



JSX/JSX□ 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>

Design

⚠ Warning

1. Confirm the specifications.

Give careful consideration to the operating conditions, such as the application, fluid, and environment, and use within the specified operating ranges. If the product is used beyond the specification range, this may cause the product to break or malfunction. We do not guarantee against any damage if the product is used outside of the specification range.

2. Cannot be used as an emergency shutoff valve, etc.

This product is not designed for use as an emergency shutoff valve. If the valve is used in this type of system, other reliable safety assurance measures should also be adopted.

3. Cannot be used for pressure (including vacuum) holding

This product cannot be used to hold the pressure (including vacuum) inside of a pressure vessel because valve air leakage is unavoidable.

4. Closed liquid circuit

In a closed circuit, when liquid is static, the pressure could rise due to temperature fluctuations. This pressure rise could cause either a malfunction or damage to components such as valves. To prevent this, install a relief valve in the system.

5. Actuator driving

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.

6. Extended periods of continuous energization

The solenoid coil will generate heat when continuously energized. Avoid using in a tightly shut container. Install the valve in a well-ventilated area. Furthermore, do not touch it while it is being energized or right after it has been energized.

7. Water hammer

When an impact, such as water hammer, etc., caused by rapid pressure fluctuation is applied, the valve may be damaged. Install water hammer relief equipment (an accumulator, etc.) or use an SMC water hammer relief valve (VXR series). Please contact SMC for details.

8. Back pressure

If there is a possibility that back pressure will be applied, take countermeasures by installing a check valve, etc., on the downstream side.

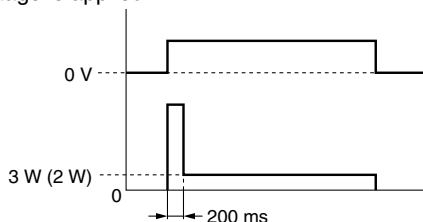
9. Do not disassemble the product or replacement parts or make any modifications to either of them, including additional machining.

Doing so may lead to human injury and/or an accident.

10. High flow/ Power saving type

Power consumption is reduced compared with the standard model by reducing the wattage required to hold the valve in an energized state.

Effective after being energized for more than 200 ms when the voltage is applied



* The value in () is for the JSX10U.

The OFF time should be at least 2 s.

If the OFF time is less than 2 s, the coil may generate an abnormal amount of heat, resulting in damage, depending on the length of ON time.

Do not use in an environment subject to constant vibration and/or impact.

The valve may close when held in an energized state.

Design

⚠ Caution

1. Power saving circuit

The power saving circuit (PWM control) built into the product reduces power consumption via high-speed switching operation with the PWM control circuit after the rated voltage has been applied for approx. 200 ms when energized.

Please note that the effect of this PWM control can cause the following problems depending on the type of switch and drive circuit used.

1. When a mechanical relay, etc., is used in the drive circuit, the product may not turn ON normally if chattering occurs within approx. 200 ms of the start of energization.
2. When a filter or another device is installed between the power supply and the product to achieve noise reduction, the current may be reduced due to filtering, which may prevent the product from turning ON normally.
3. When an SSR (solid state relay) with a built-in photo coupler is used in the drive circuit, the photo coupler may not turn OFF, preventing the product from switching OFF (it will remain ON).

Operating Environment

⚠ Warning

Do not use the product in locations such as those described below.

1. Locations with atmospheres in which water vapor is present or locations in which corrosive fluids (chemicals), sea water, or water may come into contact with the product

Implement appropriate protective measures if water will be applied to the product for long periods of time, even for products which have IP65 or IP67 enclosures. Such water may enter through microscopic gaps in the product's external surfaces, resulting in fire damage or short-circuiting of the solenoid valve coils. If installing the product in close proximity to equipment such as machine tools, processing machines, etc., which use large amounts of liquids or oils, be sure to confirm that liquid dispersal or spatter from the peripheral equipment does not come into contact with the product.

2. Locations with explosive atmospheres

3. Locations subject to vibration or impact

4. Locations where radiated heat will be received from nearby heat sources

5. Locations that are outdoors (Excludes outdoor specification valves)

Although using an indoor specification product outdoors voids its product warranty, if outdoor use proves unavoidable, be sure to implement the protective measures mentioned below.

- 1) Install a protective cover, etc., to protect the product from direct sunlight.
- 2) Encase the product in an enclosure to protect it from rain and wind.
 - * If only a roof-type cover is provided for the product, it will not be sufficiently protected from side winds or rain splashing up from the ground, which will result in water adhering to and entering the product. In addition, when the product is encased in an enclosure, be sure to implement proper ventilation measures to prevent overheating due to long-term energizing of the product.
- 3) Be sure to confirm that the location is not one in which condensation is easily generated.
 - * If the product is used in an environment with large temperature fluctuations, etc., condensation may be generated, and water may adhere to the external surface of the product. Be sure to implement protective measures against condensation, such as ambient temperature control, in such locations where condensation is easily generated.

