SV series
3,5-port Solenoid Valve / Pilot Type

Wide range of port sizes and body sizes (M5–Rc(PT)3/4):
Various products small through large

Superior flow features and high reliability:
Highly polished spool of one molding seal type

Low power consumption and simple maintenance:
Lowered power consumption design (1.8W DC) and non-lubrication of all lines

Various kinds of wire distributing type:
Lead wire, DIN terminal, Plug connector type

All air system:
All of 3, 5-port air pilot valves available
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These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by a label of Caution, Warning, or Danger.
To ensure safety, be sure to observe ISO4414, KS B 6376 and other safety regulations.

| **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, this could result in serious injury or loss of life. |

1) ISO 4414: Pneumatic Fluid Power—Recommendations for the application of equipment to transmission and control systems.
2) KS B 6376: General Rules for Pneumatic System

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**Caution**

1. The pneumatic equipment shall be selected by pneumatic system designers or professionals.
   The person who decides specifications has a responsibility for the performance and safety.

2. Only trained person 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 a trained and experienced operator.

3. Don't remove components until safety is confirmed.
   1) Inspection of machinery and equipment should only be performed after confirmation of safe locked-out control positions.
   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) When restarting, take measures to prevent shooting-out of cylinder piston rod, etc.

4. Take care if the product is to be used in any of the following conditions. Please feel free to contact us if you have any questions.
   1) Conditions and environments beyond the given Specifications, or if product is used outdoors.
   2) Installation on equipment in conjunction with food and beverages, medical equipment, vehicles, nuclear energy, railway, airplane, emergency stop circuits, press clutches, brake equipment or safety equipment.
   3) An application requiring special safety.
Valve Operation

**Warning**

1. **Actuator drive**
   Take appropriate measures to prevent potential danger caused by actuator operation when an actuator is to be driven using a solenoid valve.

2. **Intermediate stopping**
   Accurate stop of the piston in a predetermined position is not possible due to the compressibility of air when a 3-position closed center valve is used to stop a cylinder at an intermediate position. Furthermore, it may not be possible to hold a stopped position for an extended length of time since valves and cylinders are not guaranteed for zero air leakage.

3. **Effect of back pressure**
   You need to be careful when using valves on a manifold because actuator malfunction due to back pressure may occur. Your special attention should be taken when using a 3-postion exhaust center valve or driving a single acting cylinder. Implement countermeasures such as the use of an individual exhaust spacer assembly when there is a danger of back pressure.

4. **Since valves are subjected to air leakage, they cannot be used for applications such as holding pressure.**

5. **Can’t be used as an emergency shutoff valve, etc.**

6. **Release of residual pressure**
   Provide residual pressure lease function for maintenance purposes. Special consideration should be given to the release of residual pressure between the valve and cylinder in case of a 3-position closed center type valve.

Installation

**Caution**

1. **Confirm the Specifications.**
   Don’t operate at pressures or temperatures beyond the range of specifications because this can cause damage or malfunction.

Lubrication

**Caution**

1. **No further lubrication is required because valves are prelubricated.**

2. **Please use turbine oil ( ISO VG32 or equivalent to ) if lubricant is required.** Once lubrication is applied, it must be continued because the original lubricant may be eliminated.

Air Supply

**Warning**

1. **Use clean air**
   Use clean air which doesn’t contain chemicals, synthetic oils containing organic solvents, salts or corrosive gases etc., because this can cause damage or malfunction.

**Caution**

1. **Filtration to 5µm is recommended.**

2. **Large quantity of drainage may cause incorrect operation of pneumatic products as well as environmental contamination. Please control drainage. You can use the filter with auto drainage in case of difficulty.**

3. **Please install a mist separator when there is a large amount of carbon power from the compressor.**

Environment

**Warning**

1. **Keep away from corrosive gas, chemical solutions, sea water, rain and steam.**

2. **Avoid using in an explosive atmosphere.**

3. **Don’t use in locations subject to vibration or impact.**

4. **Avoid direct sunlight.**

5. **Shield radiated heat generated by nearby heat sources.**

6. **Use a protective cover when installed in a place where a drop of water or oil will splash momentarily.**

7. **Please install a silencer on the exhaust port in a dusty place.**

**Caution**

**Warning**

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2. **Intermediate stopping**
   Accurate stop of the piston in a predetermined position is not possible due to the compressibility of air when a 3-position closed center valve is used to stop a cylinder at an intermediate position. Furthermore, it may not be possible to hold a stopped position for an extended length of time since valves and cylinders are not guaranteed for zero air leakage.

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   Provide residual pressure lease function for maintenance purposes. Special consideration should be given to the release of residual pressure between the valve and cylinder in case of a 3-position closed center type valve.

**Caution**

1. **Confirm the Specifications.**
   Don’t operate at pressures or temperatures beyond the range of specifications because this can cause damage or malfunction.

2. **Momentary energization**
   If a double solenoid valve will be operated with momentary energization, it should be energized for at least 0.1 second.

3. **Leakage voltage**
   1) Residual leakage voltage of DC coil must be or less than 2%
when switch is OFF.
2) When using a C-R element, there might be a chance to increase the leakage voltage.

3. Low temperature operation
Avoid ambient temperatures outside the range prescribed in the Specifications. At low temperatures, appropriate measures should be taken to avoid solidification of freezing of drainage and moisture, etc.

4. Operation for air blowing
You should use external pilot type or direct solenoid operated type when using solenoid valves for air blowing. Also, supply compressed air within the pressure range prescribed in the specifications, especially for an external pilot type.

5. Mounting
In case of a single solenoid valve, the mounting orientation is unrestricted. Double solenoid or 3-position valves should be mounted so that the spool is horizontal. Mount valves so that the spool is at a right angle to the direction of vibration in a place where vibration or shock exists.

Piping

Caution
1. Before piping is connected, remove chips, cutting oil and other debris form inside the pipe.
2. When using the Teflon tape, ensure that about 1.5~2 threads are left.

3. When using 3-position closed center type, make sure piping leakage does not occur between valve and cylinder.

4. Clamping torque

<table>
<thead>
<tr>
<th>Port size</th>
<th>Appropriate clamping torque N·m (kgf·cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5</td>
<td>1.5<del>2 (15</del>20)</td>
</tr>
<tr>
<td>Rc(PT) 1/8</td>
<td>7<del>9 (70</del>90)</td>
</tr>
<tr>
<td>Rc(PT) 1/4</td>
<td>12<del>14 (120</del>140)</td>
</tr>
<tr>
<td>Rc(PT) 3/8</td>
<td>22<del>24 (220</del>240)</td>
</tr>
<tr>
<td>Rc(PT) 1/2</td>
<td>28<del>30 (280</del>300)</td>
</tr>
<tr>
<td>Rc(PT) 3/4</td>
<td>28<del>30 (280</del>300)</td>
</tr>
<tr>
<td>Rc(PT) 1</td>
<td>36<del>38 (360</del>380)</td>
</tr>
</tbody>
</table>

Low temperature operation

Caution
Avoid ambient temperatures outside the range prescribed in the Specifications. At low temperatures, appropriate measures should be taken to avoid solidification of freezing of drainage and moisture, etc.

