Pulse Valve  Valve for Dust Collector

Life: 10 million cycles*1 or more/
10 times*2 or more

High peak pressure and low air consumption

<table>
<thead>
<tr>
<th>Peak pressure</th>
<th>15%*3 increase</th>
<th>Air consumption</th>
<th>35%*3 reduction</th>
</tr>
</thead>
</table>

*1 Based on SMC’s specific testing conditions (JSXFA-06, Pilot valve orifice is ø5 mm or larger)
*2 Comparison with SMC existing model
*3 When the pilot valve mounted on the JSXFA-06 is energized (ON time) for 100 ms.

Compression fitting type

Size: 3/4 (20A), 1 (25A), 1 1/2 (40A)

Direct piping type

Port size

3/4 (20A)  1 (25A)  1 1/2 (40A)

JSXFA Series
Long service life: 10 million cycles*1 or more
Spring is not necessary due to high strength elastomer diaphragm.
* Value based on the test conditions of SMC (3/4 inch, 20A) (except the made-to-order “A”)

OFF response time: 45%*1,2 reduction

Fluid temperature: −40 to 60°C
Applicable for wide range of temperature

Easier maintenance
Springless diaphragm allows for easy maintenance of valve. Main valve and sub-valve (for 40A) included in maintenance kit
*1 Based on SMC's specific testing conditions (JSXFA-06, Pilot valve orifice is ø5 mm or larger)
*2 Comparison with SMC existing model

Flow rate characteristics: 40%*1,2 increase
Optimum design for the internal geometry

Variations

<table>
<thead>
<tr>
<th>Piping</th>
<th>Port size</th>
<th>Orifice diameter [mm]</th>
<th>Thread type</th>
<th>Pilot port size</th>
<th>With/without silencer (Option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression fitting type</td>
<td>3/4 (20A)</td>
<td>ø32</td>
<td>Rc</td>
<td>1/8</td>
<td>Without</td>
</tr>
<tr>
<td>Direct piping type (Rc, NPT, G)</td>
<td>1 (25A)</td>
<td>ø40</td>
<td>NPT</td>
<td>1/4</td>
<td>Without</td>
</tr>
<tr>
<td></td>
<td>1 1/2 (40A)</td>
<td>ø50</td>
<td>G</td>
<td></td>
<td>With</td>
</tr>
</tbody>
</table>

Compliance fitting type
JSXFAE Series

Direct piping type
JSXFAF Series

Dedicated Controller for Operation VXFC Series p.9
The valve controller turns ON/OFF many valves for the dust controller.

Power supply voltage 85 to 240 VAC
12 VDC, 24 to 48 VDC

Number of output points 6 output points, 10 output points
Application of the pulse valve

Remove fine particles using the pulse valve!

Mixing

Cutting

Pressing
(Blanking / Piercing)

Pulse valve for various industries!

General production line

Agriculture / livestock

Steel and cement

Food

Pharmaceutical

Mining

Pulse Valve
JSXFA Series

Pulse Valve
JSXFA Series

Pulse Valve
Valve for Dust Collector
JSXFA Series
Pulse Valve   Valve for Dust Collector

**JSXFA Series**

### How to Order

**JSXFA E-06 R-B-1**

**1** Piping
- **E** Compression fitting type
- **F** Direct piping type

+1 Seals and washers are included.

**2** IN/OUT port size
- **06** 3/4 (20A)
- **10** 1 (25A)
- **14** 1 1/2 (40A)

**3** Thread type
- **R** Rc
- **N** NPT
- **F** G

**4** Fluid and ambient temperatures
- **B** −40 to 60°C

**5** With/without silencer

<table>
<thead>
<tr>
<th>Port size</th>
<th>Nil</th>
<th>Without</th>
<th>S With</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>06</strong></td>
<td>1/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>14</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Port size: 14 only
  Select Nil for 06 and 10.

**6** Pilot port size
- **Nil** 1/4
- **1** 1/8

---

**Caution**

**Selection of Pilot Valve**

For the pilot valve orifice diameter, ø5 mm or larger is recommended.

When the pilot valve orifice diameter is ø3 mm or larger and less than ø5 mm, put “A” to the end of the product number for made-to-order. The product may not operate correctly if the pilot valve orifice diameter is inadequate. (port size: 3/4, 1)

Depending on the pilot piping port size*1 or length, the valve may not operate correctly.