6. Locations where freezing may occur within piping lines [When the fluid is liquid]

If the product is to be used in cold regions or during winter, be sure to implement measures to prevent the freezing of fluids.

If the fluid is likely to freeze, implement measures such as draining the water in the piping when the equipment is OFF or installing a heater or insulation in the piping.

If warming the solenoid valve, be sure to avoid the coil portion as warming it will result in poor heat dissipation.

[When the fluid is air]

With high flow rates, drain may be generated due to adiabatic expansion, resulting in freezing.

Be sure to periodically drain the product or conduct drain removal using an air dryer.



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Fluid

⚠ Warning

1. Fluid selection

- 1) Compatibility between the components and fluids should be checked in the application before use.
- 2) Since the compatibility of the fluid used may vary depending on its type, additives, concentration, temperature, etc., give sufficient consideration when selecting the material. Please contact SMC if anything is unclear.
- 3) Use a fluid with a kinematic viscosity of 50 mm²/s or less.

2. Do not use the product with the fluids shown below.

- 1) Fluids that are harmful to humans
- 2) Combustion-supporting or flammable fluids
- 3) Corrosive gas
- 4) Sea water, Saline solution

3. Take measures to prevent static electricity, since some fluids can cause static electricity.

4. Fluid temperature

Operate within the specified operating fluid temperature range.

5. Install a filter (strainer) to ensure clean fluids.

- 1) The use of a fluid that contains foreign matter can cause problems, such as malfunction and seal failure by promoting the wear of the valve seat and armature, by sticking to the sliding parts of the armature, etc. Install a filter (strainer) on the upstream side of the valve to remove foreign matter. Air: 5 μm or less Water: 100 mesh or more
- 2) Replace or clean the filter (strainer) when the pressure drop reaches 0.1 MPa to prevent them from getting clogged.

Fluid Quality

⚠ Warning

1. Air

- 1) Do not use compressed air that contains chemicals, synthetic oils that include organic solvents, salt, corrosive gases, etc., as it can cause malfunction or damage.
- 2) Compressed air that contains excessive drainage may cause the malfunction of valves and other pneumatic equipment. Install an aftercooler or an air dryer on the inlet side of the valve as a countermeasure against drainage.
- 3) If excessive carbon powder is generated by the compressor, it may adhere to the inside of the valves and cause malfunction. Install a mist separator on the inlet side of the valve as a countermeasure to remove any carbon powder.
- 4) For compressed air quality, refer to the **Web Catalog**.
- 5) When operating fluid air with a dew point of -70°C or lower, the inside of the valve may wear and the product life will be shortened.

2. Water

- 1) Be aware that rust stains, chloride separation, etc., from the piping may cause malfunction, leakage, or, in worse case scenarios, damage due to corrosion. Also, such damage may result in the spraying of fluids or scattering of parts. Please be sure to have protective measures in place in case such incidents should occur.
- 2) In the case that water contains substances such as calcium and magnesium, which generate hard scale and sludge, install water softening equipment and a filter (strainer) directly upstream from the valve to remove these substances, as this scale and sludge can cause the valve to malfunction.
- 3) The water pressure of tap water is usually 0.4 MPa or less, but the pressure can sometimes increase to 1.0 MPa in tall buildings. Therefore, pay attention to the max. operating pressure differential.

Fluid Quality

⚠ Warning

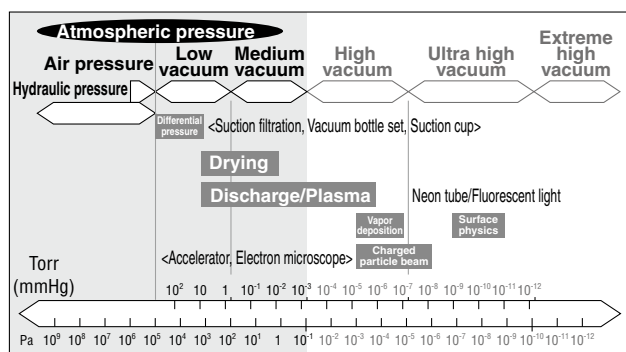
3. Oil

Generally, FKM is used as seal material, as it is resistant to oil. The resistance of the seal material may deteriorate depending on the type of oil, manufacturer, or additives. Check the resistance before use.

The kinematic viscosity must not exceed 50 mm²/s.

4. Vacuum

Please be aware that there is a range of pressure that can be used.



Vacuum piping direction: if the system uses a vacuum pump, we ask that you install the vacuum pump on the secondary side.

Also, install a filter on the primary side, and be careful that no foreign object is picked up.

Please replace the valve after operating the device approximately 300,000 times.

