



# Installation and Maintenance Manual

## Series SY3000/5000/7000/9000/300/500 Solenoid Valves

For future reference, please keep this manual in a safe place  
This manual should be read in conjunction with the current catalogue.

### Safety instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by label of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe IS0414 (9000), JIS B 8370 (7000) and other safety practices.

Note 1: ISO 4414: Pneumatic fluid power - Recommendations for the application of equipment to transmission and control systems. Note 2: JIS B 8370: Pneumatic system axiom.

**CAUTION:** Operator error could result in injury or equipment damage.

**WARNING:** Operator error could result in serious injury or loss of life.

**DANGER:** In extreme conditions, there is a possible result of serious injury or loss of life.

### WARNING

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

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

### CAUTION

Ensure that the air supply system is filtered to 5 micron.

### Valve Specifications

Series	SY3000/300	SY5000/500	SY7000	SY9000	
Fluid	Air				
Internal pilot operating pressure range MPa	2 position single	0.15~0.7			
	2 position double	0.1~0.7			
	3 position	0.2~0.7			
Ambient & fluid temperature °C	-10~Max. 50				
Max operating frequency Hz	2 position single, double	10	5	5	5
	3 position	3	3	3	3
Manual override	Non-locking type, push turn-locking slotted type, Push turn-locking lever type				
Pilot exhaust	Common exhaust for main & pilot valve				
LU ion	Not required				
Mounting position	Free				
Impact/vibration resistance m/s	Note 2) 150/30				
Protection structure	Grommet and Plug connector: IP40, DIN connector: IP65, M8 connector: IP65.				

Note 1) According to dynamic performance test JIS B8374-1981 (Coil temperature 20°C, at rated voltage, without surge voltage suppressor.)

Note 2) Impact resistance: No malfunction from test using drop impact tester, to exist and right angle direction of main valve armature, each one time when energized and de-energized (value at the initial stage). Vibration resistance: No malfunction from test with 8.3 to 2000 Hz 1 sweep, to axis and right angle direction of main valve and armature, each one time when energized and de-energized (value at the initial stage).

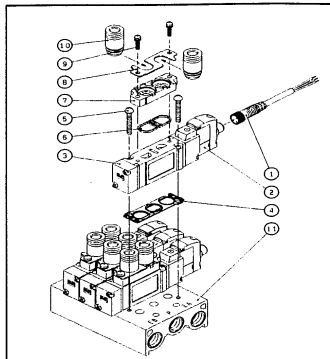
Vibration resistance . . . . . There is no malfunction of the valve after testing, using an 8,3 to 2000 Hz sweep along the valve axis and at right angles to the valve and armature. Test conducted with the valve energised and de-energised, (Value at the initial stage).

### Solenoid Specifications

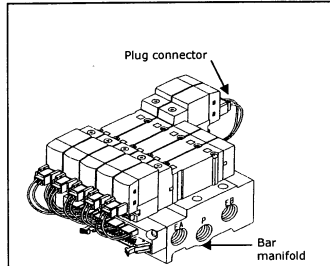
Electrical entry	Grommet(G),(H), L type plug connector(L), M type plug connector(M), DIN connector (D)(Y), M8 connector (W).	
Coil rated voltage V	DC	24, 12, 6, 5, 3
	AC 50/60Hz	100, 110, 200, 220
Allowable voltage		-10 +10%
Power consumption (W) DC	Power saving type	0.1 (Only with light)
	Standard	0.35 (with light: 0.4) [ DIN connector with light: 0.45].
Apparent power (VA) AC (at rated voltage)	100V	1.4 (with light: 1.5).
	110V (115V)	1.6 (with light: 1.7) [1.7 (with light: 1.8).
	200V	2.3 (with light: 2.7).
	220V (230V)	2.5 (with light: 2.6) [2.7 (with light: 2.8).
Surge voltage suppressor	Diode (DIN connector, non polar type is ZNR).	
Indicator light	LED (AC of DIN connector is neon lamp).	

(Note) AC type is applicable to only D, Y, and DZ, YZ.