*1 The I.D. of the pilot piping must be larger than the pilot valve orifice diameter to use. The maximum pilot piping I.D. is 10 mm.

### Made to Order

**Pilot valve orifice diameter: Special specification**

**A** For ø3 mm or larger and less than ø5 mm | Port size: 06, 10

**JSXFA E-06 R-B-A**

Enter the standard product number.

### Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>JSXFA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>06</strong></td>
<td>3/4</td>
</tr>
<tr>
<td><strong>10</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>14</strong></td>
<td>1 1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orifice diameter [mm]</th>
<th>ø32</th>
<th>ø40</th>
<th>ø50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. operating pressure differential [MPa]</td>
<td>0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. operating pressure differential [MPa]</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. system pressure [MPa]</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid temperature [°C]</td>
<td>−40°¹ to 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature [°C]</td>
<td>−40 to 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight [g]</td>
<td>Compression fitting type</td>
<td>470</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct piping type</td>
<td>290</td>
<td></td>
</tr>
</tbody>
</table>

*¹ No condensation allowed
Construction

JSXFAE/Compression Fitting Type
Port size: 06, 10 sizes

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>ADC</td>
</tr>
<tr>
<td>2</td>
<td>Main valve</td>
<td>Resin</td>
</tr>
<tr>
<td>3</td>
<td>O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>4</td>
<td>Bonnet</td>
<td>ADC</td>
</tr>
<tr>
<td>5</td>
<td>Seal</td>
<td>NBR</td>
</tr>
<tr>
<td>6</td>
<td>Washer</td>
<td>Fe (Chromated)</td>
</tr>
<tr>
<td>7</td>
<td>Compression nut</td>
<td>ADC</td>
</tr>
<tr>
<td>8</td>
<td>Hexagon bolt</td>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

JSXFAF/Direct Piping Type
Port size: 06, 10 sizes

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>ADC</td>
</tr>
<tr>
<td>2</td>
<td>Main valve</td>
<td>Resin</td>
</tr>
<tr>
<td>3</td>
<td>O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>4</td>
<td>Bonnet</td>
<td>ADC</td>
</tr>
<tr>
<td>5</td>
<td>Sub-valve</td>
<td>Resin</td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>7</td>
<td>Bonnet</td>
<td>ADC</td>
</tr>
<tr>
<td>8</td>
<td>Seal</td>
<td>NBR</td>
</tr>
<tr>
<td>9</td>
<td>Washer</td>
<td>Fe (Chromated)</td>
</tr>
<tr>
<td>10</td>
<td>Compression nut</td>
<td>ADC</td>
</tr>
<tr>
<td>11</td>
<td>Hexagon bolt</td>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

Port size: 14 size

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>ADC</td>
</tr>
<tr>
<td>2</td>
<td>Main valve</td>
<td>Resin</td>
</tr>
<tr>
<td>3</td>
<td>O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>4</td>
<td>Bonnet</td>
<td>ADC</td>
</tr>
<tr>
<td>5</td>
<td>Sub-valve</td>
<td>Resin</td>
</tr>
<tr>
<td>6</td>
<td>O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>7</td>
<td>Bonnet</td>
<td>ADC</td>
</tr>
<tr>
<td>8</td>
<td>Seal</td>
<td>NBR</td>
</tr>
<tr>
<td>9</td>
<td>Washer</td>
<td>Fe (Chromated)</td>
</tr>
<tr>
<td>10</td>
<td>Compression nut</td>
<td>ADC</td>
</tr>
<tr>
<td>11</td>
<td>Hexagon bolt</td>
<td>Stainless steel</td>
</tr>
</tbody>
</table>
Dimensions: JSXFAE/Compression Fitting Type

Port size: 06, 10 sizes

Dimensions:

<table>
<thead>
<tr>
<th>Model</th>
<th>Port size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSXFAE-06</td>
<td>3/4</td>
<td>74</td>
<td>76</td>
<td>113</td>
<td>54</td>
<td>83</td>
<td></td>
<td>54</td>
<td>41.3</td>
<td>25.4</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>JSXFAE-10</td>
<td>1</td>
<td>94</td>
<td>90</td>
<td>137</td>
<td>82</td>
<td>120</td>
<td></td>
<td>65</td>
<td>44.4</td>
<td>38.1</td>
<td>31.6</td>
<td></td>
</tr>
<tr>
<td>JSXFAE-14</td>
<td>1 1/2</td>
<td>126</td>
<td>117</td>
<td>178</td>
<td>92</td>
<td>170</td>
<td>139</td>
<td>80</td>
<td>51.3</td>
<td>50.7</td>
<td>45</td>
<td>33</td>
</tr>
</tbody>
</table>

Dimension in ( ) shows the dimension after tightening.
Dimensions: JSXFAF/Direct Piping Type

Port size: 06, 10 sizes

Port size: 14 size

Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Port size</th>
<th>P</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSXFAF-06</td>
<td>3/4</td>
<td>74</td>
<td>55.5</td>
<td>92.5</td>
<td>36</td>
<td>19.3</td>
<td>48.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JSXFAF-10</td>
<td>1</td>
<td>94</td>
<td>63.5</td>
<td>110.5</td>
<td>44</td>
<td>22.2</td>
<td>60.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JSXFAF-14</td>
<td>1 1/2</td>
<td>126</td>
<td>75.1</td>
<td>136.6</td>
<td>65</td>
<td>32</td>
<td>110</td>
<td>79</td>
<td></td>
</tr>
</tbody>
</table>
Working Principle

**Port size: 06, 10 sizes**

**De-energized**
The air enters from the IN side goes through the supply orifice of the main valve to fill the pressure action chamber. The main valve is closed by the pressure built in the pressure action chamber.

**Right after energized**
When the pilot valve is energized, the armature opens, and the air filling the pressure action chamber is released to the atmosphere through the exhaust port.

**Energized (Main valve open)**
Due to the release of air from the pilot valve to atmosphere, the pressure in the pressure action chamber decreases (force pushing the main valve down < force pushing the main valve up), opening the main valve. Because of this, the air flows to the OUT side.

**Caution Selection of Pilot Valve**

---

**Port size: 14 size**

**De-energized**
The air enters from the IN side goes through the supply orifice of the main valve and sub-valve to fill the pressure action chamber. The main valve and sub-valve are closed by the pressure built in the pressure action chamber.

**Right after energized**
When the pilot valve is energized, the armature opens, and the air filling the pressure action chamber is released to the atmosphere through the pilot valve.

**Energized (Sub-valve open)**
Due to the release of air from the sub-valve to atmosphere, the pressure in the sub-valve pressure action chamber decreases (force pushing the sub-valve down < force pushing the sub-valve up), opening the sub-valve. Because of this, the air filling the pressure action chamber is released to the atmosphere from the exhaust port.

**Energized (Main valve open)**
Due to the release of air from the pressure action chamber, the pressure in the pressure action chamber decreases (force pushing the main valve down < force pushing the main valve up), opening the main valve. Because of this, the air flows to the OUT side of the pulse valve.

**Caution Selection of Pilot Valve**
Replacement Parts

<table>
<thead>
<tr>
<th>Model</th>
<th>Replacement part number</th>
<th>Silencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSXFA(E, F)-06-□-B-□</td>
<td>JSXXF-06B-KT</td>
<td>—</td>
</tr>
<tr>
<td>JSXFA(E, F)-06-□-A-□</td>
<td>JSXXF-06B-A-KT</td>
<td>—</td>
</tr>
<tr>
<td>JSXFA(E, F)-10-□-B-□</td>
<td>JSXXF-10B-KT</td>
<td>—</td>
</tr>
<tr>
<td>JSXFA(E, F)-10-□-A-□</td>
<td>JSXXF-10B-A-KT</td>
<td>—</td>
</tr>
<tr>
<td>JSXFA(E, F)-14□-B-□</td>
<td>JSXXF-14B-KT</td>
<td>AN30-03 (14R, 14F), AN30-N03 (14N)</td>
</tr>
</tbody>
</table>

**Disassembly/Assembly Procedure**

**Caution**

1. Before starting the disassembly work, be sure to shut off the power supply and pressure supply, and then release the residual pressure.

**Disassembly**

1) Loosen the hexagon bolts and remove the bonnet, O-ring, and main valve (sub-valve).