5. Steam

The use of a steam that contains foreign matter can cause problems, such as malfunction and seal failure, by promoting the wear of the valve seat and armature, and by sticking to the sliding parts of the armature, etc. Install a suitable filter (strainer) immediately upstream from the valve.

As per standard, the mesh count for the strainer should be 100 mesh. However, the size and shape of the foreign matter that occur depends on the operating environment. Check the fluid status and choose an appropriate mesh count.

The supply water to a boiler includes materials that create a hard sediment or sludge, such as calcium and magnesium. Sediment and sludge from steam can cause the valve to not operate properly. Install a water softening device which removes these materials.

Do not use operation steam which contains chemicals, synthetic oils that contain organic solvents, salts, corrosive gases, etc., as these can cause damage or deterioration. The seal material (special FKM) used for wetted parts of the product can withstand steam in standard conditions. However, the resistance of the sealing material can deteriorate depending on the types of additives such as boiler compounds and water conditioners within the boiler steam. Please only utilize the product after determining the sealing material resistance within the actual usage conditions.

JSX Series

JSXD Series

JSXZ Series

JSXM Series

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Mounting

⚠ Warning

1. Ensure sufficient space for maintenance and inspection.
2. When mounting the product, avoid sources of vibration, or adjust the arm from the body to the min. length so that resonance will not occur.
3. Do not install the product near a heat source and install it in locations where the product is not affected by radiant heat.

4. Do not apply external force to the coil section.

When the product is installed, apply a wrench to the outside of the piping connection while paying attention that it will not come into contact with the coil.

5. Do not warm the coil section with a heat insulator, etc.

When insulation is used as a countermeasure against freezing, the insulation should be limited to the piping and body only. Do not insulate the coil. This can cause the coil to burn out.

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

After installation or during maintenance, check that the product is correctly mounted with appropriate functional and leakage inspections by supplying compressed air and power supplies. Do not use the product when the equipment does not operate correctly.

7. Do not touch the valve while it is being energized or right after it has been energized.

Valves will reach high temperatures after operation. Use caution, as there is a danger of being burnt if a valve is touched directly.

⚠ Caution

1. Painting and coating

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

How to Assemble Brackets

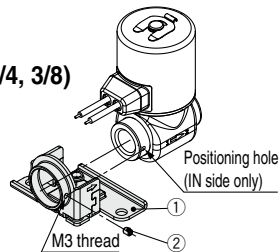
⚠ Caution

2. JSX series

Body material: Stainless steel
(N.C. specification, Port size: 1/4, 3/8)

How to assemble

- 1) Insert the bracket ① into the IN port side of the valve.
 - 2) Secure it with the hexagon socket head set screw ②.
- Tightening torque: 0.4 N·m ±5%



Caution regarding assembly

- 1) Pay attention to the bracket insertion direction.
There is only a positioning hole on the IN port side. Therefore, the bracket cannot be mounted to the OUT port side.
 - 2) The bracket should be mounted after connecting the fitting.
(Refer to the “Piping” section in the “Specific Product Precautions.”)
- * The bracket is shipped together with the product.

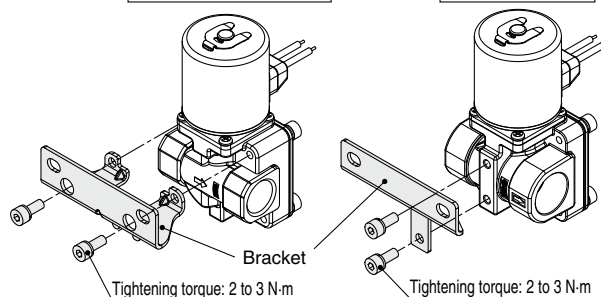
Bracket Assembly Part Nos. (With set screw)

Size	Port size	Thread type	Bracket assembly part no. (With set screw)	Weight [g]	Material
20, 30	1/4	Rc, NPT, G	JSX022-12A-2-1	30	Stainless steel
	3/8	Rc, NPT	JSX022-12A-2-1		
		G	JSX022-12A-2-2		

3. JSXD30 series: How to assemble brackets

For port sizes 1/4, 3/8

For port size 1/2



Size	Port size	Bracket assembly part no. (With screws)	Weight [g]
30	1/4, 3/8	VXD30S-14A-1	40
	1/2	VXD30S-14A-3	30

* For the JSXD30 series, the bracket is shipped together with the product.

How to Assemble Brackets

⚠ Caution

1. JSX series

Body material: Stainless steel, Brass, Aluminum

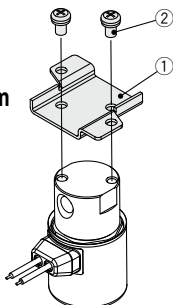
How to assemble

- 1) Mount the bracket ① to the bottom of the valve using the mounting screws ②.