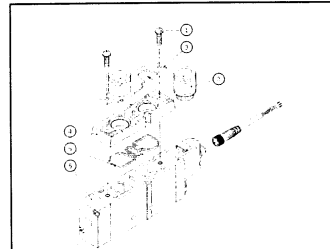
- Only trained personnel should operate pneumatically operated machinery and equipment.  
Compressed air can be dangerous if an operator is unfamiliar with it Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.
- Do not service machinery/equipment or attempt to remove component until safety is confirmed.
  - Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
  - When equipment is to be removed, confirm the safety process as mentioned above. Switch off air and electrical supplies and exhaust all residual compressed air in the system.
  - Before machinery/equipment is re-started, ensure all safety measures to prevent sudden movement of cylinders etc. (Bleed air into the system gradually to create backpressure, i.e. incorporate a soft-start valve).
- Contact SMC if the product is to be used in any of the following conditions:
  - Conditions and environments beyond the given specifications, or if product is used outdoors.
  - 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 has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.



**Fig.1 Body ported valve:(SY5000)**  
1. M8 connector with cable. 7. Port block.  
2. Pilot valve. 8. Block plate.  
3. Valve body. 9. Screw.  
4. Gasket. 10. Fitting.  
5. Screw. 11. Bar manifold  
6. Gasket.



**Fig.2 Base Mounted valve, bar manifold.**



**Fig.3 Body ported valve.(SY9000)**  
1.Screw 4.Port block  
2.Fitting 5.Gasket  
3.Block plate 6.Solenoid valve

### Installation

#### CAUTION:

Ensure all air and power supplies are isolated before commencing installation.

#### WARNING:

**DO NOT INSTALL THESE VALVES IN EXPLOSIVE ATMOSPHERES.**  
If these valves are exposed to water or oil droplets, ensure that the valves are protected.

If it is intended to energise a valve for an extended period please consult SMC.

### One-touch fittings.

The size of the ports on SY manifolds (P, A, B etc.), sub plates and valves determines the pitch between ports, permitting the use of one touch fittings from the KJ series.

However, some fittings of this series will cause clearance problems depending on the type size. Please check catalogue for fitting dimensions before ordering.

### Tube Connecting [Fig.1,3(Push in fitting)].

- To remove the port block, remove the two block retaining screws and lift off the block.
- Note position of the gasket and retain.
- Replace the block. Ensuring the gasket is in place, fit and tighten retaining screws.

#### CAUTION:

Port block for SY300(SY500) is not the same for SY3000(SY5000).  
Do not assemble port block for SY300(SY500) to SY3000(SY5000).  
Port block assembly:  
SY300-2A-\*\* (for SY300)  
SY500-2A-\*\* (for SY500)  
SY3000-6A-\*\* (for SY3000)  
SY5000-6A-\*\* (for SY5000)

### Tube Connecting [Fig.1,3(Push in fitting)].

- Ensure that the end of the tube is cut square.
- Push the tube firmly into the fitting until it stops. Pull back on the tube to ensure that it is gripped.
- To disconnect the tube, push down on the collect flange, hold down and withdraw the tube.

### "Q" Suffix Modifications (SY3000)

Base Mounted valves are fitted with a pin ① adjacent to the solenoid end. A matching hole exists in the manifold ② and the gasket ③, thus ensuring these are parts are correctly located on assembly.

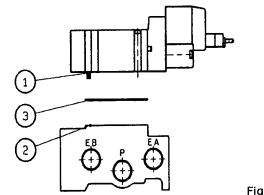


Fig.4

### Surge Voltage Suppressor Fig.5

- Correctly connect the lead wires to + (positive) and - (negative) indications on the connector.
- For DC voltages other than 12,24VDC incorrect wiring will cause damage to the unit.
- Pre wired solenoid leads are Red: + (positive) Black: - (negative)

### Surge Voltage Suppressor (Fig.5)

(For DC)

Grommet, L and M type plug connector, M8 connector

Standard style with polarity with surge voltage suppressor.

Non-polar style with surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

Indicator light and surge voltage suppressor.

-please correctly connect the lead wires to + (positive) and - (negative) indications on the connector.  
-For DC voltages other than 12,24 incorrect wiring will cause damage to the surge voltage suppressor circuit. (Wrong polarity will cause trouble).-Solenoids, whose lead wires have been pre-wired, are positive side red and negative side black.

**With energy saving circuit (except M8 connector)**  
When it saves the energy while holding, consumption energy is lower by 1/4 approximately in comparison with standard products. Provided that rated DC24V is applied and energized period >62ms.

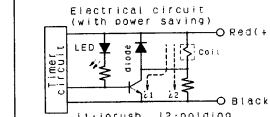


Fig.5

### DIN terminal type

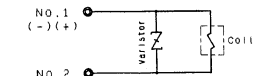
- Please correctly connector the lead wires to + (plus) and - (minus) indications on the connector. (In case of non-polar type can connect both of them.)
- For DC voltages other than 12,24 incorrect wiring will cause damage to the surge voltage suppressor circuit. (Wrong polarity will cause trouble.)
- Solenoids, whose lead wires have been pre-wired, are plus side red and minus side black.