Maintenance

Warning
1. When equipment is removed, first confirm that measures are in place to prevent dripping 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.

2. Although don’t use frequently, operate the valve regularly to prevent malfunction.

Caution
1. Drainage removal
Remove drainage regularly from air filter.

Using 3-port valve

Caution
If you block one side of valve port (A, B) with plug, you can use the valve as 3-port valve with N.O. (Normally Open) or N.C. (Normally Closed) type.

It is convenient when you need 3-port valve in the manifold blocks.
**PRECAUTION: SV series**
Be sure to read before handling.

### Lamp and surge voltage suppression

#### Plug connector type (For SV 50, 100 series)

- **AC**
  - with lamp (FL)
  - with lamp & surge suppression (PS)
- **DC**
  - with lamp & surge suppression (PS)

#### DIN terminal type (For all SV series)

- **AC**
  - with lamp (FL)
  - with lamp & surge suppression (DS)
- **DC**
  - with lamp & surge suppression (DS)

### Power supply time

**Warning**

When using a double solenoid type with momentary power source, make sure the power supply time more than 0.1 second.

### Classification by the existence of noise suppressor

**Warning**

Solenoid with noise suppressor is eligible for interface of CPU, PC, and micom etc. because it has a element suppressing the max. voltage reverse.

1. **Surge wave with diode (only for DC)**
   (Max. voltage reverse of diode 1,000V)
   - **Standard**
   - **with Diode**

2. **Surge wave with varistor**
   - **Standard**
   - **with Varistor**

### Caution

1. Do not make a megger test between lead wires.
2. 12 and 24 VDC solenoids will not shortout even with wrong polarity. However, solenoids with surge suppression will not operate.
3. **Single solenoid**
   If circuit current leakage is experienced, the valve may not turn off. Ensure that current leakage is below the maximum allowable leak rate.
4. **Double solenoid**
   Do not apply power to both solenoids simultaneously. The valves may be put into a neutral state.

### Leakage voltage

**Warning**

1. For the leakage current, residual leakage voltage of AC coil must be less than 20% of the rated voltage, and that of DC coil must be less than 3% when switch is off.
2. When using a C-R element, there might be a chance to increase the leakage voltage.

**Warning**

1. Attaching and removing connector

Hold connector between thumb and forefinger and push connector onto pins. Push until lever claw engages pins.

To remove connector, squeeze lever and connector between thumb and forefinger and pull connector off pins.

2. Mounting and dismounting socket from connect

Push socket with lead wire into connector until socket hook is engaged. Lightly pull lead wire to ensure proper engagement.

To remove lead wire and socket, pull out lead wire, While pushing down hook with a small tool, pull out lead wire.

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**Plug Connector**

**Warning**

1. Wiring

Unloosen cover mounting screw and separate terminal block from terminal cover with a small tool. Insert lead wire into terminal block through gland nut and fix cable-fixing screws tightly.

2. Outside diameter of applicable lead wire

O.D. of applicable lead wire: Ø6~Ø7

(Ref.) 2 or 3 strands of 0.75mm² equivalent to KSC 3304

You can change the way lead wire is coming out by turning the cover 180° in Terminal Block.

---

**DIN Terminal**

**Warning**

1. Wiring

Unloosen cover mounting screw and separate terminal block from terminal cover with a small tool. Insert lead wire into terminal block through gland nut and fix cable-fixing screws tightly.

2. Outside diameter of applicable lead wire

O.D. of applicable lead wire: Ø6~Ø7

(Ref.) 2 or 3 strands of 0.75mm² equivalent to KSC 3304

You can change the way lead wire is coming out by turning the cover 180° in Terminal Block.
# How to Select Solenoid Valve

## Selection of actuator
- Cylinder I.D. (inside diameter)
- Driving speed
- Load factor

## Selection of valve series from cylinder driving speed chart
- High frequency
- Long life
- Stability of response
- Non-lubrication

## Use of manifold
- Maintenance
- Location
- Easiness of operation

## Number of solenoid position
- Performance of machine
- Safety

## Choice of voltage & electrical entry
- Applicable voltage
- Lead wire type
- Plug connector type
- DIN terminal type

*Refer to max. driving speed chart for details

## Decision on model

## Driving speed Chart of Cylinder

*This chart only be used as a reference because cylinder speed will vary depending on the connecting pipe work.

### Table: Driving speed Chart of Cylinder

<table>
<thead>
<tr>
<th>Series</th>
<th>Part size</th>
<th>Cylinder speed (mm / s)</th>
<th>Inside diameter of cylinder (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effective area</td>
<td>010</td>
<td>020</td>
</tr>
<tr>
<td>SV50</td>
<td>M5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3.6 mm²</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(Cv 0.2)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SV100</td>
<td>Rc(PT) 1/8</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>9.5 mm²</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(Cv 0.53)</td>
<td>750</td>
<td>-</td>
</tr>
<tr>
<td>SV200</td>
<td>Rc(PT) 1/4</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>18 mm²</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(Cv 1.0)</td>
<td>750</td>
<td>-</td>
</tr>
<tr>
<td>SV300</td>
<td>Rc(PT) 3/8</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>45 mm²</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(Cv 2.5)</td>
<td>750</td>
<td>-</td>
</tr>
<tr>
<td>SV400</td>
<td>Rc(PT) 1/2</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>80 mm²</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(Cv 4.44)</td>
<td>750</td>
<td>-</td>
</tr>
<tr>
<td>SV600</td>
<td>Rc(PT) 3/4</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>90 mm²</td>
<td>500</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(Cv 5.0)</td>
<td>750</td>
<td>-</td>
</tr>
</tbody>
</table>
**SV50 series**

5-port Pilot Type / Elastic Seal

**Body Ported**

---

### 5-PORT / 2-POSITION

**(Port size: M5)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Fluid</th>
<th>Pressure range (kgf/cm²)</th>
<th>Effective area (mm²) (Cv)</th>
<th>Ambient and media temp.</th>
<th>Response time (Skgf/cm²)</th>
<th>Max. Cycles/Second</th>
<th>Lubrication</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV51</td>
<td>Air or Inert Gases</td>
<td>0.15 - 0.7 (1.5 - 7.1)</td>
<td>3.6 (0.2)</td>
<td>Not required</td>
<td>20 ms or less</td>
<td>10 C/S</td>
<td>Not required</td>
</tr>
<tr>
<td>SV52</td>
<td>Air or Inert Gases</td>
<td>0.2 - 0.7 (2.0 - 7.1)</td>
<td>3.2 (0.18)</td>
<td>Max. 50°C</td>
<td>35 ms or less</td>
<td>3 C/S</td>
<td>Not required</td>
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</tbody>
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### 5-PORT / 3-POSITION

