate assembly:

SYJ300-10-2A-Q

Note: For more than 10 stations, supply/exhaust air to/from both sides of P port and R port.
**Type 20 Manifold: Top Ported/SS3YJ3-20- Stations-00 □ (-F)-Q**

**Grommet (G)**

<table>
<thead>
<tr>
<th>Station n</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L1</strong></td>
<td>35.5</td>
<td>46</td>
<td>56.5</td>
<td>67</td>
<td>77.5</td>
<td>88</td>
<td>98.5</td>
<td>109</td>
<td>119.5</td>
<td>130</td>
<td>140.5</td>
<td>151</td>
<td>161.5</td>
<td>172</td>
<td>182.5</td>
<td>193</td>
<td>203.5</td>
<td>214</td>
<td>224.5</td>
</tr>
<tr>
<td><strong>L2</strong></td>
<td>28.5</td>
<td>39</td>
<td>49.5</td>
<td>60</td>
<td>70.5</td>
<td>81</td>
<td>91.5</td>
<td>102</td>
<td>112.5</td>
<td>123</td>
<td>133.5</td>
<td>144</td>
<td>154.5</td>
<td>165</td>
<td>175.5</td>
<td>186</td>
<td>196.5</td>
<td>207</td>
<td>217.5</td>
</tr>
</tbody>
</table>

*Refer to back page 10 for dimensions with connector cable.*
## Series SYJ300

**Type 41 Manifold: Side Ported/SS3YJ3-41- Stations -M3-Q**

Grommet (G)

<table>
<thead>
<tr>
<th>Station</th>
<th>L1</th>
<th>L2</th>
<th>Station 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>P=10.5</td>
<td>26.6</td>
<td>26.6</td>
<td>3.5</td>
</tr>
<tr>
<td>(Station 1)</td>
<td>(Station n)</td>
<td>(Station n)</td>
<td>2-Ø3.5 (For mounting)</td>
</tr>
</tbody>
</table>

Type 41 Manifold: Side Ported (Pilot valve is on the A port side) 
SS3YJ3-S41- Stations -M3-Q

Manual override

Approx. 300 (Lead wire length)

---

**L plug connector (L)**

Approx. 300 (Lead wire length)

<table>
<thead>
<tr>
<th>L1</th>
<th>35.5</th>
<th>46</th>
<th>56.5</th>
<th>67</th>
<th>77.5</th>
<th>88</th>
<th>98.5</th>
<th>109</th>
<th>119.5</th>
<th>130</th>
<th>140.5</th>
<th>151</th>
<th>161.5</th>
<th>172</th>
<th>182.5</th>
<th>193</th>
<th>203.5</th>
<th>214</th>
<th>224.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2</td>
<td>28.5</td>
<td>39</td>
<td>49.5</td>
<td>60</td>
<td>70.5</td>
<td>81</td>
<td>91.5</td>
<td>102</td>
<td>112.5</td>
<td>123</td>
<td>133.5</td>
<td>144</td>
<td>154.5</td>
<td>165</td>
<td>175.5</td>
<td>186</td>
<td>196.5</td>
<td>207</td>
<td>217.5</td>
</tr>
</tbody>
</table>

**M plug connector (M)**

Approx. 300 (Lead wire length)

**M8 connector (WO)**

Approx. 300 (Lead wire length)

<table>
<thead>
<tr>
<th>Station n</th>
<th>Station 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>35.5</td>
</tr>
<tr>
<td>L2</td>
<td>28.5</td>
</tr>
</tbody>
</table>

---

* Refer to back page 10 for dimensions with connector cable.
### Series SYJ300

**Type 20R Manifold: Top Ported (External Pilot Type)/SS3YJ3-20R- Stations -00 □-Q**

Grommet (G)

| Station n | Station 2 | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | Station 20 |
|-----------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| L1        | 47.5      | 58  | 68.5| 79  | 89.5| 100 | 110.5|121 | 131.5|142 | 152.5|163 | 173.5|184 | 194.5|205 | 215.5|226 | 236.5   |
| L2        | 39.5      | 50  | 60.5| 71  | 81.5| 92  | 102.5|113 | 123.5|134 | 144.5|155 | 165.5|176 | 186.5|197 | 207.5|218 | 228.5   |
| L3        | 31.5      | 42  | 52.5| 63  | 73.5| 84  | 94.5 |105 | 115.5|126 | 136.5|147 | 157.5|168 | 178.5|189 | 199.5|210 | 220.5   |

* Refer to back page 10 for dimensions with connector cable.

**L plug connector (L)**

**M plug connector (M)**

**M8 connector (WO)**
### Type 42R Manifold: Side Ported (External Pilot Type)/SS3YJ3-42R- Stations-M5, C4 N3 □-Q

#### Grommet (G)
**For M5**

- **L plug connector (L)**
- **M plug connector (M)**
- **M8 connector (WO)**

#### Type S42R Manifold: Side Ported (Pilot valve is on the A port side) / SS3YJ3-S42R- Stations-M5, C4 N3 □-Q

#### Grommet (G)
**For M5**

- **For C4 □ (Built-in one-touch fitting)**

---

<table>
<thead>
<tr>
<th>Station n</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>47.5</td>
<td>58</td>
<td>68.5</td>
<td>79</td>
<td>89.5</td>
<td>100</td>
<td>110.5</td>
<td>121</td>
<td>131.5</td>
<td>142</td>
<td>152.5</td>
<td>163</td>
<td>173.5</td>
<td>184</td>
<td>194.5</td>
<td>205</td>
<td>215.5</td>
<td>226</td>
</tr>
<tr>
<td>L2</td>
<td>39.5</td>
<td>50</td>
<td>60.5</td>
<td>71</td>
<td>81.5</td>
<td>92</td>
<td>102.5</td>
<td>113</td>
<td>123.5</td>
<td>134</td>
<td>144.5</td>
<td>155</td>
<td>165.5</td>
<td>176</td>
<td>186.5</td>
<td>197</td>
<td>207.5</td>
<td>218</td>
</tr>
</tbody>
</table>
Rubber Seal
3 Port Pilot Solenoid Valve
Series SYJ500

Specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Internal pilot</th>
<th>External pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
<td>Air</td>
</tr>
<tr>
<td>Operating pressure range (MPa)</td>
<td>0.15 to 0.7</td>
<td></td>
</tr>
<tr>
<td>Ambient and fluid temperature (°C)</td>
<td>–10 to 50</td>
<td></td>
</tr>
<tr>
<td>Response time ms (at 0.5 MPa)</td>
<td>25 or less</td>
<td></td>
</tr>
<tr>
<td>Max. operating frequency (Hz)</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Manual override (Manual operation)</td>
<td>Non-locking push type, push-turn locking slotted type, push-turn locking lever type</td>
<td></td>
</tr>
<tr>
<td>Pilot exhaust method</td>
<td>Individual exhaust for the pilot valve, common exhaust for the pilot and main valve</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
<td></td>
</tr>
<tr>
<td>Shock/Vibration resistance (m/s²) Note 2)</td>
<td>150/30</td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>Dust proof (+ DIN terminal, M8 connector conforms to IP65.)</td>
<td></td>
</tr>
</tbody>
</table>

* Based on IEC60529
Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)
Note 2) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energised and de-energised states every once for each condition.
Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF.

Solenoid Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coil rated voltage (V)</td>
<td>DC 24, 12, 6, 5, 3</td>
<td>AC 100, 120, 200, 220</td>
</tr>
<tr>
<td>Allowable voltage fluctuation</td>
<td>±10% of rated voltage *</td>
<td></td>
</tr>
<tr>
<td>Power consumption (W)</td>
<td>0.35 (With light: 0.4 (DIN terminal with light: 0.45))</td>
<td>0.1 (With light only)</td>
</tr>
<tr>
<td>Apparent power (VA) *</td>
<td>0.78 (With light: 0.87)</td>
<td>0.86 (With light: 0.97)</td>
</tr>
<tr>
<td>Surge voltage suppressor</td>
<td>Diode (DIN terminal, varistor when non-polar types)</td>
<td>LED (Neon light when AC with DIN terminal)</td>
</tr>
</tbody>
</table>

* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.
* For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.
* S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.
S and Z type: 24 VDC: –7% to +10%
12 VDC: –4% to +10%
T type: 24 VDC: –8% to +10%
12 VDC: –6% to +10%

Made to Order
(For details, refer to pages 57 through to 59.)
## External Pilot

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to –100 kPa) or low pressure line with 0.15 MPa or less.

### Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>Base mounted (SYJ514R, SYJ524R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure range MPa</td>
<td>Main pressure</td>
</tr>
<tr>
<td></td>
<td>External pilot pressure</td>
</tr>
</tbody>
</table>

### Note

1) For manifold base, refer to page 21.
2) External pilot type body ported valves (SYJ512R) can only be used on the manifold. For body ported models with the external pilot option, please refer to page 59.
**Series SYJ500**

### How to Order

**Rated voltage**
- DC
  - S: 24 VDC
  - 6: 12 VDC
  - V: 6 VDC
  - 5: 5 VDC
  - R: 3 VDC
- AC (50/60 Hz)
  - 1: 100 VAC
  - 2: 200 VAC
  - 3: 110 VAC (115 VAC)
  - 4: 220 VAC (230 VAC)

DC specifications of type D and DO is only available with 12 and 24 VDC.

**Light/surge voltage suppressor**
- Electrical entry for G, H, L, W, M
  - Without light/surge voltage suppressor
  - With surge voltage suppressor
  - With surge voltage suppressor (Non-polar type)
- Electrical entry for D
  - Without light/surge voltage suppressor
  - With surge voltage suppressor (Non-polar type)

- Power saving circuit is only available in the "Z" type.

**AC specification**
- For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

**Body option**
- Individual pilot exhaust type
- Common exhaust for the pilot and main valve
- External pilot type

**Body ported**
- SYJ5 1 2 5 M M5 Q
- 3 port
- (For manifold type 20, 21R)

**Base mounted**
- SYJ5 1 4 5 M 01 Q
- 3 port
- (For sub-plate style, manifold type 40, 40R, 41, 41R)

**Type of actuation**
- 1: Normally closed
- 2: Normally open

**DC (5/6V) Hz**
- 1: 100 VAC
- 2: 200 VAC
- 3: 110 VAC (115 VAC)
- 4: 220 VAC (230 VAC)

AC specification is only available with D, DO type.