### Surge Voltage Suppressor (Fig.6)

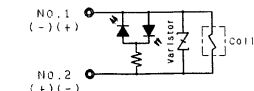
(FOR DC)

DIN terminal (Only SY5000,500,7000,700)

#### With surge voltage suppressor (DS)



#### With light and surge voltage suppressor (DZ)

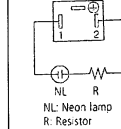


DIN terminal type has no polarity.  
Fig.6

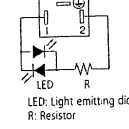
### Connector with Light Circuit (Fig.7)

DIN terminal (Only SY5000,500,7000,700)

AC circuit



DC circuit



### Fig.7

### Surge Voltage Suppressor (Fig.8)

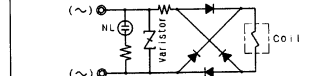
DIN terminal (Only SY5000,500,7000,700)

In case of AC

For AC voltages, "S" specification is not required because it is already built into the converter. Do not include "S" in the part number.

DIN terminal (Only SY5000,500,7000,700)

With light (DZ)



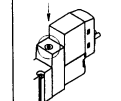
### Fig.8

### Manual Override Operation (Fig.9)

#### WARNING:

Refer to Fig.9 for correct operation of manual override. Exercise extreme caution when operating any manual override as connected equipment will commence operation. Ensure all safety precautions are in place prior to operation.

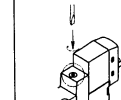
#### Non-locking push type [standard]



Press in the direction of arrow

#### Push-locking slotted type [D]

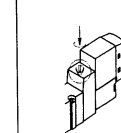
While pushing, turn in the direction of the arrow. If you do not turn, the mechanism is the same as that of a non-locking type.



Locked position

CAUTION:  
Gently operate using small screwdriver  
(Torque: 0.1Nm or less)

#### Push-locking slotted type [E]



Locked position

While pushing, turn in the direction of the arrow. If you do not turn, the mechanism is the same as that of a non-locking type.

### Fig.9

**Using a 5 Port valve as a 3 Port valve.**

Series SY may be used as N.C. or N.O. 3 way valve by plugging one end of the B ports. Be sure not to plug the exhaust ports. Can be used when a double solenoid, 3 way valve is required.

Plug Position Configuration	B port		A port	
	H.C.	N.O.	H.C.	N.O.
1. Single				
2. Double				

Fig.10

**Plug connector**

**CAUTION**

**Insertion/Removal of Connector**

**Insertion** - Push the connector straight on the pins of the solenoid, making sure the lip of the lever securely "locks" into the groove of the solenoid cover.

**Removal** - Press the lever against the connector housing and pull it outward from the solenoid.

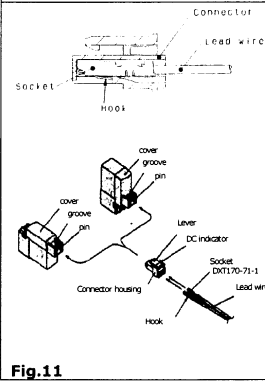


Fig.11

**M8 connector**

Fig.15

**CAUTION**

The M8 type connector satisfies IP65 (ingress protection structure) and has protection from dust and water jets (to BS EN 60529:1992). However, please note that it cannot be used in water.

Please use an SMC connector with lead wire assembly or one for FA sensors conforming to IEC60947-5-2 (M8 3-pin screw-in type). Please note that it will not be able to satisfy IP65 if a connector other than those mentioned above is used or it is not tightened sufficiently. Please note that interference might occur if a connector with an outside diameter of over 10.5 mm is used for connection to a valve on manifold.

**Connection:**  
When fitting a connector with lead wire, orientation has to be considered. Fit the connector so that the arrow on the connector aligns with the triangle on the valve. Please note that if it is forced into the valve without correct orientation, this might cause damage to the pins, etc.

When fitting the connector, please tighten it manually (0.4 to 0.6 Nm) because the use of a tool might cause damage.

**Disconnection:**  
Unscrew the retaining ring. Pull the connector away from the valve in a straight line.

**Din connector**

Fig.16

**1. Disconnection:**

Unscrew the main set screw.

Lift off the housing

Retain gasket

**2. Reconnection:**

Replace gasket over the pins

Replace housing onto pins, ensuring correct orientation.