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<thead>
<tr>
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<th>Fluid</th>
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<tr>
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<td>Air or Inert Gases</td>
<td>0.1 - 0.7 (1.0 - 7.1)</td>
<td>3.6 (0.2)</td>
<td>Not required</td>
<td>20 ms or less</td>
<td>10 C/S</td>
<td>Not required</td>
</tr>
<tr>
<td>SV54</td>
<td>Air or Inert Gases</td>
<td>0.2 - 0.7 (2.0 - 7.1)</td>
<td>3.2 (0.18)</td>
<td>Max. 50°C</td>
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**SPECIFICATIONS**

**MODEL**

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**Width 15.5 mm**

**Large flow capacity - (Cv0.2)**

**Effective area 3.6 mm²**

**Low power consumption - 1.7W (DC)**

**Various electrical entries**

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**HOW TO ORDER**

**PORT SIZE (M5)**

**MODEL**

<table>
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<tr>
<th>Fluid</th>
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**ELECTRICAL ENTRY**

- **L** Without sub-base
- **PL** Plug connector with lamp
- **PS** Plug connector with lamp & surge suppressor
- **D** DIN terminal
- **DL** DIN terminal with lamp
- **DS** DIN terminal with lamp & surge suppressor

**PORT SIZE (M5)**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Coil Rated Voltage</th>
<th>Electrical Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Single solenoid</td>
<td>1 AC 110V</td>
<td>L Without sub-base</td>
</tr>
<tr>
<td>2 Double solenoid</td>
<td>2 AC 220V</td>
<td>PL Plug connector with lamp</td>
</tr>
<tr>
<td>3 Closed center</td>
<td>3 DC 12V</td>
<td>PS Plug connector with lamp &amp; surge suppressor</td>
</tr>
<tr>
<td>4 Exhaust center</td>
<td>4 DC 24V</td>
<td>D DIN terminal</td>
</tr>
<tr>
<td>5 Pressure center</td>
<td></td>
<td>DL DIN terminal with lamp</td>
</tr>
</tbody>
</table>

---

**SPECIFICATIONS**

**MODEL**

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**WIDTH 15.5 mm**

**LARGE FLOW CAPACITY - (Cv0.2)**

**EFFECTIVE AREA 3.6 mm²**

**LOW POWER CONSUMPTION - 1.7W (DC)**

**VARIOUS ELECTRICAL ENTRIES**

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**HOW TO ORDER**

**PORT SIZE (M5)**

**CONFIGURATION**

- **1 Single solenoid**
- **2 Double solenoid**
- **3 Closed center**
- **4 Exhaust center**
- **5 Pressure center**

**COIL RATED VOLTAGE**

- **1 AC 110V**
- **2 AC 220V**
- **3 DC 12V**
- **4 DC 24V**

**ELECTRICAL ENTRY**

- **L** Without sub-base
- **PL** Plug connector with lamp
- **PS** Plug connector with lamp & surge suppressor
- **D** DIN terminal
- **DL** DIN terminal with lamp
- **DS** DIN terminal with lamp & surge suppressor

* Only PS types are available for plug connector for DC.
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>No.</th>
<th>Description</th>
<th>Material</th>
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<tbody>
<tr>
<td>①</td>
<td>BODY</td>
<td>ADC-12</td>
<td>⑤</td>
<td>END COVER</td>
<td>PLASTIC</td>
</tr>
<tr>
<td>②</td>
<td>PISTON PLATE</td>
<td>POLYACETAL</td>
<td>⑥</td>
<td>O-RING</td>
<td>NBR</td>
</tr>
<tr>
<td>③</td>
<td>PISTON</td>
<td>POLYACETAL</td>
<td>⑦</td>
<td>SPRING</td>
<td>SUS</td>
</tr>
<tr>
<td>④</td>
<td>SPOOL</td>
<td>Al/NBR</td>
<td>⑧</td>
<td>COIL ASS'Y</td>
<td></td>
</tr>
</tbody>
</table>
SV51-□L
Lead Wire (L)

SV51-□PL/PS
Plug Connector (PL, PS)

SV51-□D/DL/DS
DIN Terminal (D, DL, DS)
SV52-□L
Lead Wire (L)

SV52-□PL/PS
Plug Connector (PL, PS)

SV52-□D/DL/DS
DIN Terminal (D, DL, DS)
SV100 series
5-port Pilot Type / Elastic Seal

5-PORT / 2-POSITION
(Port size: PT 1/8)

SV110

SV120

5-PORT / 3-POSITION
(Closed center)

SV130

(Exhaust center)

SV140

(Pressure center)

SV150

• Width 18 mm
• Large flow capacity - (Cv0.53)
  Effective area  9.5 mm²
• Low power consumption - 1.7W (DC)
• Various electrical entries

■ SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV110</th>
<th>SV120</th>
<th>SV130</th>
<th>SV140</th>
<th>SV150</th>
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<tr>
<td>Fluid</td>
<td>Air or Inert Gases</td>
<td>Air or Inert Gases</td>
<td>Air or Inert Gases</td>
<td>Air or Inert Gases</td>
<td>Air or Inert Gases</td>
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<tr>
<td>Pressure range (kgf/cm²)</td>
<td>0.15<del>0.7 (1.5</del>7.1)</td>
<td>0.1<del>0.7 (1.0</del>7.1)</td>
<td>0.2<del>0.7 (2.0</del>7.1)</td>
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<tr>
<td>Effective area (mm² (Cv))</td>
<td>9.5 (0.53)</td>
<td>8.5 (0.49)</td>
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<tr>
<td>Ambient and media temp.</td>
<td>Max. 50°C</td>
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<td></td>
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<tr>
<td>Response time (Skgf/cm²)</td>
<td>20 ms or less</td>
<td>35 ms or less</td>
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<tr>
<td>Max. Cycles/Second</td>
<td>10 C/S</td>
<td>3 C/S</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
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<tr>
<td>Manual override operation</td>
<td>Non-locking push type</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Shock/Vibration resistance</td>
<td>30G / 5G (8.3~2,000 Hz)</td>
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<td></td>
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<tr>
<td>Protective structure</td>
<td>Dust-proof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coil rated voltage</td>
<td>AC 50 / 60 Hz 110V, 220V DC 12V, 24V</td>
<td></td>
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<tr>
<td>Allowable voltage tolerance</td>
<td>-15%~+10% of rated voltage</td>
<td></td>
<td></td>
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<tr>
<td>Coil insulation</td>
<td>Class B or equivalent (130°C)</td>
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<tr>
<td>Apparent power</td>
<td>AC</td>
<td>Starting</td>
<td>Holding</td>
<td></td>
<td></td>
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<tr>
<td>Power consumption</td>
<td>DC</td>
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<td>Weight (kg)</td>
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<td>0.16</td>
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<td>Surge suppressor</td>
<td>AC: Varistor, DC: Diode</td>
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<tr>
<td>Indicator lamp</td>
<td>LED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