**Type of actuation**
- Normally closed
- Normally open

**Manual override**
- Non-locking push type
- With power saving circuit (24, 12 VDC only)

**Port size**
- Without sub-plate
- 1: 1/8 port
- With sub-plate

**Thread type**
- Rc
- F
- G
- N
- NPT
- T
- NPTF

**Electrical entry**

#### 24, 12, 6, 5, 3 VDC

<table>
<thead>
<tr>
<th>Grommet</th>
<th>L plug connector</th>
<th>M plug connector</th>
<th>DIN terminal</th>
<th>M8 connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Lead wire length 300 mm</td>
<td>With lead wire (Length 300 mm)</td>
<td>With lead wire (Length 300 mm)</td>
<td>Without connector</td>
</tr>
<tr>
<td>H</td>
<td>Lead wire length 600 mm</td>
<td>Without lead wire</td>
<td>Without connector</td>
<td>Without connector</td>
</tr>
<tr>
<td>L</td>
<td>Without connector</td>
<td>Without connector</td>
<td></td>
<td>With connector cable</td>
</tr>
<tr>
<td>M</td>
<td>With lead wire (Length 300 mm)</td>
<td>Without connector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MN</td>
<td>Without lead wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>With connector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>With connector cable (Note 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note**
- When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to catalogue on page 22.)
- Enter the cable length symbols in C. Please be sure to fill in the blank referring to back page 10.
- LN, MN type: with 2 sockets.
- DIN terminal type "Y" which conforms to EN-175301-803C (former DIN43650C) is also available. For details, refer to page 57.
- For connector cable of M8 connector, refer to back page 9.
- Connector M8 type "WA" conforming to IEC 60947-5-2 standard, is also available. For details, see page 58.
**Construction**

**Component Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Aluminum die-casted</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Piston plate</td>
<td>Resin</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>End cover</td>
<td>Aluminum die-casted</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Piston</td>
<td>Resin</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Spool valve assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Spool spring</td>
<td>Stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

**Replacement Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Sub-plate</td>
<td>SYJ500-9-1-Q</td>
<td>Aluminum die-casted</td>
</tr>
</tbody>
</table>

---

**How to Order Pilot Valve Assembly**

**V111**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Grommet, 300 mm lead wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Grommet, 600 mm lead wire</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Light/surge voltage suppressor**

- Without light/surge voltage suppressor
- With surge voltage suppressor
- With surge voltage suppressor (Non-polar type)
- With surge voltage suppressor (Non-polar type)

**Coil specifications**

- Standard
- Power saving circuit
- With power saving circuit (24, 12 VDC only)

**Rated voltage**

- 24 VDC
- 12 VDC
- 6 VDC
- 5 VDC
- 3 VDC

**Electrical entry**

- Grommet, 300 mm lead wire
- Grommet, 600 mm lead wire
- Without lead wire
- Without connector
- Without connector cable
- Without M8 connector

---

**How to Order M8 Connector Cable**

**V100-49-1-**

| Cable length | DC specifications of type D and DO is only available with 12 and 24 VDC.  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>300 mm</td>
<td>Do not replace V111 (G, H, L, M, W) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.</td>
</tr>
<tr>
<td>500 mm</td>
<td></td>
</tr>
<tr>
<td>1000 mm</td>
<td></td>
</tr>
<tr>
<td>2000 mm</td>
<td></td>
</tr>
<tr>
<td>3000 mm</td>
<td></td>
</tr>
<tr>
<td>5000 mm</td>
<td></td>
</tr>
</tbody>
</table>

---

**How to Order Connector Assembly for L/M Plug Connector**

For DC: SY100-30-4A-

**SY100-30-A**

**Lead wire length**

<table>
<thead>
<tr>
<th>Lead wire length</th>
<th>300 mm</th>
<th>600 mm</th>
<th>1000 mm</th>
<th>1500 mm</th>
<th>2000 mm</th>
<th>2500 mm</th>
<th>3000 mm</th>
<th>5000 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20</td>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
<td>50</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note**

1) Enter the cable length symbols in [ ] Please be sure to fill in the blank referring to back page 10.
Series SYJ500

Body Ported

Grommet (G), (H): SYJ5□2-□□-□□-M5-Q

With bracket:
SYJ5□2-□□-□□-M5-F-Q

L plug connector (L):
SYJ5□2-□□-□□-M5 (-F)-Q

M plug connector (M):
SYJ5□2-□□-□□-M5 (-F)-Q

DIN terminal (D):
SYJ5□2-□□-□□-M5 (-F)-Q

M8 connector (WO):
SYJ5□2-□□-□□-M5 (-F)-Q

* Refer to back page 10 for dimensions with connector cable.
Series SYJ500

Base Mounted (With Sub-plate)

Grommet (G), (H): SYJ5□4-□□□-01□-Q

L plug connector (L): SYJ5□4-□L□□-01□-Q
M plug connector (M): SYJ5□4-□M□□-01□-Q
DIN terminal (D): SYJ5□4-□D□□-01□-Q
M8 connector (WO): SYJ5□4-□WO□□-01□-Q

(Approx. 300) (Lead wire length)

* Refer to back page 10 for dimensions with connector cable.
## Series SYJ500
### Manifold Specifications

#### Manifold Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>For internal pilot</th>
<th>Type 20</th>
<th>Type 40</th>
<th>Type 41</th>
<th>Type 21R</th>
<th>Type 40R</th>
<th>Type 41R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manifold type</td>
<td>Single base/B mount</td>
<td>P (SUP), R (EXH)</td>
<td>Common SUP, common EXH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve stations</td>
<td>2 to 20 stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A port</td>
<td>Location</td>
<td>Valve</td>
<td>Base</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porting specifications</td>
<td>Direction</td>
<td>Top</td>
<td>Bottom</td>
<td>Side</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port size</td>
<td>P, R port</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5 x 0.8</td>
<td>M5 x 0.8, C4 (One-touch fitting for ø4), C6 (One-touch fitting for ø6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A port</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X port (note)</td>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note) Only for external pilot

#### Flow Characteristics

<table>
<thead>
<tr>
<th>Manifold</th>
<th>Port size</th>
<th>Flow characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1→2 (P→A)</td>
<td>C (l/min[NAR]) b</td>
<td>C (l/min[NAR]) b</td>
</tr>
<tr>
<td>2→3 (A→R)</td>
<td>b</td>
<td>C (l/min[NAR]) b</td>
</tr>
<tr>
<td>SYJ5 2</td>
<td>1/8</td>
<td>M5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>1/8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8</td>
</tr>
</tbody>
</table>

Note) Value at manifold base mounted, 2 position single operating.

* These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

#### How to Order Manifold (Example)

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example)

- SS3YJ5-20-03-Q —— 1 set (manifold base)
- SS3YJ5-41R-03-C6-Q —— 1 set (manifold base)
- SYJ512-SLZ-M5-Q —— 2 sets (valve)
- SYJ514R-5G-Q —— 2 sets (valve)
- SYJ500-10-1A-Q —— 1 set (blanking plate assembly)
- SYJ500-10-3A-Q —— 1 set (blanking plate assembly)

The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.
Combinations of Solenoid Valve, Manifold Gasket and Manifold Base

**Body ported (Type SYJ5□2(R))-Q**
- Round head combination screw
  - M2.5 x 25, Matt nickel plated

**Base mounted (Type SYJ5□4(R))-Q**
- Manifold gasket
  - SYJ500-5-4

**Applicable base**
- SS3YJ5-21R-Q
- SS3YJ5-20-Q
- SS3YJ5-21R-Q
- SS3YJ5-20-Q
- Manifold base

**Blanking Plate Assembly**

**Model no.: SYJ500-10-3A-Q**
- Applicable base
  - Sub-plate
    - SS3YJ5-40-Q
    - SS3YJ5-41-Q
    - SS3YJ5-40R-Q
    - SS3YJ5-41R-Q
  - Manifold gasket
  - Round head combination screw

**Model no.: SYJ500-10-1A-Q**
- Applicable base
  - Sub-plate
    - SS3YJ5-20-Q
    - SS3YJ5-21R-Q
  - Manifold gasket
  - Round head combination screw

**Caution**

**Mounting screw tightening torques**
- M2.5: 0.45 N·m

*Use caution to the assembly orientation for solenoid valves (blanking plate) and manifold gasket.*
**Manifold for Internal Pilot Type**

**Type 20**

How to Order:

SS3YJ5–20–05–05–Q

- Stations: 02 2 stations
- A port size: M5
- P, R port thread type: \(1/8\)
- Bracket: -
- Without bracket: \(-\)
- With bracket: \(\pm\)

Note: For more than 6 stations, supply air to both sides of P port and exhaust air from both sides of R port.

**Type 40**

How to Order:

SS3YJ5–40–05–M5–Q

- Stations: 02 2 stations
- A port size: M5
- P, R port thread type: \(1/8\)
- Bracket: -
- Without bracket: \(-\)
- With bracket: \(\pm\)

Note: For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

**Type 41**

How to Order:

SS3YJ5–41–05–C6–Q

- Stations: 02 2 stations
- A port size: M5
- P, R port thread type: \(1/8\)
- Bracket: -
- Without bracket: \(-\)
- With bracket: \(\pm\)

Note: For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

**Manifold for External Pilot Type**

Note: For more than 9 stations, supply air to both sides of P port and exhaust air from both sides of R port.

**Type 21R**

How to Order:

SS3YJ5–21R–05–Q

- Stations: 02 2 stations
- A port size: M5
- P, R port thread type: \(1/8\)
- Bracket: -
- Without bracket: \(-\)
- With bracket: \(\pm\)

Note: For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

**Type 40R**

How to Order:

SS3YJ5–40R–05–01–Q

- Stations: 02 2 stations
- A port size: M5
- P, R port thread type: \(1/8\)
- Bracket: -
- Without bracket: \(-\)
- With bracket: \(\pm\)

Note: For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

**Type 41R**

How to Order:

SS3YJ5–41R–05–M5–Q

- Stations: 02 2 stations
- A port size: M5
- P, R port thread type: \(1/8\)
- Bracket: -
- Without bracket: \(-\)
- With bracket: \(\pm\)

Note: For more than 9 stations, supply/exhaust air to/from both sides of P and R port.
Grommet (G)

L plug connector (L)  M plug connector (M)  DIN terminal (D)  M8 connector (WO)

<table>
<thead>
<tr>
<th>Station n</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
<th>Station 8</th>
<th>Station 9</th>
<th>Station 10</th>
<th>Station 11</th>
<th>Station 12</th>
<th>Station 13</th>
<th>Station 14</th>
<th>Station 15</th>
<th>Station 16</th>
<th>Station 17</th>
<th>Station 18</th>
<th>Station 19</th>
<th>Station 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>53</td>
<td>69</td>
<td>85</td>
<td>101</td>
<td>117</td>
<td>133</td>
<td>149</td>
<td>165</td>
<td>181</td>
<td>197</td>
<td>213</td>
<td>229</td>
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<td>261</td>
<td>277</td>
<td>293</td>
<td>309</td>
<td>325</td>
<td>341</td>
</tr>
<tr>
<td>L2</td>
<td>40</td>
<td>56</td>
<td>72</td>
<td>88</td>
<td>104</td>
<td>120</td>
<td>136</td>
<td>152</td>
<td>168</td>
<td>184</td>
<td>200</td>
<td>216</td>
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<td>248</td>
<td>264</td>
<td>280</td>
<td>296</td>
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<td>328</td>
</tr>
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<td>32</td>
<td>48</td>
<td>64</td>
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<td>128</td>
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<td>56</td>
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<td>248</td>
<td>264</td>
<td>280</td>
<td>296</td>
</tr>
</tbody>
</table>
# Series SYJ500

## Type 40 Manifold: Bottom Ported/SS3YJ5-40- Stations -M5, 01-Q

**Grommet (G)**

<table>
<thead>
<tr>
<th>Port size</th>
<th>Station</th>
<th>L1</th>
<th>L2</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>L1 52</td>
<td>68</td>
<td>84</td>
<td>100</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>L2 43</td>
<td>59</td>
<td>75</td>
<td>91</td>
<td>107</td>
</tr>
</tbody>
</table>