**Assembly**

1) Assemble the main valve (sub-valve) to the body. The main valve (sub-valve) has a required mounting direction.

   **Assemble the valve referring to Fig. 1.**

   If the valve is assembled in incorrect direction, it can cause a malfunction.

2) Mount the O-ring to the body groove. (See Fig. 2.)

   After mounting of the O-ring, check if the O-ring is fitted properly in the groove. If it is out of the groove, external leakage and/or operation failure may occur.

3) Assemble the bonnet to the body.

4) Tighten the hexagon bolts diagonally.

   (See Table 1 for the tightening torque.)

**Table 1 Proper Tightening Torque [N·m]**

<table>
<thead>
<tr>
<th>Port size: 06, 10</th>
<th>Main valve: 12.5 to 13.8</th>
<th>Sub-valve: 1.5 to 1.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port size: 14</td>
<td>Main valve: 5.2 to 5.7</td>
<td>Sub-valve: 1.5 to 1.7</td>
</tr>
</tbody>
</table>

**Fig. 1 Valve position**

- Main valve position (Port size: 06, 10)
- Main valve position (Port size: 14)
- Sub-valve position (Port size: 14)

**Fig. 2 O-ring position**

- Port size: 06, 10
- Port size: 14

- IN side
### How to Order Controller

**VXFC 06 D**

- **Number of output points**: 06, 10 output points
- **Voltage**: D 24 to 48 VDC, D-6 12 VDC, A 85 to 240 VAC

### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>VXFC06A</th>
<th>VXFC06D</th>
<th>VXFC06D-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>85 to 240 VAC</td>
<td>24 to 48 VDC</td>
<td>12 VDC</td>
</tr>
<tr>
<td>Output voltage</td>
<td>Same as input voltage</td>
<td>Same as input voltage</td>
<td>Same as input voltage</td>
</tr>
<tr>
<td>Time setting</td>
<td>ON 0.01 to 0.99 sec.</td>
<td>OFF 0 to 299 sec.</td>
<td>±2%</td>
</tr>
<tr>
<td>Number of outputs</td>
<td>6 to 10 points</td>
<td>6 to 10 points</td>
<td>6 to 10 points</td>
</tr>
<tr>
<td>Operating ambient temperature</td>
<td>0 to 50°C (No condensation allowed)</td>
<td>0 to 50°C (No condensation allowed)</td>
<td>0 to 50°C (No condensation allowed)</td>
</tr>
<tr>
<td>Operating ambient humidity</td>
<td>45 to 80% (No condensation allowed)</td>
<td>45 to 80% (No condensation allowed)</td>
<td>45 to 80% (No condensation allowed)</td>
</tr>
<tr>
<td>Output current</td>
<td>0.5 A or less</td>
<td>0.5 A or less</td>
<td>0.5 A or less</td>
</tr>
<tr>
<td>Power supply fuse</td>
<td>3 A</td>
<td>1 A</td>
<td>1 A</td>
</tr>
</tbody>
</table>

### Two-time Hitting Function

A two-time hitting function is adopted to improve the bag filter dusting efficiency. Turn ON the DIP switch for two-time hitting (OFF for one-time hitting).

(Effective up to the number of setting channels)

#### Operation sequence diagram

- For 4 output points
- Two-time hitting only for CH2
- ON for 1 sec.
- OFF for 2 sec.

### Interrupt Operation Function

Interrupting an operation from an external switch is possible using input signals.

#### Operation sequence diagram

### Cascade Connection (Multiple-board connection)

**VXFC10**: One board allows outputs at merely 10 output points max. But the points can be increased to 20 and 30 output points by connecting cascades.

#### Connection

- Controller No.1 (Master)
- Controller No.2 (Slave)
- Controller No.3 (Slave)
- Controller No.n (Slave)
**Pressure Terminology**

1. **Maximum operating pressure differential**
   The maximum pressure differential (the difference between the inlet and outlet pressure) which is allowed for operation. When the outlet pressure is 0 MPa, this becomes the maximum operating pressure.

2. **Minimum operating pressure differential**
   The minimum pressure differential (the difference between the inlet pressure and outlet pressure) required to keep the main valve fully open.

3. **Maximum system pressure**
   The maximum pressure that can be applied inside the pipelines (line pressure).
   [The pressure differential of the solenoid valve portion must not exceed the maximum operating pressure differential.]