■ HOW TO ORDER

SV 110 - 2 L

• PORT SIZE RC(PT) 1/8

• CONFIGURATION

1 Single solenoid
2 Double solenoid
3 Closed center
4 Exhaust center
5 Pressure center

• COIL RATED VOLTAGE

1 AC 110V
2 AC 220V
3 DC 12V
4 DC 24V

• ELECTRICAL ENTRY

L Without sub-base
PL Plug connector with lamp
PS Plug connector with lamp & surge suppressor
D DIN terminal
DL DIN terminal with lamp
DS DIN terminal with lamp & surge suppressor

※ Only PS types are available for plug connector for DC.
### CONSTRUCTION / PARTS

#### SV100 series

**2-position Single Solenoid**

![Diagram of 2-position Single Solenoid]

**2-position Double Solenoid**

![Diagram of 2-position Double Solenoid]

**3-position Double Solenoid**

![Diagram of 3-position Double Solenoid]

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<tbody>
<tr>
<td>1</td>
<td>BODY</td>
<td>ADC-12</td>
<td>5</td>
<td>END COVER</td>
<td>PLASTIC</td>
</tr>
<tr>
<td>2</td>
<td>PISTON PLATE</td>
<td>POLYACETAL</td>
<td>7</td>
<td>0-RING</td>
<td>NBR</td>
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<tr>
<td>3</td>
<td>PISTON</td>
<td>POLYACETAL</td>
<td>6</td>
<td>SPRING</td>
<td>SUS</td>
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<tr>
<td>4</td>
<td>SPOOL</td>
<td>Al-NBR</td>
<td></td>
<td>COIL ASS'Y</td>
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</tbody>
</table>
SV110-□L
Lead Wire (L)

SV110-□PL/PS
Plug Connector (PL, PS)

SV110-□D/DL/DS
DIN Terminal (D, DL, DS)
SV120-□L
Lead Wire (L)

SV120-□PL/PS
Plug Connector (PL, PS)

SV120-□D/DL/DS
DIN Terminal (D, DL, DS)
DIMENSIONS / 3-POSITION CLOSED CENTER, EXHAUST CENTER, PRESSURE CENTER

SV130/140/150-□L
Lead Wire (L)

SV130/140/150-□PL/PS
Plug Connector (PL, PS)

SV130/140/150-□D/DL/DS
DIN Terminal (D, DL, DS)
**SV200 series**

5-port Pilot Type/Elastic Seal

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**5-PORT / 2-POSITION**

**SV210**

( P·A·B: PT 1/4
R1 R2: PT 1/8 )

---

**SV220**

( P·A·B: PT 1/4
R1 R2: PT 1/8 )

---

**5-PORT / 3-POSITION**

(Closed center)

**SV230**

---

(Exhaust center)

**SV240**

---

(Pressure center)

---

**SV250**

---

- **Width 26 mm**
- **Large flow capacity - (Cv1.0)**
  
  Effective area 18 mm²
- **Low power consumption - 1.8W (DC)**
- **Various electrical entries**

---

**HOW TO ORDER**

**SV 2 1 0 - 1 L**

---

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV210</th>
<th>SV220</th>
<th>SV230</th>
<th>SV240</th>
<th>SV250</th>
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</thead>
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<tr>
<td>Fluid</td>
<td>Air or Inert Gases</td>
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<tr>
<td>Pressure range (kgf/cm²)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
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<tr>
<td>Effective area (mm² (Cv))</td>
<td>18 (1.0)</td>
<td>18 (1.0)</td>
<td>14.4 (0.8)</td>
<td>14.4 (0.8)</td>
<td>14.4 (0.8)</td>
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<tr>
<td>Ambient and media temp.</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
</tr>
<tr>
<td>Response time (kgf/cm²)</td>
<td>30 ms or less</td>
<td>50 ms or less</td>
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<td>30 ms or less</td>
<td>30 ms or less</td>
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<tr>
<td>Max. Cycles/Second</td>
<td>5 C/S</td>
<td>3 C/S</td>
<td>5 C/S</td>
<td>3 C/S</td>
<td>3 C/S</td>
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<tr>
<td>Lubrication</td>
<td>No required</td>
<td>No required</td>
<td>No required</td>
<td>No required</td>
<td>No required</td>
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<tr>
<td>Manual override operation</td>
<td>Non-locking push type</td>
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<td>30G / 5G (8.3~2,000 Hz)</td>
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</tr>
<tr>
<td>Protective structure</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
</tr>
<tr>
<td>Coil rated voltage</td>
<td>AC 50 / 60 Hz 110V, 220V DC 12V 24V</td>
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<tr>
<td>Allowable voltage tolerance</td>
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<tr>
<td>Coil insulation</td>
<td>Class B or equivalent (130°C)</td>
<td>Class B or equivalent (130°C)</td>
<td>Class B or equivalent (130°C)</td>
<td>Class B or equivalent (130°C)</td>
<td>Class B or equivalent (130°C)</td>
</tr>
<tr>
<td>Value of temp. elevated</td>
<td>45°C or less (at rated voltage)</td>
<td>45°C or less (at rated voltage)</td>
<td>45°C or less (at rated voltage)</td>
<td>45°C or less (at rated voltage)</td>
<td>45°C or less (at rated voltage)</td>
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<tr>
<td>Apparent power</td>
<td>AC Starting: 5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
<td>AC Starting: 5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
<td>AC Starting: 5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
<td>AC Starting: 5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
<td>AC Starting: 5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
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<tr>
<td>Power consumption</td>
<td>DC Holding: 4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
<td>DC Holding: 4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
<td>DC Holding: 4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
<td>DC Holding: 4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
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<td>Weight (kg)</td>
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<td>Indicator lamp</td>
<td>LED</td>
<td>LED</td>
<td>LED</td>
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**ELECTRICAL ENTRY**

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<th>PORT SIZE RC(PT) 1/4</th>
<th>COIL RATED VOLTAGE</th>
<th>ELECTRICAL ENTRY</th>
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<tr>
<td>1</td>
<td>AC 110V</td>
<td>L</td>
</tr>
<tr>
<td>2</td>
<td>AC 220V</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>DC 12V</td>
<td>DL</td>
</tr>
<tr>
<td>4</td>
<td>DC 24V</td>
<td>DS</td>
</tr>
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</table>
### CONSTRUCTION / PARTS

