Doc. No.SQ1000V-OMQ0002-B.

Operation Manual

PRODUCT NAME

Solenoid Valve

MODEL / Series / Product Number

SQ Series
(Pilot Valve V100)

SMC Corporation

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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.

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

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

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. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1.Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2.Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3.An application which could have negative effects on people, property, or animals requiring special safety analysis.

4.Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Safety Instructions

⚠ Caution

The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

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.*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 govemed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules goveming that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

SQ Series

Precautions for 5 Port Solenoid Valve 1

Be sure to read before handling.

Design / Selection

⚠Warning

1. Confirm the specifications

Products represented in this catalog are designed only for use in compressed air systems (including vacuum).
Do not operate at pressures, 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).
We do not guarantee against any damage if the product is used outside of the specification range.

2. Actuator drive.

When an actuator, such as a cylinder, is to be driven using a valve, take appropriate measures (such as the installation of a cover or the restricting of access to the product) to prevent potential danger caused by actuator operation.

3. Intermediate stops.

●Rubber seal: Use a closed center type valve.
●Metal seal: For the exhaust center type valve, use in combination with a double check block.
●For the 3-position closed center, it is difficult to make the piston stop at the required position accurately due to the compressibility of air.
Furthermore, since valves and cylinders are not guaranteed for zero air leakage, it may not be possible to hold a stopped position for an extended period of time.
However, as the metal seal closed center type valve leaks more air than the rubber seal and double check type valves, the intermediate stopping time will be shorter.

4. Effect of back pressure when using a manifold.

Use caution when valves are used on a manifold because actuators may malfunction due to back pressure.
Especially when using a 3-position exhaust center valve or a single acting cylinder, take appropriate measures to prevent malfunction by using it with an individual EXH spacer assembly, a back pressure check valve, or an individual exhaust manifold. Also, since the SQ1000 4-position dual 3-port valve is a 4-port valve specification (R1 and R2 are common), one back pressure check valve can be installed. As a result, back pressure from valves in other stations can be prevented, but back pressure inside this valve cannot be prevented.

5. Holding pressure (including vacuum)

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

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

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

7. Release of residual pressure

For maintenance and inspection purposes install a system for releasing residual pressure. Especially in the case of the 3-position closed center valve, ensure that the residual pressure between the valve and the cylinder is released.

8. Operation is a vacuum condition

When a valve is used for switching a vacuum, take measures to install a suction filter or similar to prevent external dust or other foreign matter from entering inside the valve.
In addition, at the time of vacuum adsorption, be sure to supply a constant supply of vacuum. Failure to do so may result in foreign matter sticking to the adsorption pad or air leakage, causing the workpiece to drop.

9. Regarding vacuum switch valves and vacuum release valves

If a non-vacuum valve is installed in the middle of a piping system that contains a vacuum, the vacuum condition will not be maintained. Use a valve designed for use under vacuum conditions.

10. Double solenoid type

When using the double solenoid type for the first time, actuators may travel in an unexpected direction depending on the switching position of the valve. Implement measures to prevent any danger from occurring when operating the actuator.

11. Ventilation

Provide ventilation when using a valve in a confined area, such as in a closed control panel. For example, install a ventilation opening, etc., in order to prevent pressure from increasing inside of the confined area and to release the heat generated by the valve.

12. Extended periods of continuous energization

●If a valve will be continuously energized for an extended period of time, the temperature of the valve will increase due to the heat generated by the coil assembly. This will likely adversely affect the performance of the valve and any nearby peripheral equipment. Therefore, if the valve is to be energized for periods of longer than 30 minutes at a time or if during the hours of operation the energized period per day is longer than the de-energized period, use the standard type (0.4 W) at ambient temperature of 40°C or less with proper heat radiation.

13. Do not disassemble the product or make any modifications, including additional machining.

Doing so may cause human injury and/or an accident.

14. Resumption after a long period of holding

When resuming operation after a long period of holding time, there are cases in which, regardless of whether the product is in an ON or OFF state, there is a delay in the initial response time due to adhesion. Conducting several cycles of running-in operation will solve this problem. Please consider implementing this before resumption.

⚠Caution

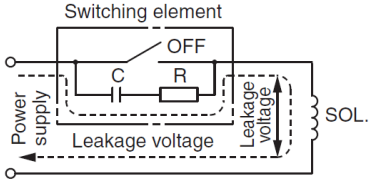
1. Precautions for 2-position double solenoid valves

If a double solenoid valve is operated with momentary energization, it should be energized for at least 0.1 seconds. However, depending on the piping conditions, the cylinder may malfunction even when the double solenoid valve is energized for 0.1 seconds or longer. In this case, energize the double solenoid valve until the cylinder is exhausted completely.

2. Leakage voltage

Take note that the leakage voltage will increase when a resistor is used in parallel with a switching element or when a C-R circuit (surge voltage suppressor) is used for protecting a switching device because of the leakage voltage passing through the C-R circuit. The suppressor residual leakage voltage should be as follows.

DC coil 3% or less of the rated voltage



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SQ Series

Precautions for 5 Port Solenoid Valve 2

Be sure to read before handling.

Design / Selection

⚠ Caution

3. Surge voltage suppressor

1) The surge voltage suppressor built into the valve is intended to protect the output contacts so that the surge generated inside valve does not adversely affect the output contacts. Therefore, if an overvoltage or overcurrent is received from an external peripheral device, the surge voltage protection element inside the valve is overloaded, causing the element to break. In the worst case, the breakage causes the electric circuit to enter short-circuit status. If energizing continues while in this state, a large current flows. This may cause secondary damage to the output circuit, external peripheral device, or valve, and may also cause a fire. So, take appropriate protective measures, such as the installation of an overcurrent protection circuit in the power supply or a drive circuit to maintain a sufficient level of safety.

2) If a surge protection circuit contains nonstandard diodes, such as Zener diodes or varistor, 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 1V.

4. Operation in low temperature conditions

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

5. Operation for air blowing

When using a solenoid valve for air blowing, use an external pilot type.
Use caution because the pressure drop caused by the air blowing can have an effect on the internal pilot type valve when internal pilot type valves and external pilot type valves are used on the same manifold.
Additionally, when compressed air within the pressure range of the established specifications is supplied to the external pilot type valve's port, and a double solenoid valve is used for air blowing, the solenoids should be energized when air is being blown.

6. Mounting orientation

Rubber seal : The mounting orientation is universal.
Metal seal : The mounting orientation of a single solenoid is universal. No specific orientation is necessary. When installing a double solenoid or a 3-position configuration, mount the valve so that the spool valve is horizontal.

7. Initial lubrication of main valve

The following initial lubricant has already been applied to the main valve.

● Rubber seal, spool valve: Grease
Please consult with SMC, as there are some standard valve products that use fluorine grease for food processing equipment (NSF H-1).

● Metal seal, spool valve: Turbine oil
Turbine oil is applied to the spool valve of the metal seal type. Therefore, turbine oil may seep out when a new product is delivered or while the valve is in storage.

8. For the pilot EXH (PE) port

If the solenoid valve and the manifold's pilot EXH (PE) port is restricted extremely or blocked, abnormal operation of the solenoid valve may occur.

Mounting

⚠ Warning

1. 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.

2. Ensure sufficient space for maintenance activities.

When installing the products, allow access for maintenance and inspection.

3. Tighten threads with the proper tightening torque.

When installing the products, follow the listed torque specifications.

4. 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.

5. Painting and coating

Warnings or specifications printed on or affixed to the product should not be erased, removed, or covered up.
Please consult with SMC before applying paint to resinous parts, as this may have an adverse effect due to the solvent in the paint.

Piping

⚠ Caution

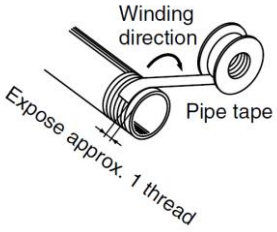
1. Refer to the Fittings and Tubing Precautions for handling One-touch fittings.

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.

3. Winding 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 thread ridge exposed at the end of the threads.



4. Closed center types

For the closed center, check the piping to prevent air leakage from the piping between the valve and the cylinder.

5. Connection of piping and fittings

When screwing fittings into valves, tighten as follows.

(1) Follow the procedures below when installing an SMC fitting etc.

・M5 types

After tightening the fitting by hand, use a wrench to tighten the fitting an additional approximately 1/6 to 1/4 turn. As a reference value, tightening torque is 1 to 1.5 N·m.

(2) Follow the procedures of the manufacturer when fittings other than SMC are used.

6. Piping to products

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

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SQ Series

Precautions for 5 Port Solenoid Valve 3

Be sure to read before handling.

Wiring

Warning

1. The solenoid valve is an electrical product. For safety, install an appropriate fuse and circuit breaker before use.

Caution

1. Polarity.

When connecting power to a solenoid valve with a DC specification and equipped with a light or surge voltage suppressor, check for polarity.

2. 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.

3. Check the connections.

Check if the connections are correct after completing all wiring.

4. 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 30 N or more is not applied to the lead wire.

When instructions are given in the Specific Product Precautions, follow these specifications.

Lubrication

Warning

1. Lubrication

[Rubber seal]

1) All valves have been lubricated for life by the manufacturer and therefore, do not require lubrication while in service.

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.

[Metal seal]

1) These valves can be used without lubrication.

2) If a lubricant is used in the system, use class 1 turbine oil (no additive), ISO VG32. Refer to SMC's website for details about each manufacture's brand name of class 1 turbine oil (no additive) ISO VG32. Additionally, please contact SMC for details about class 2 turbine oil (with additives) ISO VG32.

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. When a large amount of oil on the pilot valve side in the non-lube state. This prevents the accumulation of oil inside the pilot valve.

Air Supply

Warning

1. Type of fluids

Please consult with SMC when using the product in applications other than compressed air.

2. When there is a large amount of drainage.

Compressed air containing a large amount of drainage can cause malfunction of pneumatic equipment. An air dryer or water separator should be installed upstream from filters.

3. Drain flushing

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

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

4. 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. When extremely dry air is used as the fluid, degradation of the lubrication properties inside the equipment may occur, resulting in reduced reliability (or reduced service life) of the equipment. Please consult with SMC.

2. 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.

3. 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.

4. 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 the valve and cause it to malfunction.

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

SQ Series

Precautions for 5 Port Solenoid Valve 4

Be sure to read before handling.

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 an environment where flammable gas or explosive gas exists. Usage may cause a fire or explosion. The products do not have an explosion proof construction.

3. Do not use in a place subject to heavy vibration and/or shock.

4. The valve should not be exposed to prolonged sunlight. Use a protective cover. Note that the valve is not for outdoor use.

5. Remove any sources of excessive heat.

6. If it is used in an environment where there is possible contact with oil, weld spatter, etc., exercise preventive measures.

7. When the solenoid valve is mounted in a control panel or it's energized for a long period of time, make sure the ambient temperature is within the specifications of the valve.

⚠ Caution

1. Temperature of ambient environment

Use the valve within the range of the ambient temperature specification of each valve. In addition, pay attention when using the valve in environments where the temperature changes drastically.

2. Humidity of ambient environment

- When using the valve in environments with low humidity, take measures to prevent static.
- If the humidity rises, take measures to prevent the adhesion of water droplets on the valve.

Maintenance

⚠ Warning

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

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

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

Before components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, cut off the supply air and electric power, and exhaust all air pressure from the system using the residual pressure release function.

For the 3-position closed center, 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 the lurching of actuators, etc. Then, confirm that the equipment is operating normally.

In particular, when a 2-position double solenoid valve is used, releasing residual pressure rapidly may cause the spool valve to malfunction, depending on the piping conditions, or the connected actuator to operate.

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 a manual override is operated, connected equipment will be actuated. Operate only after safety is confirmed.

5. If the volume of air leakage increases or the valve does not operate normally, do not use the valve. Perform periodic maintenance on the valve to confirm the operating condition and check for any air leakage.

⚠ Caution

1. Drain flushing

Remove drainage from the air filters regularly.

2. Lubrication

In the case of rubber seals, 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.

3. Manual override operation

When switching a double solenoid valve via the manual override operation, instantaneous operation may cause the malfunction of the cylinder. It is recommended that the manual override be held until the cylinder reaches the stroke end position.

SQ series

Specific Product Precautions 1

Be sure to read this before handling.

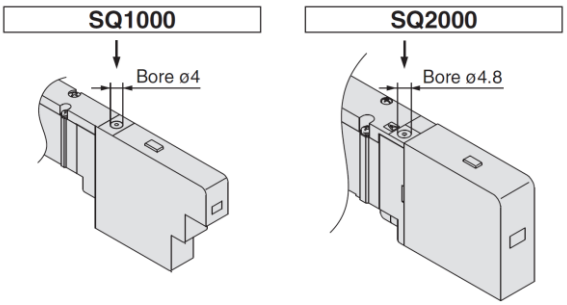
Manual override

Warning

Use to switch the main valve.

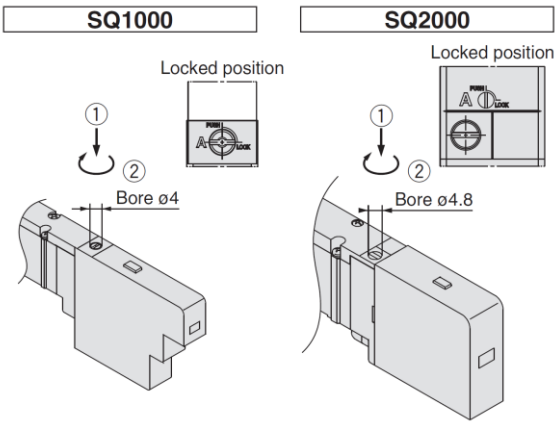
Push Type （Tool Required）

Push down on the manual override button with a small screwdriver until it stops.



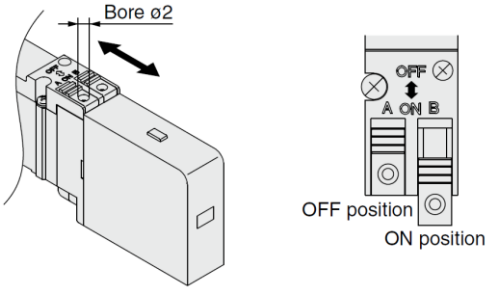
Locking type (Tool required)

Push down completely on the manual override button with a small screwdriver. While down, turn clockwise 90° to lock it. Turn it counterclockwise to release it.



Slide locking type (Manual Type)　　(SQ2000 only)

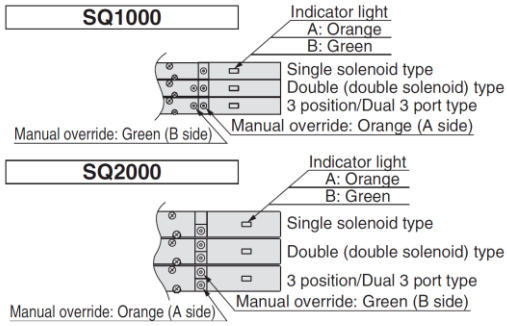
The manual override is locked by sliding it all the way to the pilot valve side (ON side) with a small flat head screwdriver or fingers.
Slide it to the fitting side (OFF side) to release it.
In addition, it can also be used as a push type by using a screwdriver, etc. of ø2 or less.



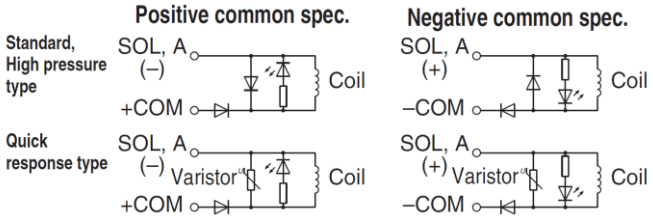
Light/Surge voltage suppressor

Caution

Indicator lights are all positioned on one side for both single solenoid and double solenoid types.
For double, 3 positions, 4 position dual 3 port types, 2 colors are used to indicate the energization of A side or B side.

