



Installation and Maintenance Manual
Series S0700 5 Port Solenoid Valve



1 Safety Instructions

- This manual contains essential information for the protection of users and others from possible injury and/or equipment damage.
- Read this manual before using the product, to ensure correct handling, and read the manuals of related apparatus before use.
- Keep this manual in a safe place for future reference.
- These instructions indicate the level of potential hazard by label of "DANGER", "WARNING" or "CAUTION", followed by important safety information which must be carefully followed.
- To ensure safety of personnel and equipment the safety instructions in this manual and the product catalogue must be observed, along with other relevant safety practices.

DANGER	In extreme conditions, there is a possibility of serious injury or loss of life.
WARNING	If instructions are not followed there is a possibility of serious injury or loss of life.
CAUTION	If instructions are not followed there is a possibility of injury or equipment damage.

WARNING

- The compatibility of equipment is the responsibility of the person who designs the system or decides its specifications.**
Since the products specified here can be used in various operating conditions, their compatibility with a specific system must be based on specifications, post analysis and/or tests to meet specific requirements. The expected performance and safety assurance will be the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information and taking into consideration the possibility of equipment failure when configuring a system. Be particularly careful in determining the compatibility with the fluid to be used.
- Only trained personnel should operate machinery and equipment.**
The fluid can be dangerous if handled incorrectly. Assembly, handling or maintenance of the system should be performed by trained and experienced operators.
- Do not service machinery/equipment or attempt to remove components until safety is confirmed.**
 - Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of driven component have been confirmed. Measures to prevent danger from the fluid should also be taken.
 - When equipment is to be removed, confirm the safety processes as mentioned above. Release the fluid pressure and be certain there is no danger from fluid leakage or fluid remaining in the system. Switch off electrical supplies.
 - Before machinery/equipment is re-started, ensure all safety measures are being implemented.
- Do not use this product outside of the specifications. Contact SMC if it is to be used in any of the following conditions:**
 - Conditions and environments beyond the given specifications, or if the product is to be used outdoors.
 - With fluids whose application causes concern due to the type of fluid or additives, etc.

1 Safety Instructions (continued)

- Installations in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.
- An application which possibly having negative effects on people, property, or animals, requires special safety analysis.

- Do not use this product in applications what may adversely affect human life (e.g. medical equipment connected to the human body for drip infusion).**

CAUTION

- For air: Ensure that the air supply system is filtered to 5 microns.

2 Specifications

2.1 General Specifications

Valve

Model	Base mounted
Valve construction	Elastic seal type
Fluid	Air/Inert gas
Operating pressure range	0.2 MPa to 0.7 MPa
Ambient temperature ⁽¹⁾	-10 to 50°C
Maximum operating frequency	5 Hz
Pilot valve exhaust method	Common exhaust
Pilot valve manual operation	Push type
Lubrication	Not necessary
Vibration/Impact resistance ⁽²⁾	30/100 m/s ²
Protective construction	IP40

Coil

Model	Base mounted
Coil rated voltage	24VDC
Allowable voltage fluctuation	±10% of rated voltage
Type of coil insulation	Class B equivalent
Power consumption (current)	DC 0.35 W (15mA)

- Note 1) At low temperatures, use dry air with no condensation.
- Note 2) Vibration resistance: Conditions when tested with one sweep of 8.3 to 2000 Hz in the axial direction and at a right-angle to the armature, in both energised and de-energised states.
Impact resistance: Conditions when tested with a drop tester in the axial direction, and at a right angle to the armature, one time each in energised and de-energised states.

2.2 Piping (Manifold ports)

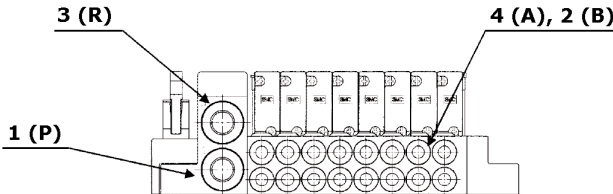


Figure 1

Port size		
1 (P)	3 (R)	4 (A), 2(B)
C8: Ø8mm	C8: Ø8mm	C2: Ø2mm
N9: Ø5/16"	N9: Ø5/16"	C3: Ø3.2mm
		C4: Ø4mm
		N1: Ø1/8"
		N3: Ø5/32"

Table 1

3 Installation

3.1 Installation

WARNING

- Do not install the product unless the safety instructions have been read and understood.