Tightening torque

JSX10: 0.6 N·m ±5%

JSX20/30: 1.5 N·m ±5%

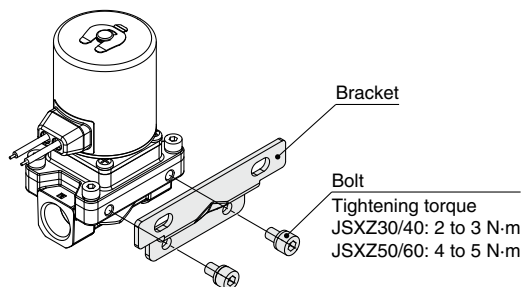


Bracket Assembly Part Nos. (With mounting screws)

Size	Body material	Port size	Thread type	Bracket assembly part no.	Weight [g]	Bracket material	
10	Brass, Stainless steel	1/8	Rc NPT G	JSX021-12A-3	10	Stainless steel	
20	Stainless steel			JSX022-12A-3	30		
	Brass,	1/8, 1/4, 3/8		JSX20-12A-4	35		
30	Stainless steel*1	1/8, 1/4, 3/8					
20	Aluminum	1/8, 1/4, 3/8		VX021N-12A	20		
30		1/4, 3/8		VX022N-12A	30		

*1 Only N.O. specification is available.

4. JSXZ series: How to assemble brackets



- * The bracket is shipped together with the product.
* For the JSXZ50/60, the mounting bolts and washers are separable, so be careful not to lose the washers.

Size	Port size	Bracket assembly part no. (With screws)	Weight [g]
30, 40	1/4, 3/8, 1/2	VXZ30S-14A-1	45
50, 60	3/4, 1	VXZ50S-14A-1	60



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Piping

Warning

1. There may be cases in which the tubing detaches from the fitting and thrashes around uncontrollably due to tubing degradation or fitting breakage. To prevent this, fit the tubing with a protective cover or secure it in place.
2. If using tube piping, secure the product to a permanent fixture. Do not suspend it from the tubing.

Caution

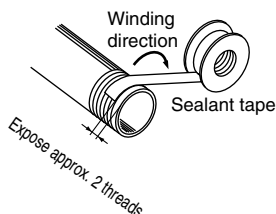
1. For handling One-touch fittings, refer to the “Fittings and Tubing Precautions” in the “Handling Precautions for SMC Products.”

2. 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. Install piping so that it does not apply pulling, pressing, bending, or other forces on the valve body.

3. Winding of sealant tape

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



4. Screw tightening torque for piping

When connecting piping to the valve, tighten with the proper tightening torque shown below.

Tightening Torque for Piping

Connection thread	Proper tightening torque [N·m]	Connection thread	Proper tightening torque [N·m]
1/8	3 to 5	1	36 to 38
1/4	8 to 12	1 1/4	40 to 42
3/8	15 to 20	1 1/2	48 to 50
1/2	20 to 25	2	48 to 50
3/4	28 to 30		

5. When using a fitting other than an SMC fitting

Follow the instructions given by the fitting manufacturer.

6. Avoid connecting ground lines to piping, as this may cause the electric corrosion of the system.

7. When connecting piping to a product, avoid mistakes regarding the supply port, etc.



If the tightening torque is applied to the fitting while the valve is secured to the bracket, the bracket might break.

Caution

8. Recommended piping conditions

When connecting piping to the One-touch fitting, use a pipe length with sufficient margin, in accordance with the piping conditions shown in Fig. 1. Also, when using a tying band, to bind the piping together, make sure that external force does not come to bear on the fitting. (See Fig. 2.)

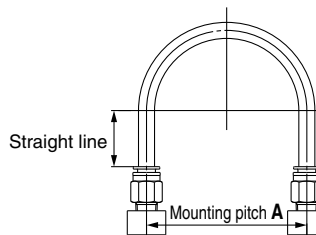


Fig. 1 Recommended piping

Unit: mm

Tubing size	Mounting pitch A			Straight line length
	Nylon tubing	Soft nylon tubing	Polyurethane tubing	
ø1/8"	44 or more	29 or more	25 or more	16 or more
ø6	84 or more	39 or more	39 or more	30 or more
ø1/4"	89 or more	56 or more	57 or more	32 or more
ø8	112 or more	58 or more	52 or more	40 or more
ø10	140 or more	70 or more	69 or more	50 or more
ø12	168 or more	82 or more	88 or more	60 or more