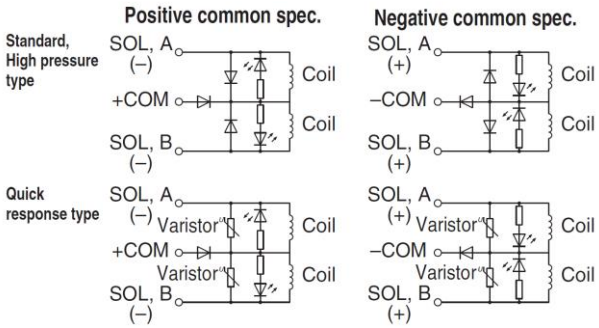


- **Single solenoid type (SQ1000/2000)**



Note)With quick response type, approximately -40 V of coil surge voltage is generated when the valve is switched OFF.

- **Double solenoid type （SQ1000/2000）**
- **3 position type （SQ1000/2000）**
- **4 position dual 3 port type （SQ1000/2000）**



Note) With quick response type, approximately -40 V of coil surge voltage is generated when the valve is switched OFF.

Continuous Duty

Caution

If three or more adjacent stations on the manifold are energized simultaneously for extended periods of time or if the valves on A side and B side of the dual 3 port valve are energized simultaneously for a long period of time, take special care as the temperature rise will be greater.

SQ series

Specific Product Precautions 2

Be sure to read this before handling.

Mounting and removal of valve

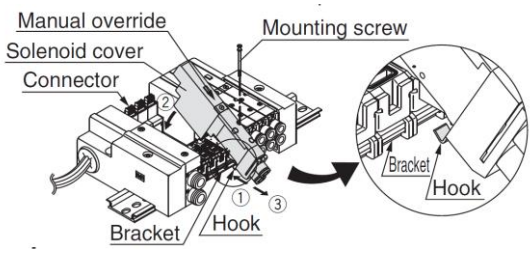
Caution

Mounting

- Insert the hook of the valve into the bracket on the manifold block, then push the valve down into place and tighten the mounting screw.
- Tighten the screw with specified tightening torque shown below.

SQ1000	0.17 to 0.23N·m
SQ2000	0.25 to 0.35N·m

- When pushing the valve down, press it on the area near the manual override. Be careful not to push the solenoid cover.



Removing

- Loosen the valve mounting screw, lift the valve from the solenoid cover side and remove it by sliding it in the direction of arrow 3.

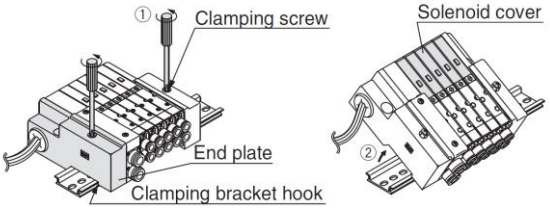
If it is difficult to loosen the screw, loosen it while pressing the valve gently on the area near the manual override.

Mounting and Removal of Manifold with DIN Rail

Caution

Removing Manifold from DIN Rail

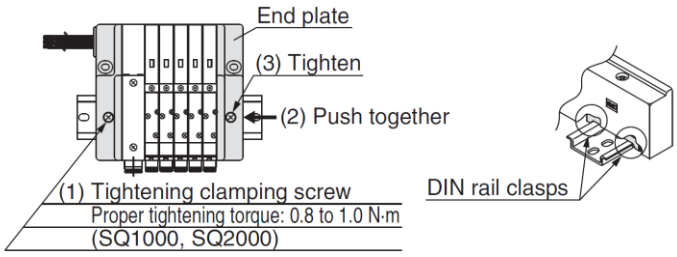
1. Loosen the end plate clamping screws on both sides until they turn freely. (The screws do not come out.)
2. Remove the manifold from the DIN rail by lifting it from the solenoid cover side.



When a manifold contains a large number of stations and it is difficult to remove all at once, separate the manifold into several sections before removing it.

Mounting Manifold to DIN rail

The procedure is the reverse of removal. After tightening the clamping screw on one side, push on the opposite end plate so that there are no gaps between the manifold blocks and then tighten the other clamping screw.



Confirm that the DIN rail clasps are securely hooked into the DIN rail.

Replacement of Cylinder Port Fittings

Caution

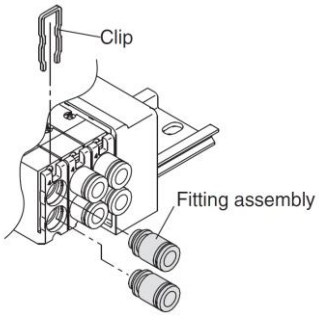
The cylinder port fittings are a cassette for easy replacement. Fittings are secured with a clip that is inserted from the top side of the valve. Remove the clip with a flat head screwdriver, etc., to replace the fittings.
To mount a fitting, insert the fitting assembly until it stops and reinsert the clip to its designated position.

Applicable tube O.D. (mm)	Product number of Fitting assembly	
	SQ1000	SQ2000
3.2	VVQ1000-50A-C3	-
4	VVQ1000-50A-C4	VVQ1000-51A-C4
6	VVQ1000-50A-C6	VVQ1000-51A-C6
8	-	VVQ1000-51A-C8

*Part numbers above are for one fitting; however, order them in 10 piece units.

Caution

Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.



SQ series

Specific Product Precautions 3

Be sure to read this before handling.

Built-in Silencer Replacement Element

Caution

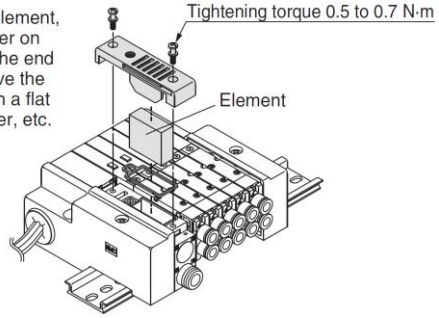
A filter element is built into the manifold base end plate. When the element becomes dirty and clogged, this will cause trouble such as a drop in the cylinder speed, etc. Therefore, replace the element regularly.

Element part no.

Type	Element part no.	
	SQ1000	SQ2000
Built-in silencer direct exhaust (-S)	SSQ1000-SE	SSQ2000-SE

* Part numbers above are for a set of ten elements.

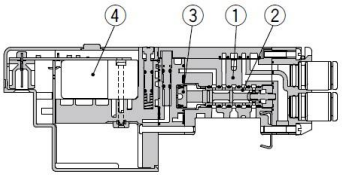
To replace an element, remove the cover on the top side of the end plate and remove the old element with a flat head screwdriver, etc.

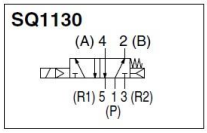


Construction: SQ1000 Series Plug-in Type Main Parts and Pilot Valve Assembly

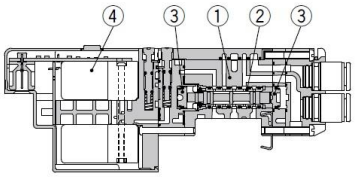
Metal seal type

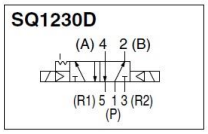
Single: SQ1130



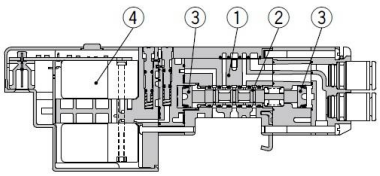


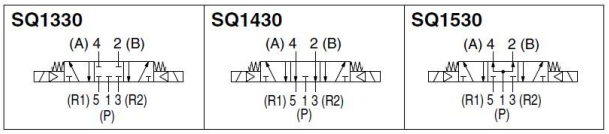
Double: SQ1230D





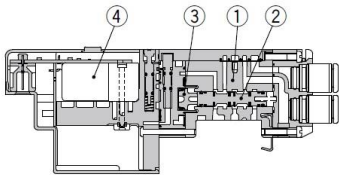
3 position: SQ1$^{3}_{4}_{5}$30

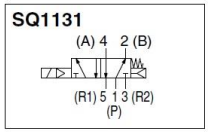




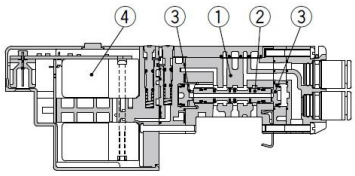
Rubber seal type

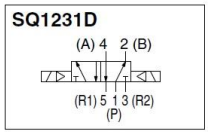
Single: SQ1131



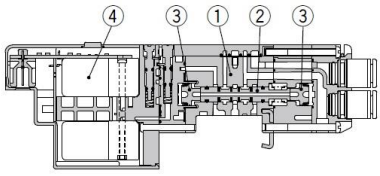


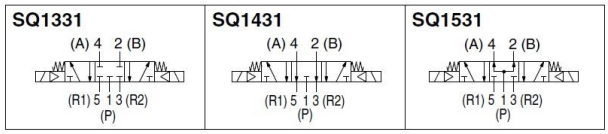
Double: SQ1231D



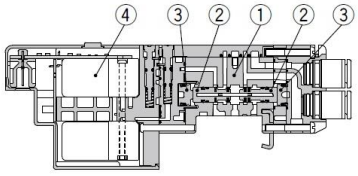


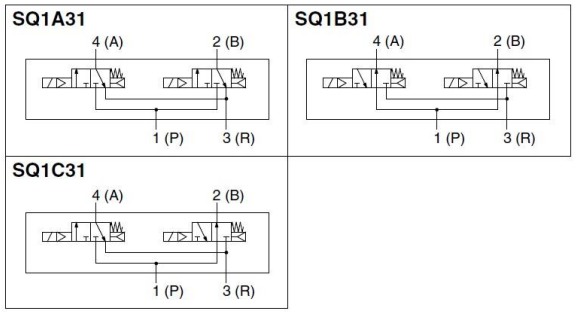
3 position: SQ1$^{3}_{4}_{5}$31





Dual 3 port valve: SQ1$^{A}_{B}_{C}$31





Component Parts

No.	Description	Material
1	**Body**	Zinc die-casted
2	**Spool/Sleeve**	Stainless steel (Metal seal)
	Spool	Aluminum (Rubber seal)
3	**Piston**	Resin
4	Pilot valve assembly (Refer to the below.)	—

Pilot valve assembly

V112 □-□

Coil voltage

5	24 VDC
6	12 VDC

Function

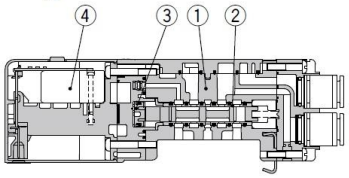
Symbol	Specifications	DC
Nil	Standard type	(0.4 W) ○
B	Quick response type	(0.95 W) ○
K	High pressure type (1.0 MPa)	(0.95 W) ○

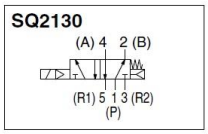
Note) Common to single solenoid and double solenoid

Construction: SQ2000 Series Plug-in Type Main Parts and Pilot Valve Assembly

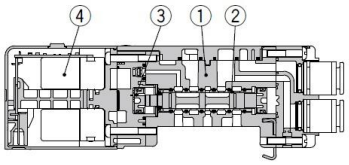
Metal seal type

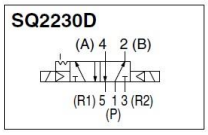
Single: SQ2130



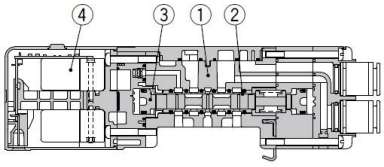


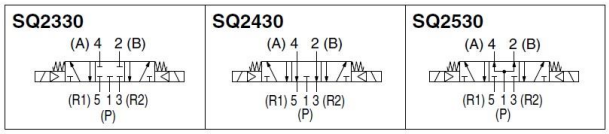
Double: SQ2230D





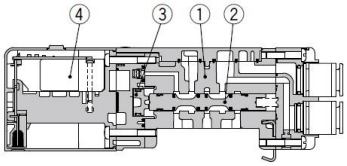
3 position: SQ2$^{3}_{5}$30

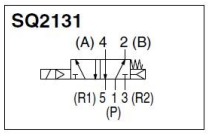




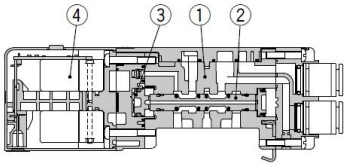
Rubber seal type

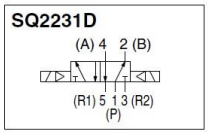
Single: SQ2131



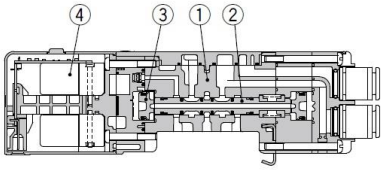


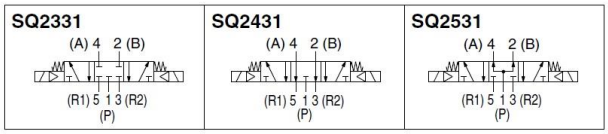
Double: SQ2231D



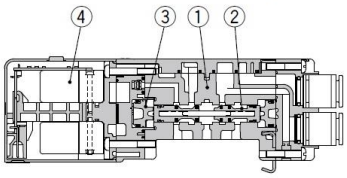


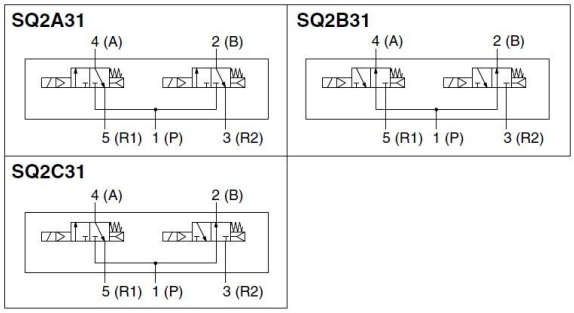
3 position: SQ2$^{3}_{5}$31





Dual 3 port valve: SQ2$^{A}_{B}_{C}$31





Component Parts

No.	Description	Material
1	**Body**	Aluminum die-casted
2	**Spool/Sleeve**	Stainless steel (Metal seal)
	Spool	Aluminum (Rubber seal)
3	**Piston**	Resin
4	Pilot valve assembly (Refer to the below.)	—

Pilot valve assembly

V112 □-□

Coil voltage

5	24 VDC
6	12 VDC

Function

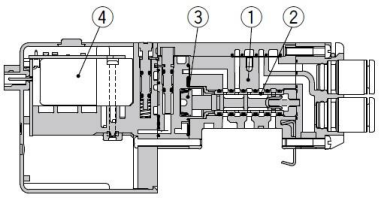
Symbol	Specifications	DC
Nil	Standard type	(0.4 W) ○
B	Quick response type	(0.95 W) ○

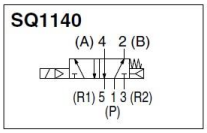
Note) Common to single solenoid and double solenoid