3.2 Environment

WARNING

- Do not use in an environment where the product is directly exposed to corrosive gases, chemicals, salt water, water or steam.
- Do not use in an explosive atmosphere.
- The product should not be exposed to prolonged sunlight. Use a protective cover.
- Do not mount the product in a location where it is subject to excessive vibrations and/or impacts. Check the product specifications for above ratings.
- Do not mount the product in a location exposed to radiant heat.

3.3 Piping

CAUTION

- Before piping make sure to clean up chips, cutting oil, dust etc.

Precautions for One-touch fittings

- Attaching of tube.
 - Take a tube having no flaws on its periphery and cut it off at a right angle. When cutting the tube use cutters TK-1, 2, or 3. Do not use pinchers, nippers or scissors, etc. If cutting is done with tools other than tube cutters, the tube may be cut diagonally or become flattened etc., making a secure installation impossible, and causing problems such as the tube pulling out after installation or air leakage. Allow some extra length in the tube.
 - Grasp the tube and push it in slowly, inserting it securely all the way into the fitting.
 - After inserting the tube, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tube pulling out.

- Detaching the tube.

- Push in the release bushing sufficiently, and push the collar equally at the same time.
- Pull out the tube while holding down the release bushing so that it does not come out. If the release bushing is not pressed down sufficiently there will be an increased bite on the tube and it will become more difficult to pull out.
- When the removed tube is to be used again, cut off the portion which has been chewed before re-using it. If the chewed portion is used as is, this can cause trouble such as air leakage or difficulty in removing the tube.

- After connecting the tubing, care should be taken not to put excessive force (tensile force, compression, bending etc.) on the tubing.

3.4 Electrical Connection

CAUTION

- Units with non-polar light have no polarity.

Cable safety instructions

- Avoid mis-wiring, as this can cause malfunction, damage and fire to the product.
- To prevent noise and surge in signal lines, keep all wiring separate from power lines and high voltage lines. Otherwise this can cause malfunction.
- Do not bend or pull cables repeatedly, and do not place heavy objects on them or allow them to be pinched. This can cause breakage.

CAUTION

Surge voltage circulation

- When a surge from the solenoid affects the electrical circuitry, install a surge absorber, etc., in parallel with the solenoid. Or, adopt an option that comes with the surge voltage protection circuit.

3 Installation (continued)

Electrical Wiring D-sub connector

Electrical Wiring Specifications

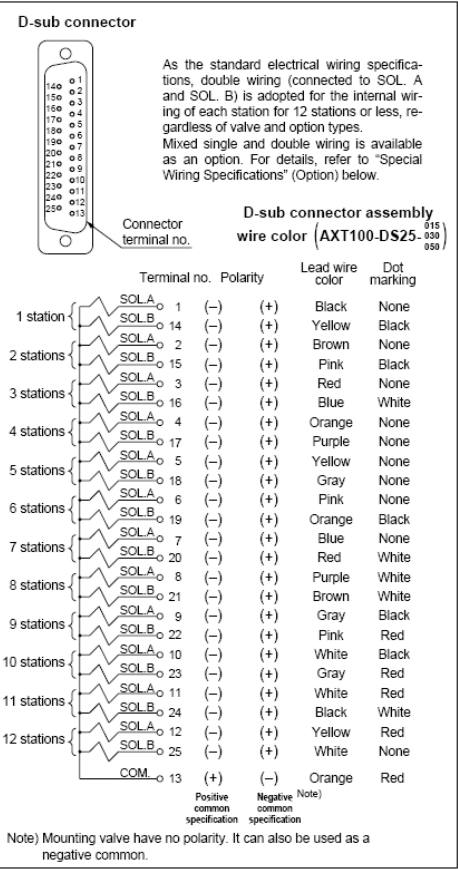


Figure 2

Electrical Wiring Flat cable connector

Electrical Wiring Specifications

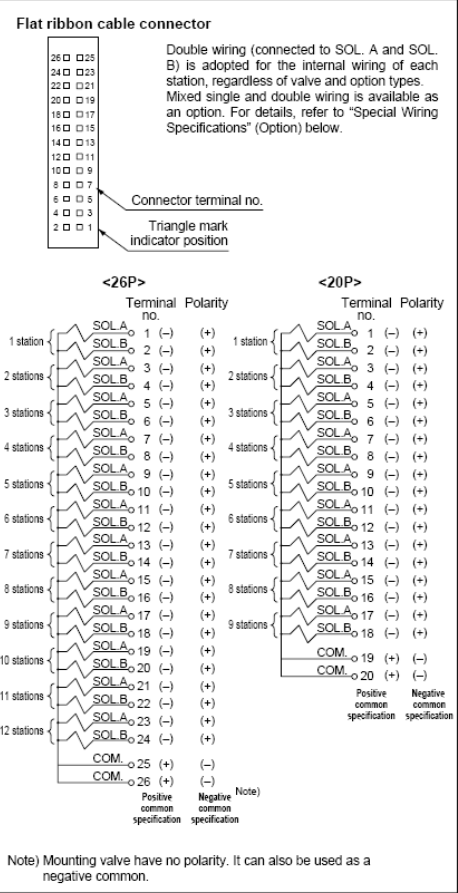


Figure 3

3 Installation (continued)

3.5 Mounting

Valve mounting:

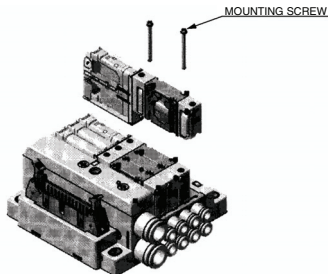


Figure 4

- Mounting procedure:
- Ensure all seals/gaskets are assembled correctly.
 - Tighten mounting screws to a torque of 0.17 to 0.23 Nm.

DIN rail mounting:

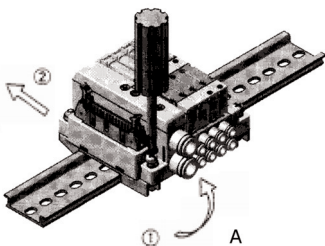


Figure 5

- Removal procedure (see Figure 5):
- Loosen the clamp screws on the end plates on both sides.
 - Lift side A of the manifold base and pull out in the direction indicated by Arrow 2.

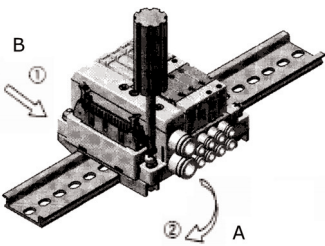


Figure 6

- Mounting procedure (see Figure 6):
- Hook side B of the manifold base on the DIN rail.
 - Push in side A of the manifold base and mount onto the DIN rail, then tighten the clamp screws on side A of the end plate.
 - Tighten clamp screws to a torque of 0.4 to 0.6 Nm.

3.6 Lubrication

CAUTION

- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, use turbine oil Class 1(no additive), ISO VG32.
- Once lubricant is used in the system, lubrication must be continued because the original lubricant applied during manufacturing will be washed away.

4 Settings

4.1 Manual override

CAUTION

- Ensure conditions are safe, since connected equipment will operate when manual override is performed

Non-locking push type (see Figure 7).

- Push on the manual override button using a small-bladed screwdriver or suitable tool until it stops ON.
- Hold this position for the duration of the check (ON position).
- Release the button and the override will re-set to OFF position.

4 Settings (continued)

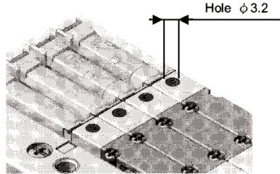


Figure 7

5 Circuit Symbols

Valve	Circuit symbol
S0711	
S0721	
S07A1	
S07B1	

S07C1	
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Table 2

6 Internal Circuit & Wiring

- With light/surge voltage suppressor circuit.
- No polarisation, as the light has non-polar specification.

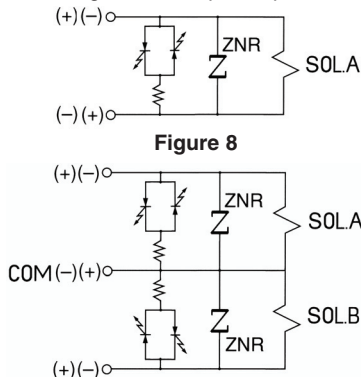


Figure 9

7 Maintenance

7.1 General Maintenance

CAUTION

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous. Maintenance of pneumatic systems should be performed by qualified personnel only.
- Drain: remove condensate from the filter bowl on regular basis.

7 Maintenance (continued)

- Before performing maintenance ensure the supply pressure is shut off and all residual fluid pressure is released from the system.
- After maintenance apply operating pressure and power to the equipment and check for proper operation and possible fluid leaks. If operation is abnormal, verify product set-up parameters.
- Do not make any modification to the product.
- Do not disassemble the product.
- Removal of valve base risks exposure to internal construction and fluids. Caution should be used when using aggressive/toxic fluids.

7.2 Valve Removal

WARNING

- Shut off the fluid supply and release the fluid pressure in the system.
- Shut off the power supply.
- Remove the valve, ensuring the seals/gaskets are retained.