**For M5**

![Diagram for M5]

**For 1/8**

![Diagram for 1/8]

**For L plug connector (L)**

<table>
<thead>
<tr>
<th>Port size</th>
<th>Station</th>
<th>L1</th>
<th>L2</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>L1 52</td>
<td>68</td>
<td>84</td>
<td>100</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td>L2 43</td>
<td>59</td>
<td>75</td>
<td>91</td>
<td>107</td>
</tr>
</tbody>
</table>

**For M plug connector (M)**

![Diagram for M]

**For DIN terminal (D)**

![Diagram for DIN]

**For M8 connector (WO)**

![Diagram for M8]

---

**Port size**

<table>
<thead>
<tr>
<th>Station</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
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<td>148</td>
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<td>260</td>
</tr>
<tr>
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<td>84</td>
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<td>116</td>
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<tr>
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<tr>
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<td>292</td>
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<td>326</td>
<td>343</td>
</tr>
</tbody>
</table>

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*Refer to back page 10 for dimensions with connector cable.*
Series SYJ500

Type 41 Manifold: Side Ported/SS3Y5-41-\textsuperscript{Stations\hspace{2mm}C4, N3 \hspace{4mm}C6, N7 \hspace{4mm}Q}

Grommet (G)

![Diagram of grommet with dimensions and notes]

L plug connector (L)  M plug connector (M)  DIN terminal (D)  M8 connector (WO)

<table>
<thead>
<tr>
<th>Port size</th>
<th>Station 1</th>
<th>Station 2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
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</thead>
<tbody>
<tr>
<td>One-touch fitting</td>
<td>L\textsubscript{1}</td>
<td>50</td>
<td>66</td>
<td>82</td>
<td>98</td>
<td>114</td>
<td>130</td>
<td>146</td>
<td>162</td>
<td>178</td>
<td>194</td>
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<td>226</td>
<td>242</td>
<td>258</td>
<td>274</td>
<td>290</td>
<td>306</td>
<td>322</td>
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<tr>
<td></td>
<td>L\textsubscript{2}</td>
<td>41</td>
<td>57</td>
<td>73</td>
<td>89</td>
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<td>121</td>
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<td>217</td>
<td>233</td>
<td>249</td>
<td>265</td>
<td>281</td>
<td>297</td>
<td>313</td>
</tr>
</tbody>
</table>

*Refer to back page 10 for dimensions with connector cable.
**Series SYJ500**

Type 41 Manifold: Side Ported/SS3YJ5-41--Stations-M5, 01 □-Q

**Grommet (G)**

**For M5**

For 1/8

**Light/surge voltage suppressor**

(Pitch) P=16

Approx. 300

(Light/surge voltage suppressor)

(Pitch) P=17

Approx. 300

**Port size** | Station 1 | Station 2
---|---|---
M5 | L1 | 52 68 84 100 116 132 148 164 180 196 212 228 244 260 276 292 308 324 340
| L2 | 43 59 75 91 107 123 139 155 171 187 203 219 235 251 267 283 299 315 331

1/8

<table>
<thead>
<tr>
<th>Station 1</th>
<th>Station 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>53 70 87 104 121 138 155 172 189 206 223 240 257 274 291 308 325 342 359</td>
</tr>
<tr>
<td>L2</td>
<td>44 61 78 95 112 129 146 163 180 197 214 231 248 265 282 299 316 333 350</td>
</tr>
</tbody>
</table>
**Series SYJ500**

Type 21R Manifold: Top Ported (External Pilot Type)/SS3YJ5-21R- Stations-00□-Q

Grommet (G)

- (Station n) -- (Station 1)

- (Light/surge voltage suppressor)

L plug connector (L) | M plug connector (M) | DIN terminal (D) | M8 connector (WO)

---

<table>
<thead>
<tr>
<th>Station n</th>
<th>Station 2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>62</td>
<td>78</td>
<td>94</td>
<td>110</td>
<td>126</td>
<td>142</td>
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<td>L2</td>
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<tr>
<td>L3</td>
<td>47</td>
<td>63</td>
<td>79</td>
<td>95</td>
<td>111</td>
<td>127</td>
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<td>287</td>
<td>303</td>
<td>319</td>
<td>335</td>
</tr>
</tbody>
</table>

---

* Refer to back page 10 for dimensions with connector cable.
**Series SYJ500**

**Type 40R Manifold: Bottom Ported (External Pilot Type)/SS3YJ5-40R- Stations -M5, 01□-Q**

**Grommet (G)**

**For M5**

For 1/8

**L plug connector (L)**

**M plug connector (M)**

**DIN terminal (D)**

**M8 connector (WO)**

---

<table>
<thead>
<tr>
<th>Port size</th>
<th>Station 1</th>
<th>Station 2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>L1</td>
<td>62</td>
<td>78</td>
<td>94</td>
<td>110</td>
<td>126</td>
<td>142</td>
<td>158</td>
<td>174</td>
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<td>222</td>
<td>238</td>
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<td>350</td>
</tr>
<tr>
<td></td>
<td>L2</td>
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<td>69</td>
<td>85</td>
<td>101</td>
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<td>335</td>
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<tr>
<td>1/8</td>
<td>L1</td>
<td>63</td>
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<td>114</td>
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<td>320</td>
<td>337</td>
<td>354</td>
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</tbody>
</table>

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* Refer to back page 10 for dimensions with connector cable.
Type 41R Manifold: Side Ported (External Pilot Type)/SS3YJ5-41R- Stations /L50132-Q

Grommet (G)

One-touch fitting

(Applicable tubing O.D.: ø4, ø5/32", ø6, ø1/4")

Manual override

(Approx. 300)

(Lead wire length)

L plug connector (L)    M plug connector (M)    DIN terminal (D)    M8 connector (WO)

Refer to back page 10 for dimensions with connector cable.
Type 41R Manifold: Side Ported (External Pilot Type)/SS3YJ5-41R- Stations-M5, 01-Q

For M5

<table>
<thead>
<tr>
<th>Port size</th>
<th>Station n</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<th>11</th>
<th>12</th>
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<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station 2</th>
</tr>
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<tbody>
<tr>
<td>M5</td>
<td>L1</td>
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<td>78</td>
<td>94</td>
<td>110</td>
<td>126</td>
<td>142</td>
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<td>270</td>
<td>286</td>
<td>302</td>
<td>318</td>
<td>334</td>
</tr>
<tr>
<td>M5</td>
<td>L2</td>
<td>53</td>
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<td>85</td>
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<tr>
<td>L3</td>
<td>L1</td>
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<tr>
<td>L3</td>
<td>L2</td>
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<td>343</td>
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<td>L1</td>
<td>48</td>
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<td>82</td>
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<td>116</td>
<td>133</td>
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<td>252</td>
<td>269</td>
<td>286</td>
<td>303</td>
<td>320</td>
<td>337</td>
</tr>
</tbody>
</table>

| Port size | Station n | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Station 2 |
|-----------|-----------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|-----------|
| M5        | L1        | 57.1| 35 | 6.5 | 35 | 6.5 | 21.5 | 6.5 | 4.5 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23         |
| M5        | L2        | 57.1| 35 | 6.5 | 35 | 6.5 | 21.5 | 6.5 | 4.5 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23         |
| L3        | L1        | 6.5 | 35 | 6.5 | 35 | 6.5 | 21.5 | 6.5 | 4.5 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23         |
| L3        | L2        | 6.5 | 35 | 6.5 | 35 | 6.5 | 21.5 | 6.5 | 4.5 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23         |
| L3        | L3        | 6.5 | 35 | 6.5 | 35 | 6.5 | 21.5 | 6.5 | 4.5 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23         |
Rubber Seal
3 Port Pilot Solenoid Valve
Series SYJ700

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Internal pilot</th>
<th>Fluid</th>
<th>Operating pressure range (MPa)</th>
<th>Ambient and fluid temperature (°C)</th>
<th>Response time ms (at 0.5 MPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal pilot</td>
<td></td>
<td>0.15 to 0.7</td>
<td>−10 to 50 (No freezing. Refer to page 2.)</td>
<td>30 or less</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Max. operating frequency (Hz)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Manual override (Manual operation)</td>
<td>Non-locking push type, push-turn locking slotted type, push-turn locking lever type</td>
<td></td>
<td></td>
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</tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pilot exhaust method</td>
<td>Individual exhaust for the pilot valve, common exhaust for the pilot and main valve</td>
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</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
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</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Shock/Vibration resistance (m/s²)</td>
<td>150/30</td>
<td></td>
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</tr>
</tbody>
</table>

Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)
Note 2) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energised and de-energised states every once for each condition. (Value in the initial state)
Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)

Solenoid Specifications

<table>
<thead>
<tr>
<th>Electrical entry</th>
<th>Grommet (G), (H), L plug connector (L), M plug connector (M), DIN terminal (D), M8 connector (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>G, H, L, M, W</td>
</tr>
<tr>
<td></td>
<td>D</td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

| Coil rated voltage (V) | DC   | 24, 12, 6, 5, 3 | 24, 12 |
|                       | AC 90Hz Hz | - | 100, 110, 200, 220 |

<table>
<thead>
<tr>
<th>Allowable voltage fluctuation</th>
<th>±10% of rated voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power consumption (W)</th>
<th>DC</th>
<th>0.35 (With light: 0.4 (DIN terminal with light: 0.45))</th>
<th>0.1 (With light only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AC</td>
<td>0.78 (With light: 0.87)</td>
<td>0.36 (With light: 0.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.86 (With light: 0.97)</td>
<td>0.36 (With light: 0.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[0.94 (With light: 1.07)]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.15 (With light: 1.30)</td>
<td>0.86 (With light: 1.46)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.27 (With light: 1.46)</td>
<td>1.27 (With light: 1.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[1.39 (With light: 1.60)]</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Apparent power (VA)</th>
<th>AC</th>
<th>100 V</th>
<th>-</th>
<th>0.78 (With light: 0.87)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>110 V [115 V]</td>
<td>-</td>
<td>0.86 (With light: 0.97)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[0.94 (With light: 1.07)]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 V</td>
<td>-</td>
<td>1.15 (With light: 1.30)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>220 V [230 V]</td>
<td>-</td>
<td>1.27 (With light: 1.46)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-</td>
<td>1.27 (With light: 1.50)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[1.39 (With light: 1.60)]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surge voltage suppressor</th>
<th>Diode (DIN terminal, varistor when non-polar types)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator light</td>
<td>LED (Neon light when AC with DIN terminal)</td>
</tr>
</tbody>
</table>

* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.
* For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.
* S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.
S and Z type: 24 VDC: –7% to +10% 12 VDC: –4% to +10% T type: 24 VDC: –8% to +10% 12 VDC: –8% to +10%
Series SYJ700

Flow Characteristics/Weight

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Type of actuation</th>
<th>Port size</th>
<th>Flow characteristics</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ712</td>
<td>N.C.</td>
<td>1/8</td>
<td>( C \text{ [dm}^3\text{/s bar]} )</td>
<td>75</td>
</tr>
<tr>
<td>SYJ722</td>
<td>N.O.</td>
<td>1/8</td>
<td>( C \text{ [dm}^3\text{/s bar]} )</td>
<td>76</td>
</tr>
<tr>
<td>SYJ714</td>
<td>N.C.</td>
<td>1/4</td>
<td>( C \text{ [dm}^3\text{/s bar]} )</td>
<td>97</td>
</tr>
<tr>
<td>SYJ724</td>
<td>N.O.</td>
<td>1/4</td>
<td>( C \text{ [dm}^3\text{/s bar]} )</td>
<td>80</td>
</tr>
</tbody>
</table>

Note) Value for DC. Add 3 g for AC. ( ): Without sub-plate.
* These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

External Pilot

SYJ700R

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to –100 kPa) or low pressure line with 0.15 MPa or less.

Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>Base mounted (SYJ714R, SYJ724R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure range MPa</td>
<td>Main pressure: –100 kPa to 0.7</td>
</tr>
<tr>
<td></td>
<td>External pilot pressure: 0.15 to 0.7</td>
</tr>
</tbody>
</table>

**Note**

1) For manifold base, refer to page 39.
2) External pilot type body ported valves (SYJ7□2R) can only be used on the manifold. For body ported models with the external pilot option, please refer to page 59.
Series SYJ700

How to Order

- **Type of actuation**
  1. Normally closed
  2. Normally open

- **Rated voltage**
  - DC
    - S: 24 VDC
    - 6: 12 VDC
    - V: 6 VDC
    - S: 5 VDC
    - R: 3 VDC
  - AC (50/60 Hz)
    - 1: 100 VAC
    - 2: 200 VAC
    - 3: 110 VAC (115 VAC)
    - 4: 220 VAC (230 VAC)

- **Light/surge voltage suppressor**
  - Electrical entry for G, H, L, M and W
    - Without light/surge voltage suppressor
    - S: With light/surge voltage suppressor
    - Z: With light/surge voltage suppressor (Non-polar type)
  - Electrical entry for D
    - Without light/surge voltage suppressor
    - S: With light/surge voltage suppressor (Non-polar type)
    - Z: With light/surge voltage suppressor (Non-polar type)

- **Thread type**
  - Without bracket
  - F: With bracket

- **Body ported**
  - SYJ7 1 2 5 M 01 Q

- **Base mounted**
  - SYJ7 1 4 5 M 01 Q

- **Coil specifications**
  - Standard
  - T: With power saving circuit (24, 12 VDC only)
  - Power saving circuit is only available in the case of D, DO, W type.

- **Body option**
  - Individual pilot exhaust type
  - M: Common exhaust for the pilot and main valve
  - R: External pilot type

- **Electrical entry**
  - 24, 12, 6, 5, 3 VDC
    - DIN terminal
    - M: With lead wire (Length 300 mm)
    - L: With lead wire (Length 300 mm)
    - G: Lead wire length 300 mm
  - M8 connector
    - D: Without connector cable

- **Port size**
  - 01: 1/8 port
  - 02: 1/4 port

- **Mounting bracket**
  - Without bracket
  - F: With bracket

Note: When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to catalogue on page 40.)

- LN, MN type: with 2 sockets.
- DIN terminal type "Y" which conforms to EN-175301-803C (former DIN43650C) is also available. For details, refer to page 57.
- For connector cable of M8 connector, refer to back page 9.
- Connector M8 type "WA" conforming to IEC 60947-5-2 standard, is also available. For details, see page 58.

Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to back page 10.

SYJ7L50132 is only for manifold use.
### Construction

**How to Order Pilot Valve Assembly**

**Coil specifications**

- T: Standard
- With power saving circuit (24, 12 VDC only)
- Power saving circuit is not available in the case of W type.

**Rated voltage**

- 5: 24 VDC
- 6: 12 VDC
- 1: 100 VAC 50/60 Hz
- 2: 200 VAC 50/60 Hz
- 3: 110 VAC 50/60 Hz
- 4: 220 VAC 50/60 Hz
- 5: 5 VDC
- 6: 3 VDC

**Light/surge voltage suppressor**

- Without light/surge voltage suppressor
- With light/surge voltage suppressor
- With surge voltage suppressor (Non-polar type)
- With light/surge voltage suppressor (Non-polar type)
- Power saving circuit is only available in the "Z" type.

**Electrical entry**

- G: Grommet, 300 mm lead wire
- H: Grommet, 600 mm lead wire
- L: L plug connector With lead wire
- LN: L plug connector Without lead wire
- LO: Without connector
- M: M plug connector With lead wire
- MN: M plug connector Without lead wire
- MO: Without connector
- WO: M8 connector Without connector cable
- W: M8 connector With connector cable
- Note 1: Enter the cable length symbols in /L50132. Please be sure to fill in the blank referring to back page 10.

**How to Order Connector Assembly for L/M Plug Connector**

**For DC:** SY100-30-4A-

- SY100-30-4A-
- SY100-30-A

**Lead wire length**

- 6: 600 mm
- 10: 1000 mm
- 15: 1500 mm
- 20: 2000 mm
- 25: 2500 mm
- 30: 3000 mm
- 50: 5000 mm

**How to Order M8 Connector Cable**

- V100-49-1

**Cable length**

- 1: 300 mm
- 2: 500 mm
- 3: 1000 mm
- 4: 2000 mm
- 7: 5000 mm

**Rated voltage**

- 5: 24 VDC
- 6: 12 VDC
- 1: 100 VAC 50/60 Hz
- 2: 200 VAC 50/60 Hz
- 3: 110 VAC 50/60 Hz
- 4: 220 VAC 50/60 Hz
- 5: 5 VDC
- 6: 3 VDC

**Light/surge voltage suppressor**

- Without light/surge voltage suppressor
- With light/surge voltage suppressor
- With surge voltage suppressor (Non-polar type)
- With light/surge voltage suppressor (Non-polar type)

**Electrical entry**

- D: DIN terminal With connector
- DO: DIN terminal Without connector
- Note 1: Do not replace V111 (G, H, L, M, W) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

---

**Component Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Aluminum die-cast</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>Piston plate</td>
<td>Resin</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>End cover</td>
<td>Aluminum die-cast</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Piston</td>
<td>Resin</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Spool valve assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Spool spring</td>
<td>Stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

**Replacement Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>No.</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Sub-plate</td>
<td>1/8</td>
<td>Aluminum die-cast</td>
</tr>
<tr>
<td>8</td>
<td>Pilot valve</td>
<td>1/4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bracket assembly</td>
<td></td>
<td>SYJ700-19-1A</td>
</tr>
</tbody>
</table>

---

**Rated voltage**

- 5: 24 VDC
- 6: 12 VDC

**Electrical entry**

- 1: 100 VAC 50/60 Hz
- 2: 200 VAC 50/60 Hz
- 3: 110 VAC 50/60 Hz
- 4: 220 VAC 50/60 Hz

**Note:**

- Power saving circuit is not available in the case of W type.
- Power saving circuit is only available in the "Z" type.
- DC specifications of type D and DO is only available with 12 and 24 VDC.
- Power saving circuit is not available in the case of D or DO type.
- For connector cable of M8 connector, refer to back page 9.
Series SYJ700

Body Ported

Grommet (G), (H): SYJ7□2-□□□□-01□□-Q

With bracket:
SYJ7□2-□□□□-01□□-F-Q

L plug connector (L): SYJ7□2-□□□□-01□□-F-Q
M plug connector (M): SYJ7□2-□□□□-01□□-F-Q
DIN terminal (D): SYJ7□2-□□□□-01□□-F-Q
M8 connector (WO): SYJ7□2-□□□□-01□□-F-Q

Refer to back page 10 for dimensions with connector cable.
Series SYJ700

Base Mounted (With Sub-plate)

Grommet (G), (H): SYJ7□-□□□□□□□□-Q

L plug connector (L): SYJ7□-□□□□□□□□-Q
M plug connector (M): SYJ7□-□□□□□□□□-Q
DIN terminal (D): SYJ7□-□□□□□□□□-Q
M8 connector (WO): SYJ7□-□□□□□□□□-Q

Applicable cable O.D.: Ø3.5 to Ø7

* Refer to back page 10 for dimensions with connector cable.
Manifold Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>For internal pilot</th>
<th>Type 20</th>
<th>Type 21</th>
<th>Type 40</th>
<th>Type 41</th>
<th>Type 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>P (SUP), R (EXH)</td>
<td>Common SUP, common EXH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve stations</td>
<td>2 to 20 stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Porting specifications

<table>
<thead>
<tr>
<th>Location</th>
<th>Valve</th>
<th>Valve</th>
<th>Base</th>
<th>Base</th>
<th>Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>P, R port</td>
<td>Top</td>
<td>Top</td>
<td>Bottom</td>
<td>Bottom</td>
<td>Side</td>
</tr>
<tr>
<td>A port</td>
<td>1/8</td>
<td>1/8</td>
<td>1/8</td>
<td>1/8</td>
<td>1/8</td>
</tr>
<tr>
<td>X port (Note)</td>
<td>—</td>
<td>M5</td>
<td>—</td>
<td>M5</td>
<td>M5</td>
</tr>
</tbody>
</table>

### Port size

- **Type 20**: For internal pilot
- **Type 21**: For external pilot
- **Type 40**: for internal pilot
- **Type 41**: for external pilot
- **Type 42**: for internal pilot
- **Type 41R**: for external pilot
- **Type 42R**: for internal pilot

**Note**: Only for external pilot.

### Flow Characteristics

For internal pilot: SS3YJ7-20-03-Q

<table>
<thead>
<tr>
<th>Port size</th>
<th>Flow characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(P), 3(R)</td>
<td><strong>C [dm³/(s·bar)]</strong></td>
</tr>
<tr>
<td>2(A)</td>
<td><strong>b</strong></td>
</tr>
<tr>
<td>1(P), 3(R)</td>
<td><strong>Q[cm³/(s·bar)]</strong></td>
</tr>
<tr>
<td>2(A)</td>
<td><strong>C [dm³/(s·bar)]</strong></td>
</tr>
<tr>
<td>1(P), 3(R)</td>
<td><strong>b</strong></td>
</tr>
<tr>
<td>2(A)</td>
<td><strong>C [dm³/(s·bar)]</strong></td>
</tr>
<tr>
<td>1(P), 3(R)</td>
<td><strong>Q[cm³/(s·bar)]</strong></td>
</tr>
</tbody>
</table>

**Note**: Value at manifold base mounted, 2 position single operating.

**Flow**: These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

### How to Order Manifold (Example)

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example)

- SS3YJ7-20-03-Q — 1 set (manifold base)
- SS3YJ7-42R-03-01-Q — 1 set (manifold base)
- SYJ712-5LZ-01-Q — 2 sets (valve)
- SYJ714R-5G-Q — 2 sets (valve)
- SYJ700-10-1A-Q — 1 set (blanking plate assembly)
- SYJ700-10-2A-Q — 1 set (blanking plate assembly)

The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.
Combinations of Solenoid Valve, Manifold Gasket and Manifold Base

Body ported (Type SYJ7□2-Q)  
Base mounted (Type SYJ7□4-Q)