Construction: SQ1000 Series Plug Lead Type Main Parts and Pilot Valve Assembly

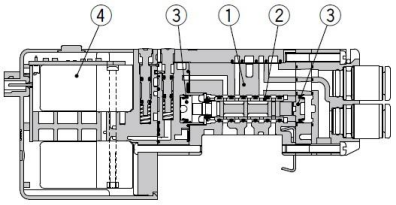
Metal seal type

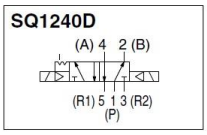
Single: SQ1140



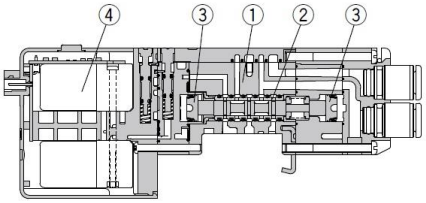


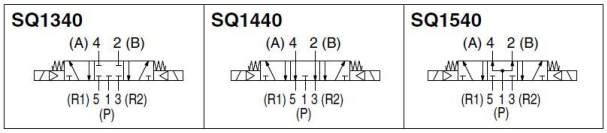
Double: SQ1240D





3 position: SQ1$^{3}_{4}_{5}$40





Component Parts

No.	Description	Material
1	**Body**	Zinc die-casted
2	**Spool/Sleeve**	Stainless steel (Metal seal)
	Spool	Aluminum (Rubber seal)
3	**Piston**	Resin
4	Pilot valve assembly (Refer to the below.)	—

Pilot valve assembly

V112 □-□

Coil voltage

5	24 VDC
6	12 VDC

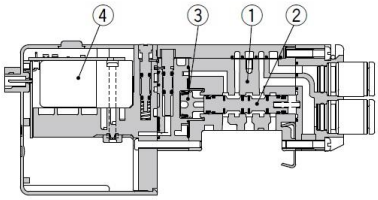
Function

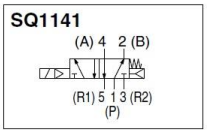
Symbol	Specifications	DC
Nil	Standard type	(0.4 W) ○
B	Quick response type	(0.95 W) ○
K	High pressure type (1.0 MPa)	(0.95 W) ○

Note) Common to single solenoid and double solenoid

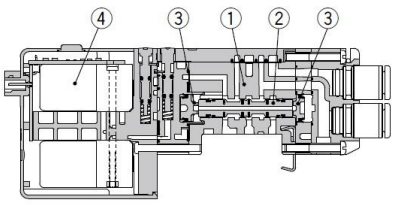
Rubber seal type

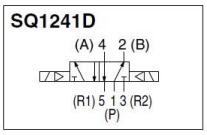
Single: SQ1141



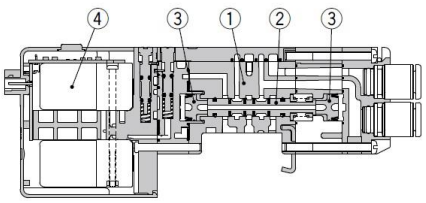


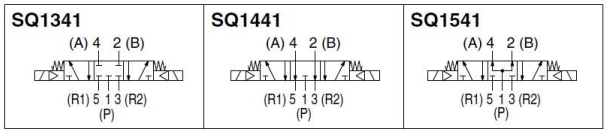
Double: SQ1241D



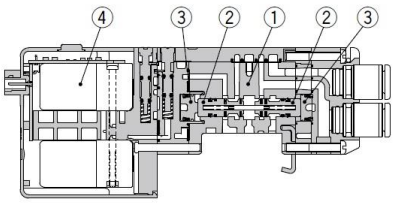


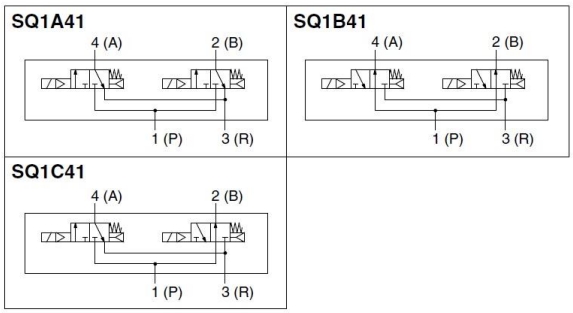
3 position: SQ1$^{3}_{4}_{5}$41





Dual 3 port valve: SQ1$^{A}_{B}_{C}$41

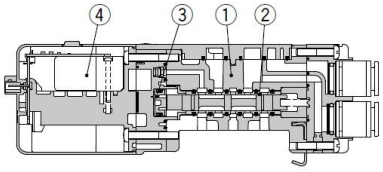


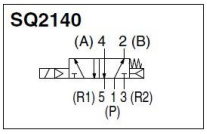


Construction: SQ2000 Series Plug Lead Type Main Parts and Pilot Valve Assembly

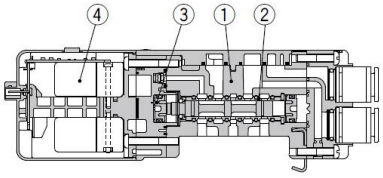
Metal seal type

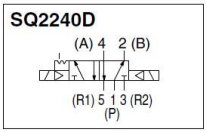
Single: SQ2140



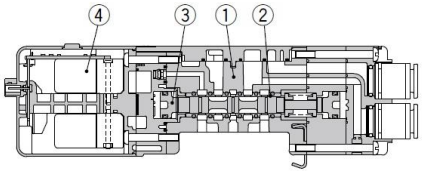


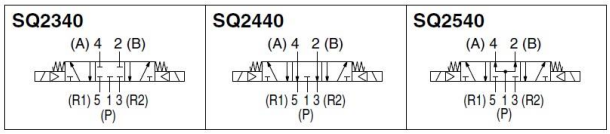
Double: SQ2240D





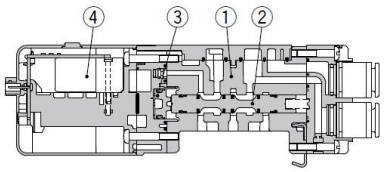
3 position: SQ2$^{3}_{4}_{5}$40

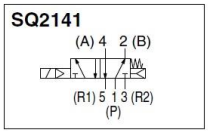




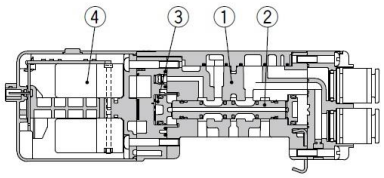
Rubber seal type

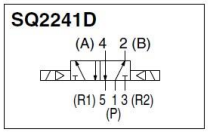
Single: SQ2141



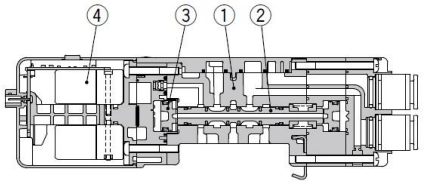


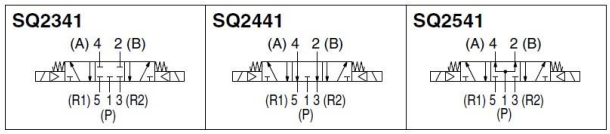
Double: SQ2241D



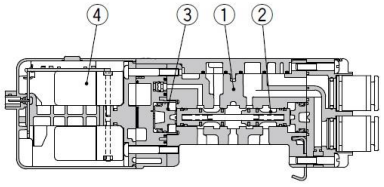


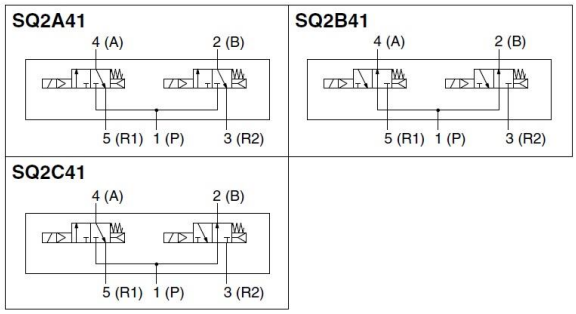
3 position: SQ2$^{3}_{4}_{5}$41





Dual 3 port valve: SQ2$^{A}_{B}_{C}$41





Component Parts

No.	Description	Material
1	**Body**	Aluminum die-casted
2	**Spool/Sleeve**	Stainless steel (Metal seal)
	Spool	Aluminum (Rubber seal)
3	**Piston**	Resin
4	Pilot valve assembly (Refer to the below.)	—

Pilot valve assembly

V112 □-□

Coil voltage

5	24 VDC
6	12 VDC

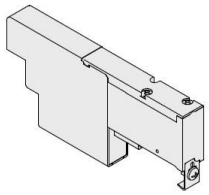
Function

Symbol	Specifications	DC
Nil	Standard type	(0.4 W) ○
B	Quick response type	(0.95 W) ○

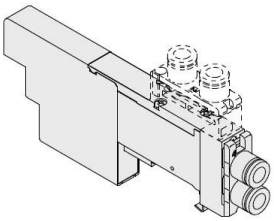
Note) Common to single solenoid and double solenoid

Manifold Options

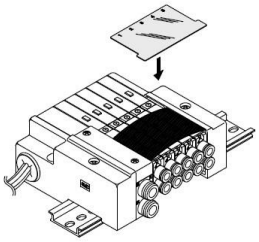
Blanking plate
SSQ1000-10A-3 P.17



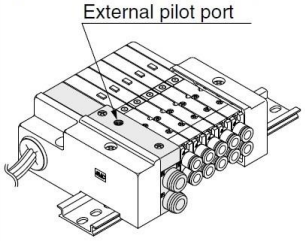
Individual SUP/EXH spacer
SSQ1000-PR1-3-$^{C6}_{L6}$ P.18



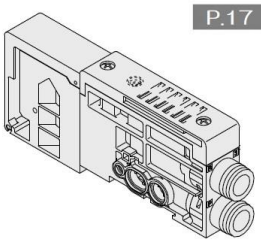
Name plate (-N)
SSQ1000-N3-n P.20



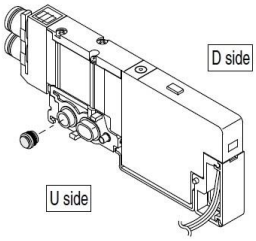
External pilot specifications (-R) P.21



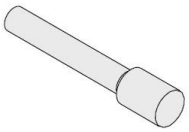
SUP/EXH block
SSQ1000-PR-3-C8(-S)
P.17



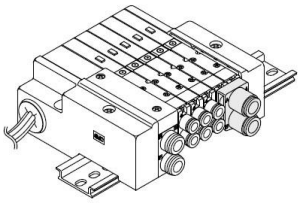
SUP block plate
SSQ1000-B-P P.19



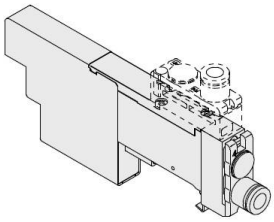
Blanking plug
KQ2P-23/04/06/08
P.20



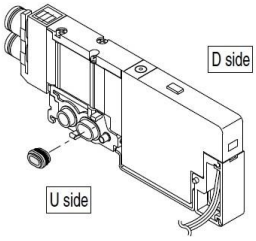
Dual flow fitting
SSQ1000-52A-$^{C8}_{N9}$ P.21



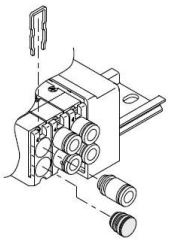
Individual SUP spacer
SSQ1000-P-3-$^{C6}_{L6}$ P.17



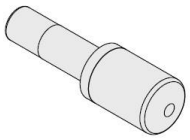
EXH block plate
SSQ1000-B-R P.19



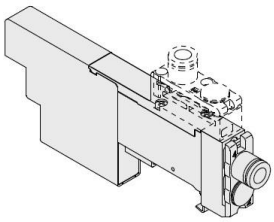
Port plug
VVQZ100-CP P.20



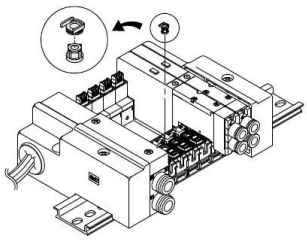
Silencer
(For EXH port) P.21



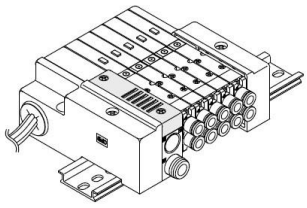
Individual EXH spacer
SSQ1000-R-3-$^{C6}_{L6}$ P.18



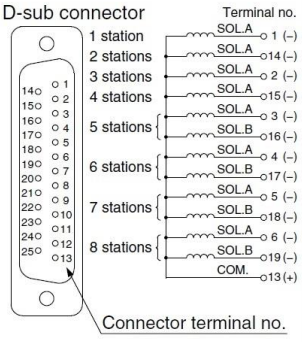
Back pressure check valve (-B)
SSQ1000-BP P.19



Built-in silencer, direct exhaust (-S) P.20



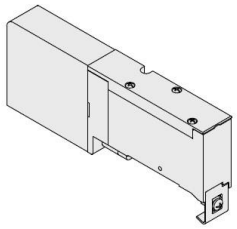
Special wiring specifications (-K)
P.27



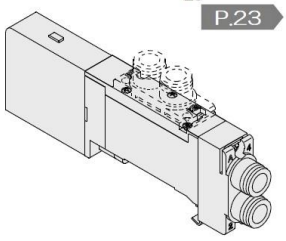
Although the standard products come with double wiring, mixed single and double wiring is available upon request.

Manifold Options

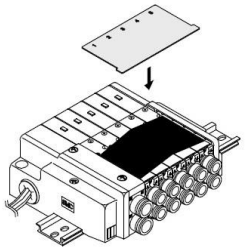
Blanking plate
SSQ2000-10A-3 P.22



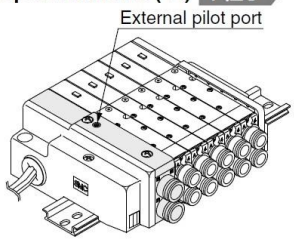
Individual SUP/EXH spacer
SSQ2000-PR1-3-$^{C8}_{L8}$ P.23



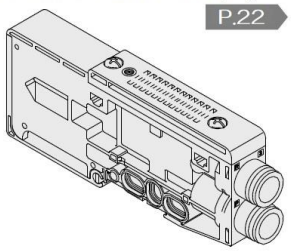
Name plate (-N)
SSQ2000-N3-n P.25



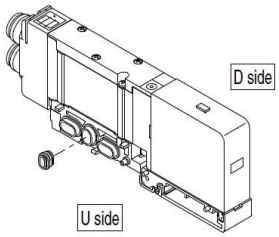
External pilot specifications (-R) P.26



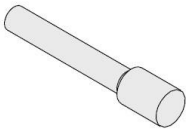
SUP/EXH block
SSQ2000-PR-3-C10(-S) P.22



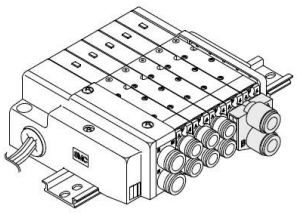
SUP block plate
SSQ1000-B-R P.24



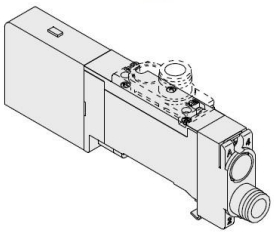
Blanking plug
KQ2P-04/06/08/10 P.25



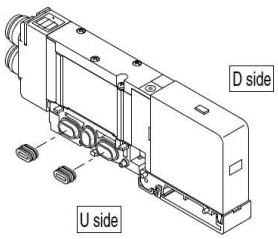
Dual flow fitting
SSQ2000-52A-$^{C10}_{N11}$ P.26



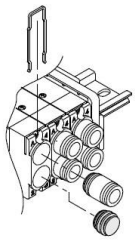
Individual SUP spacer
SSQ2000-P-3-$^{C8}_{L8}$ P.22



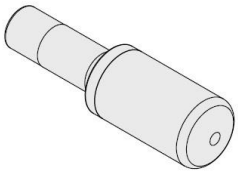
EXH block plate
SSQ2000-B-R P.24



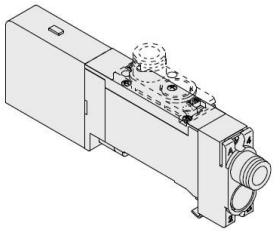
Port plug
VVQZ2000-CP P.25



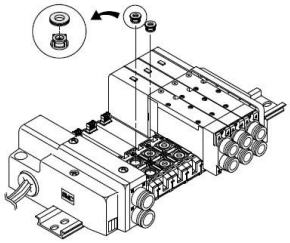
Silencer
(For EXH port) P.26



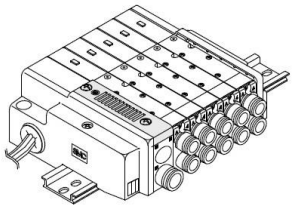
Individual EXH spacer
SSQ2000-R-3-$^{C8}_{L8}$ P.23



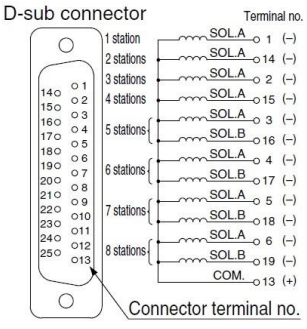
Back pressure check valve (-B)
SSQ2000-BP P.24



Built-in silencer, direct exhaust (-S) P.25



Special wiring specifications (-K) P.27



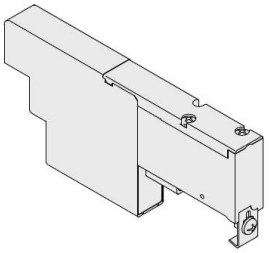
Although the standard products come with double wiring, mixed single and double wiring is available upon request.