Tighten securing screw

**Connecting wires to Din Type:**

Remove housing from the solenoid as above

1. Unscrew the gland nut from the housing.

2. Remove and retain washer and grommet

3. Remove the terminal block from inside of the housing as follows:-

Using a small screwdriver, lever the terminal block out of the housing.

Using the cable (Ø3.5~Ø7) for wiring to meet IP65 standard (protective construction).

Tighten the glandnut and setscrew with the specified range of torque.

4. Before connecting the wires to the terminal block (no polarity) thread the wire through the gland-nut, washer, grommet and housing.

5. Connect the wires to terminals 1 and 2

6. Re-fit terminal blocks into housing and check correct orientation of the electrical entry. Four positions are possible (see precautions below).

7. Push the grommet into the housing.

8. Push the washer into the housing

9. Screw the gland nut until fully fastened.

10. Re-fit housing onto the solenoid valve, ensuring the gasket is in place over the pins, and the housing is kept vertical when pushing onto the pins.

11. Tighten the securing screw to the torque shown

**Precautions:**

In the case of indicator lights, avoid damage to the indicator by electrical lead. Cable entry direction is limited on manifold valves.

Always attach plug connector to valve vertically, not at an angle.

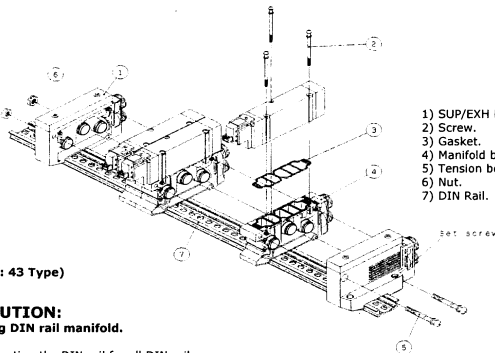


Fig.12 (SY9000: 43 Type)

**CAUTION:**  
Installing DIN rail manifold.

When mounting the DIN rail for all DIN rail manifold types, use a minimum of 2 fixing locations for 2-5 stations, 3 fixing locations for 6-10 stations, 4 fixing locations for 11-15 stations and 5 fixing locations for 16-20 stations. If less fixings are used than the instructions above recommend then DIN rail and manifold may twist, causing problems such as air leaks.

**Note1)** When adding manifold bases to use more than 11 stations and SUP/EXH block assemblies, as well.

**Note 2)** When the end block bolt is not sufficiently tightened when rebuilt, air leaks may result. Before supplying air, check that there are no gaps between the blocks and that the manifold is firmly fixed to the DIN rail in order to air supply without leaks.

**Individual Supply spacer.(SY9000)**

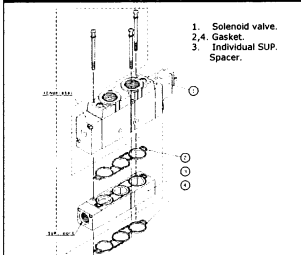


Fig.17

**Individual Exhaust spacer.(SY9000)**

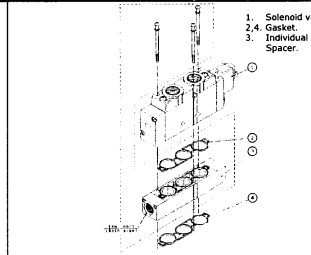


Fig.18

**CAUTION:** Isolate air and power supplies from the manifold. Ensure all air is exhausted from the manifold and connected system before disassembly.

The supply and exhaust ports may be fitted facing either; the lead wire of the valve or the end plate of the valve. If supplied factory-assembled they are fitted facing the end plate.

**NOTE:** For protection of the valve wiring and solenoid, piping from the exhaust (EA) should be so arranged to ensure exhaust does not vent onto the valve, solenoids or wires.

Screw tightening Torque: M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

**Individual Supply and Exhaust spacers (Body Ported).**

Fig.17 & 18. These spacers fit between the manifold base and the valve as shown.

- Fitting:
  - Remove valve ①
  - Retain mounting gasket ②
  - Fit supply spacer or exhaust spacer ③ ensuring gasket ④ fits between manifold and spacer ③.
- Replacement:
  - Replace valve ① ensure gasket ② is fitted between spacer ③ and valve ①. Tighten screws to specified torque.
  - Re-instate air and power supplies.
  - Function test.