<table>
<thead>
<tr>
<th>Applicable base</th>
<th>Manifold base</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-20-Q</td>
<td></td>
</tr>
<tr>
<td>SS3YJ7-21-Q</td>
<td></td>
</tr>
<tr>
<td>SS3YJ7-21R-Q</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ700-5-3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round head combination screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3 x 31, Matt nickel plated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model no.: SYJ700-10-2A-1-Q</th>
</tr>
</thead>
</table>

Blanking Plate Assembly

Model no.: SYJ700-10-2A-1-Q  
(In common for body ported type and base mounted type)

<table>
<thead>
<tr>
<th>Applicable base</th>
<th>Manifold base</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-20-Q</td>
<td></td>
</tr>
<tr>
<td>SS3YJ7-21-Q</td>
<td></td>
</tr>
<tr>
<td>SS3YJ7-21R-Q</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ700-5-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round head combination screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3 x 31, Matt nickel plated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applicable base</th>
<th>Sub-plate</th>
<th>Manifold base</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-40-Q</td>
<td>SS3YJ7-41-Q</td>
<td></td>
</tr>
<tr>
<td>SS3YJ7-42-Q</td>
<td>SS3YJ7-41R-Q</td>
<td></td>
</tr>
<tr>
<td>SS3YJ7-42R-Q</td>
<td>SS3YJ7-42R-Q</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model no.: SYJ700-10-2A-2-Q</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Applicable base</th>
<th>Sub-plate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-20-Q</td>
<td>SS3YJ7-40-Q</td>
</tr>
<tr>
<td>SS3YJ7-21-Q</td>
<td>SS3YJ7-41-Q</td>
</tr>
<tr>
<td>SS3YJ7-21R-Q</td>
<td>SS3YJ7-42-Q</td>
</tr>
<tr>
<td>SS3YJ7-41R-Q</td>
<td>SS3YJ7-41R-Q</td>
</tr>
<tr>
<td>SS3YJ7-42R-Q</td>
<td>SS3YJ7-42R-Q</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ700-5-3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round head combination screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3 x 31, Matt nickel plated</td>
</tr>
</tbody>
</table>

Caution

Mounting screw tightening torques

M3: 0.8 N·m

Use caution to the assembly orientation for solenoid valves, gasket, and optional parts.
Series SYJ700

Manifold for Internal Pilot Type

Type 20/Type 21

How to Order

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>Stations</th>
<th>A port size</th>
<th>P, R port thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-20</td>
<td>10</td>
<td>1/8</td>
<td>Rc</td>
</tr>
<tr>
<td>SS3YJ7-21</td>
<td>2 stations</td>
<td>20</td>
<td>Rc</td>
</tr>
</tbody>
</table>

Applicable solenoid valve
SYJ712-21-01-01-Q
SYJ722-21-01-01-Q

Applicable blanking plate assembly
SYJ700-10-2A-1-Q

Type 40/Type 41

How to Order

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>Stations</th>
<th>A port size</th>
<th>P, R port thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-40</td>
<td>10</td>
<td>1/8</td>
<td>Rc</td>
</tr>
<tr>
<td>SS3YJ7-41</td>
<td>2 stations</td>
<td>20</td>
<td>Rc</td>
</tr>
</tbody>
</table>

Applicable solenoid valve
SYJ714-40-01-Q
SYJ724-40-01-Q

Applicable blanking plate assembly
SYJ700-10-2A-2-Q

Type 42

How to Order

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>Stations</th>
<th>A port size</th>
<th>P, R port thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-42</td>
<td>10</td>
<td>1/8</td>
<td>Rc</td>
</tr>
<tr>
<td>SS3YJ7-42</td>
<td>2 stations</td>
<td>20</td>
<td>Rc</td>
</tr>
</tbody>
</table>

Applicable solenoid valve
SYJ712-42-01-01-Q
SYJ722-42-01-01-Q

Applicable blanking plate assembly
SYJ700-10-2A-1-Q

Manifold for External Pilot Type

Pilot valve pressure is supplied separately from the main valve pressure through the use of a separate supply port. It can be used in the vacuum (up to –100 kPa) or low pressure line with 0.15 MPa or less.

Type 21R

How to Order

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>Stations</th>
<th>A port size</th>
<th>P, R port thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-21R</td>
<td>10</td>
<td>1/8</td>
<td>Rc</td>
</tr>
<tr>
<td>SS3YJ7-21R</td>
<td>2 stations</td>
<td>20</td>
<td>Rc</td>
</tr>
</tbody>
</table>

Note: For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

Type 41R

How to Order

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>Stations</th>
<th>A port size</th>
<th>P, R port thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-41R</td>
<td>10</td>
<td>1/8</td>
<td>Rc</td>
</tr>
<tr>
<td>SS3YJ7-41R</td>
<td>2 stations</td>
<td>20</td>
<td>Rc</td>
</tr>
</tbody>
</table>

Note: For more than 9 stations, supply/exhaust air to/from both sides of P and R port.

Type 42R

How to Order

<table>
<thead>
<tr>
<th>Manifold type</th>
<th>Stations</th>
<th>A port size</th>
<th>P, R port thread type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS3YJ7-42R</td>
<td>10</td>
<td>1/8</td>
<td>Rc</td>
</tr>
<tr>
<td>SS3YJ7-42R</td>
<td>2 stations</td>
<td>20</td>
<td>Rc</td>
</tr>
</tbody>
</table>

Note: For more than 9 stations, supply/exhaust air to/from both sides of P and R port.
Grommet (G)

Type 20 Manifold: Top Ported/SS3YJ7-20-[Stations (-00□)-Q

Grommet (G)

L plug connector (L)  M plug connector (M)  DIN terminal (D)  M8 connector (WO)

* Refer to back page 10 for dimensions with connector cable.

<table>
<thead>
<tr>
<th>Station</th>
<th>Station 2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>59</td>
<td>78</td>
<td>97</td>
<td>116</td>
<td>135</td>
<td>154</td>
<td>173</td>
<td>192</td>
<td>211</td>
<td>230</td>
<td>249</td>
<td>268</td>
<td>287</td>
<td>306</td>
<td>325</td>
<td>344</td>
<td>363</td>
<td>382</td>
<td>401</td>
</tr>
<tr>
<td>L2</td>
<td>49</td>
<td>68</td>
<td>87</td>
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<td>315</td>
<td>334</td>
<td>353</td>
<td>372</td>
<td>391</td>
</tr>
</tbody>
</table>
Series SYJ700

Type 21 Manifold: Top Ported/SS3YJ7-21- Stations (-00 □)-Q

Grommet (G)

---

### L plug connector (L)

- Height: 63.5 (Lead wire length)
- Width: 67
- Depth: 51.6

### M plug connector (M)

- Height: 63.5
- Width: 71.3
- Depth: 66.3

### DIN terminal (D)

- Height: 63.5
- Width: 81.7
- Depth: 93

### M8 connector (WO)

- Height: 63.5
- Width: 80.2
- Depth: 72.8

---

<table>
<thead>
<tr>
<th>Station n</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
<th>Station 5</th>
<th>Station 6</th>
<th>Station 7</th>
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<tr>
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<td>61</td>
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<td>L2</td>
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<td>334</td>
<td>353</td>
<td>372</td>
<td>391</td>
<td></td>
</tr>
</tbody>
</table>

* Refer to back page 10 for dimensions with connector cable.
Series SYJ700

Type 42 Manifold: Side Ported/SS3YJ7-42-Stations-01, C6 N7 □-Q

Grommet (G)
For C6, N7 □ (Built-in one-touch fitting)

For 1/8

(Light/surge voltage suppressor)

One-touch fitting
(Applicable tubing O.D.: ø6, ø1/4", ø8, ø5/16"

(Applicable cable O.D. ø3.5 to ø7)

Manual override

L plug connector (L)  M plug connector (M)  DIN terminal (D)  M8 connector (WO)

Approx. 300 (Lead wire length)

Approx. 300 (Lead wire length)

Approx. 300 (Lead wire length)

Approx. 300 (Lead wire length)

* Refer to back page 10 for dimensions with connector cable.

---

<table>
<thead>
<tr>
<th>Station n</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3</th>
<th>Station 4</th>
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<th>Station 11</th>
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<th>Station 14</th>
<th>Station 15</th>
<th>Station 16</th>
<th>Station 17</th>
<th>Station 18</th>
<th>Station 19</th>
<th>Station 20</th>
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</thead>
<tbody>
<tr>
<td>L1</td>
<td>61</td>
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<td>99</td>
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<td>L2</td>
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<td>334</td>
<td>353</td>
<td>372</td>
<td>391</td>
<td></td>
</tr>
</tbody>
</table>
Grommet (G)

(Light/surge voltage suppressor)
Series SYJ700

Type 21R Manifold: Top Ported (External Pilot Type)/SS3YJ7-21R- Stations (-00 □)-Q

Grommet (G)

(Light/surge voltage suppressor)

L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (WO)

Approx. 300 (Lead wire length)

Max. 10

Approx. 300 (Lead wire length)

Applicable cable O.D. ø3.5 to ø7

* Refer to back page 10 for dimensions with connector cable.

<table>
<thead>
<tr>
<th>Station n</th>
<th>Station 2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>Station 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>61</td>
<td>80</td>
<td>99</td>
<td>118</td>
<td>137</td>
<td>156</td>
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<td>315</td>
<td>334</td>
<td>353</td>
<td>372</td>
<td>391</td>
</tr>
</tbody>
</table>

47
Series SYJ700

Type 42R Manifold: Side Ported/SS3YJ7-42R- Stations -01, C6 N7 C8+ N9 -Q

Grommet (G)

For 1/8

(Light/surge voltage suppressor)

(M8 x 1)

(Applicable cable O.D.: ø3.5 to ø7)

Approx. 300 (Lead wire length)

Station n

L plug connector (L) M plug connector (M) DIN terminal (D) M8 connector (WO)

<table>
<thead>
<tr>
<th>Station</th>
<th>L1</th>
<th>L2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>61</td>
<td>49</td>
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<tr>
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<tr>
<td>21</td>
<td>403</td>
<td>391</td>
</tr>
</tbody>
</table>

Refer to back page 10 for dimensions with connector cable.
Series SYJ700

Type 41R Manifold: Bottom Ported (External Pilot Type)/SS3YJ7-41R- Stations-01-Q

Grommet (G)

(Light/surge voltage suppressor)
How to Order Manifold Base

Same manifolds as series SYJ300 are prepared.

SS3YJA3 → Fill the same as SS3YJ3.

* Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Ex.) SS3YJA3-41-03-M3 .......... 1 set
    * SYJA314 .......................... 1 set
    * SYJA324 .......................... 1 set
    * SYJ300-10-2A ..................... 1 set

The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.
Series SYJA300

Compact and lightweight

Base mounted

Body ported

Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure range (MPa)</td>
<td>0.15 to 0.7</td>
</tr>
<tr>
<td>Pilot pressure range (MPa) Note 1</td>
<td>Operating pressure range to 0.7</td>
</tr>
<tr>
<td>Ambient and fluid temperature (°C)</td>
<td>–10 to 50 (No freezing. Refer to back page 2.)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Impact/Vibration resistance (m/s²) Note 2</td>
<td>150/30</td>
</tr>
</tbody>
</table>

Note 1) Be certain that pressure within operating pressure range be supplied to supply port, because return pressure is introduced from supply port (1(P)) for activation.