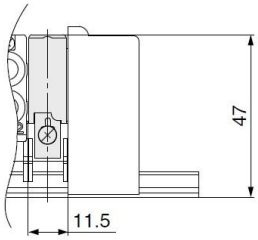
Manifold Option Parts for SQ1000

Blanking plate

SSQ1000-10A-3

It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.





Symbol



SUP/EXH block

SSQ1000-PR-3-C8-□

Port size

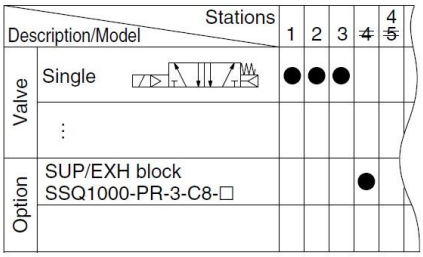
C8	One-touch fittings for ø8
N9	One-touch fittings for ø5/16"

Option

Nil	Standard
R	External pilot specifications
S	Built-in silencer

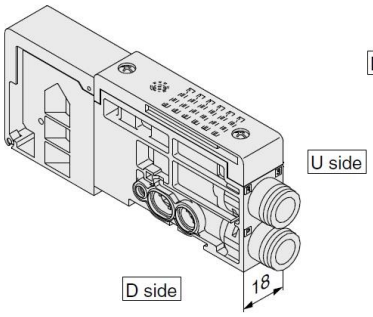
Note) When specifying both options, indicate "RS".

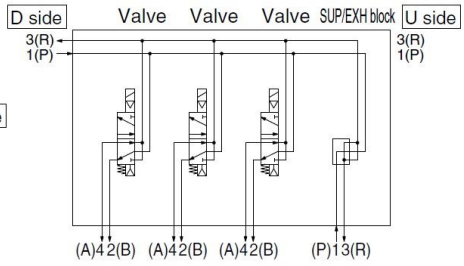
* Specify the spacer mounting position on the manifold specification sheet.



For standard type manifolds, the SUP/EXH block is mounted on the D side.
It is added to the manifold to increase SUP/EXH capacity.

* The number of SUP/EXH blocks that can be added is limited to two sets, one between manifold stations and another on the U side of the manifold due to the length of the internal lead wire.
* SUP/EXH blocks are not included in the number of manifold stations.





Individual SUP spacer

SSQ1000-P-3-C6

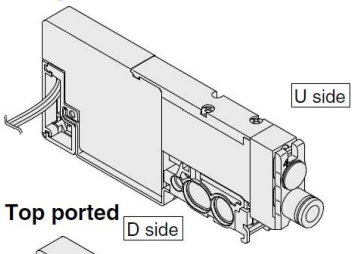
Port size

Side ported	**C6**	One-touch fittings for ø6
	N7	One-touch fittings for ø1/4"
Top ported	**L6**	One-touch fittings for ø6
	LN7	One-touch fittings for ø1/4"

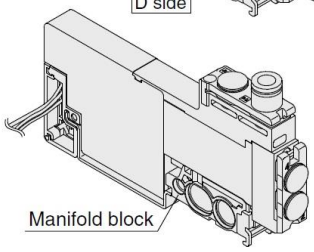
This is used as a supply port for different pressures when using different pressures in the same manifold (for one station). Both sides of the station which is used with supply pressure from the individual SUP spacer are shut off. (Refer to application example.)

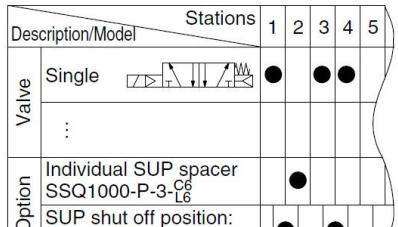
* Specify the spacer mounting position and SUP passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit. (Two pieces of SUP block plate that shut off the supply pressure are included with the individual SUP spacer, therefore, it is not necessary to order them separately.)
* Electrical wiring is also connected to the manifold station with the individual EXH spacer.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual SUP spacer to the individual EXH spacer).
* The number of spacers is not limited when ordered with the manifold. However, when adding individual SUP spacers later, it is limited to two units, and another on the U side due to the length of the internal lead wire.
* Part number with manifold block: SSQ1000-P-3-$\frac{C6}{L6}$-M

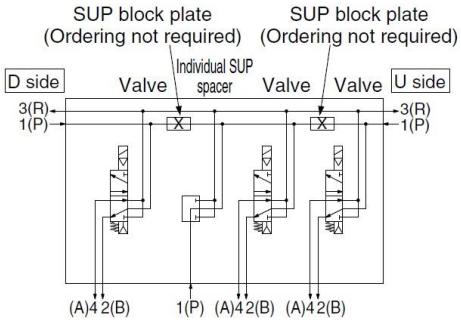
Side ported

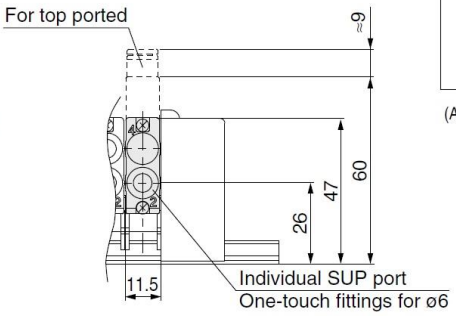


Top ported









Manifold Option Parts for SQ1000

Individual EXH spacer

SSQ1000-R-3-C6

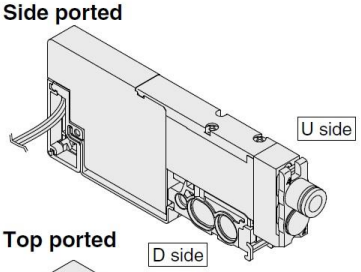
Port size

Side ported	**C6**	One-touch fittings for ø6
	N7	One-touch fittings for ø1/4"
Top ported	**L6**	One-touch fittings for ø6
	LN7	One-touch fittings for ø1/4"

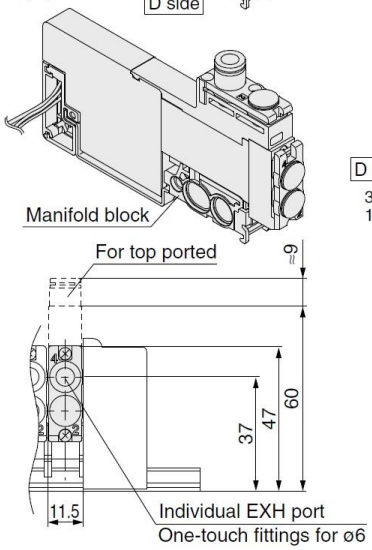
This is used to exhaust an individual valve when the exhaust from a valve interferes with other stations in the circuit (used for one station).
Both sides of the station which is to be individually exhausted are shut off. (Refer to application example.)

- Specify the spacer mounting position and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit.
  (Two pieces of EXH block plate that shut off the exhaust are included with the individual EXH spacer, therefore, it is not necessary to order them separately.)
- Electrical wiring is also connected to the manifold station with the individual EXH spacer.
- By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual EXH spacer to the individual SUP spacer).
- The number of spacers is not limited when ordered with the manifold. However, when adding individual EXH spacers later, it is limited to two units, one between manifold stations and another on the U side due to the length of the internal lead wire.
- Model no. with manifold block:
  SSQ1000-R-3-$\frac{C6}{L6}$-M

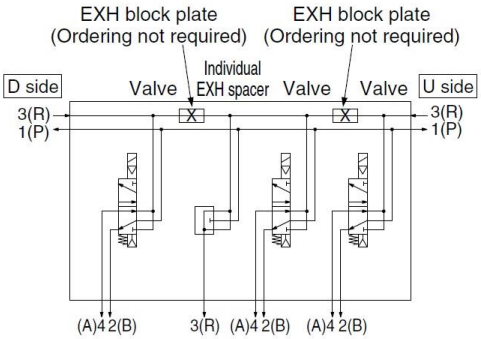
Side ported



Top ported



Description/Model	Stations 1	2	3	4	5
Valve: Single	●			●	●
Valve: ⋮					
Option: Individual EXH spacer SSQ1000-R-3-$\frac{C6}{L6}$		●			
Option: EXH shut off position: Please specify.	●		●		



Individual SUP/EXH spacer

SSQ1000-PR1-3-C6

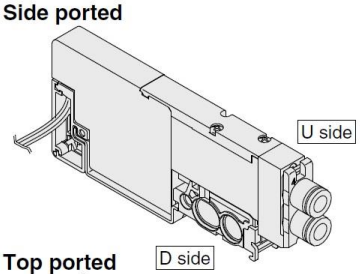
Port size

Side ported	**C6**	One-touch fittings for ø6
	N7	One-touch fittings for ø1/4"
Top ported	**L6**	One-touch fittings for ø6
	LN7	One-touch fittings for ø1/4"

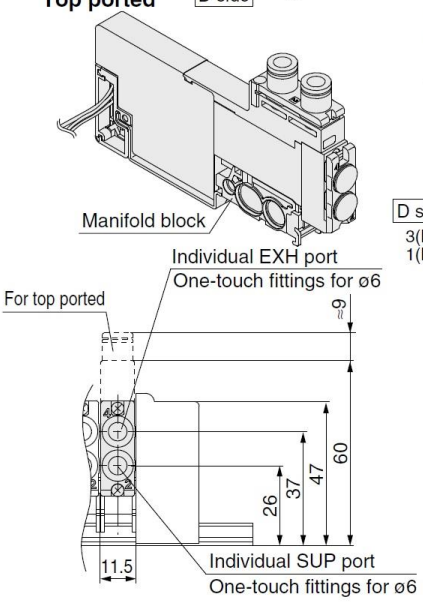
This has both functions of the individual SUP and EXH spacers above. (Refer to application example.)

- Specify the spacer mounting position and SUP and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions each for SUP and EXH can be specified per unit.
  (Two pieces each of block plate that shut off the SUP and EXH passages are included with the individual SUP/EXH spacer, therefore, it is not necessary to order them separately.)
- Electrical wiring is also connected to the manifold station with the individual SUP/EXH spacer.
- By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later.
- The number of spacers is not limited when ordered with the manifold. However, when adding individual SUP/EXH spacers later, it is limited to two units, one between manifold stations and another on the U side due to the length of the internal lead wire.
- Model no. with manifold block:
  SSQ1000-PR1-3-$\frac{C6}{L6}$-M
- Do not install any back pressure check valve on the manifold station, on which the spacer is to be mounted. When installing the back pressure check valve on other manifold station, be sure to specify the manifold station position on the manifold specification sheet instead of ordering by specifying the manifold option symbol "B".

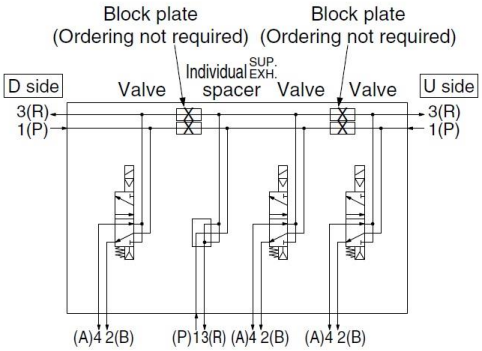
Side ported



Top ported



Description/Model	Stations 1	2	3	4	5
Valve: Single	●			●	●
Valve: ⋮					
Option: Individual SUP/EXH spacer SSQ1000-PR1-3-$\frac{C6}{L6}$		●			
Option: SUP shut off position: Please specify.	●		●		
Option: EXH shut off position: Please specify.	●		●		



Manifold Option Parts for SQ1000

SUP block plate

SSQ1000-B-P

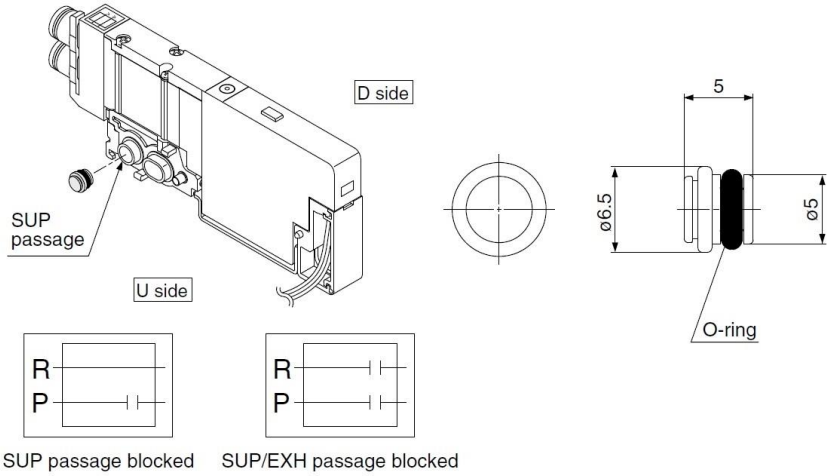
When supplying two different pressures, high and low, to one manifold, this is used between stations with different pressures. Also, it is used with an individual SUP spacer to shut off the air supply.

* Specify the station position on the manifold specification sheet.

<Block indication label>

When using block plates for SUP passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for SUP incorporated with the manifold, a block indication label is attached to the manifold.



SUP passage blocked SUP/EXH passage blocked

EXH block plate

SSQ1000-B-R

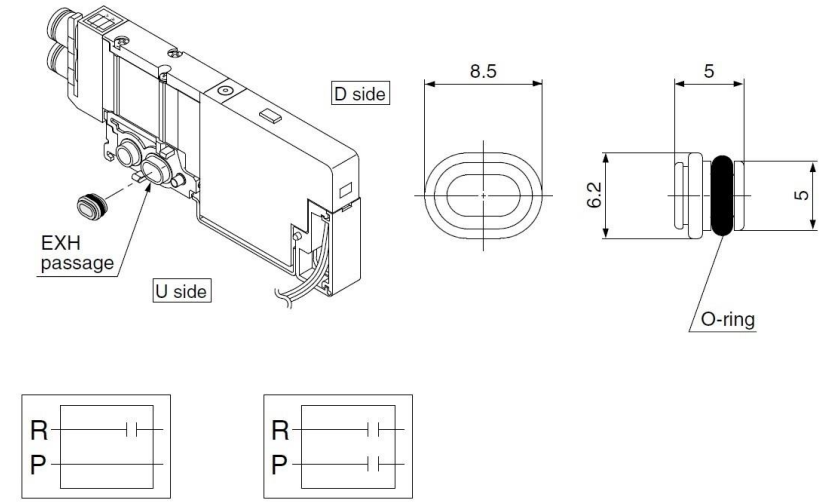
When the exhaust from a valve interferes with other stations in the circuit, this is used between stations to separate exhausts. Also, it is used with an individual EXH spacer to shut off the exhaust of individual valves.