**Individual Supply spacer.(SY3000)**

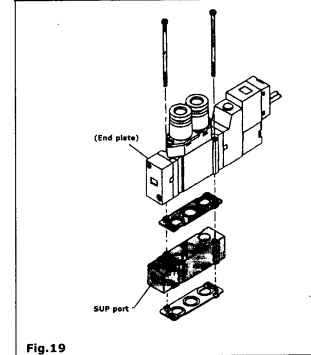


Fig.19

**Individual Exhaust spacer.(SY3000)**

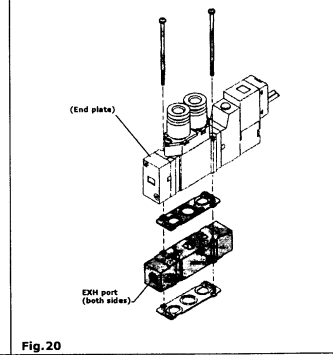


Fig.20

**CAUTION:** Isolate air and power supplies from the manifold. Ensure all air is exhausted from the manifold and connected system before disassembly. The supply and exhaust ports may be fitted facing either; the lead wire of the valve or the end plate side of the valve. If supplied factory-assembled they are fitted facing the end plate side.

**NOTE:** For protection of the wiring unit section from drain, piping at the EA port shall be so arranged that it will not be directly exposed to exhaust from the valve.

Screw tightening Torque: M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

**Blanking plate ass'y.**

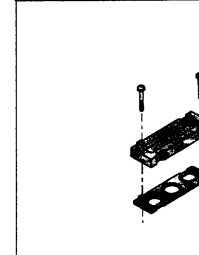


Fig.21 Bar manifold Type

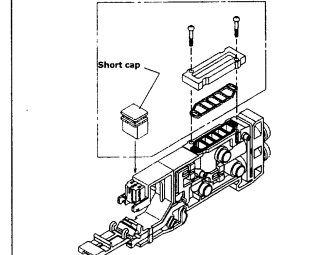


Fig.22 Plug in Type

**Increasing manifold blocks.**

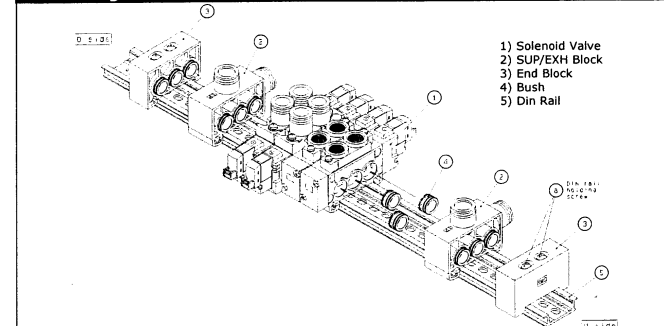


Fig.23 (60 Type)

**CAUTION:** Isolate air and power supplies from the manifold. Ensure all air is exhausted from the manifold and connected system before disassembly.

- Loosen the DIN rail clamping screw(s) (a).
- Separate the valves at the point where more valves are to be added.
- Mount the valves on the DIN rail as shown in Fig.13.14
- After securing one end plate to the DIN rail, press the valve blocks and the other end against the secured end plate, then tighten the clamping screw on the other end plate.

Note: Ensure correct fitment of supply and exhaust blocking discs when adding parts.

**Din Rail mounting of valve (SY3000,5000)**

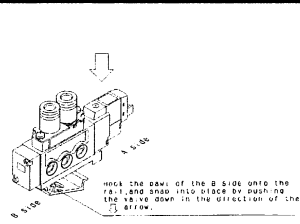


Fig.13 (60 Type)

**Din Rail mounting of valve (SY7000)**

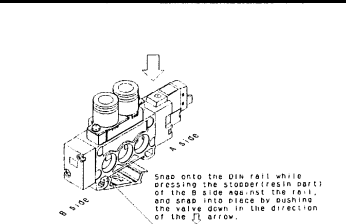


Fig.14 (60 Type)

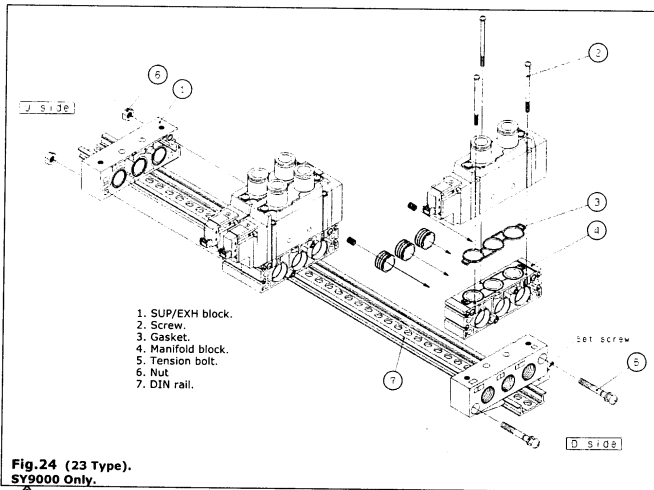


Fig. 24 (23 Type)  
SY9000 Only.