Note 2) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve, when pilot signal is ON and OFF. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve when pilot signal is ON and OFF. (Value in the initial state)

With Bracket

Air operated valve type

SYJA3 2-M3-F

Pilot Pressure Range

Caution

Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.

Flow Characteristics/Weight

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Type of actuation</th>
<th>Port size</th>
<th>Flow characteristics</th>
<th>Pilot port size</th>
<th>Weight (g)</th>
<th>Effective area (mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1→2 (P→A)</td>
<td>2→3 (A→R)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C [dm³/s bar]</td>
<td>b</td>
<td>Cv</td>
<td>C [dm³/s bar]</td>
</tr>
<tr>
<td>Body ported</td>
<td>SYJA312-M3</td>
<td>N.C. M3</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>SYJA322-M3</td>
<td>N.O. M3</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>SYJA314-M5</td>
<td>N.C. M5</td>
<td>0.41</td>
<td>0.18</td>
<td>0.086</td>
<td>97</td>
</tr>
<tr>
<td>Base mounted</td>
<td>SYJA324-M5</td>
<td>N.O. M5</td>
<td>0.36</td>
<td>0.31</td>
<td>0.089</td>
<td>92</td>
</tr>
</tbody>
</table>

Note) Model No. for base mounted style without sub-plate is SYJA3 4.

*These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.

*39 (Without sub-plate 18)
Series SYJA300

Dimensions

Body ported: SYJA3□2-M3(-F)

Base mounted: SYJA3□4-M5
3 Port/Air Operated Valve

Series SYJA500/700

How to Order

<table>
<thead>
<tr>
<th>Port size</th>
<th>Symbol</th>
<th>Port size</th>
<th>Applicable series</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>M5</td>
<td>M5</td>
<td>SYJA500</td>
</tr>
<tr>
<td>01</td>
<td>1/8</td>
<td>01</td>
<td>SYJA700</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Series</th>
<th>Type of actuation</th>
<th>Port size</th>
<th>Symbol</th>
<th>Bore size</th>
<th>Applicable series</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJA500</td>
<td>5</td>
<td>1/8</td>
<td>01</td>
<td>1/8</td>
<td>SYJA500</td>
</tr>
<tr>
<td>SYJA700</td>
<td>7</td>
<td>1/4</td>
<td>02</td>
<td>1/4</td>
<td>SYJA700</td>
</tr>
</tbody>
</table>

* Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Ex.) SS3YJA5-40-03-01 1 set
- SYJA514 2 sets
- SYJ500-10-3A 1 set

(Ex.) SS3YJA7-41-03-01 1 set
- SYJA714 2 sets
- SYJ700-10-2A 1 set

* The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.
### Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure range (MPa)</td>
<td>0.15 to 0.7</td>
</tr>
<tr>
<td>Pilot pressure range (MPa) Note 1)</td>
<td>(0.4 x P + 0.1) to 0.7 P: Operating pressure range</td>
</tr>
<tr>
<td>Ambient and fluid temperature (°C)</td>
<td>–10 to 50 (No freezing. Refer to back page 2.)</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)</td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Impact/Vibration resistance (m/s²) Note 2)</td>
<td>300/60</td>
</tr>
</tbody>
</table>

Note 1) Be certain that pressure within operating pressure range be supplied to supply port, because return pressure is introduced from supply port (1(P)) for activation.

Note 2) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve, when pilot signal is ON and OFF. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve when pilot signal is ON and OFF. (Value in the initial state)

### Flow Characteristics/Weight

<table>
<thead>
<tr>
<th>Valve model</th>
<th>Type of actuation</th>
<th>Port size</th>
<th>Flow characteristics</th>
<th>Pilot port size</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJA512-M5</td>
<td>Body ported</td>
<td>M5</td>
<td></td>
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</tr>
<tr>
<td>SYJA712-M5</td>
<td>Body ported</td>
<td>M5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base mounted (with sub-plate)</td>
<td></td>
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</tr>
<tr>
<td>SYJA514-01</td>
<td>N.C.</td>
<td>Rc 1/8</td>
<td></td>
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</tr>
<tr>
<td>SYJA524-01</td>
<td>N.O.</td>
<td>Rc 1/8</td>
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<tr>
<td>Body ported</td>
<td>SYJA712-01</td>
<td>N.C.</td>
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<tr>
<td>SYJA722-01</td>
<td>N.O.</td>
<td>Rc 1/8</td>
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</tr>
<tr>
<td>Base mounted (with sub-plate)</td>
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<td></td>
</tr>
<tr>
<td>SYJA714-01</td>
<td>N.C.</td>
<td>Rc 1/4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJA714-02</td>
<td>N.O.</td>
<td>Rc 1/4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base mounted (with sub-plate)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJA724-01</td>
<td>N.C.</td>
<td>Rc 1/8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYJA724-02</td>
<td>N.O.</td>
<td>Rc 1/4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note) Model No. for base mounted style without sub-plate is SYJA514, SYJA714.

*These values have been calculated according to ISO 6358 and represent the flow rate measured in standard conditions at an upstream pressure of 0.6MPa (relative pressure) and a differential pressure of 0.1MPa.
Dimensions

Series SYJA500
Body ported: SYJA5□2-M5(-F)

Base mounted: SYJA5□4-01□

Series SYJA700
Body ported: SYJA7□2-01□ (-F)

Base mounted: SYJA7□4-01□
Series SYJ500/700
Made to Order
DIN Connector Conforming to EN-175301-803C (former DIN 43650C)
DIN connector type that conforms to the 8 mm pitch standards between DIN terminals.

How to Order Valve

<table>
<thead>
<tr>
<th>Body ported</th>
<th>Base mounted</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ 5 1 2 5Y</td>
<td>SYJ 5 1 4 5Y</td>
</tr>
</tbody>
</table>

- **Type of actuation**
  - Normally closed
  - Normally open

- **Port size**
  - 1/8 (SYJ700 only)

<table>
<thead>
<tr>
<th>Body option</th>
<th>Electrical entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Y: With connector</td>
</tr>
<tr>
<td>R</td>
<td>YO: Without connector</td>
</tr>
</tbody>
</table>

- **Thread type**
  - Rc
  - F
  - G
  - N NPT
  - T NPTF

- **Light/surge voltage suppressor**
  - Without light/surge voltage suppressor
  - With surge voltage suppressor
  - With light/surge voltage suppressor

- **Bracket**
  - Without bracket
  - With bracket

- **Manual override**
  - Non-locking push type
  - Push-turn locking slotted type
  - Push-turn locking lever type

- **Rated voltage**
  - DC
    - 5 24 VDC
    - 6 12 VDC
  - AC (Hz)
    - 1 100 VAC
    - 2 200 VAC
    - 3 110 VAC (115 VAC)
    - 4 220 VAC (230 VAC)

- **DIN Connector Part No.**
  - Without light: SY100-82-1
  - With light:
    - 24 VDC 24 VN: SY100-82-3-05
    - 12 VDC 12 VN: SY100-82-3-06
    - 230 VAC S110: SY100-82-3-03
    - 220 VAC (230 VAC) 220 VN: SY100-82-3-04

---

How to Order Pilot Valve Assembly

**V115** - 5 Y

- **Rated voltage**
  - Specifications
    - DC
      - 5 24 VDC
      - 6 12 VDC
    - AC (Hz)
      - 1 100 VAC
      - 2 200 VAC
      - 3 110 VAC (115 VAC)
      - 4 220 VAC (230 VAC)

- **Light/surge voltage suppressor**
  - Without light/surge voltage suppressor
  - With surge voltage suppressor
  - With light/surge voltage suppressor

- **Electrical entry**
  - Y: DIN terminal With connector
  - YO: Without connector

- **DIN Connector Part No.**
  - Without light: SY100-82-1
  - With light:
    - 24 VDC 24 VN: SY100-82-3-05
    - 12 VDC 12 VN: SY100-82-3-06
    - 230 VAC S110: SY100-82-3-03
    - 220 VAC (230 VAC) 220 VN: SY100-82-3-04

---

**Caution**

1. Use caution in wiring because it won't meet the IP65 (enclosure) standard if you use the other cord than prescribed heavy-duty cord of size (ø3.5 to ø7.5). Also be sure to tighten the ground nut and holding screw with the prescribed torque range. For how to use DIN terminal (wiring procedures, procedures for changing electrical entries, precautions, applicable cable, circuit diagram), refer to page 66.
2. D type DIN connector with 9.4 mm pitch between terminals is not interchangeable.
3. DIN connector except D type has the “N” indication in the end of voltage symbol. In case of DIN connector without light, “N” is not indicated. Please refer to the name plate to distinguish.
4. Dimensions are completely the same as D type connector.
5. When exchanging the pilot valve assembly only, “V115-□□” is interchangeable with “V115-□□Y”. Do not replace V111 (G, H, L, M, W) to V115-□□Y (DIN terminal), and vice versa.
### How to Order Valve

#### Body ported

<table>
<thead>
<tr>
<th>Type of actuation</th>
<th>SYJ 300</th>
<th>SYJ 500</th>
<th>SYJ 700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally closed</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Normally open</td>
<td>2</td>
<td>2</td>
<td>1/8</td>
</tr>
</tbody>
</table>

**Rated voltage**
- DC
- S: 24 VDC
- 6: 12 VDC
- V: 6 VDC
- S: 5 VDC
- R: 3 VDC

**Light/surge voltage suppressor**
- Without light/surge voltage suppressor
- S: With surge voltage suppressor
- Z: With light/surge voltage suppressor
- R: With surge voltage suppressor (Non-polar type)
- U: With light/surge voltage suppressor (Non-polar type)

**Bracket**
- Without bracket
- F: With bracket

**Port size**
- Without sub-plate
- M5 port
- M: With sub-plate (SYJ300 only)
- 01 1/8 port
- 02 1/4 port

**Thread type**
- Rc
- F
- G
- N
- NPT
- T
- NPTF

**Body option**
- Pilot valve
- Individual exhaust (SYJ300R, SYJ500R, SYJ700R, SYJ700)
- Common exhaust type for main and pilot valve
- External pilot

**Electrical entry**
- WAO: Without connector cable
- WA1: With connector cable (Length 0.3 m)
- WA2: With connector cable (Length 0.5 m)
- WA3: With connector cable (Length 1 m)
- WA4: With connector cable (Length 2 m)
- WA7: With connector cable (Length 5 m)

#### Base mounted

<table>
<thead>
<tr>
<th>Type of actuation</th>
<th>SYJ 300</th>
<th>SYJ 500</th>
<th>SYJ 700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normally closed</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>Normally open</td>
<td>2</td>
<td>2</td>
<td>1/8</td>
</tr>
</tbody>
</table>

**Rated voltage**
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**Bracket**
- Without bracket
- F: With bracket

**Port size**
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- M5 port
- M: With sub-plate (SYJ300 only)
- 01 1/8 port
- 02 1/4 port

**Thread type**
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- F
- G
- N
- NPT
- T
- NPTF

**Body option**
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- Common exhaust type for main and pilot valve
- External pilot

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- WA1: With connector cable (Length 0.3 m)
- WA2: With connector cable (Length 0.5 m)
- WA3: With connector cable (Length 1 m)
- WA4: With connector cable (Length 2 m)
- WA7: With connector cable (Length 5 m)

---

### How to Order Pilot Valve Assembly

#### V115

**Rated voltage**
- DC
- S: 24 VDC
- 6: 12 VDC
- V: 6 VDC
- S: 5 VDC
- R: 3 VDC

**Light/surge voltage suppressor**
- Without light/surge voltage suppressor
- S: With surge voltage suppressor
- Z: With light/surge voltage suppressor
- R: With surge voltage suppressor (Non-polar type)
- U: With light/surge voltage suppressor (Non-polar type)

**Electrical entry**
- WAO: Without connector cable
- WA: With connector cable

Note: ☐ is for cable length. Please refer to Specific Product Precautions 6.
Series **SYJ500/700**

Made to Order

(For detailed specifications, delivery and pricing, please contact SMC.)