**JSXFA Series / Glossary of Terms**

1. **Symbol**
   In the symbol (-[]), when the valve is closed, flow is blocked from port 1 to port 2. However, if the pressure in port 2 is higher than port 1, the valve will not be able to block the fluid and it will flow from port 2 to port 1.
## JSXFA Series

### Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 2-port solenoid valve for fluid control precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: [https://www.smcworld.com](https://www.smcworld.com)

### Design

⚠️ **Warning**

1. **Cannot be used as an emergency shutoff valve etc.**
   
   The valves presented in this catalog are not designed for safety applications such as an emergency shutoff valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

2. **Continuous valve open**
   
   The valve is for pulse operation. Do not open the valve continuously. Since a large amount of air is consumed, the diaphragm will oscillate (chatter) due to insufficient air supply on the inlet side, and this can lead to failure.

### Selection

⚠️ **Warning**

3. **Countermeasures against static electricity**
   
   Take measures to prevent static electricity since some fluids can cause static electricity.

4. **Low temperature operation**
   
   1. The valve can be used in fluid temperatures down to \(-40^\circ\)C. However, take measures to prevent freezing or solidification of impurities, etc.
   
   2. When using valves for water application in cold climates, take appropriate countermeasures to prevent the water from freezing in tubing after cutting the water supply from the pump, by draining the water etc. When warming by a heater etc., be careful not to expose the coil portion to a heater. Installation of a dryer, heat retaining of the body is recommended to prevent a freezing condition in which the dew point temperature is high and the ambient temperature is low, and the high flow runs.

5. **Fluid properties**
   
   Use a general compressed air with a filter of 5 \(\mu\)m or less mounted on the inlet of the piping. (Excluding dry air)

### Silencer

⚠️ **Caution**

1. The silencer's response properties do not change in the initial stage, but will change due to the blockage after long use. Replace it after using about 500,000 times. This number is subject to change based on fluid quality and energizing time.

2. When using a silencer, make space for silencer replacement.

### Selection

⚠️ **Warning**

1. **Air quality**
   
   1. **Use clean air.**
      
      Do not use compressed air that contains chemicals, synthetic oils including organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.
   
   2. **Install an air filter.**
      
      Install an air filter close to the valve on the upstream side. A filtration degree of 5 \(\mu\)m or less should be selected.
   
   3. **Install an aftercooler or air dryer, etc.**
      
      Compressed air that contains excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an aftercooler or air dryer, etc.
   
   4. **If excessive carbon powder is generated, eliminate it by installing a mist separator on the upstream side of valves.**
      
      If excessive carbon powder is generated by the compressor, it may adhere to the inside of the valves and cause a malfunction. Refer to the Best Pneumatics for further details on compressed air quality.

2. **Ambient environment**
   
   Use within the allowable ambient temperature range. Check the compatibility between the product’s composition materials and the ambient atmosphere. Be certain that the fluid used does not touch the external surface of the product.

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**Diagram:**

- **AC coil:** 5% or less of rated voltage
- **DC coil:** 2% or less of rated voltage
**Warning**

1. If air leakage increases or equipment does not operate properly, stop operation.

   After mounting is completed, confirm that it has been done correctly by performing a suitable function test.

2. Avoid sources of vibration, or change the fixing method to avoid resonance.

3. Painting and coating

   Warnings or specifications printed or labeled on the product should not be erased, removed or covered up.

**Caution**

5. Tightening of the compression nut

   Be sure to tighten the compressor nut sufficiently to prevent nut becoming loose and leakage occurring.

   **Wrench Tightening Angle after Hand-tightening**

   (Guideline for tightening of the nut)

<table>
<thead>
<tr>
<th>Size</th>
<th>Wrench tightening angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4 (20A)</td>
<td>90° to 270°</td>
</tr>
<tr>
<td>1 (25A)</td>
<td>125° to 315°</td>
</tr>
<tr>
<td>1 1/2 (40A)</td>
<td>150° to 330°</td>
</tr>
</tbody>
</table>

   - Mount the valve to the fixed piping.
   - Insert the piping until it stops to prevent the piping from being slanted to the valve.
   - Do not expose the piping to oil or moisture. Otherwise, the valve comes off easily.
   - Sealing performance will decrease due to the deterioration of seals. Tighten the compression nut regularly.