* Specify the station position on the manifold specification sheet.
* Be sure to discharge the exhaust inside the EXH passage from the R port of the SUP/EXH block, etc. so that the exhaust pressure is not sealed.

<Block indication label>

When using block plates for EXH passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for EXH incorporated with the manifold, a block indication label is attached to the manifold.



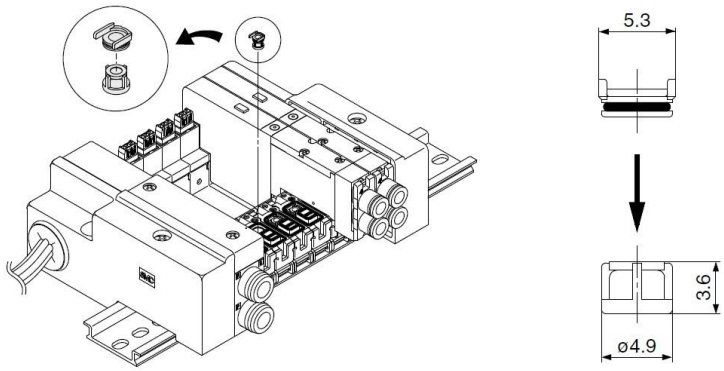
EXH passage blocked SUP/EXH passage blocked

Back pressure check valve [-B]

SSQ1000-BP

It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single action cylinder is used or an exhaust center type solenoid valve is used.

* When a check valve for back pressure prevention is desired, and is to be installed only in certain manifold stations, clearly write the part number and specify the number of stations on the manifold specification sheet.
* When ordering this option incorporated with a manifold, suffix "-B" to the end of the manifold part number.



⚠ Caution

1. The back pressure check valve assembly is assembly parts with a check valve structure. However, as slight air leakage is allowed for the back pressure, take care the exhaust air will not be restricted at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.
3. Since 4 port specification valves (5 (R1) and 3 (R2) are common) are used, back pressure cannot be prevented with dual 3 port valves.

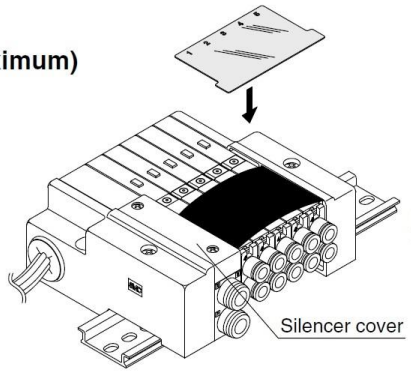
Manifold Option Parts for SQ1000

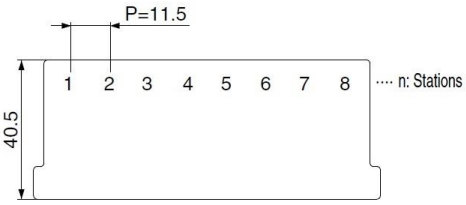
Name plate [-N]

SSQ1000-N3-Stations (1 to maximum)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure. Also, the plate is difficult to bend for manifolds with only a few stations, therefore, remove the silencer cover to install it.

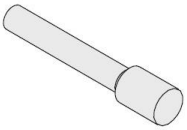
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.



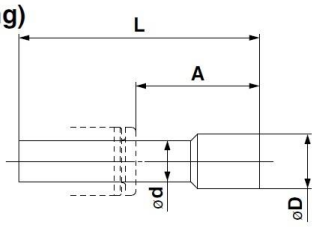


Blanking plug (For One-touch fitting)

KQ2P- 23 / 04 / 06 / 08



It is inserted into an unused cylinder port and SUP/EXH ports.
Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ø**d**	Model	**A**	**L**	**D**
3.2	KQ2P-23	16	31.5	5
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10

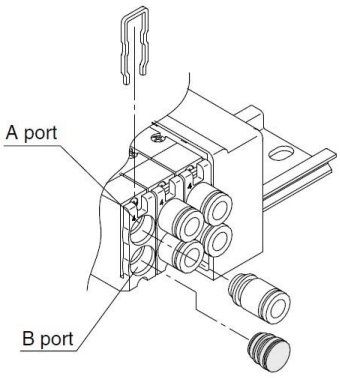
Port plug

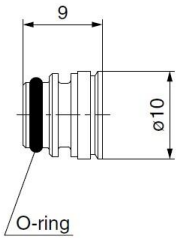
VVQZ100-CP

The plug is used to block the cylinder port when using a 5-port valve as a 3-port valve.

* Add "A" or "B" at the end of the valve part number when ordering with valves.

Example) SQ1131-51-C6-A (N.O. specifications)
→ 4 (A) port plug
Example) SQ1131-51-C6-B (N.C. specifications)
→ 2 (B) port plug
Example) SQ1131-51-C6-B-M
(B port plug with manifold block)



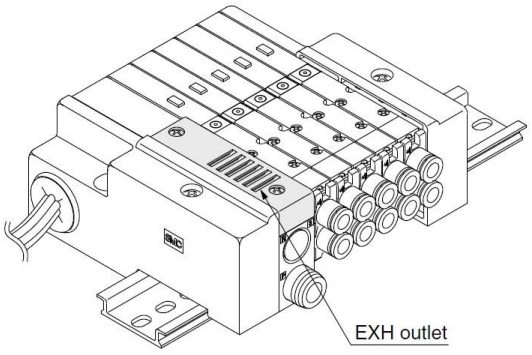


Direct EXH outlet, built-in silencer [-S]

This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)

Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.
* For precautions on handling and how to replace elements, refer to page 10.



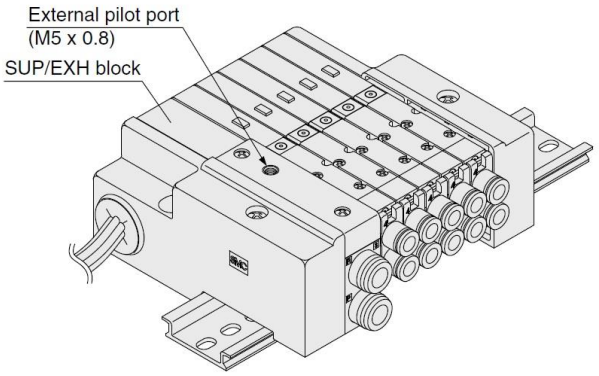
Manifold Option Parts for SQ1000

External pilot specifications [-R]

This can be used when the air pressure is 0.1 to 0.2 MPa lower than the minimum operating pressure of the solenoid valves or used for vacuum specifications.
Add "R" to the part numbers of manifolds and valves to indicate the external pilot specification.
An M5 port will be installed on the top side of the manifold's SUP/EXH block.

● How to order valves (Example)
SQ1130 R -51-C6
R: External pilot specifications

● How to order manifold (Example)
* Indicate "R" for an option.
SS5Q13-08FD1-DR
R: External pilot specifications



Note 1) Not applicable for 4 position dual 3 port valves.
Note 2) Valves with the external pilot specifications have a pilot EXH with individual exhaust specifications and EXH can be pressurized. However, the pressure supplied from EXH should be 0.4 MPa or lower.

Dual flow fitting

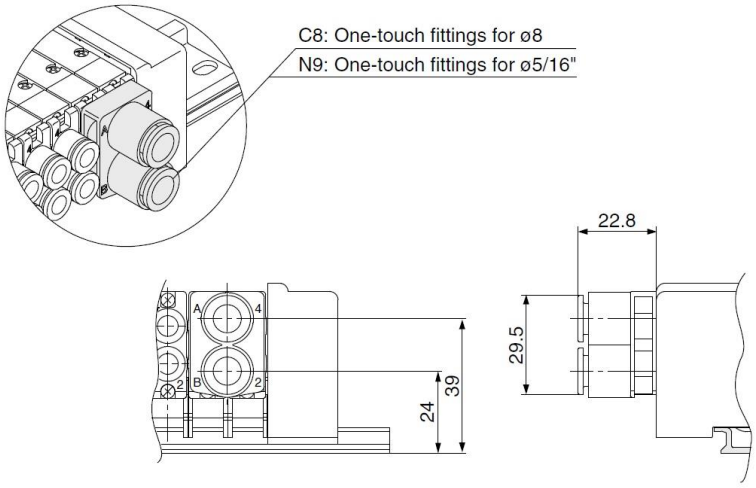
SSQ1000-52A-C8

Port size

C8	ø8
N9	ø5/16"

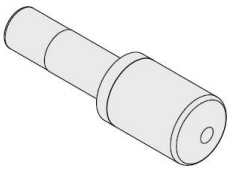
To drive a large bore cylinder, two valve stations are operated simultaneously to double the air flow.
This fitting is used on the cylinder ports in this situation. Available sizes are ø8 and ø5/16" One-touch fittings.
* When ordering with valves, specify the valve part number without One-touch fitting and list without One-touch fitting and list the dual flow fitting part number.

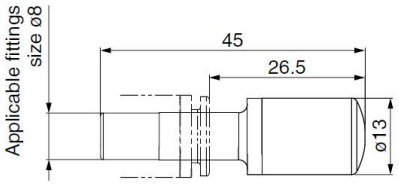
Example) Valve part number (without Onetouch fitting)
SQ1131-51-C0 ····· 2 sets
*SSQ1000-52A-C8/N9 ····· 1 set



Silencer (For EXH port)

This is inserted into the centralized type EXH port (One-touch fitting).





Specifications

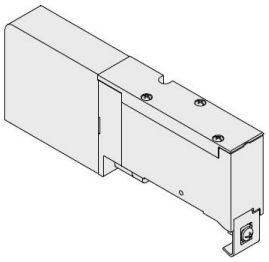
Series	Model	Effective area mm² (Cv factor)	Noise reduction (dB)
SQ1000	AN15-C08	20 (1.1)	30

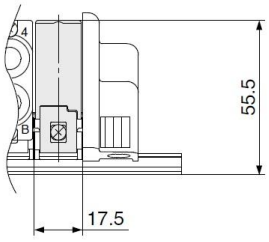
Manifold Option Parts for SQ2000

Blanking plate

SSQ2000-10A-3

It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.





Symbol



SUP/EXH block

SSQ2000-PR-3-C10-□

Port size

C8	One-touch fittings for ø8
C10	One-touch fittings for ø10
N9	One-touch fittings for ø5/16"
N11	One-touch fittings for ø3/8"

Option

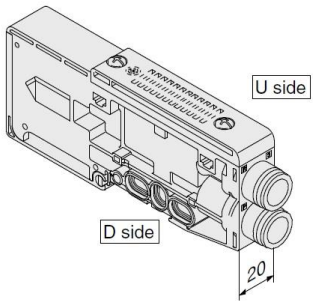
Nil	Standard
R	External pilot specifications
S	Built-in silencer

Note) When specifying both options, indicate "RS".

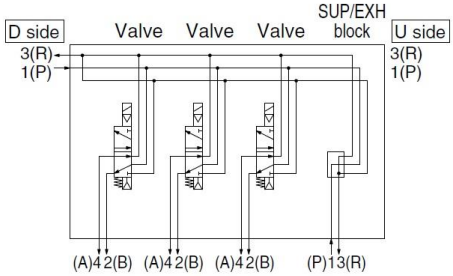
* Specify the spacer mounting position on the manifold specification sheet.

For standard type manifolds, the SUP/EXH block is mounted on the D side.
It is added to the manifold to increase SUP/EXH capacity.

* The number of SUP/EXH blocks that can be added is limited to two sets, one between manifold stations and another on the U side of the manifold due to the length of the internal lead wire.
* SUP/EXH blocks are not included in the number of manifold stations.



Description/Model	Stations	1	2	3	4	5
Valve	Single	●	●	●		
	⋮					
Option	SUP/EXH block SSQ2000-PR-3-C10-□				●	



Individual SUP spacer

SSQ2000-P-3-C8

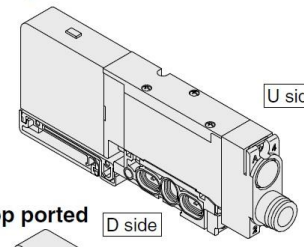
Port size

Side ported	**C8**	One-touch fittings for ø8
	N9	One-touch fittings for ø5/16"
Top ported	**L8**	One-touch fittings for ø8
	LN9	One-touch fittings for ø5/16"

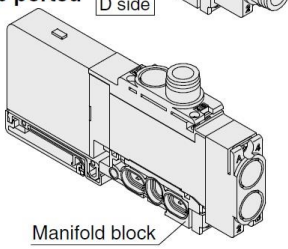
This is used as a supply port for different pressures when using different pressures in the same manifold (for one station).
Both sides of the station which is used with supply pressure from the individual SUP spacer are shut off. (Refer to application example.)

* Specify the spacer mounting position and SUP passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit. (Two pieces of SUP block plate that shut off the supply pressure are included with the individual SUP spacer, therefore, it is not necessary to order them separately.)
* Electrical wiring is also connected to the manifold station with the individual SUP spacer.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual SUP spacer to the individual EXH spacer).
* The number of spacers is not limited when ordered with the manifold. However, when adding individual SUP spacers later, it is limited to two units, and another on the U side due to the length of the internal lead wire.
* Model no. with manifold block: SSQ2000-P-3-$\frac{C8}{L8}$-M

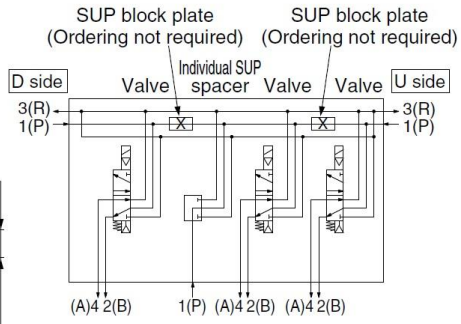
Side ported

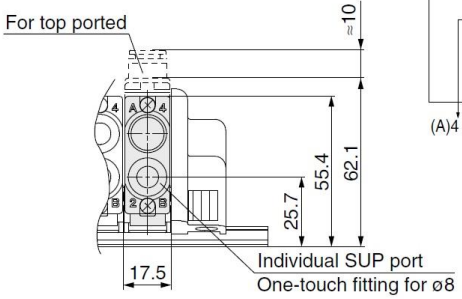


Top ported



Description/Model	Stations	1	2	3	4	5
Valve	Single	●		●	●	
	⋮					
Option	Individual SUP spacer SSQ2000-P-3-$\frac{C8}{L8}$		●			
	SUP shut off position: Please specify.	●		●		





Manifold Option Parts for SQ2000

Individual EXH spacer

SSQ2000-R-3-C8

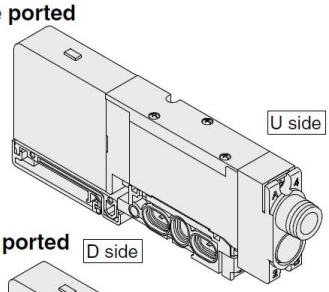
Port size

Side ported	**C8**	One-touch fittings for ø8
	N9	One-touch fittings for ø5/16"
Top ported	**L8**	One-touch fittings for ø8
	LN9	One-touch fittings for ø5/16"

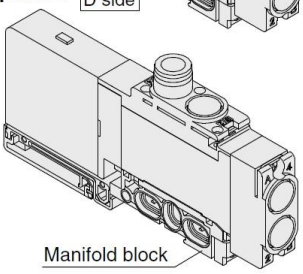
This is used to exhaust an individual valve when the exhaust from a valve interferes with other stations in the circuit (used for one station).
Both sides of the station which is to be individually exhausted are shut off. (Refer to application example.)