Body Ported External Pilot

**How to Order**  
Applicable solenoid valve series/SYJ5□2R, SYJ7□2R

SYJ 5 □ 2R — □ □ □ □ — □ — X20 — Q

*Entry is the same as standard products.*

**Operating Pressure Range MPa**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure range</td>
<td>–100 kPa to 0.7</td>
</tr>
<tr>
<td>Pilot pressure range</td>
<td>0.15 to 0.7</td>
</tr>
</tbody>
</table>

**Dimensions**

SYJ500: 8 mm longer in total length

SYJ700: 8 mm longer in total length

**External Pilot Port**

<table>
<thead>
<tr>
<th>Series</th>
<th>Port size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYJ500, SYJ700</td>
<td>M5</td>
</tr>
</tbody>
</table>

**JIS Symbol**

Body ported

N.C.

\[\begin{array}{ccc}
\text{N.C.} & \text{A} \\
2 & \text{X} \\
1 & 3 \\
(P)(R) & \end{array}\]

N.O.

\[\begin{array}{ccc}
\text{N.O.} & \text{A} \\
2 & \text{X} \\
1 & 3 \\
(P)(R) & \end{array}\]

Entry is the same as standard products.
These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

⚠️ Caution : Operator error could result in injury or equipment damage.

⚠️ Warning : Operator error could result in serious injury or loss of life.

⚠️ Danger : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power—General rules relating to systems.
Note 2) JIS B 8370: General Rules for Pneumatic Equipment

---

**Warning**

1. **The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.**
   
   Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements. The expected performance and safety assurance will be the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. **Only trained personnel should operate pneumatically operated machinery and equipment.**

   Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. **Do not service machinery/equipment or attempt to remove components until safety is confirmed.**

   1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driver objects have been confirmed.
   2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
   3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc.

4. **Contact SMC if the product is to be used in any of the following conditions:**

   1. Conditions and environments beyond the given specifications, or if product is used outdoors.
   2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
   3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.
3 Port Solenoid Valves/Common Precautions 1

Be sure to read before handling.

### Warning

#### 1. Actuator drive
When an actuator, such as a cylinder, is to be driven using a valve, take appropriate measures to prevent potential danger caused by actuator operation.

#### 2. Effect of back pressure when using a manifold
Use caution when valves are used on a manifold, as actuator malfunction due to back-pressure may occur.
Note: Extra care should be taken when driving a single acting cylinder. Take measures to prevent potential malfunction.

#### 3. Holding of pressure (including vacuum)
Since valves are subject to air leakage, they cannot be used for applications such as holding pressure (including vacuum) in a pressure vessel.

#### 4. Cannot be used as an emergency shut off valve, etc.
The valves presented in this catalogue are not designed for safety applications such as an emergency shut off valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

#### 5. Maintenance space
The installation should allow sufficient space for maintenance activities (removal of valve, etc.).

#### 6. Release of residual pressure
Provide a residual pressure release function for maintenance purpose.

#### 7. Vacuum applications
When a valve is used for vacuum switching, etc., take measures against the suction of external dust or other contaminants from vacuum pads and exhaust ports, etc. Moreover, an external pilot type valve should be used in this case. Contact SMC in case of an internal pilot type or air operated valve, etc.

#### 8. Ventilation
When a valve is used inside a sealed control panel, etc., provide ventilation to prevent a pressure increase caused by exhausted air inside the control panel or temperature rise caused by the heat generated by the valve.

### Selection

#### 1. Leakage voltage
When using a resistor in parallel with the switching element or using a C-R element (surge voltage suppressor) for protection of the switching element, note that leakage voltage will increase due to leakage current flowing through the resistor or C-R element. Limit the amount of residual leakage voltage to the following value:

- With DC coil: 3% or less of rated voltage
- With AC coil: 8% or less of rated voltage

#### 2. Solenoid valve drive for AC with solid state output (SSR, TRIAC output, etc.)

1) Current leakage
When using a snubber circuit (C-R element) for surge protection of the output element, a very small electric current will still continue to flow in spite of the OFF state. This results in the valve not returning. In the cases when exceeding the tolerance as shown above, take measures to install a bleeder resistor.

2) Minimum load allowable amount (Min. load current)
When the consumption current of a valve is less than the output element’s minimum load allowable volume or the margin is small, the output element may not be switched normally. Please confirm SMC.

#### 3. Surge voltage suppressor
If a surge protection circuit contains non-ordinary diodes such as Varistor, a residual voltage that is in proportion to the switching element, or using a C-R element. Limit the amount of residual voltage suppressor to the following value:

- With DC coil: 3% or less of rated voltage
- With AC coil: 8% or less of rated voltage

#### 4. Use in low temperature environments
Unless otherwise indicated in the specifications for each valve, operation is possible to –10°C, but appropriate measures should be taken to avoid solidification or freezing of drainage and moisture, etc.
3 Port Solenoid Valves/Common Precautions 2
Be sure to read before handling.

**Selection**

⚠️ **Caution**
5. Operation for air blowing
When using a solenoid valve for air blow, use an external pilot type. Take note that when internal pilots and external pilots are used on the same manifold, the pressure drop caused by the air blowing can have an effect on the internal pilot type valves. Moreover, when compressed air within the pressure range of the established specifications is supplied to the external pilot port, and a double solenoid valve is used for air blowing, the solenoids should normally be energised when air is being blown.

6. Mounting orientation
Rubber seal: Refer to the specifications of each series.

**Piping**

3. Screwing in fittings
When connecting fittings to valves, tighten as indicated below.
1) For M5 type
   (1) When using SMC fittings, follow the guidelines below. M5: After tightening by hand, tighten an additional 1/6 turn with a tightening tool. However, if miniature fittings are used, tighten an additional 1/4 turn with a tightening tool after tightening by hand. For fittings with gaskets in 2 locations, e.g., universal elbow or universal tee, tighten an additional 1/2 turn.
   Note) If fittings are over-tightened, air leakage may result due to breaking of fitting threads or deformation of the gaskets. However, if fittings are not tightened sufficiently, loosening of the threads and air leakage may occur.
   (2) When fittings other than SMC fittings are used, follow the instructions of the respective fitting manufacturer.

2) For threads

<table>
<thead>
<tr>
<th>Connection threads</th>
<th>Proper tightening torque N·m</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>7 to 9</td>
</tr>
<tr>
<td>1/4</td>
<td>12 to 14</td>
</tr>
</tbody>
</table>

4. Connection of piping to products
When connecting piping to a product, refer to its instruction manual to avoid mistakes regarding the supply port, etc.

**Wiring**

⚠️ **Caution**
1. Polarity
When connecting power to a DC specification solenoid valve equipped with (indicator light) surge voltage suppressor, confirm whether or not there is polarity. If there is polarity, take note of the following points.
Without built-in diode to protect polarity (including power saving circuit):
If a mistake is made regarding polarity, the diode in the valve, the control device switching element or power supply equipment, etc., may burn out.
With diode to protect polarity:
If a mistake is made regarding polarity, it will not be possible to switch the valve.

2. Applied voltage
When electric power is connected to a solenoid valve, be careful to apply the proper voltage. Improper voltage may cause malfunction or coil damage.

3. Confirm the connections.
After completing the wiring, confirm that the connections are correct.

**Mounting**

⚠️ **Warning**
1. If air leakage increases or equipment does not operate properly, stop operation.
Check mounting conditions when air and power supplies are connected. Initial function and leakage tests should be performed after installation.

2. Instruction manual
Mount and operate the product after reading the manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

3. Painting and coating
Warnings or specifications printed or pasted on the product should not be erased, removed or covered up. Consult with SMC if paint is to be applied to resinous parts, as this may have an adverse effect due to the paint solvent.

**Selection**

⚠️ **Caution**

1. Preparation before piping
Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

2. Wrapping of sealant tape
When connecting pipes and fittings, etc., be sure that chips from the pipe thread and sealing materials do not get inside the valve. Furthermore, when pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.

![Winding direction] (Pipe tape)

Exposure approx. 2 threads
3 Port Solenoid Valves/Common Precautions 3
Be sure to read before handling.

Lubrication

⚠️ Caution

1. Lubrication
   1) The valve has been lubricated for life at the factory, and does not require any further lubrication.
   2) In the event that it is lubricated, use class 1 turbine oil (without additives), ISO VG32. However, once lubrication is applied it must be continued, as loss of the original lubricant may lead to malfunction. Contact SMC regarding class 2 turbine oil (with additives), ISO VG32.

Air Supply

⚠️ Warning

1. Use clean air.
   Do not use compressed air which contains chemicals, synthetic oils containing organic solvents, salts or corrosive gases, etc., as this can cause damage or malfunction.

⚠️ Caution

1. Install air filters.
   Install air filters close to valves at their upstream side. A filtration degree of 5 μm or less should be selected.

2. Install an air dryer, after cooler or Drain Catch (water separator), etc.
   Air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an air dryer, after-cooler or water separator, etc.

3. If excessive carbon dust is generated, eliminate it by installing mist separators at the upstream side of valves.
   If excessive carbon dust is generated by the compressor, it may adhere to the inside of valves and cause malfunction. Refer to “SMC Best Pneumatics” catalogue for compressed air quality.

Operating Environment

⚠️ Caution

5. Do not use in locations subject to vibration or impact. Confirm the specifications in the main section of the catalogue.

6. A protective cover, etc., should be used to shield valves from direct sunlight.

7. Shield valves from radiated heat generated by nearby heat sources.

8. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.

9. When solenoid valves are mounted in a control panel or are energised for extended periods of time, employ measures to radiate excess heat, so that temperatures remain within the valve specification range.

Maintenance

⚠️ Warning

1. Perform maintenance procedures as shown in the instruction manual.
   If handled improperly, malfunction or damage of machinery or equipment may occur.

2. Equipment removal and supply/exhaust of compressed air
   When equipment is removed, first confirm that measures are in place to prevent dropping of work pieces and run-away of equipment, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function. When the equipment is to be started again after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc., and then confirm that the equipment is operating normally.

3. Low frequency operation
   Valves should be switched at least once every 30 days to prevent malfunction. (Use caution regarding the air supply.)

4. Manual override operation
   When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

⚠️ Caution

1. Drain flushing
   Remove drainage from air filters regularly.
Series SYJ300/500/700
Specific Product Precautions 1

Be sure to read before handling.
Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.