#### SV200 series

<table>
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<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
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<td>BODY</td>
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</tr>
<tr>
<td>②</td>
<td>ADAPTER</td>
<td>ADC-12</td>
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<tr>
<td>③</td>
<td>END COVER</td>
<td>ADC-12</td>
</tr>
<tr>
<td>④</td>
<td>PILOT BODY</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>⑤</td>
<td>PILOT COVER</td>
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<tr>
<td>⑥</td>
<td>PISTON</td>
<td>POLYACETAL</td>
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<tr>
<td>⑦</td>
<td>SPOOL</td>
<td>AI·NBR</td>
</tr>
<tr>
<td>⑧</td>
<td>COIL ASS’Y</td>
<td></td>
</tr>
</tbody>
</table>

#### DIMENSIONS / 2-POSITION SINGLE

**SV210-L**

- **Lead Wire (L)**
- Manual (Push type)
- 2-Ø4.3
- Body: 98
- End cover: 20
- Pilot body: 23
- Pilot cover: 30.5
- Piston: 67
- Spool: 110
- Lead wire: 36
- 3-PT 1/4 (Port P, A, B)
- 2-PT 1/8 (Port R1, R2)

**SV210-D/DL/DS**

- **DIN Terminal (D, DL, DS)**
- Manual (Push type)
- PG.7
- Body: 121
- End cover: 23
- Pilot body: 30.5
- Pilot cover: 67
- Piston: 110
- Spool: 36
- 3-PT 1/4 (Port P, A, B)
- 2-PT 1/8 (Port R1, R2)
### DIMENSIONS / 2-POSITION DOUBLE

**SV220-□L**  
Lead Wire (L)

**SV220-□D/□L/□DS**  
DIN Terminal (D, DL, DS)

### DIMENSIONS / 3-POSITION CLOSED CENTER, EXHAUST CENTER, PRESSURE CENTER

**SV230/240/250-□L**  
Lead Wire (L)

**SV230/240/250-□D/□L/□DS**  
DIN Terminal (D, DL, DS)
SV300 series
5-port Pilot Type/Elastic Seal
Body Ported

5-PORT / 2-POSITION
(Port size: PT 3/8)

SV310

5-PORT / 3-POSITION
(Closed center)

SV330

5-PORT / 3-POSITION
(Exhaust center)

SV340

5-PORT / 3-POSITION
(Pressure center)

SV350

- Width 32 mm
- Large flow capacity - (Cv2.5)
- Effective area 9.5 mm$^2$
- Low power consumption - 1.8W (DC)
- Various electrical entries

SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV310</th>
<th>SV320</th>
<th>SV330</th>
<th>SV340</th>
<th>SV350</th>
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<tr>
<td>Fluid</td>
<td>Air or Inert Gases</td>
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<td>Air or Inert Gases</td>
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<tr>
<td>Pressure range (kgf/cm$^2$)</td>
<td>0.15–0.9 (1.5–9.2)</td>
<td>0.1–0.9 (1–9.2)</td>
<td>0.15–0.9 (1.5–9.2)</td>
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<td>Effective area (mm$^2$ (Cv))</td>
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<td>45 (2.5)</td>
<td>36 (2.0)</td>
<td>36 (2.0)</td>
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<td>Response time (Skgf/cm$^2$)</td>
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<tr>
<td>Coil insulation</td>
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<tr>
<td>Value of temp. elevated</td>
<td>45°C or less (at rated voltage)</td>
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<td>45°C or less (at rated voltage)</td>
<td>45°C or less (at rated voltage)</td>
</tr>
<tr>
<td>Apparent power</td>
<td>5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
<td>4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
<td>4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
<td>4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
<td>4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
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<tr>
<td>Power consumption</td>
<td>DC 1.8W</td>
<td>DC 1.8W</td>
<td>DC 1.8W</td>
<td>DC 1.8W</td>
<td>DC 1.8W</td>
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<tr>
<td>Weight (kg)</td>
<td>0.35</td>
<td>0.45</td>
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<td>Surge suppressor</td>
<td>AC, DC, Varistor</td>
<td>AC, DC, Varistor</td>
<td>AC, DC, Varistor</td>
<td>AC, DC, Varistor</td>
<td>AC, DC, Varistor</td>
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<tr>
<td>Indicator lamp</td>
<td>LED</td>
<td>LED</td>
<td>LED</td>
<td>LED</td>
<td>LED</td>
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</table>

HOW TO ORDER

SV 3 1 0 - 2 L

PORT SIZE RC (PT) 3/8

CONFIGURATION

1 Single solenoid
2 Double solenoid
3 Closed center
4 Exhaust center
5 Pressure center

COIL RATED VOLTAGE

1 AC 110V
2 AC 220V
3 DC 12V
4 DC 24V

ELECTRICAL ENTRY

L Lead wire
D DIN terminal
DL DIN terminal with lamp
DS DIN terminal with lamp & surge suppressor
### CONSTRUCTION / PARTS

#### 2-position Single Solenoid

![Diagram of 2-position Single Solenoid]

#### 2-position Double Solenoid

![Diagram of 2-position Double Solenoid]

#### 3-position Double Solenoid

![Diagram of 3-position Double Solenoid]

### DIMENSIONS / 2-POSITION SINGLE

#### SV310-[L]  
Lead Wire (L)

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>146</th>
<th>164</th>
<th>108</th>
<th>134</th>
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</thead>
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<tr>
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<td>134</td>
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<tr>
<td>Height</td>
<td>108</td>
<td>134</td>
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#### SV310-[D/DL/DS]  
DIN Terminal (D, DL, DS)

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
<th>146</th>
<th>164</th>
<th>108</th>
<th>134</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>146</td>
<td>164</td>
<td>108</td>
<td>134</td>
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<tr>
<td>Height</td>
<td>108</td>
<td>134</td>
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### Table of Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>BODY</td>
<td>ADC-12</td>
</tr>
<tr>
<td>2</td>
<td>ADAPTER</td>
<td>ADC-12</td>
</tr>
<tr>
<td>3</td>
<td>END COVER</td>
<td>ADC-12</td>
</tr>
<tr>
<td>4</td>
<td>PILOT BODY</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>5</td>
<td>PILOT COVER</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>6</td>
<td>PISTON</td>
<td>POLYACETAL</td>
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<tr>
<td>7</td>
<td>SPOOL</td>
<td>NBR</td>
</tr>
<tr>
<td>8</td>
<td>COIL ASS'Y</td>
<td></td>
</tr>
</tbody>
</table>

---

*R2 R1 P.E.*

---

*5-PT 3/8* (Port P.E.)
SV400 series
5-port Pilot Type / Elastic Seal
Base Mounted

5-PORT / 2-POSITION

SV410

5-PORT / 3-POSITION

SV430

SV440

SV450

• Compact size and large flow capacity
• Effective area 80 mm² (Cv4.44)
• Low power consumption / 1.8W (DC)
• Various electrical entries

SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV410</th>
<th>SV420</th>
<th>SV430</th>
<th>SV440</th>
<th>SV450</th>
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<tr>
<td>Fluid</td>
<td>Air or Inert Gases</td>
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<tr>
<td>Pressure range (kgf/cm²)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
<td>0.2<del>0.9 (2</del>9.2)</td>
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<td>Effective area (mm² (Cv))</td>
<td>80 (4.44)</td>
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<td>70 (3.8R)</td>
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<td>Ambient and media temp.</td>
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<td></td>
<td>Max. 50°C</td>
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<td>Response time (Skgf/cm²)</td>
<td>40 ms or less</td>
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<td></td>
<td>60 ms or less</td>
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<tr>
<td>Max. Cycles/Second</td>
<td>5 C/S</td>
<td></td>
<td></td>
<td>3 C/S</td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual override operation</td>
<td>Non-locking push type</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Shock/Vibration resistance</td>
<td>30G / 50G (8.3~2,000 Hz)</td>
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<tr>
<td>Protective structure</td>
<td>Dust-proof</td>
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<td></td>
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</tr>
<tr>
<td>Coil rated voltage</td>
<td>AC 50/60 Hz 110V, 220V DC 12V, 24V</td>
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<td></td>
</tr>
<tr>
<td>Allowable voltage tolerance</td>
<td>-15%~+10% of rated voltage</td>
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<td></td>
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<tr>
<td>Coil insulation</td>
<td>Class B or equivalent (130°C)</td>
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<tr>
<td>Apparent power</td>
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<td>Starting</td>
<td>5.8 VA (50 Hz), 5.0 VA (60 Hz)</td>
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<td>Holding</td>
<td>4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
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<tr>
<td>Power consumption</td>
<td>DC</td>
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<td>1.8W</td>
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<td>Weight (kg)</td>
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</tr>
<tr>
<td>Indicator lamp</td>
<td>LED</td>
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</tr>
</tbody>
</table>

HOW TO ORDER

SV 4 1 0 - 2 L

PORT SIZE RC (PT) 1/2

CONFIGURATION

1. Single solenoid
2. Double solenoid
3. Closed center
4. Exhaust center
5. Pressure center

COIL RATED VOLTAGE

1. AC 110V
2. AC 220V
3. DC 12V
4. DC 24V

ELECTRICAL ENTRY

L Lead wire
D DIN terminal
DL DIN terminal with lamp
DS DIN terminal with lamp & surge suppressor
SV600 series
5-port Pilot Type / Elastic Seal
Base Mounted

5-PORT / 2-POSITION

- SV610
- SV620

5-PORT / 3-POSITION

- SV630
- SV640
- SV650

- Compact size and large flow capacity
- Effective area 90 mm² (Cv 5.0)
- Low power consumption - 1.8W (DC)
- Various electrical entries

■ SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV610</th>
<th>SV620</th>
<th>SV630</th>
<th>SV640</th>
<th>SV650</th>
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<tr>
<td>Pressure range (kgf/cm²)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
<td>0.2<del>0.9 (2</del>9.2)</td>
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<td>Max. 50°C</td>
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<tr>
<td>Response time (ms / kgf/cm²)</td>
<td>40 ms or less</td>
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<td>60 ms or less</td>
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<tr>
<td>Max. Cycles / Second</td>
<td>5 C / S</td>
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<td>3 C / S</td>
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<tr>
<td>Lubrication</td>
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<td>Non-locking push type</td>
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<tr>
<td>Shock / Vibration resistance</td>
<td>30G / 5G (8.3~2,000 Hz)</td>
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<td>Protective structure</td>
<td>Dust-proof</td>
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<td>Coil rated voltage</td>
<td>AC 50 / 60 Hz 110V, 220V DC 12V 24V</td>
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<tr>
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<td>-15% ~ +10% of rated voltage</td>
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<tr>
<td>Coil insulation</td>
<td>Class B or equivalent (130°C)</td>
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</tr>
<tr>
<td>Apparent power</td>
<td>AC Starting</td>
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<td>AC 5.6 VA (50 Hz), 5.0 VA (60 Hz)</td>
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<td>DC 4.5 VA (50 Hz), 3.8 VA (60 Hz)</td>
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<td>Power consumption</td>
<td>DC 1.8W</td>
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<tr>
<td>Weight (kg)</td>
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<td>1.2</td>
<td>1.22</td>
<td>1.22</td>
<td>1.22</td>
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<td>AC, DC Varistor</td>
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<tr>
<td>Indicator lamp</td>
<td>LED</td>
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■ HOW TO ORDER

SV 6 1 0 - 1 L

- PORT SIZE RC (PT) 3/4
- CONFIGURATION
- COIL RATED VOLTAGE
- ELECTRICAL ENTRY

<table>
<thead>
<tr>
<th></th>
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<th>2</th>
<th>3</th>
<th>4</th>
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<td>AC 110V</td>
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<tr>
<td>Double solenoid</td>
<td>AC 220V</td>
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<tr>
<td>Closed center</td>
<td>DC 12V</td>
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<tr>
<td>Exhaust center</td>
<td>DC 24V</td>
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<tr>
<td>Pressure center</td>
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</table>

- Lead wire (L)
- DIN terminal (D)
- DIN terminal with lamp (DL)
- DIN terminal with lamp & surge suppressor (DS)
## CONSTRUCTION / PARTS

### SV600 series

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>BODY</td>
<td>ADC-12</td>
</tr>
<tr>
<td>2</td>
<td>ADAPTER</td>
<td>ADC-12</td>
</tr>
<tr>
<td>3</td>
<td>END COVER</td>
<td>ADC-12</td>
</tr>
<tr>
<td>4</td>
<td>PILOT BODY</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>5</td>
<td>PILOT COVER</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>6</td>
<td>PISTON</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>7</td>
<td>SPOOL</td>
<td>NBR</td>
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<td>8</td>
<td>COIL ASS’Y</td>
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<tr>
<td>9</td>
<td>BASE</td>
<td>ADC-12</td>
</tr>
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</table>

### DIMENSIONS / 2-POSITION SINGLE

#### SV610-□L
L Lead Wire (L)

#### SV610-□D/DL/DS
DIN Terminal (D, DL, DS)
**DIMENSIONS / 2-POSITION DOUBLE**

**SV620-□L**
Lead Wire (L)

**SV620-□D/DL/DS**
DIN Terminal (D, DL, DS)

**DIMENSIONS / 3-POSITION CLOSED CENTER, EXHAUST CENTER, PRESSURE CENTER**

**SV630/640/650-□L**
Lead Wire (L)

**SV630/640/650-□D/DL/DS**
DIN Terminal (D, DL, DS)
5-port Air Operated Valve

5-port Pilot Type / Elastic Seal

**SV50M, SV100M**

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV51M</th>
<th>SV52M</th>
<th>SV110M</th>
<th>SV120M</th>
</tr>
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<tbody>
<tr>
<td>Fluid</td>
<td>Air or Inert Gases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure range (MPa (kgf/cm²))</td>
<td>0.15<del>0.7 (1.5</del>7)</td>
<td>0.1<del>0.7 (1</del>7)</td>
<td>0.15<del>0.7 (1.5</del>7)</td>
<td>0.1<del>0.7 (1</del>7)</td>
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<tr>
<td>Effective area (mm² (Cv))</td>
<td>3.6 (0.2)</td>
<td>9.5 (0.53)</td>
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</tr>
<tr>
<td>Ambient and media temp.</td>
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<td></td>
<td>Max. 50°C</td>
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</tr>
<tr>
<td>Max. Cycles/Second</td>
<td>5 C/S</td>
<td>3 C/S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
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</tr>
<tr>
<td>Protective structure</td>
<td>Dust-proof</td>
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<td></td>
<td></td>
</tr>
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</table>