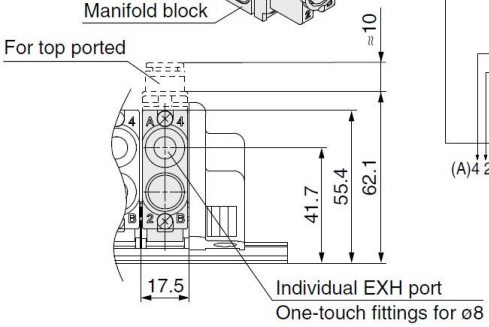
* Specify the spacer mounting position and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit. (Four pieces of EXH block plate that shut off the exhaust are included with the individual EXH spacer, therefore, it is not necessary to order them separately.)
* Electrical wiring is also connected to the manifold station with the individual EXH spacer.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual EXH spacer to the individual SUP spacer).
* The number of spacers is not limited when ordered with the manifold. However, when adding individual EXH spacers later, it is limited to two units, one between manifold stations and another on the U side due to the length of the internal lead wire.
* Model no. with manifold block:
SSQ2000-R-3-$\frac{C8}{L8}$- $\frac{M}{=}$

Side ported

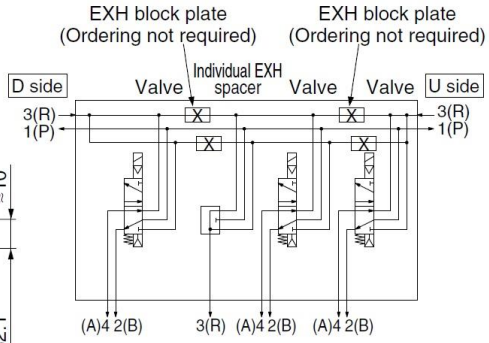


Top ported D side





Description/Model	Stations 1	2	3	4	5
Valve: Single	●		●	●	
Valve: ⋮					
Option: Individual EXH spacer SSQ2000-R-3-$\frac{C8}{L8}$		●			
Option: EXH shut off position: Please specify.	●		●		



Individual SUP/EXH spacer

SSQ2000-PR1-3-C8

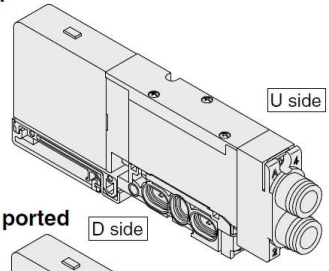
Port size

Side ported	**C8**	One-touch fittings for ø8
	N9	One-touch fittings for ø5/16"
Top ported	**L8**	One-touch fittings for ø8
	LN9	One-touch fittings for ø5/16"

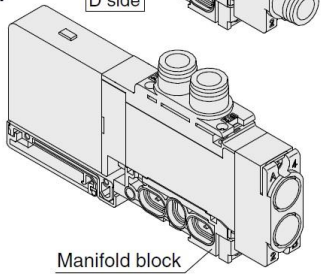
This has both functions of the individual SUP and EXH spacers above. (Refer to application example.)

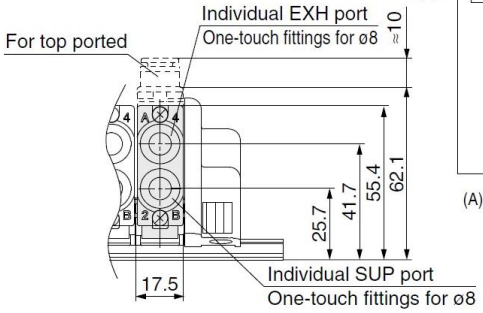
* Specify the spacer mounting position and SUP and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions each for SUP and EXH can be specified per unit. [Block plates that shut off the SUP and EXH passages are included with the individual SUP/EXH spacer, therefore, it is not necessary to order them separately (2 pcs. of SUP block plate and 4 pcs. of EXH block plate).]
* Electrical wiring is also connected to the manifold station with the individual SUP/EXH spacer.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later.
* The number of spacers is not limited when ordered with the manifold. However, when adding individual SUP/EXH spacers later, it is limited to two units, one between manifold stations on the U side due to the length of the internal lead wire.
* Model no. with manifold block:
SSQ2000-PR1-3-$\frac{C8}{L8}$- $\frac{M}{=}$
* Do not install any back pressure check valve on the manifold station, on which the spacer is to be mounted. When installing the back pressure check valve on other manifold station, be sure to specify the manifold station position on the manifold specification sheet instead of ordering by specifying the manifold option symbol "B".

Side ported

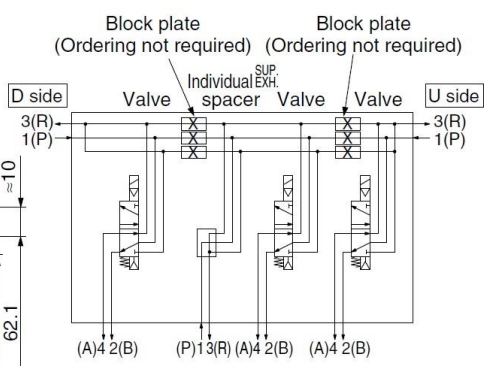


Top ported D side





Description/Model	Stations 1	2	3	4	5
Valve: Single	●		●	●	
Valve: ⋮					
Option: Individual SUP/EXH spacer SSQ2000-PR1-3-$\frac{C8}{L8}$		●			
Option: SUP shut off position: Please specify.	●		●		
Option: EXH shut off position: Please specify.	●		●		



Manifold Option Parts for SQ2000

SUP block plate

SSQ1000-B-R

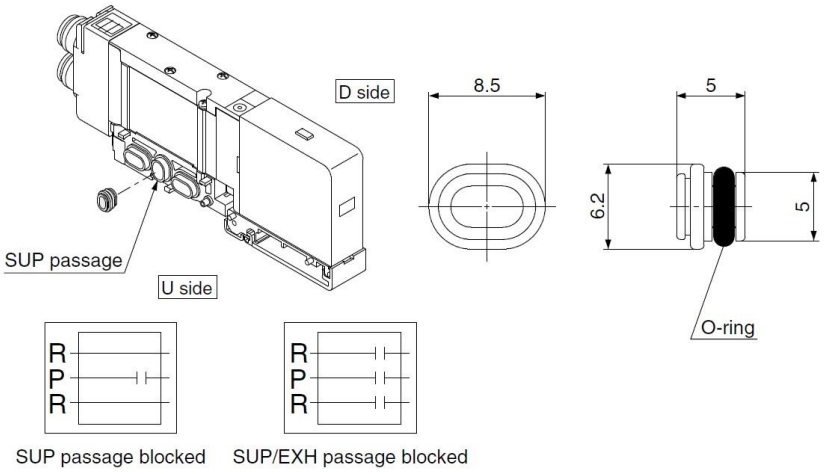
When supplying two different pressures, high and low, to one manifold, this is used between stations with different pressures. Also, it is used with an individual SUP spacer to shut off the air supply.

* Specify the station position on the manifold specification sheet.

<Block indication label>

When using block plates for SUP passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for SUP incorporated with the manifold, a block indication label is attached to the manifold.



EXH block plate

SSQ2000-B-R

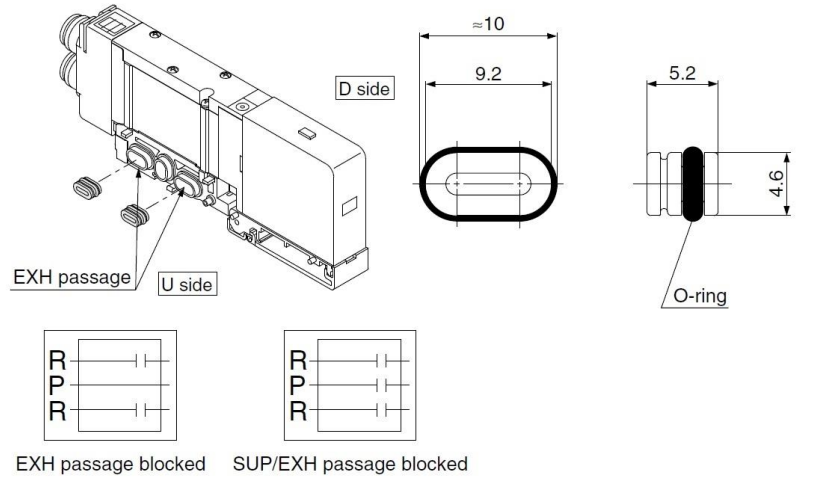
When the exhaust from a valve interferes with other stations in the circuit, this is used between stations to separate exhausts. Also, it is used with an individual EXH spacer to shut off the exhaust of individual valves.

* Specify the station position on the manifold specification sheet.
* Be sure to discharge the exhaust inside the EXH passage from the R port of the SUP/EXH block, etc. so that the exhaust pressure is not sealed.

<Block indication label>

When using block plates for EXH passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for EXH incorporated with the manifold, a block indication label is attached to the manifold.

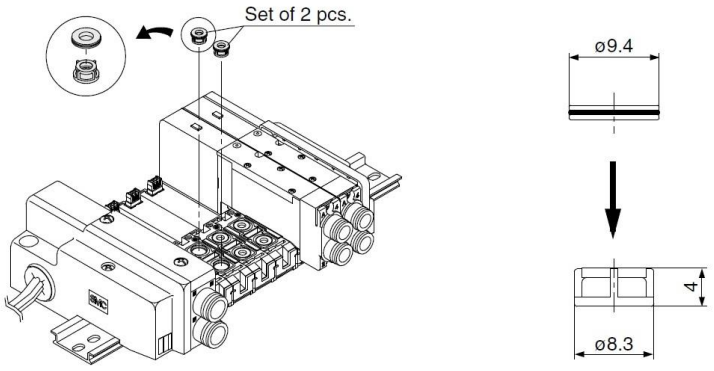


Back pressure check valve [-B]

SSQ2000-BP

It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single action cylinder is used or an exhaust center type solenoid valve is used.

* When a check valve for back pressure prevention is desired, and is to be installed only in certain manifold stations, clearly write the part number and specify the number of stations on the manifold specification sheet.
* When ordering this option incorporated with a manifold, suffix "-B" to the end of the manifold part number.



⚠ Caution

1. The back pressure check valve assembly is assembly parts with a check valve structure. However, as slight air leakage is allowed for the back pressure, take care the exhaust air will not be restricted at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.

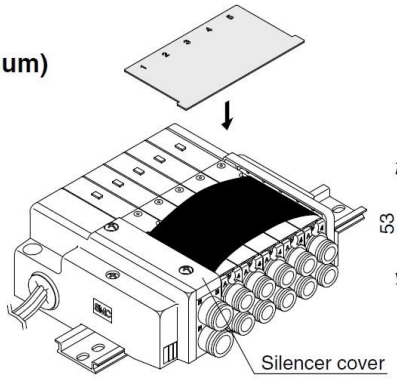
Manifold Option Parts for SQ2000

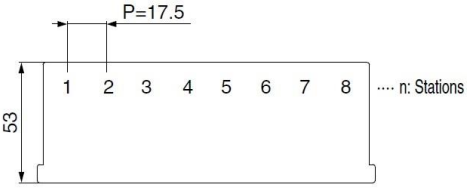
Name plate [-N]

SSQ2000-N3- Stations (1 to maximum)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure. Also, the plate is difficult to bend for manifolds with only a few stations, therefore, remove the silencer cover to install it.

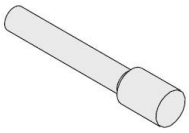
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.



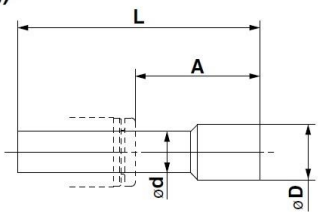


Blanking plug (For One-touch fitting)

KQ2P- 04 06 08 10



It is inserted into an unused cylinder port and SUP/EXH ports.
Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ø**d**	Model	**A**	**L**	**D**
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12

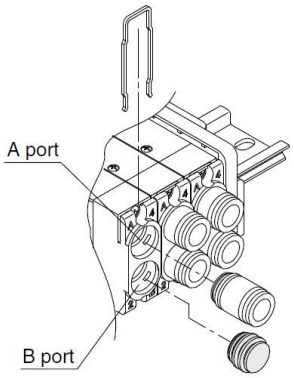
Port plug

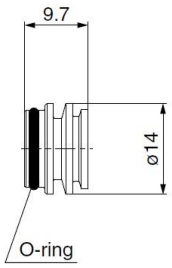
VVQZ2000-CP

The plug is used to block the cylinder port when using a 5-port valve as a 3-port valve.

* Add "A" or "B" at the end of the valve part number when ordering with valves.

Example) SQ2131-51-C8-A (N.O. specifications)
• 4 (A) port plug
Example) SQ2131-51-C8-B (N.C. specifications)
• 2 (B) port plug
Example) SQ2131-51-C8-B-M
(B port plug with manifold block)



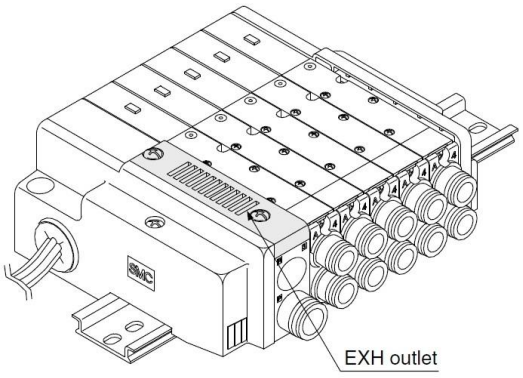


Direct EXH outlet, built-in silencer [-S]

This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)

Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.
* For precautions on handling and how to replace elements, refer to page 10.



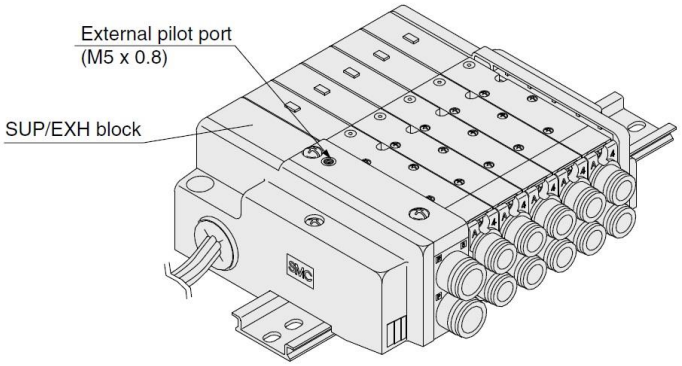
Manifold Option Parts for SQ2000

External pilot specifications [-R]

This can be used when the air pressure is 0.1 to 0.2 MPa lower than the minimum operating pressure of the solenoid valves or used for vacuum specifications.
Add "R" to the part numbers of manifolds and valves to indicate the external pilot specifications.
An M5 port will be installed on the top side of the manifold's SUP/EXH block.

● How to order valves (Example)
SQ2130 R -51-C6
R: External pilot specifications

● How to order manifold (Example)
* Indicate "R" for an option.
SS5Q23-08FD1-DR
R: External pilot specifications



Note 1) Not applicable for dual 3 port valves.
Note 2) Valves with the external pilot specifications have a pilot EXH with individual exhaust specifications and EXH can be pressurized. However, the pressure supplied from EXH should be 0.4 MPa or lower.