---

**Manual Override Operation**

⚠️ **Warning**
When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

- **Non-locking push type [Standard]**
  Press in the direction of the arrow

- **Push-turn slotted locking type [Type D]**
  While pressing, turn in the direction of the arrow. If it is not turned, it can be operated the same way as the non-locking type.

- **Push-turn locking lever type [Type E]**
  While pressing, turn in the direction of the arrow. If it is not turned, it can be operated the same way as the non-locking type.

⚠️ **Caution**
When locking the manual override on the push-turn locking types (D, E), be sure to push it down before turning. Turning without first pushing it down can cause damage to the manual override and trouble such as air leakage, etc.

---

**Solenoid Valve for 200 V, 220 VAC Specifications**

⚠️ **Warning**
Solenoid valves with DIN terminal connector AC specifications have a built-in rectifier circuit in the pilot section to operate the DC coil. With 200 V, 220 VAC specification pilot valves, this built-in rectifier generates heat when energised. The surface may become hot depending on the energised condition; therefore, do not touch the solenoid valves.

---

**Common Exhaust Type for Main and Pilot Valve**

⚠️ **Caution**
Pilot air is exhausted through the main valve body rather than directly to atmosphere.
- Suitable for applications where exhausting the pilot valve to atmosphere would be detrimental to the surrounding working environment.
- For use in extremely dirty environments where there is the possibility that dust could enter the pilot exhaust and damage the valve.
Ensure that the piping of exhaust air is not too restrictive.

---

**Bracket**

⚠️ **Caution**
For bracket attached styles of SYJ300, do not use it without bracket.

---

Back page 5
3. Attaching and detaching sockets with lead wires

**Attaching**

Insert the sockets into the square holes of the connector (+, − indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector. (When they are pushed in, their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

**Detaching**

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm). If the socket will be used again, first spread the hook outward.

---

**Caution**

- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.

**How to Order Connector Assembly**

For DC: SY100 – 30 – 4A

Without lead wire: SY100 – 30 – A

(with connector and 2 of sockets only)

How to Order

Include the connector assembly part number together with the part number for the plug connector's solenoid valve without connector.

EX.) In case of 2000 mm of lead wire

For DC

SYJ312-5LO-M3

SY100-30-4A-20

---

**Crimping of lead wires and sockets**

Strip 3.2 to 3.7 mm at the end of the lead wires, insert the ends of the core wires evenly into the sockets, and then crimp with a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area.

Use an exclusive crimping tool for crimping. (Contact SMC for special crimping tools.)

---

**Plug Connector Lead Wire Length**

**Caution**

Standard length is 300 mm, but the following lengths are also available.

**How to Order Plug Connector Lead Wire Length**

- Lead wire length
  - 300 mm
  - 600 mm
  - 1000 mm
  - 1500 mm
  - 2000 mm
  - 2500 mm
  - 3000 mm
  - 5000 mm

---

**How to Use Plug Connector**

---

**Series SYJ300/500/700**

**Specific Product Precautions 2**

Be sure to read before handling.

Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.
Series SYJ300/500/700
Specific Product Precautions 3
Be sure to read before handling.
Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.

**Caution**

<For DC>
Grommet, L/M Plug Connector

- **Standard type (with polarity)**
  Surge voltage suppressor (L/S)
  Red (+)  Black
  Polarity protection diode

- **With light/surge voltage suppressor (L/Z)**
  Red (+)  Black
  Polarity protection diode

- **Non-polar type**
  Surge voltage suppressor (L/R)
  Red (+)  Black

- **DIN Terminal**
  DIN terminal has no polarity.

- Connect the standard type in accordance with the +, – polarity indication. (The non-polar type can be used with the connections made either way.)
- Since voltage specifications other than standard 24 V and 12 VDC do not have diodes for polarity protection, be careful not to make errors in the polarity.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)
- When wiring is done at the factory, positive (+) is red and negative (–) is black.

- **With power saving circuit**
  Power consumption is decreased by 1/4 by reducing the wattage required to hold the valve in an energised state. (Effective energising time is over 62 ms at 24 VDC.)

- **M8 Connector**
  Electric circuit (with power saving circuit)
  1: Starting current
  2: Holding current
  3: With surge voltage suppressor (L/S)
  4: Solenoid valve side pin wiring diagram (For W type)
  5: With light/surge voltage suppressor (L/Z)
  6: Solenoid valve side pin wiring diagram (For WA type)
  7: With non-polar type (L/R)
  8: With light/surge voltage suppressor (L/U)

- **Operating Principle**
  With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data to the right.
  - Please be careful not to reverse the polarity, since a diode to prevent the reversed current is not provided for the power saving circuit.
  - Please use caution regarding the allowable voltage fluctuation because there is about a 0.5 volt drop due to the transistor. (For details, refer to the solenoid specifications for the individual valve.)
**Series SYJ300/500/700**  
**Specific Product Precautions 4**

Be sure to read before handling.  
Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.

---

### Surge Voltage Suppressor

<For AC>
(There is no “S” type because the generation of surge voltage is prevented by a rectifier.)

### Caution

**DIN Terminal**

With light (DZ)

![Diagram of DIN Terminal with light](image)

Note) Surge voltage suppressor of varistor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge. The residual voltage of the diode is approximately 1 V.

### How to Use DIN Terminal

#### Caution

**Connection**

1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat head screwdriver, etc. into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the cores of the lead wires into the terminals according to the connection method, and fasten them securely with the terminal screws.
4. Secure the cord by fastening the ground nut.

#### Caution

When making connections, take note that using other than the supported size (ø3.5 to ø7) heavy duty cord will not satisfy IP65 enclosure standards. Also, be sure to tighten the ground nut and holding screw within their specified torque ranges.

#### Changing the entry direction

After separating the terminal block and housing, the cord entry can be changed by attaching the housing in the desired direction (4 directions at 90° intervals).

* When equipped with a light, be careful not to damage the light with the cord’s lead wires.

---

### How to Use DIN Terminal

#### Caution

**Precautions**

Plug in and pull out the connector vertically without tilting to one side.

**Compatible cable**

Cord O.D.: ø3.5 to ø7

(Reference) 0.5 mm², 2-core or 3-core, equivalent to JIS C 3306

**Circuit Diagram with Light**

![Diagram of Circuit with Light](image)

Note) Refer to page 57 for DIN connector (Y) conforming to EN-175301-803C (former DIN 43650C).
**Series SYJ300/500/700**

**Specific Product Precautions 5**

Be sure to read before handling. 
Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.

---

**1. M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water.**

Select a SMC connector cable (V100-49-1-L50132) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5 mm or less when used with the Series SYJ300 manifold. If more than 10.5 mm, it cannot be mounted due to the size.

**2. Do not use a tool to mount the connector, as this may cause damage. Only tighten by hand. (0.4 to 0.6 Nm)**

**3. The excessive stress on the cable connector will not be able to satisfy the IP65 rating. Please use caution and do not apply a stress of 30 N or greater.**

Failure to meet IP65 performance may result if using alternative connectors than those shown above, or when insufficiently tightened.

---

### Caution

**Connector assembly with dust proof protective cover.**

- Effective to prevention of short circuit failure due to the entry of foreign matter into the connector.
- Chloroprene rubber for electrical use, which provides outstanding weather resistance and electrical insulation, is used for the cover material. However, do not allow contact with cutting oil, etc.
- Simple and unencumbered appearance by adopting round-shaped cord.

**How to Order**

SY100-68-A

- Lead wire length
  - 300 mm
  - 600 mm
  - 1000 mm
  - 1500 mm
  - 2000 mm
  - 2500 mm
  - 3000 mm
  - 5000 mm

**Connector Assembly with Cover: Dimensions**

![Connector Assembly with Cover Diagram]

- **How to Order**
  Enter the part number for a plug connector solenoid valve without connector together with the part number for a connector assembly with cover.
  
  **Ex. 1)** Lead wire length of 2000 mm
  SYJ312-5LOZ-M3-Q
  SY100-68-A-20

  **Ex. 2)** Lead wire length of 300 mm (standard)
  SYJ312-5LPZ-M3-Q

  * In this case, the part number for the connector assembly with cover is not required.

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### Caution

**M8 Connector**

1. M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water.

Select a SMC connector cable (V100-49-1-□) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5 mm or less when used with the Series SYJ300 manifold. If more than 10.5 mm, it cannot be mounted due to the size.

2. Do not use a tool to mount the connector, as this may cause damage. Only tighten by hand. (0.4 to 0.6 Nm)

3. The excessive stress on the cable connector will not be able to satisfy the IP65 rating. Please use caution and do not apply a stress of 30 N or greater.

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### Caution

Failure to meet IP65 performance may result if using alternative connectors than those shown above, or when insufficiently tightened.

- Connector cable mounting

**Note)** Connector cable should be mounted in the correct direction. Make sure that the arrow symbol on the connector is facing the triangle symbol on the valve when using SMC connector cable (V100-49-1-□). Be careful not to squeeze it in the wrong direction, as problems such as pin damage may occur.
**Series SYJ300/500/700**

**Specific Product Precautions 6**

Be sure to read before handling.
Refer to back page 1 through to 4 for Safety Instructions and Common Precautions.

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**How to Measure the Flow Rate**

**Caution**
Refer to pages 69 and 70: How to measure the flow rate.

**Replacement of Pilot Valve**

**Caution**
Pilot valves in this series are improved to provide excellent energy saving results. However following this improvement, these new valves are no longer compatible with the conventional pilot valve used at the interface. Consult with SMC when you need to exchange these pilot valves, in the case of manual override (marked in orange) of the adapter plate.

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**M8 Connector**

- Connector cable
  - M8 connector cable for M8 can be ordered as follows:

**How to Order**

1. To order solenoid valve and connector cable at the same time.
   (Connector cable will be included in the shipment of the solenoid valve.)

   ![Connector Cable](image)

   **SYJ302-□□□□□□□□□□-□**

   - Electrical entry
   - W1, WA1: Cable length 300 mm
   - W2, WA2: Cable length 500 mm
   - W3, WA3: Cable length 1000 mm
   - W4, WA4: Cable length 2000 mm
   - W7, WA7: Cable length 5000 mm

   Ex. 1) Cable length: 300 mm
   SYJ312-5W1ZE-M3-Q
   Symbol for electrical entry

2. To order connector cable only

   ![Connector Dimensions](image)

   **Connector dimensions**

   - Brown: 1
   - Blue: 3
   - Back: 4
   - L: 35
   - Width: 10
   - Depth: 33.9

   **Cable length (L) | No.**
   | 300 mm | V100-49-1-1 |
   | 500 mm | V100-49-1-2 |
   | 1000 mm | V100-49-1-3 |
   | 2000 mm | V100-49-1-4 |
   | 5000 mm | V100-49-1-7 |

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**How to Order**

- Electrical entry
  - W1, WA1: Cable length 300 mm
  - W2, WA2: Cable length 500 mm
  - W3, WA3: Cable length 1000 mm
  - W4, WA4: Cable length 2000 mm
  - W7, WA7: Cable length 5000 mm

   **Cable length (L) | No.**
   | 300 mm | V100-49-1-1 |
   | 500 mm | V100-49-1-2 |
   | 1000 mm | V100-49-1-3 |
   | 2000 mm | V100-49-1-4 |
   | 5000 mm | V100-49-1-7 |

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**SMC**

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