### HOW TO ORDER

SV 1 2 0 M

- **PORT SIZE**
  - 5 M5
  - 1 PT 1/8

- **CONFIGURATION**
  - 1 Single
  - 2 Double

- **AIR OPERATED VALVE**

#### SV51M, SV52M, SV110M, SV120M

- **Port size**: SV50M-Port P, A, B, R1, R2 = M5 / SV100M-Port P, A, B, R1, R2 = PT 1/8

---

**SV51M**

- 2-M5X0.8 (Port Z)
- M5X0.8 (Port 2)
- Manual (Push type)

**SV110M**

- 2-Ø2.6
- Manual (Push type)

**SV52M**

- 2-M5X0.8 (Port Y, Z)
- M5X0.8 (Port 2)
- Manual (Push type)

**SV120M**

- 2-M5X0.8 (Port Y, Z)
- M5X0.8 (Port 2)
- Manual (Push type)
5-port Air Operated Valve
5-port Pilot Type / Elastic Seal
SV200M, SV300M

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV210M</th>
<th>SV220M</th>
<th>SV310M</th>
<th>SV320M</th>
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<td>Air or Inert Gases</td>
<td>Air or Inert Gases</td>
<td>Air or Inert Gases</td>
</tr>
<tr>
<td>Pressure range (MPa (kgf/cm²))</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
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<tr>
<td>Effective area (mm² (Cv))</td>
<td>18 (1.0)</td>
<td>42 (2.5)</td>
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<td>42 (2.5)</td>
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<td>Ambient and media temp.</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
<td>Max. 50°C</td>
</tr>
<tr>
<td>Max. Cycles/Second</td>
<td>5 C/S</td>
<td>5 C/S</td>
<td>5 C/S</td>
<td>5 C/S</td>
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<tr>
<td>Lubrication</td>
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<td>Not required</td>
<td>Not required</td>
<td>Not required</td>
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<tr>
<td>Protective structure</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
<td>Dust-proof</td>
</tr>
</tbody>
</table>

**HOW TO ORDER**

- **PORT SIZE**
  - 2: PT 1/4
  - 3: PT 3/8

- **CONFIGURATION**
  - 1: Single
  - 2: Double

- **AIR OPERATED VALVE**
  3-position double master types are available to your order.

---

* Port size: SV200M-Port P, A, B, R1, R2 = PT 1/4 / SV300M-Port P, A, B, R1, R2 = PT 3/8
5-port Air Operated Valve
5-port Pilot Type / Elastic Seal
SV400M, SV600M

SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV410M</th>
<th>SV420M</th>
<th>SV610M</th>
<th>SV620M</th>
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<td>Air or Inert Gases</td>
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<td></td>
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<tr>
<td>Pressure range (MPa (kgf/cm²))</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
<td>0.15<del>0.9 (1.5</del>9.2)</td>
<td>0.1<del>0.9 (1</del>9.2)</td>
</tr>
<tr>
<td>Effective area (mm² (Cv))</td>
<td>80 (4.44)</td>
<td>90 (5.0)</td>
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<tr>
<td>Ambient and media temp.</td>
<td>Max. 50°C</td>
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<td></td>
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</tr>
<tr>
<td>Max. Cycles/Second</td>
<td>5 C/S</td>
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</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective structure</td>
<td>Dust-proof</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HOW TO ORDER

<table>
<thead>
<tr>
<th>PORT SIZE</th>
<th>CONFIGURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PT 1/2</td>
</tr>
<tr>
<td>6</td>
<td>PT 3/4</td>
</tr>
</tbody>
</table>

3-position double master types are available to your order.

Port size: SV400M-Port P, A, B, R1, R2 = PT 1/2 / SV600M-Port P, A, B, R1, R2 = PT 3/4

SV400M, SV600M

SV410M

SV420M

SV610M

SV620M

SV410M, 610M

SV420M, 620M

※ Port size: SV400M-Port P, A, B, R1, R2 = PT 1/2 / SV600M-Port P, A, B, R1, R2 = PT 3/4
3-port Valve
Solenoid Operated Valve/Air Operated Valve

SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV59</th>
<th>SV190</th>
<th>SV59M</th>
<th>SV190M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air or Inert Gases</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure range (MPa (kgf/cm²))</td>
<td>0.15<del>0.7 (1.5</del>7.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective area (mm² (Cv))</td>
<td>3.6 (0.2)</td>
<td>6 (0.33)</td>
<td>3.6 (0.2)</td>
<td>6 (0.33)</td>
</tr>
<tr>
<td>Ambient and media temp.</td>
<td>Max. 50°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Cycles/Second</td>
<td>5 C/S</td>
<td>3 C/S</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surge suppressor</td>
<td>AC: Varistor, DC: Diode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator lamp</td>
<td>LED</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HOW TO ORDER

SV 190 M - 2 L - NC

PORT SIZE

5 M5
1 PT 1/8

3-PORT VALVE

EXISTENCE OF SOLENOID

M Air operated valve
Blank Solenoid valve

PILOT PRESSURE OF AIR OPERATED VALVE

FUNCTION

N.C. Normally closed type
N.O. Normally open type

ELECTRICAL ENTRY

L Lead wire
PL Plug connector with lamp
PS Plug connector with lamp & surge suppressor
Blank Master valve

Only PS types are available for plug connector for DC.