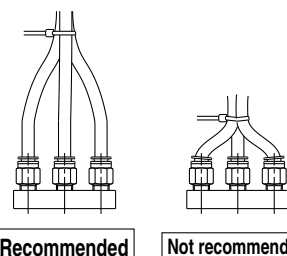
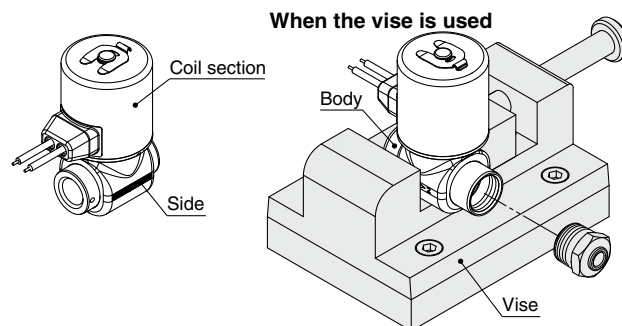


Fig. 2 When using a tying band to bind the piping together

9. When connecting a fitting to the valve, clamp the side of the body with a vise.



10. When using a stainless steel bracket (N.C. specification, Port size: 1/4, 3/8), connect the fitting in accordance with the following procedure.

- Step 1) Connect the fittings to both the IN and OUT sides of the valve.
- Step 2) Insert the IN side port of the valve into the bracket hole.
- Step 3) Secure the valve to the bracket with the hexagon socket set screw.

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Wiring

⚠ Warning

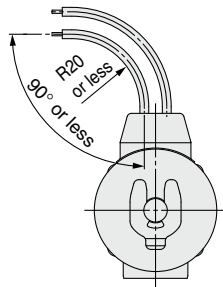
The solenoid valve is an electrical product. For safety, install an appropriate fuse and circuit breaker before use. When using multiple solenoid valves, it is not sufficient to merely install one fuse. For protecting the equipment more safely, select an appropriate fuse to each circuit of the solenoid valve.

⚠ Caution

1. As a rule, use electrical wire with a cross sectional area of 0.5 to 1.25 mm² for wiring.

2. External force applied to the lead wire

If an excessive force is applied to the lead wire, this may cause faulty wiring. Take appropriate measures so that a force of 10 N or more is not applied to the lead wire. Do not bend the lead wires beyond 90° with a radius of less than 20 mm or damage may occur.



3. Use electrical circuits which do not generate chattering in their contacts.

4. Use voltage which is within $\pm 10\%$ of the rated voltage. In cases with a DC power supply where importance is placed on responsiveness, stay within $\pm 5\%$ of the rated value. The voltage drop is the value in the lead wire section connecting the coil.

5. When a surge from the solenoid affects the electrical circuitry, install a surge voltage suppressor, etc., in parallel with the solenoid. Or, use the product with a surge voltage suppressor.

Residual voltage of the surge voltage suppressor

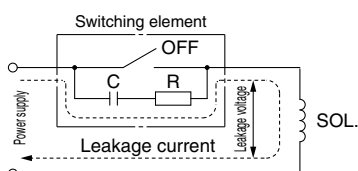
DC specification: Approx. 60 V

AC specification: Approx. 1 V

High flow/ Power saving type: Approx. 1 V

6. Leakage voltage

When the solenoid valve is operated using the controller, etc., the leakage voltage should be the product allowable leakage voltage or less. Particularly when using a resistor in parallel with a switching element and using a C-R element to protect the switching element, take note that leakage current will flow through the resistor, C-R element, etc., creating a possible danger that the valve may not turn off.



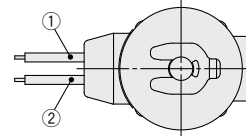
AC coil: 5% or less of the rated voltage
DC coil: 2% or less of the rated voltage

Electrical Connections

⚠ Caution

1. Grommet

Lead wire: AWG20 Insulator O.D.: 2.6 mm

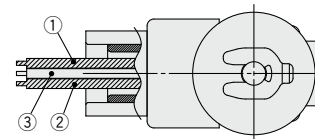


Rated voltage	Lead wire color	
	①	②
DC	Black	Red
DC (High flow/ Power saving type)*1	Black (–)	Red (+)
100 VAC	Blue	Blue
200 VAC	Red	Red
Other AC	Gray	Gray

*1 Only the high flow/power saving type has polarity.

2. Conduit

Lead wire: AWG18 Insulator O.D.: 2.8 mm



Rated voltage	Lead wire color		
	①	②	③
DC	Black	Red	Green/Yellow
DC (High flow/ Power saving type)*1	Black (–)	Red (+)	Green/Yellow
DC	Black	Red	Green/Yellow
100 VAC	Blue	Blue	Green/Yellow
200 VAC	Red	Red	Green/Yellow
Other AC	Gray	Gray	Green/Yellow

*1 Only the high flow/power saving type has polarity.

* ③: Ground wire

3. DIN terminal

Disassembly

1. After loosening the binding head screw with flange, then if the housing is pulled in the direction of the arrow, the connector will be removed from the solenoid valve.

2. Pull out the binding head screw with flange from the housing.

3. There is a cutout on the bottom of the terminal block. Insert a small flat head screwdriver, etc., into this cutout, and remove the terminal block from the housing. (Refer to the figure on the next page.)