**CAUTION:** Isolate air and power supplies from the manifold. Ensure all air is exhausted from the manifold and connected system before disassembly.

For type 23 manifold base expansion, tension bolts are required as well as a manifold block assembly. Tension bolts vary in length depending on the number of stations; therefore, order the appropriate tension bolts for the expanded (or reduced) manifold base. (Changes in the number of stations for type 23P (Fig.25) manifolds require wiring units and lead wire assemblies for any additional stations).

1. Loosen the two tension bolts (5) that connect the manifold base and remove them. (In the case of DIN rail type, also loosen the DIN rail holding screw on either the U side or D side).
2. Separate the blocks at the location where a new station is to be added.
3. Mount the manifold block assembly to be added (and onto the DIN rail if applicable).
4. Hold the blocks so that there is no space between them, insert the appropriate tension bolts into the expanded manifold base and tighten them.

Note: Ensure correct fitment of supply and exhaust blocking discs (if applicable) when adding parts.

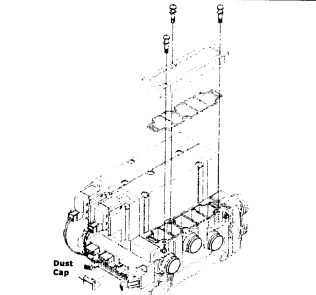
**CAUTION:**

Tightening torque: 2.9N·m

With DIN rail type, be sure to tighten the tension bolts first, and then tighten the DIN rail holding screws.

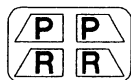
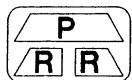
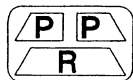
(Tightening torque: 1.4N·m).

**Blanking plate      Supply & Exhaust blocking Discs.**



**Blanking plate**  
For flat cable type manifold.  
As above with the addition of the fitting of a dust cap over the electrical connection.

**Blocking Disc Identification.**



Label for SUP block disc.      Label for EXH block disc.      Label for SUP, EXH block disc.

These seals (Fig.27) are attached to the outside of the manifold block when SUP and EXH blocking discs are fitted. They indicate the position of the internally mounted blocking discs.

Note: When ordering block discs for installation at the factory, labels will be attached to the manifold showing locations.

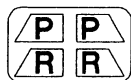
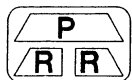
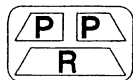


**Supply:**  
When supplying a manifold with more than one pressure, insert a blocking disc in between the stations subjected to the different pressures.

**Exhaust:**  
When a valve exhaust affects another station in the circuit or when an external piloted, dual pressure valve is used on a standard manifold, insert EXH blocking disc(s) in between stations to isolate the exhaust. Two block discs are required to both exhaust ports.

**Blanking plate**  
For flat cable type manifold.  
As above with the addition of the fitting of a dust cap over the electrical connection.

**Blocking Disc Identification.**



Label for SUP block disc.      Label for EXH block disc.      Label for SUP, EXH block disc.

These seals (Fig.27) are attached to the outside of the manifold block when SUP and EXH blocking discs are fitted. They indicate the position of the internally mounted blocking discs.

Note: When ordering block discs for installation at the factory, labels will be attached to the manifold showing locations.

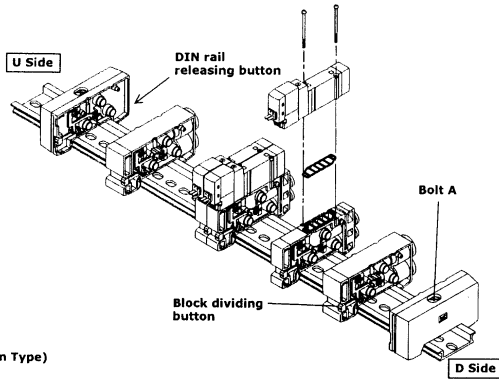


Fig. 28  
(Non-plug In Type)

