NAMUR Interface Solenoid Valves Specific Product Precautions 1

Be sure to read this before handling.

Design

⚠Warning

1. Actuator drive

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

2. Holding pressure (including vacuum)

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

3. Not suitable for use as an emergency shutoff valve, etc.

The valves are not designed for safety applications such as an emergency shutoff valve. If the valves are used for the mentioned applications, additional safety measures should be adopted.

4. Ensure sufficient space for maintenance activities.

When installing the products, allow access for maintenance.

5. Release of residual pressure

For maintenance purposes install a system for releasing residual pressure.

Selection

⚠Warning

1. Confirm the specifications.

Products are designed only for use in compressed air systems (including vacuum). Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to the specifications.)
Please contact SMC when using a fluid other than compressed air (including vacuum).

2. Extended periods of continuous energization

Please contact SMC when a valve is continuously energized for an extended period of time or when the energized period is longer than the de-energized period.

⚠Caution

1. Momentary energization (Double solenoid valve)

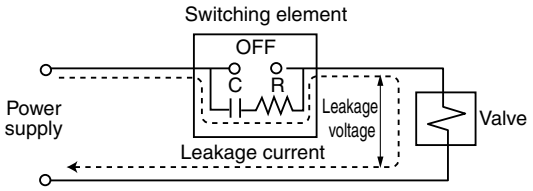
If a double solenoid valve is operated with momentary energization, it should be energized for at least 0.1 second.
However, depending on the condition of the secondary load, it should be energized until the cylinder reaches the stroke end position, since there is a possibility of malfunction.

Selection

⚠Caution

2. Leakage voltage

Take note that the leakage voltage will increase when a C-R circuit (surge voltage suppressor) is used for protecting a switching device because of the passing leakage voltage through the C-R circuit.



The suppressor residual leakage voltage should be as follows.
DC coil: 3% or less of rated voltage
AC coil: 20% or less of rated voltage

3. Solenoid valve drive with SSR

If the minimum load current of the SSR is larger than that of the solenoid valve, this may cause a malfunction.

When selecting the SSR, refer to the element catalog specifications.

4. Surge voltage suppressor

If a surge protection circuit contains nonstandard diodes, such as Zener diodes or ZNR, a residual voltage that is in proportion to the protective circuit and the rated voltage will remain. Therefore, take into consideration the surge voltage protection of the controller.
In the case of diodes, the residual voltage is approximately 1 V.

5. Operation in a low temperature condition

It is possible to operate a valve in extreme temperature, as low as –10°C. Take appropriate measures to avoid freezing of drainage, moisture etc. in low temperature.

6. Mounting orientation

Mounting orientation of a single solenoid valve is universal. When installing a double solenoid valve, mount the valve so that spool valve is horizontal.

Mounting

⚠Warning

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

Check mounting conditions when air and power supplies are connected. Initial function and leakage tests should be performed after installation.

2. Operation manual

Install the products and operate them only after reading the operation manual carefully and understanding its contents.
Also, keep the manual where it can be referred to as necessary.

3. Painting and coating

Warnings or specifications printed or affixed to the product should not be erased, removed or covered up. Also, applying paint to resinous parts may have an adverse effect due to the solvent in the paint.

NAMUR Interface Solenoid Valves Specific Product Precautions 2

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Piping

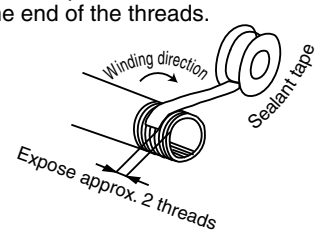
⚠Caution

1. Preparation before piping

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

2. Wrapping of sealant tape

When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not enter the piping. Also, if sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



3. Connection of fittings

When attaching fittings to valves, tighten with the tightening torque shown below.

Connection thread size	Proper tightening torque N·m(kgf·cm)
1/4	12 to 14 (120 to 140)

4. Piping to products

When piping to a product, refer to the operation manual to avoid mistakes regarding the supply port, etc.

Wiring

⚠Caution

1. Applied voltage

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

2. Check the connections.

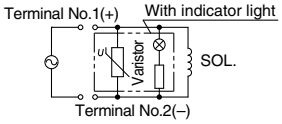
Check if the connections are correct after completing all wiring.

Light/Surge Voltage Suppressor

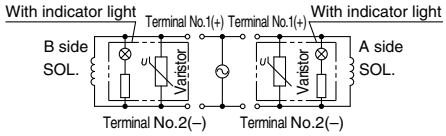
⚠Caution

AC and 100 VDC

Single

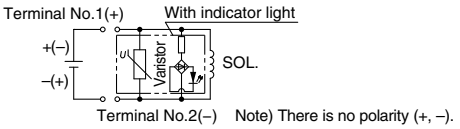


Double



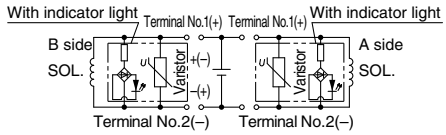
24 VDC or less

Single



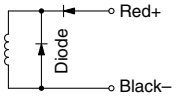
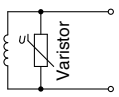
Note) There is no polarity (+, –).