4. Remove the gland nut, and pull out the washer and the rubber seal.

Wiring

1. Pass the cable through the gland nut, washer, and rubber seal in this order, and insert these parts into the housing.

2. Loosen the binding head screw of the terminal block, then insert the core wire or the crimped terminal of the lead wire into the terminal, and securely fix it with the binding head screw. The binding head screw of the terminal block is M3.

*1 Tighten the screw to a torque of between 0.5 and 0.6 N·m.

*2 Cable O.D.: $\phi 6$ to $\phi 12$ mm

*3 For an outside cable diameter of $\phi 9$ to $\phi 12$ mm, remove the internal parts of the rubber seal before use.



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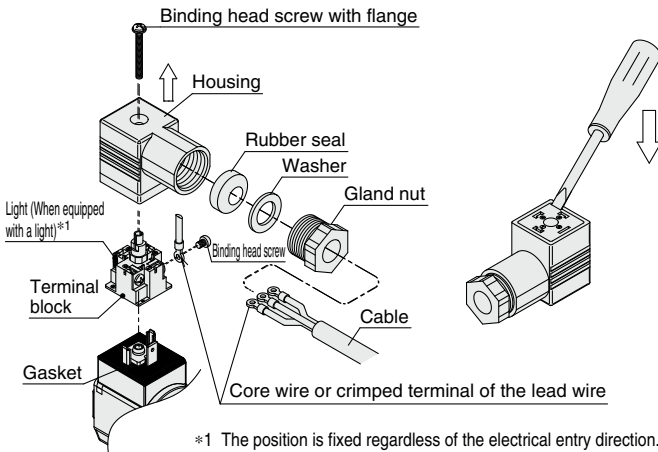
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Electrical Connections

⚠ Caution

Assembly

1. Pass the cable through the gland nut, washer, rubber seal, and the housing in this order, and connect to the terminal block. Then, set the terminal block inside the housing. (Push in the terminal block until it snaps into position.)
 2. Insert the rubber seal and the washer in this order into the cable entry of the housing, and then tighten the gland nut securely.
 3. Insert the gasket between the bottom part of the terminal block and the plug attached to the equipment, and then insert the binding head screw with flange from the top of the housing, and tighten it.
- *1 Tighten the screw to a torque of between 0.5 and 0.6 N·m.
*2 The orientation of the connector can be changed in steps of 90° by changing the method of assembling the housing and the terminal block.



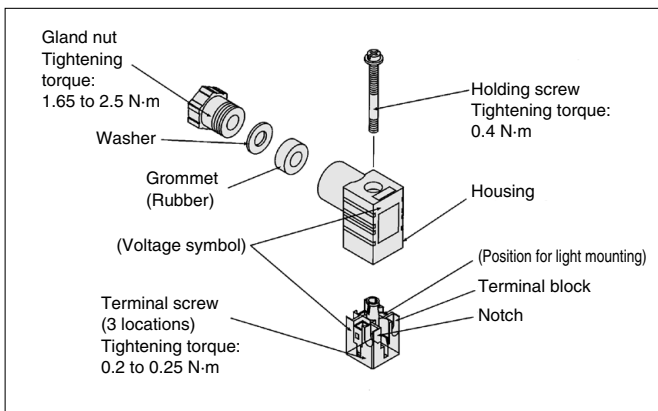
*1 The position is fixed regardless of the electrical entry direction.

For the JSX10

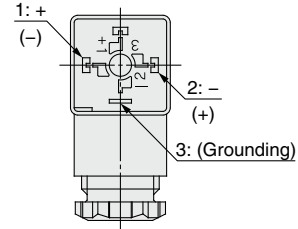
Compatible cable

Cord O.D.: $\phi 3.5$ to $\phi 7$

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



Internal connections are as shown below. Make connections to the power supply accordingly.



Terminal no.	1	2
DIN terminal*1	- (+)	+ (-)
DIN terminal (High flow/ Power saving type)*2	-	+

*1 There is no polarity.

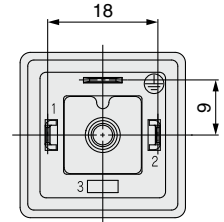
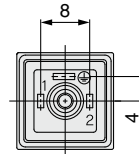
*2 The high flow/ power saving type has polarity.

* No.3: Ground wire

DIN (EN 175301-803) Terminal

This DIN terminal corresponds to the Form C DIN connector with an 8 mm terminal pitch.

This DIN terminal corresponds to the Form A DIN connector with an 18 mm terminal pitch.