COIL RATED VOLTAGE

1 AC 110V
2 AC 220V
3 DC 12V
4 DC 24V
Blank Air operated valve
### CONSTRUCTION / PARTS

3-port Valve

**SV59/N.C.**

**SV59/N.O.**

**SV190/N.C.**

**SV190/N.O.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>BODY</td>
<td>ADC-12</td>
<td>③</td>
<td>PISTON</td>
<td>POLYACETAL</td>
</tr>
<tr>
<td>②</td>
<td>PISTON PLATE</td>
<td>POLYACETAL</td>
<td>④</td>
<td>SPRING</td>
<td>SUS</td>
</tr>
<tr>
<td>③</td>
<td>PISTON</td>
<td>POLYACETAL</td>
<td>⑤</td>
<td>O-RING</td>
<td>NBR</td>
</tr>
<tr>
<td>④</td>
<td>SPOOL</td>
<td>AI·NBR</td>
<td>⑥</td>
<td>COIL ASS'Y</td>
<td></td>
</tr>
</tbody>
</table>

**DIMENSIONS / AIR OPERATED VALVE**

**SV59M**

**SV190M**
SV59-L
Lead Wire (L)

SV59-PL/PS
Plug Connector (PL, PS)

SV59-D/DL/DS
DIN Terminal (D, DL, DS)
SV190-□L
Lead Wire (L)

SV190-□PL/PS
Plug Connector (PL, PS)

SV190-□D/DL/DS
DIN Terminal (D, DL, DS)
Hand Valve

3-POSITION

(Reserved center)

1. Before piping is connected, remove chips, cutting oil other debris from inside the pipe.
2. Please install a silencer on the exhaust port when installed in a dusty place.
3. When there is a large amount of carbon powder from the compressor, please install a mist separator.
4. Please use turbine oil (ISO VG32) if a lubricant is required.

Specifications

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SV200H</th>
<th>SV300H</th>
<th>SV400H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure range (kgf/cm²)</td>
<td>0.9 (9.2)</td>
<td>4.0 (42)</td>
<td>5.0 (52)</td>
</tr>
<tr>
<td>Effective area (mm²)</td>
<td>7.5</td>
<td>20</td>
<td>55</td>
</tr>
<tr>
<td>Ambient and fluid temp.</td>
<td>5~60°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation angle</td>
<td>90°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>0.55</td>
<td>0.9</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Before Handling Hand Valves

How To Order

SV 3 3 0 H

- Port Size
  1. Rc(PT) 1/4
  2. Rc(PT) 3/8
  3. Rc(PT) 1/2

- Configuration
  3. Closed center
**Manifold Block**

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Applicable valve</th>
<th>SV50</th>
<th>SV100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply &amp; exhaust of port P, R</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td>Valve stations</td>
<td>20 stations</td>
<td></td>
</tr>
</tbody>
</table>

### HOW TO ORDER

**MSV 100 - 05**

- **ELECTRICAL ENTRY**
  - Applicable valve: MSV50, MSV100
  - Size of port P, R: SV50, SV100

- **STATION**
  - MSV50: 2 stations
  - MSV100: 20 stations

---

**MSV50 -**

![Image of MSV50 manifold block]

<table>
<thead>
<tr>
<th>L</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</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>L1</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>
<td>210</td>
<td>226</td>
<td>242</td>
<td>258</td>
<td>274</td>
<td>290</td>
<td>306</td>
<td>322</td>
<td>338</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>
<td>232</td>
<td>248</td>
<td>264</td>
<td>280</td>
<td>296</td>
<td>312</td>
<td>328</td>
</tr>
</tbody>
</table>

---

**MSV100 -**

![Image of MSV100 manifold block]

<table>
<thead>
<tr>
<th>L</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</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>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>47</td>
<td>66</td>
<td>85</td>
<td>104</td>
<td>123</td>
<td>142</td>
<td>161</td>
<td>180</td>
<td>199</td>
<td>218</td>
<td>237</td>
<td>256</td>
<td>275</td>
<td>294</td>
<td>313</td>
<td>332</td>
<td>351</td>
<td>370</td>
<td>389</td>
</tr>
</tbody>
</table>
Manifold Block

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Applicable valve</th>
<th>SV200</th>
<th>SV300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply &amp; exhaust of port P, R</td>
<td>Common</td>
<td></td>
</tr>
<tr>
<td>Valve stations</td>
<td>20 stations</td>
<td>10 stations</td>
</tr>
</tbody>
</table>

*Manifold blocks for SV-400 (N.O. Base), SV-600 (N.O. Base) are available.

**HOW TO ORDER**

**MSV 300 - 05**

**ELECTRICAL ENTRY**

<table>
<thead>
<tr>
<th>Applicable valve</th>
<th>Size of port P, R</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</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>MSV200</td>
<td>SV200</td>
<td>PT 1/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSV300</td>
<td>SV300</td>
<td>PT 3/8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**STATION**

- MSV200

![Manifold Block Diagram](https://via.placeholder.com/150)

*If there are more than 8 stations, supply from both sides of port P and exhaust from both sides of port R.*

<table>
<thead>
<tr>
<th>L</th>
<th>n</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</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>L1</td>
<td>84</td>
<td>112</td>
<td>140</td>
<td>168</td>
<td>196</td>
<td>224</td>
<td>252</td>
<td>280</td>
<td>308</td>
<td>336</td>
<td>364</td>
<td>392</td>
<td>420</td>
<td>448</td>
<td>476</td>
<td>504</td>
<td>532</td>
<td>560</td>
<td>588</td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>72</td>
<td>100</td>
<td>128</td>
<td>156</td>
<td>184</td>
<td>212</td>
<td>240</td>
<td>268</td>
<td>296</td>
<td>324</td>
<td>352</td>
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<td>464</td>
<td>492</td>
<td>520</td>
<td>548</td>
<td>576</td>
<td></td>
</tr>
</tbody>
</table>

- MSV300

![Manifold Block Diagram](https://via.placeholder.com/150)

*If there are more than 5 stations, supply from both sides of port P and exhaust from both sides of port R.*

<table>
<thead>
<tr>
<th>L</th>
<th>n</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>11</th>
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<th>13</th>
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<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>93</td>
<td>126</td>
<td>159</td>
<td>192</td>
<td>225</td>
<td>258</td>
<td>291</td>
<td>324</td>
<td>357</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>80</td>
<td>113</td>
<td>146</td>
<td>179</td>
<td>212</td>
<td>245</td>
<td>278</td>
<td>311</td>
<td>344</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
KV series

3, 5-port Solenoid Valve / Pilot Type
- Compact size with large flow capacity
- Exceedingly long life (more than 50 million cycles)
- Fitting attached valve and manifold block
- D-SUB Connector and DIN Rail
- Easy manual operation

V290 series

2, 3-port Solenoid Valve / Direct Poppet Type
- Compact size with large flow capacity
- Low power consumption
- Exceedingly long life
- Filter inserted (P, A port)
- Wiring and distribution adaptively designed

MC/SC/FC series

Air Cylinder (Mini, Compact & Standard)
- The best use of space
- Easy to attach auto-switches
- Lowered maintenance cost
- Enhanced Kinetic Energy
- Improved mounting accuracy

B20, 30, 40 series

Air Clean Unit
- Newly-designed space-saving air clean unit
- Rovolving one-touch type drain cock
- Easy to assemble bracket spacer
- Slim and square-shaped pressure gauge (option)
- Convenient adjustment of oil dripping quantities with scale