Double



Note) There is no polarity (+, –).

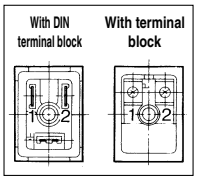
- Type G: Use lead wire from solenoid to connect with power side. Grommet with DC voltage surge voltage suppressor has polarity. Connect red lead wire to + (positive) side and black to – (negative) side.

Surge voltage suppressor	
DC	AC
	

Wiring

⚠Caution

In the case of DIN terminal and terminal block (with indicator light/ surge voltage suppressor), the interior wiring is shown below.



Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S, but in the case of with DIN terminal block, is not a terminal structure.

Note) There is no polarity (+, –).

NAMUR Interface Solenoid Valves Specific Product Precautions 3

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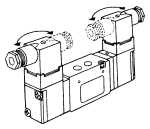
Changing Direction of DIN Terminal/Cable Entry

⚠Caution

To change direction of DIN terminal retaining screw, pull off outer cover, rotate connector board through 180°. Replace cover and tighten screw.



Lubrication

⚠Caution

1. Lubrication

1) The valve has been lubricated for life at the factory, and does not require any further lubrication.
2) If a lubricant is used in the system, use class 1 turbine oil (no additives), ISO VG32. For details about lubricant manufacturers' brands, refer to the SMC website. Additionally, please contact SMC for details about class 2 turbine oil (with additives) ISO VG32.
   Once lubricant is utilized within the system, since the original lubricant applied within the product during manufacturing will be washed away, please continue to supply lubrication to the system. Without continued lubrication, malfunctions could occur.
   If turbine oil is used, refer to the Safety Data Sheet (SDS) of the oil.
3) The hygienic design type valve cannot be lubricated. In addition, be sure to take measures to prevent the adhesion or intrusion of oils.

2. Lubrication amount

If the lubrication amount is excessive, the oil may accumulate inside the pilot valve, causing malfunction or response delay. So, do not apply a large amount of oil.

Air Supply

⚠Warning

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.

⚠Caution

1. Install an air filter.

Install an air filter upstream near the valve. Select an air filter with a filtration size of 5 μm or smaller.

Air Supply

⚠Caution

2. Take measures to ensure air quality, such as by installing an aftercooler, air dryer, or water separator.

Compressed air that contains a large amount of drainage can cause malfunction of pneumatic equipment such as valves. Therefore, take appropriate measures to ensure air quality, such as by providing an aftercooler, air dryer, or water separator.

3. If excessive carbon powder is seen, install a mist separator on the upstream side of the valve.
If excessive carbon dust is generated by the compressor, it may adhere to the inside of a valve and cause it to malfunction.

For compressed air quality, refer to SMC Best Pneumatics catalog.

Operating Environment

⚠Warning

1. Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.
2. Do not use in explosive atmospheres.
3. Do not use in a place subject to heavy vibration and/or impact.

Confirm the specifications in the main section of the catalog.

4. The valve should not be exposed to prolonged sunlight. Use a protective cover.
5. Remove any sources of excessive heat.
6. In locations where there is contact with spatter from water, oil, solder, etc., take suitable protective measures.
7. When the solenoid valve is mounted in a control panel or its energized for a long time, make sure ambient temperature is within the specification of the valve.

NAMUR Interface Solenoid Valves Specific Product Precautions 4

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Maintenance

⚠Warning

1. Perform maintenance inspection according to the procedures indicated in the operation manual.

If handled improperly, malfunction and damage of machinery or equipment may occur.

2. Removal of equipment, and supply/exhaust of compressed air

When components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, cut off the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function. For 3-position closed center type, exhaust the residual pressure between the valve and the cylinder.

When the equipment is operated after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc. Then, confirm that the equipment is operating normally.

3. Low frequency operation

Valves should be operated at least once every 30 days to prevent malfunction. (Use caution regarding the air supply.)

4. Manual override

When the manual override is operated, connected equipment will be actuated. Operate after safety is confirmed.

⚠Caution

1. Drain flushing

Remove drainage from the air filters regularly.

2. Lubrication

Once lubrication has been started, it must be continued.

Use class 1 turbine oil (with no additive), VG32. If other lubricant oil is used, it may cause malfunction. Please contact SMC for suggested class 2 turbine oil (with additive), VG32.