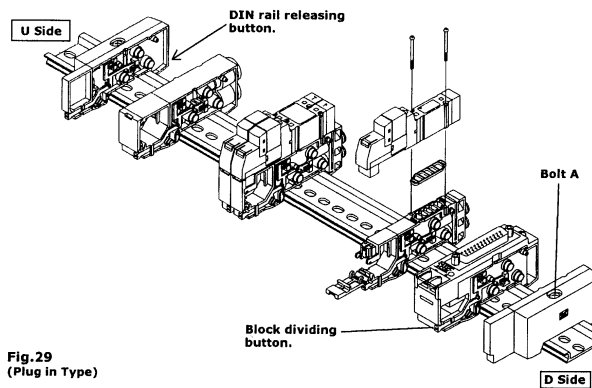


Fig. 29  
(Plug In Type)

**CAUTION:**  
Installing DIN rail manifold.

When mounting the DIN rail for all DIN rail manifold types, use a minimum of 2 fixing locations for 2-5 stations, 3 fixing locations for 6-10 stations, 4 fixing locations for 11-15 stations and 5 fixing locations for 16-20 stations.  
If less fixings are used than the instructions above recommend then DIN rail and manifold may twist, causing problems such as air leaks.

**Note 1** When adding manifold bases to use more than 10 stations, add SUP/EXH block assemblies, as well.  
**Note 2** When the end block bolt (A) is not sufficiently tightened when rebuilt, air leakage may result. Before supplying air, check that there are no gaps between the blocks and that the manifold is firmly fixed to the DIN rail in order to ensure air supply without leakage.

**Supply & Exhaust Block.**

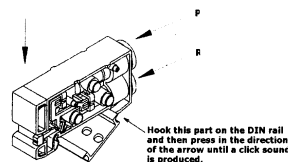


Fig. 30 Supply and Exhaust block.

**Manifold Push-in fittings.**

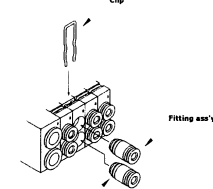


Fig. 31

**How to Increase Manifold Bases**

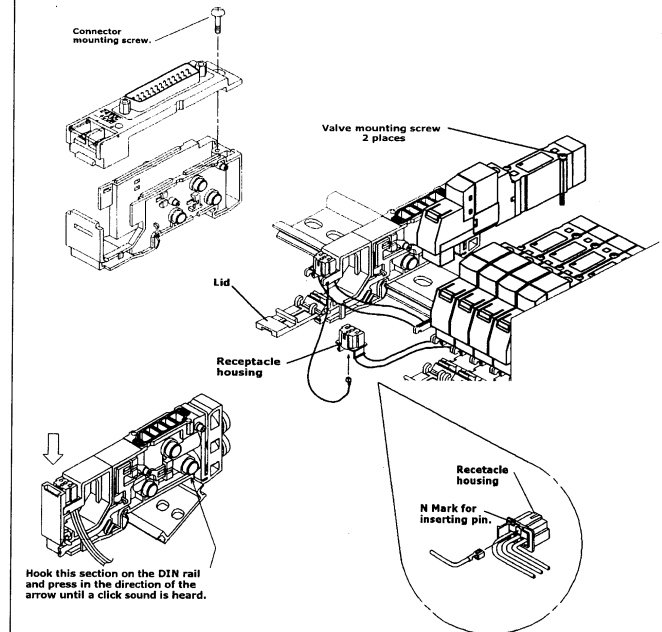


Fig. 32

D-sub connector (45F)	Flat cable (45PC)	Terminal block (45T, T1)

Fig. 33

**CAUTION:**

1. Depending on the type of connector, there is a limit to the number of solenoids that can be used. Manifold bases that can be added cannot exceed the number of usable solenoids.
2. The manifold block assembly mounting position for addition of manifold bases is always on the U side, because wires are connected to respective connectors sequentially from the D side.
3. When bolt (A) for the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there is no gap between blocks and that the manifold block is firmly fixed to the DIN rail in order to ensure air supply without leakage.

## Connector Assembly with Protective cover

Connector ass'y with protective cover enhances dust protection.

- Effective in preventing possible short circuit problems due to contaminations in contact with connector section.
- Cover material is chloroprene rubber, which has excellent weather ability and electric insulation properties. However, be careful not to allow contact with cutting oil.
- Round cord provides neat appearance.

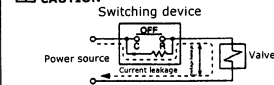
Effect of back pressure when using manifold

Possible malfunction by backpressure may happen when valves are mounted on manifold. If this problem occurs, take appropriate countermeasures.

### Long period continuous energization

Contact SMC when valve is to be continuously energized for a long period.