Size: 10

Applicable cable O.D.: $\phi 3.5$ to $\phi 7$

Size: 20, 30

Applicable cable O.D.: $\phi 6$ to $\phi 12$

4. M12 connector

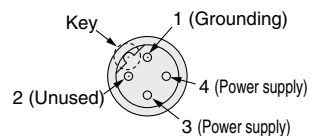
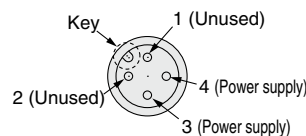
1. The IP67 (enclosure) rating of the valve can be obtained by using a cable with a female connector of IP67 specification. Please note that this product cannot be used in water.
2. Do not use a tool to mount the connector as this may cause damage. Only tighten it by hand. (0.39 to 0.49 N·m)
3. Avoid repeatedly bending or stretching the cable and applying heavy objects or force to it.
4. Do not pull the connector or cable unnecessarily.
5. Do not bend the cable at the root of the connector when installed.

■ Coding and pin arrangement of the M12 connector on the valve side

The shape (coding) and pin arrangement of the M12 connector are as follows.

DC specification: A-coded, 4-pin

AC specification: B-coded, 4-pin



Terminal no.	3	4
Pin terminal*1	+ (-)	- (+)
Pin terminal (High flow/ Power saving type)*2	-	+

*1 There is no polarity.

*2 The high flow/ power saving type has polarity.

* AC specification: No. 1 is the ground wire.

DC specification (including the high flow/power saving type): There is no ground wire.

JSX Series

JSXD Series

JSXZ Series

JSXM Series

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JSX/JSX□ Series Specific Product Precautions 7

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>

DIN (EN 175301-803) Terminal

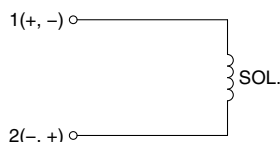
When using the cable with a female connector, make sure that the coding is correct. When installing the cable, be sure to align the key on the cable side connector (female side) with the key on the valve side connector (male side). Be careful not to squeeze it in the wrong direction as pin damage, etc., may result.

Electrical Circuits

⚠ Caution

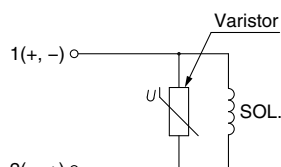
1. DC circuit

● Grommet



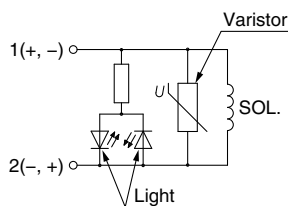
Without electrical option

● Grommet, Conduit, DIN terminal



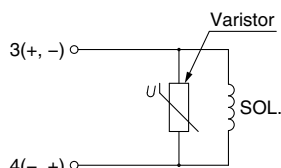
With surge voltage suppressor

● DIN terminal



With light/surge voltage suppressor

● M12 connector

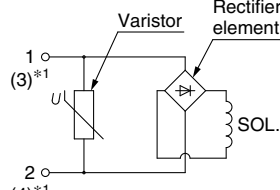


With surge voltage suppressor

2. AC circuit

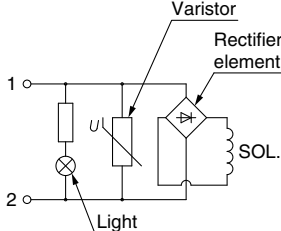
The standard product is equipped with a surge voltage suppressor.

● Grommet, Conduit, DIN terminal, M12 connector



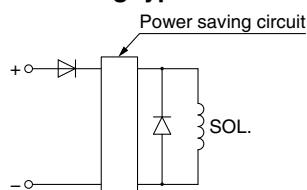
*1 For M12 connector
Without electrical option

● DIN terminal



With light

3. High flow/ Power saving type



· Lead Wire and Terminal Nos.

Polarity	+	-
Grommet	2 (Red)	1 (Black)
Conduit	2 (Red)	1 (Black)
DIN terminal	2	1
M12 connector	4	3

* Be sure to confirm the polarity when connecting.

Maintenance

⚠ Warning

1. Removal of product

- 1) Shut off the fluid supply and release the fluid pressure in the system.
- 2) Shut off the power supply.
- 3) Confirm that the valve temperature has dropped sufficiently before removing the product.

2. Replace or clean filters (strainers) periodically.

- 1) Replace filters after one year of use, or earlier if the pressure drop reaches 0.1 MPa.
- 2) Clean strainers when the pressure drop reaches 0.1 MPa.

3. Exhaust the drainage from air filters periodically.

If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. This causes the malfunction of pneumatic equipment. If the drain bowl is difficult to check and remove, the installation of a drain bowl with an auto drain option is recommended.

4. Low frequency operation

Switch valves at least once every 30 days to prevent malfunction. Also, in order to use them under the optimum state, conduct a regular inspection biannually.

5. Storage

In the case of long-term storage after use, thoroughly remove all moisture and store it in a location where the product is not exposed to sunlight and higher humidity to prevent rust and deterioration of rubber materials, etc.