7.3 Built-in silencer element

There is a built-in filter element in the manifold base end plate. If the element is dirty or blocked, this may cause malfunction such as decreased cylinder speed, so the element should be replaced regularly.

Element part number

Type	Element part number
Built-in silencer	SS0700-82A-3*
Direct exhaust (-S)	

*This part number is for a set of 10 elements

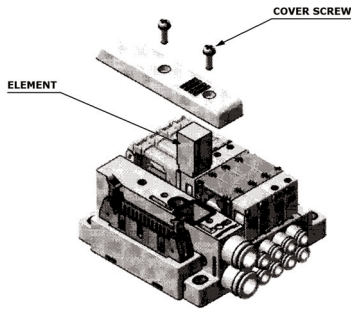


Figure 10

WARNING

- Shut off the fluid supply and release the fluid pressure in the system.
- Shut off the power supply.
- Remove the cover on top of the element and remove the old element using a flat bladed screwdriver.
- Insert a new element and replace the cover.
- Torque tighten the cover screws to a torque of 0.5 to 0.7 Nm.

7.4 Replacing cylinder port fittings

The cylinder port fittings are cassette type and can easily be replaced.

WARNING

- Shut off the fluid supply and release the fluid pressure in the system.
- Shut off the power supply.
- Remove valve.
- Remove clip (see Figure 11) using a flat bladed screwdriver.
- Withdraw the fitting assembly(s).
- Insert the replacement fitting assembly, ensuring it is pushed fully into the port.
- Re-fit the clip in its correct position.
- Re-assemble valve.

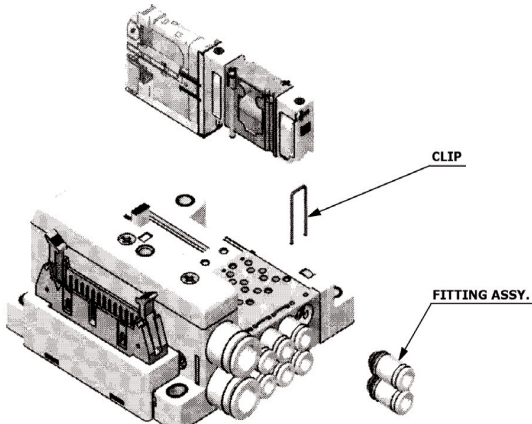


Figure 11

7 Maintenance (continued)

Tube diameter	Cylinder port fitting part number
Ø2 mm	VVQ0000-50A-C2
Ø3.2 mm	VVQ0000-50A-C3
Ø4 mm	VVQ0000-50A-C4
Ø1/8"	VVQ0000-50A-N1
Ø5/32"	VVQ0000-50A-N3

These part numbers are for one fitting assembly. Please order in units of 10.

CAUTION

7.5 Pilot valve replacement

Removal procedure:

- Remove cover.
- Disconnect the connector assembly.
- Withdraw the clamp plate from the adaptor body by using small pliers or similar and pulling in direction of arrow A.
- Lift the pilot valve from the adaptor body.

Mounting procedure:

- Ensure all seals/gaskets are assembled correctly.
- Mount the pilot valve into the adaptor body.
- Insert the clamp plate into the adaptor body, locking the pilot valve in position.
- Re-connect the connector assembly to the pilot valves.
- Re-fit the cover.

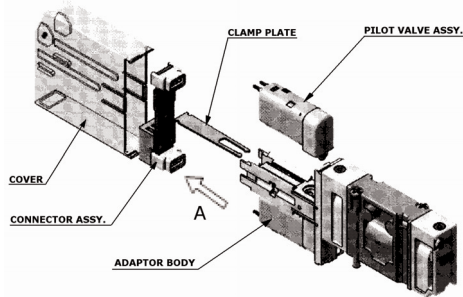


Figure 12

8 Limitations of Use

WARNING

- Do not exceed any of the specifications in section 2 of this document or the specific product catalogue.

8.1 Maintenance space

- The installation should allow sufficient space for maintenance activities

8.2 Ambient environment

- Use within the allowable ambient temperature range.
- This product is not suitable for an application such as holding the pressure (including vacuum) inside a pressure vessel, because the valve has allowable leakage.

9 Contact

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BELGIUM	(32) 3 355 1464	NORWAY	(47) 67 12 90 20
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DENMARK	(45) 70 25 29 00	PORTUGAL	(351) 21 471 1880
FINLAND	(358) 207 513513	SLOVAKIA	(421) 2 444 56725
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