6. When connecting piping to a product

   Avoid mistakes regarding the supply port etc.

7. If a regulator, or a restrictor, is installed immediately before or after the IN port of the valve, the main valve may oscillate (chatter). Install them away from the valve or change the restriction.

8. The header tank capacity should be sufficient. This is a valve for large flow rate, so if the capacity is small, the main valve may oscillate due to pressure drop or insufficient air supply.
**JSXFA Series**

**Specific Product Precautions 3**

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 2-port solenoid valve for fluid control precautions, refer to the "Handling Precautions for SMC Products" and the “Operation Manual” on the SMC website: https://www.smcworld.com

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### Appearance

**Caution**

1. Surface treatment is applied to the product to improve corrosion resistance. There may be spot pattern on the surface depending on the treatment condition, but there is no problem in use.

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### Operating Environment

**Warning**

1. Do not use in an atmosphere having corrosive gases, chemicals, sea water, water vapor, or where there is direct contact with any of these.
2. Do not use in explosive atmospheres.
3. Do not use in locations subject to vibration or impact.
4. Do not use in locations where radiated heat will be received from nearby heat sources.
5. Employ suitable protective measures in locations where there is contact with oil or welding spatter, etc.

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### Wiring

**Warning**

1. The controller starts its output the moment the power switch is turned ON. Be aware that even if the power switch is turned OFF, power is connected to the terminal block.

**Caution**

1. Make sure that the power supply voltage to be input matches the voltage in the controller's specifications. The power supply voltage that has been input becomes the voltage that is output to the solenoid valves.
2. Connect a ground that is rated Class 3 or greater to the power supply terminal block's FG.
3. If the power source is DC, use caution to its polarity. If the polarity is incorrect, it may result in a malfunction or damage.
4. For details, refer to the separate Operation Manual.
5. The solenoid valve mounted on the controller should be equipped with a surge voltage suppressor.

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### Dedicated Controller for Operation

**VXFC Series**

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### Maintenance

**Warning**

1. Removing the product
   - The valve becomes hot depending on the fluid temperature. Confirm that the valve temperature has dropped sufficiently before performing work. If touched inadvertently, there is a danger of being burned.
   1. Shut off the fluid supply and release the fluid pressure in the system.
   2. Shut off the power supply.
   3. Remove the product.
   2. Low frequency operation
   - Switch valves at least once every 30 days to prevent malfunction. Also, in order to use it under the optimum state, conduct a regular inspection once a half year.
   3. Disassembly
   - Do not disassemble for purposes other than the main valve replacement, or malfunction may occur.
   - Refer to the Disassembly/Assembly Procedure on page 8 for the replacement of the main valve.

**Caution**

1. Filters
   1. Be careful regarding clogging of filters.
   2. Replace filter elements after one year of use, or earlier if the pressure drop reaches 0.1 MPa.
2. Storage
   - In case of long term storage after use, thoroughly remove all moisture to prevent rust and deterioration of rubber materials etc.
3. Exhaust the drainage from an air filter periodically.

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### Operating Environment

**Warning**

1. Operate under conditions that are free of vibration and impact.
2. Operate in an ambient temperature range between 0°C and 50°C.
3. Operate in an ambient humidity range between 45% to 80% (no condensation allowed).
These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\(^1\), and other safety regulations.

\(^1\) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety. etc.

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

## Warning

1. **Warning:**
   - The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
   - The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. **Caution:**
   - Only personnel with appropriate training should operate machinery and equipment.
   - The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. **Caution:**
   - Do not service or attempt to remove product and machinery/equipment until safety is confirmed.
   - The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   - When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   - Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. **Caution:**
   - Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
   - Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   - Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
   - An application which could have negative effects on people, property, or animals requiring special safety analysis.
   - Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

## Caution

1. **Caution:**
   - The product is provided for use in manufacturing industries.
   - The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

## Limited warranty and Disclaimer

**Limited warranty and Disclaimer/Compliance Requirements**

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

**Limited warranty and Disclaimer**

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

2. **Caution:**
   - For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   - This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. **Caution:**
   - Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.
   - \(^2\) Vacuum pads are excluded from this 1 year warranty.
   - A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
   - Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

**Compliance Requirements**

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

**Safety Instructions**

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