Dual flow fitting

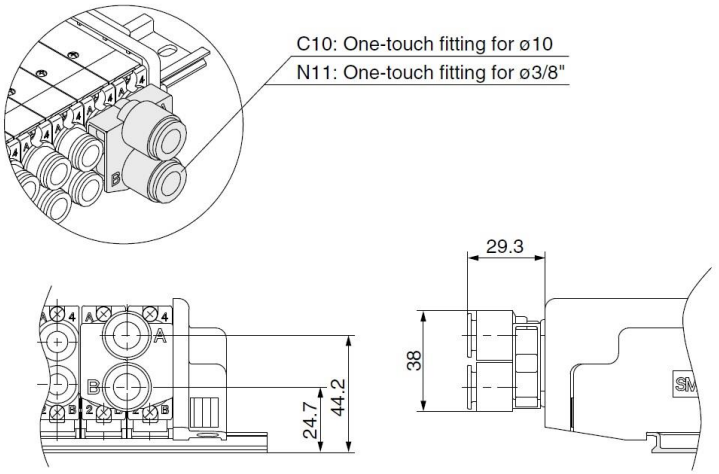
SSQ2000-52A-C10

Port size

C10	ø10
N11	ø3/8"

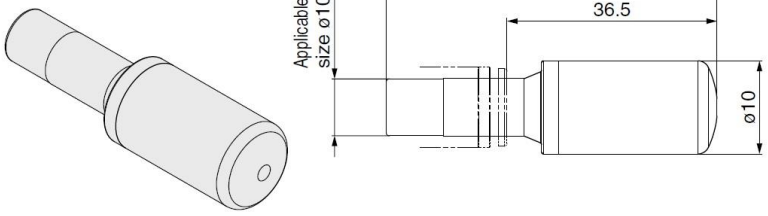
To drive a large bore cylinder, two valve stations are operated simultaneously to double the air flow. This fitting is used on the cylinder ports in this situation. Available sizes are ø10 and ø3/8" One-touch fittings.
* When ordering with valves, specify the valve part number without One-touch fitting and list without One-touch fitting and list the dual flow fitting part number.

Example) Valve part number (without One-touch fitting)
SQ2131-51 -C0 ····· 2 sets
* SSQ2000- 52A -C10/N11 ····· 1 set



Silencer (For EXH port)

This is inserted into the centralized type EXH port (One-touch fitting).



Specifications

Series	Model	Effective area (mm²) (Cv factor)	Noise reduction (dB)
SQ2000	AN20-C10	30 (1.6)	30

Manifold Option for SQ1000/2000

Special Wiring Specifications

In the internal wiring of F kit, P kit, T kit and S kit, double wiring (connected to SOL. A and SOL. B) is adopted for each station regardless of the valve and option types. Mixed single and double wiring is available as an option.

1. How to Order

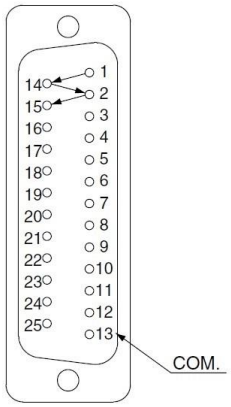
Indicate option symbol "-K" in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet. Also, specify wiring for spare connectors.
(Up to two spare connectors are included depending on the remaining number of connector pins. When the wiring for the spare connectors is not specified, they will be wired according to "Spare Connector Wiring" on page 30.)

Example) **SS5Q13 - 09 FD0 - DKS**

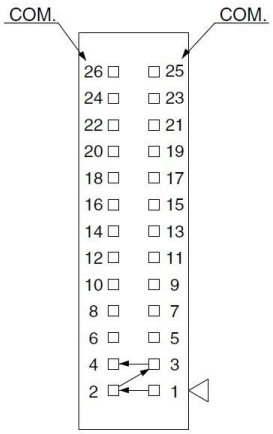
• Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

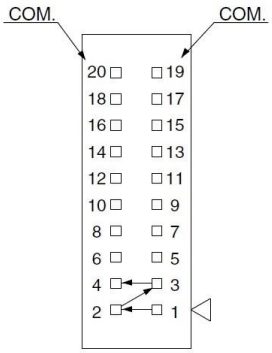
Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



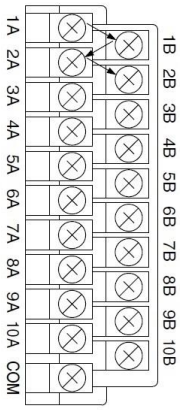
F kit
D-sub connector
(For 25P)



P kit
Flat ribbon cable connector
(For 26P)



P kit
Flat ribbon cable connector
(For 20P)



T kit
Terminal block
(SQ2000 only)

For S kit (serial transmission kit), refer to page 35.

3. Maximum stations

The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. Determine the number of stations so that the total number of solenoids is no more than the maximum points in the table below.

Kit	**F kit** (D-sub connector)	**P kit** (Flat ribbon cable connector)		**T kit** (Terminal block) SQ2000 only*	**S kit** (Serial)
Type	FD□ 25P	PD□ 26P	PDC 20P	TD0	SD□
Max. points	24 points	24 points	18 points	20 points	16 points

Note) Maximum stations ···· SQ1000: 24 stations
SQ2000: 16 stations

Manifold Option for SQ1000/2000

Special DIN Rail Length (DIN Rail Mounting (-D) Only)

The standard DIN rail provided is approximately 30 mm longer than the overall length of the manifold with a specified number of stations.
The following options are also available.

● DIN rail length longer than the standard type (for stations to be added later, etc.)

In the manifold part number, specify "-D" for the manifold mounting symbol and add the number of required stations after the symbol.

Example) **SS5Q13-08FD0-D09BNK**

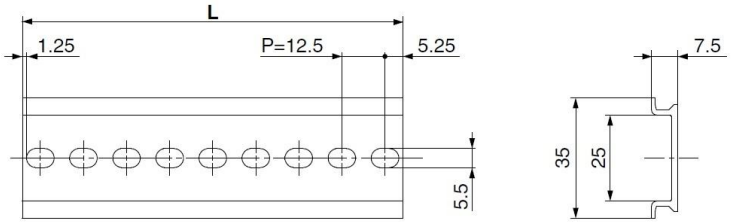
- 8 station manifold
- Option symbols (alphabetically)
- DIN rail for 9 stations

● Ordering DIN rail only

DIN rail part number

AXT100-DR-n

Note) For "n", enter a number from the "No." line in the table below.
For L dimension, refer to the dimensions of each kit.



L Dimension

L = 12.5 x n + 10.5

No.	1	2	3	4	5	6	7	8	9	10
L dimension	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5

No.	11	12	13	14	15	16	17	18	19	20
L dimension	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

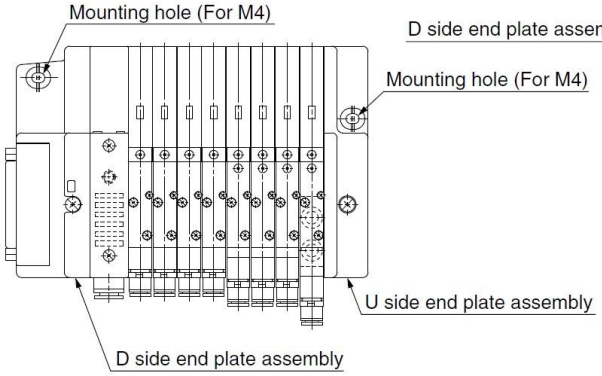
No.	21	22	23	24	25	26	27	28	29	30
L dimension	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5

No.	31	32	33	34	35	36	37	38	39	40
L dimension	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

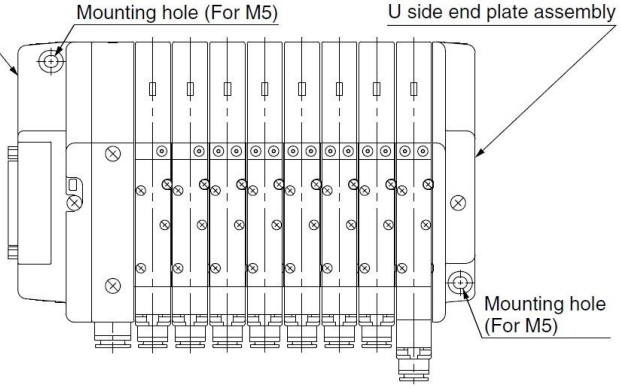
Direct Mounting Type (-E)

Manifold is mounted by using mounting holes of both sides of the manifold.
DIN rail is not sticking out of the edge of end plate. (Except SQ2000 T kit type.)
Furthermore, the reinforcing part that comes to the bottom of the DIN rail is attached to the end plate assembly.

SQ1000



SQ2000



Manifold Option for SQ1000/2000

Negative Common Specifications

The following valve part numbers are for negative common specifications. Manifold part numbers are the same as the standard except L kit.
Also, negative common specifications are not available for the S kit.

● How to order negative common valves (Example)

SQ1130 N -51-C6

• Negative common specifications

● How to order negative common manifold (Example)

SS5Q13 -08 LD1 N - D N

Stations • **• Option**

Kit type • **• DIN rail mounting type**

• Negative common specifications

Inch-size One-touch Fittings

For One-touch fittings in inch sizes, use the following part numbers. Also, the color of the release button is orange.

● How to order valves (Example)

SQ1130- 51 - □ N7

Port location • **• Cylinder port**

Nil	Side ported
L	Top ported

Symbol		N1	N3	N7	N9
Applicable tubing O.D. (Inch)		ø1/8"	ø5/32"	ø1/4"	ø5/16"
4(A), 2(B) port	**SQ1000**	●	●	●	—
	SQ2000	—	●	●	●

● How to order manifold (Example)

Add "00T" at the end of the part number.

SS5Q13-08 FD0-DN- 00T

• 1 (P), 3 (R) port in inch size
{ SQ1000: ø5/16" (N9)
{ SQ2000: ø3/8" (N11)

How to Increase Manifold Stations for SQ1000/2000

1. Using Spare Connector to Add Stations

As shown in the table below, wiring specifications for spare connectors are based on to the remaining number of connector pins (remaining number of pins against the maximum number of solenoids for each kit.)
The following steps are for using spare connectors to add stations.

• Spare Connector Wiring

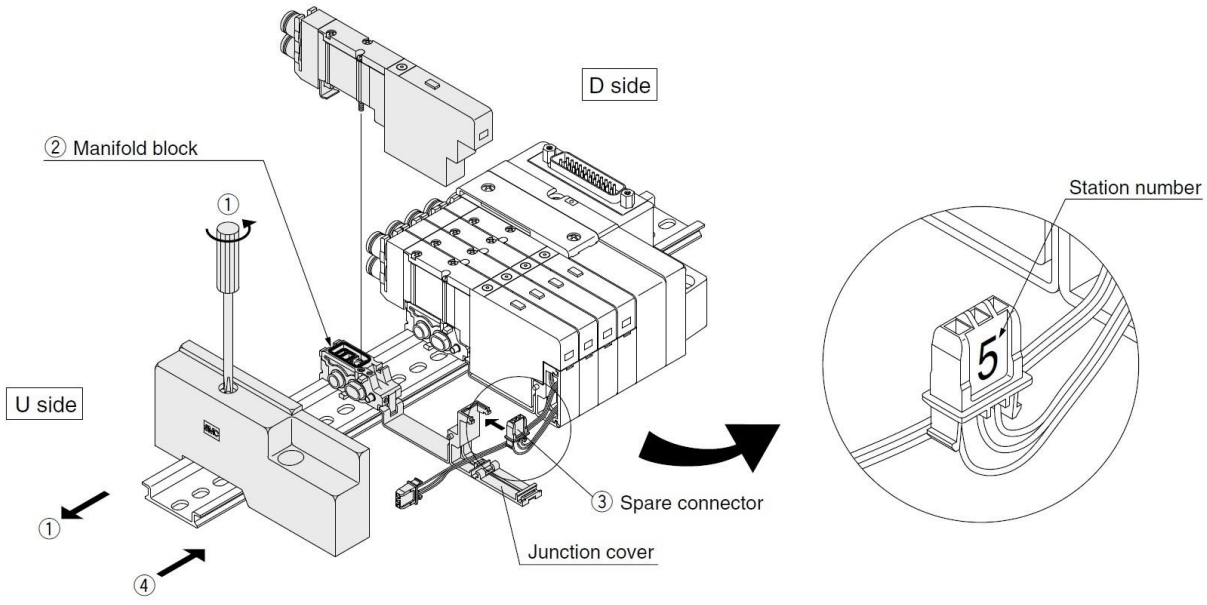
Remaining connector pins	4 pins or more	3 pins	2 pins	1 pin	0 pin
Spare connector wiring	2 for double wiring	1 for double wiring (on the low no. station side) 1 for single wiring	1 for double wiring	1 for single wiring	None

What to order

• Valves with manifold block or the manifold blocks (Refer to page 31).

Steps for adding stations

① Loosen the clamp screw on the U side end plate and open the manifold.
↓
② Mount the manifold block to be added.
↓
③ Open the junction cover and attach the spare connector. Match the station position of the added station and the spare connector station number.
↓
④ Press on the end plate to eliminate any space between the manifold blocks and tighten the clamp screw.
(Proper tightening torque: 0.8 to 1.0 N·m)
Note 1) Order a manifold block with lead wire for the L kit because a spare connector is not included with the kit. (Refer to page 31.)
Note 2) Do not let the lead wires get caught between manifolds, or when closing the junction cover.



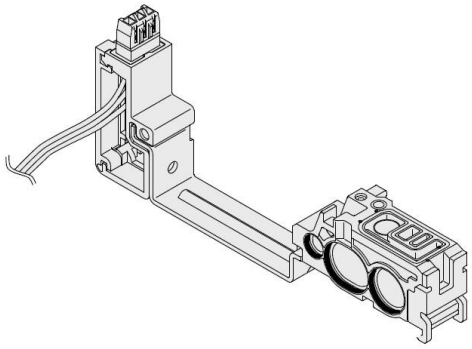
How to Increase Manifold Stations for SQ1000/2000

2. Adding Stations Without Required Spare Connectors

Spare connectors for 2 stations are initially included. However, to add 3 or more stations, order manifold blocks with lead wire in the tables below.