6. Perform a maintenance and inspection periodically.

Confirm that the product is mounted correctly by conducting suitable function and leakage tests periodically. If air leakage increases or equipment does not operate properly, stop operation.

Return of Product

⚠ Warning

If the product to be returned is contaminated or is possibly contaminated with substances that are harmful to humans, for safety reasons, please contact SMC beforehand and then employ a specialist cleaning company to decontaminate the product. After the decontamination prescribed above has been carried out, submit a Product Return Request Sheet or the Detoxification/Decontamination Certificate to SMC and await SMC's approval and further instructions before attempting to return the item.

Please refer to the International Chemical Safety Cards (ICSC) for a list of harmful substances.

If you have any further questions, please don't hesitate to contact your SMC sales representative.



JSX/JSX□ Series

Specific Product Precautions 8

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>

JSXD and JSXZ Precautions

⚠ Warning

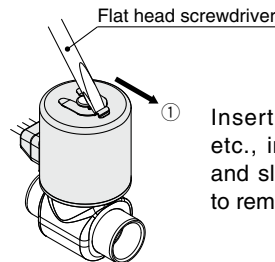
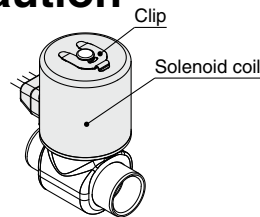
1. For pilot operated 2-port solenoid valves, when the valve is closed, sudden pressure resulting from the startup of the fluid supply source (pump, compressor, etc.) may cause the valve to open momentarily and leakage to occur, so please exercise caution.
2. If the product is used in the conditions in which rapid decrease in the inlet pressure of the valve and rapid increase in the outlet pressure of the valve are repeated, excessive stress will be applied to the diaphragm, which causes the diaphragm to be damaged and dropped, leading to the operation failure of the valve. Check the operating conditions before use.
3. Min. operating pressure differential (JSXD)
Be aware that even if the pressure difference is above the min. operating pressure differential when the valve is closed, the pressure difference may fall below the min. operating pressure differential when the valve opens, depending on the capacity of the supply source (pumps, compressors, etc.) or the type of pipe restrictions (the piping is bent continuously due to elbow or tee, or narrow tube nozzle is installed in the end). If the product is used below the min. operating pressure, the operation becomes unstable, which might cause valve opening or closing failure, or oscillation, leading to failure due to insufficient pressure differential. Select an appropriate valve size with reference to the flow rate characteristics and flow rate characteristics table on pages 74 to 80.

Replacing the Solenoid Coils

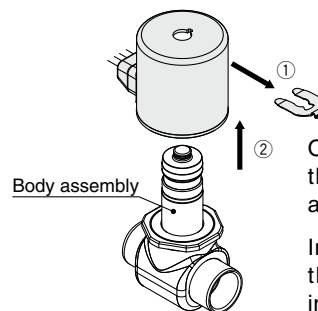
⚠ Warning

1. When replacing the solenoid coil, turn off the power supply.
2. Be careful for possible high-temperature of the solenoid coil due to the fluid temperature and operating conditions.

⚠ Caution

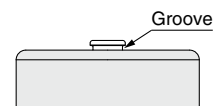


Insert a flat head screwdriver, etc., into the groove in the clip and slide it in the direction of ① to remove it.

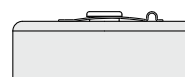


Once the clip has been removed, the coil can be removed from above (in the direction of ②).

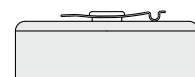
Insert the replacement coil into the body assembly, and then insert the clip by aligning it with the groove in the top of the body assembly.



Be sure to confirm the clip direction (back and front) as well as the insertion state.



OK

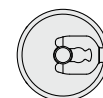


Not OK

Clip direction



OK



Not OK

Inserted condition

* When inserting the coil, be sure to push it in until the groove in the body assembly is visible.

JSX Series

JSXD Series

JSXZ Series

JSXM Series

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Safety Instructions

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

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. 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. 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. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. 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.
2. 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.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/ Compliance Requirements

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

Read and accept them before using the product.

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. 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. 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.

Revision History

Edition B * The JSXD and JSXM have been added.
* Brass and aluminum body materials have been added.
* An M12 connector electrical entry option has been added.
* The number of pages has been increased from 24 to 56. ZV

Edition C * JSX□□□ and JSXZ types have been added.
* The number of pages has been increased from 56 to 72. AX

Edition D * Vacuum, steam, and high pressure types have been added to the JSX.
* An N.O. specification has been added to the JSXD.
* An improved weather-resistant specification has been added.
* The number of pages has been increased from 72 to 92.

Safety Instructions

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

SMC Corporation

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and any obligation on the part of the manufacturer.

D-G

CAT.ES70-56D 2024-3