## CAUTION



1. Voltage leakage When C-R device (surge voltage suppressor) is used for the protection of switching device, note that voltage leakage will be increased by passing voltage leakage through C-R device. Suppressor residual voltage leakage should be as follows:

DC coil: 3% or less of rated voltage.

AC coil: 8% or less of rated voltage.

2. Drive the solenoid valve for AC with SSR or triac output.

a) Leak current:

If output element's surge circuit has C-R element, slight current flows even if turned OFF. It causes malfunction on valve reset. When the valve goes over allowable value shown above, please install bleeder resistance.

b) Minimum load capacity (minimum load current) When valve's consumption current is less than minimum load capacity of output element, or when the margin is small, output element sometimes can not change itself. Please consult SMC.

3. Surge voltage suppressor

If a surge protection circuit contains non-ordinary diodes such as Zener diodes or ZNRs, a residual voltage that is in proportion to the protective elements and the rated voltage will remain. Therefore, give consideration to surge voltage protection of the controller. In the case of diodes, the residual voltage is approximately 1V.

4. Use in low temperature environments

Valve use is possible to temperature extremes to -10°C. Take appropriate measures to avoid freezing of drainage, moisture etc.

5. Mounting direction. All mounting postures are available

## Piping

### CAUTION

Tightening torques  
When installing fitting etc., follow given torque level below.

Thread	Appropriate tightening torque N·m
M5	1.5~2
1/8	7~9
1/4	12~14
3/8	22~24

## Wiring

### CAUTION

#### Polarity

When DC power is connected to a solenoid valve equipped with light and/or surge voltage suppressor, check for polarity indications.

For polarity indications:

No diode to protect polarity.

If polarity connection is wrong, the diode in the valve or switching device at control equipment or power supply may be damaged.

With diode to protect polarity.

If polarity connection is wrong, the valve does not switch.

## Lubrication

### CAUTION

#### Lubrication

The valve has been lubricated for life at manufacture, and does not require lubrication in service.

If a lubricant is used in the system, use turbine oil Class 1, ISO VG32 (no additives). Once lubricant is used in the system, you must continue to lubricate, as the original lubricant applied during manufacturing will be washed away.

Contact SMC for recommended turbine oil Class 2, ISO VG32 (with additives).

## Throttle

Due to the fact that the pilot valve and the main valve share exhaust's, care must be taken to ensure that the piping does not become restricted.

## Supply air

### WARNING

Use clean air

If the compressed air supply includes chemicals, synthetic materials (including organic solvents), salinity, corrosive gas etc., it can lead to damage or malfunction.

### CAUTION

#### Install an air filter

Install an air filter at the upper streamside of the valve. Filtration degree should be 5µm or less.

## Environment

### WARNING

1. Do not use in atmosphere where the valve is in direct contact with corrosive gases, chemicals, salt water, water or steam.
2. Do not use in an explosive atmosphere.
3. Do not use in a place subject to heavy vibrations and/or shocks. Check the specifications for each series.
4. The valve should not be exposed to prolonged sunlight. Use a protective cover.
5. Remove emissive heat.
6. If using in atmosphere where there is possible contact with water drop-lets, oil, weld spatter, etc., take suitable preventative 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 valve specification range.

## Maintenance

### WARNING

1. Maintenance procedures are shown in the operation manual.  
If maintenance is not properly done, it may cause malfunction and damage of machine or equipment.
2. Machine maintenance and supply/exhaust of compressed air  
When machine is to be serviced, first check for removal of work pieces and run-away of equipment, etc. Then cut the supply pressure and power, and exhaust compressed air in the system through residual pressure release mechanism.  
When the machine is to be released, check first that actuators are in their proper start up positions.
3. Low frequency operation  
Valves should be switched at least once every 30 days to avoid malfunction. (Pay attention to air supply)

### WARNING

#### Manual override:

When manual override is engaged, connected equipment starts to operate.

When you enquire about the product, please contact the following

SMC CORPORATION:

ENGLAND	01908-563888	TURKEY	212-2211512
ITALY	02-92711	GERMANY	6103-402-0
HOLLAND	020-5318888	FRANCE	01-64761000
SWITZERLAND	052-34-0022	SWEDEN	08-6030700
SPAIN	945-184100	AUSTRIA	02262-62-280
GREECE	902-252525	IRELAND	01-4501822
FINLAND	01-2426076	DENMARK	87 38 87 00
BELGIUM	03-3551464	NORWAY	67 12 90 20
		POLAND	48-22-6131847