How to order manifold blocks with lead wire

SQ1000



SSQ1000−1A−3−FS 03 □ −□

Lead wire type

F0	Without lead wire (for using spare connectors to add stations)
FS	F kit (D-sub connector kit) Single wiring
FW	F kit (D-sub connector kit) Double wiring
PS	P kit (Flat ribbon cable kit) Single wiring
PW	P kit (Flat ribbon cable kit) Double wiring
L0	L kit (Lead wire kit) Lead wire length 0.6 m
L1	L kit (Lead wire kit) Lead wire length 1.5 m
L2	L kit (Lead wire kit) Lead wire length 3.0 m
SS	S kit (Serial transmission kit) Single wiring
SW	S kit (Serial transmission kit) Double wiring

Applicable stations

01	1 station
⋮	⋮
24	24 stations

Note 1) "F0": Nil
Note 2) S kit is from 01 to 16

COM. (L kit only)

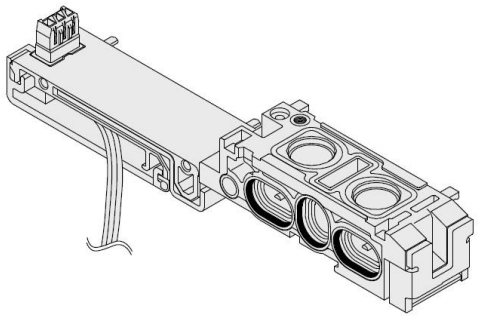
Nil	Positive common
N	Negative common

Option

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

SQ2000



SSQ2000−1A−3−FS 03 □ −□

Lead wire type

F0	Without lead wire (for using spare connectors to add stations)
FS	F kit (D-sub connector kit) Single wiring
FW	F kit (D-sub connector kit) Double wiring
PS	P kit (Flat ribbon cable kit) Single wiring
PW	P kit (Flat ribbon cable kit) Double wiring
TS	T kit (Terminal block kit) Single wiring
TW	T kit (Terminal block kit) Double wiring
L0	L kit (Lead wire kit) Lead wire length 0.6 m
L1	L kit (Lead wire kit) Lead wire length 1.5 m
L2	L kit (Lead wire kit) Lead wire length 3.0 m
SS	S kit (Serial transmission kit) Single wiring
SW	S kit (Serial transmission kit) Double wiring

Applicable stations

01	1 station
⋮	⋮
16	16 stations

Note 1) "F0": Nil

COM. (L kit only)

Nil	Positive common
N	Negative common

Option

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

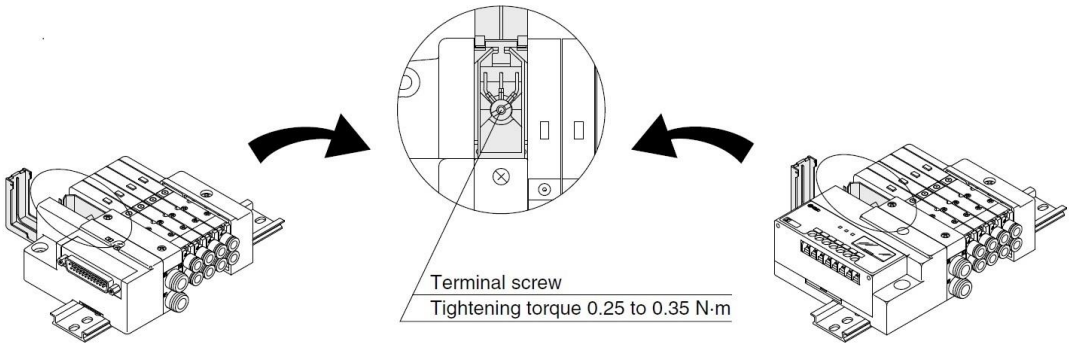
How to Increase Manifold Stations for SQ1000/2000

3. Connection Method (Refer to page 30 regarding the steps for adding stations to a manifold block.)

Connect the round terminal of the red lead wire to the common terminal inside the junction cover.

(1) Connecting common terminals

Connect lead wire assemblies included with manifold blocks as follows.

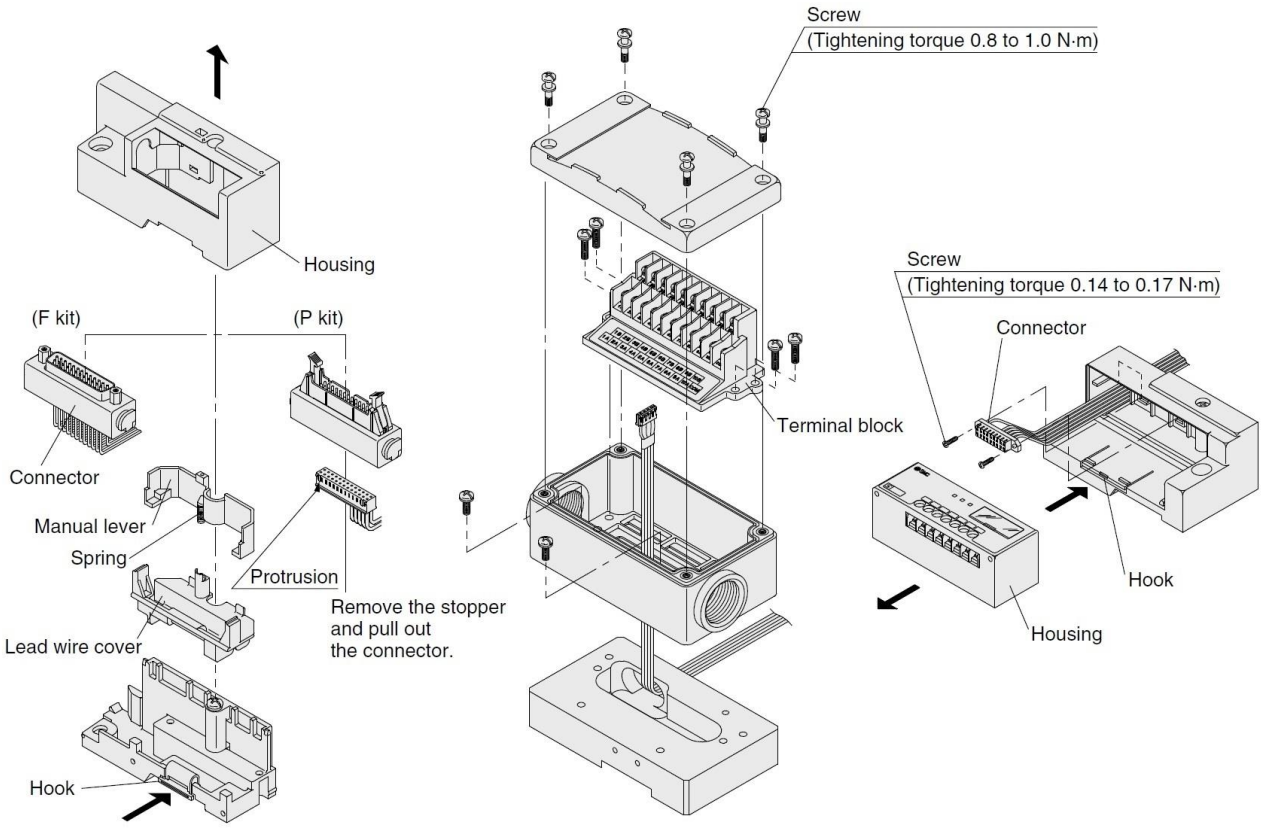


F, P kit **T, S kit**

(2) Pulling out connector

Pull out the connector to connect the lead wire.

- For F and P kits, pull out and remove the housing while pressing down hard on the hook with a flat head screwdriver, etc. Remove the manual lever and lead wire cover, and pull out the connector.
- For T kits, remove the screws and pull out the terminal block.
- For S kits, remove the screws and pull out the connector.



F, P kit **T kit** **S kit**

How to Increase Manifold Stations for SQ1000/2000

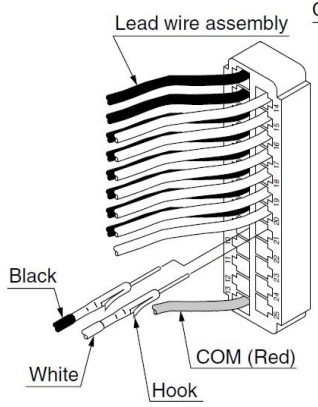
(3) Connect the black and white lead wire pins to the positions shown below in accordance with each kit.

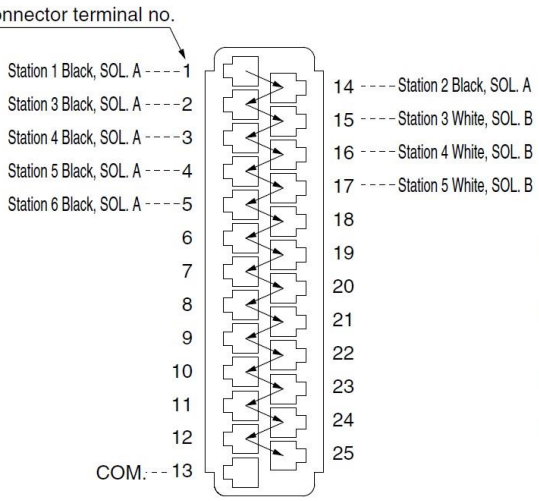
⚠Caution 1. After inserting the pin, confirm that the pin hook is locked by lightly pulling the lead wire.

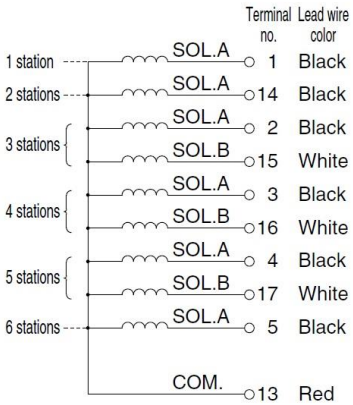
2. Do not pull the lead wire forcefully when connecting. Also, take care that lead wires do not get caught between manifolds or when closing the junction cover.

Wiring (F Kit: D-sub Connector Kit)

Procedure) Based on the manifold specifications, station 1 of SOL.A (black wire) will be terminal number 1 of the D-sub connector, and for station 2 and thereafter, connect black wires, then white wires in the order as shown below by the arrows.







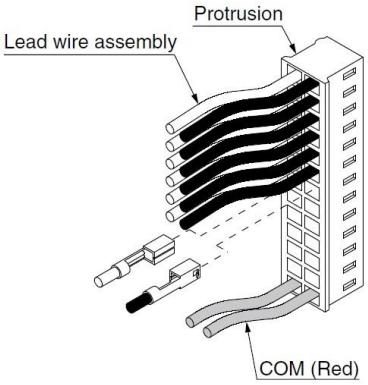
Manifold Specifications' Example

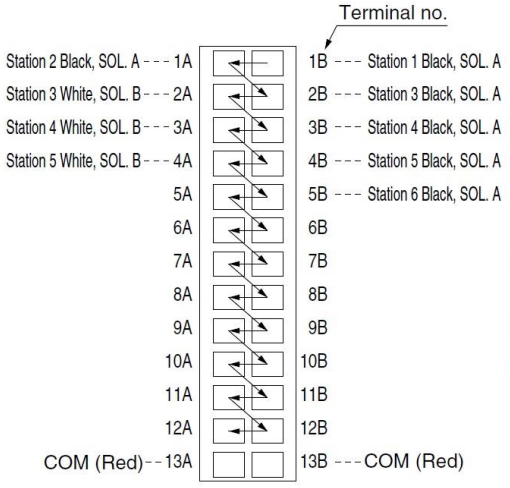
Stations	1	2	3	4	5	6
Single wiring	○	○				○
Double wiring			○	○	○	

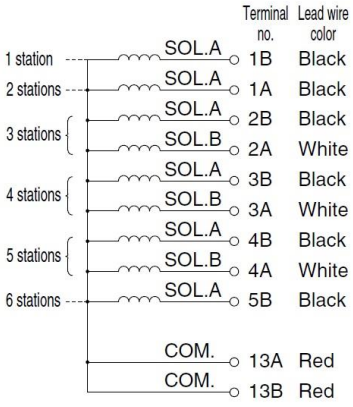
* The drawing above shows connections based on the manifold specifications' example in the table to the left.

Wiring (P Kit: Flat Ribbon Cable Kit)

Procedure) Based on the manifold specifications, station 1 of SOL.A (black wire) will be terminal number 1B of the flat ribbon cable connector, and for station 2 and thereafter, connect black wires, then white wires in the order as shown below by the arrows.







Manifold Specifications' Example

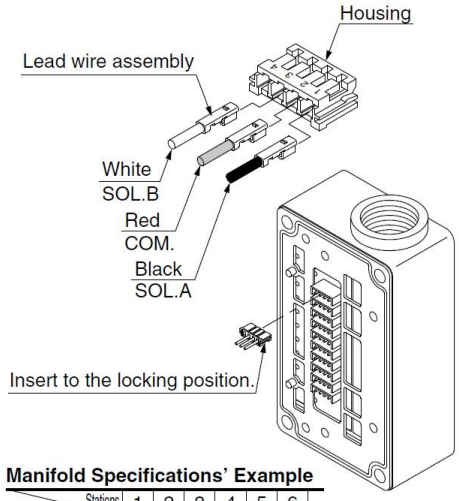
Stations	1	2	3	4	5	6
Single wiring	○	○				○
Double wiring			○	○	○	

* The drawing above shows connections for type 26P flat ribbon cable connector based on the manifold specifications' example in the table to the left. For type 20P, the connection will be the same as above except that COM changes to 10A and 10B.

How to Increase Manifold Stations for SQ1000/2000

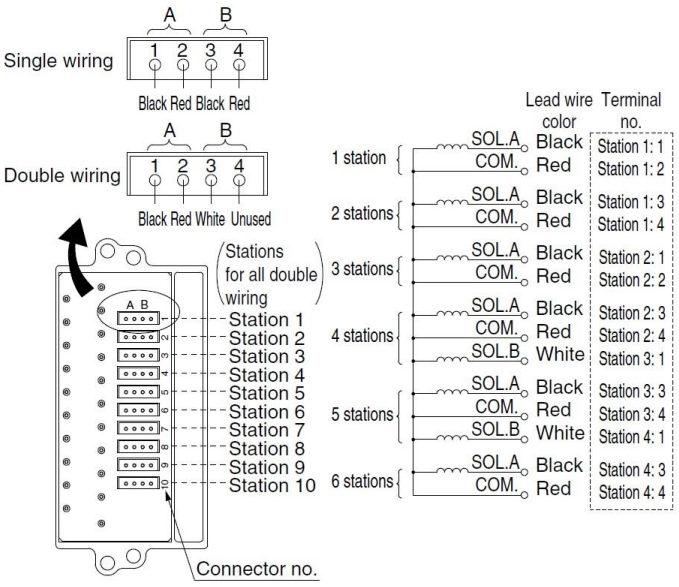
Wiring (T Kit: Terminal Block Kit)

Procedure) Based on the manifold specifications, connect to the housing according to the wiring example below.



Manifold Specifications' Example

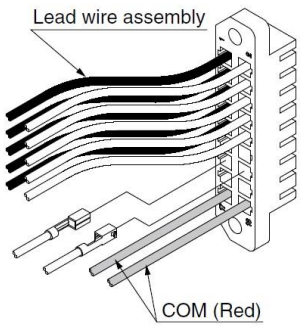
Stations	1	2	3	4	5	6
Single wiring	○	○	○			○
Double wiring				○	○	

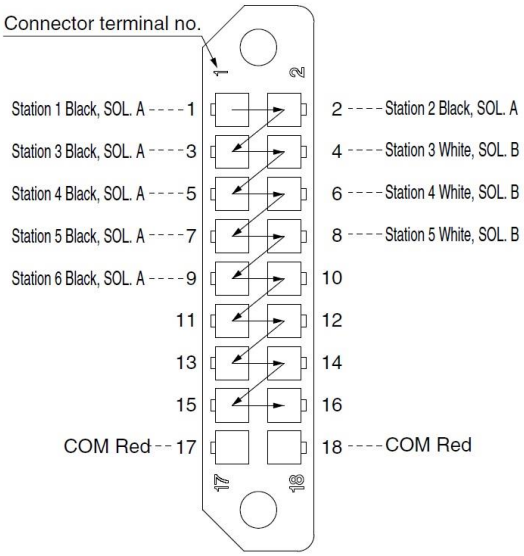


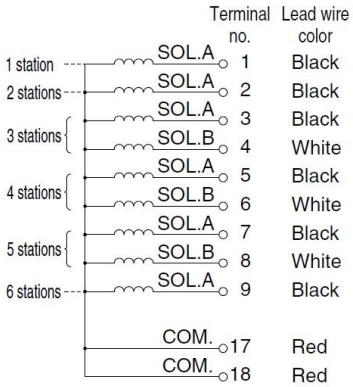
How to Increase Manifold Stations for SQ1000/2000

Wiring (S Kit: Serial Transmission Kit)

Procedure) Based on the manifold specifications, station 1 of SOL.A (black wire) will be terminal number 1 of the serial connector, and for station 2 and thereafter, connect black wires, then white wires in the order as shown below by the arrows.







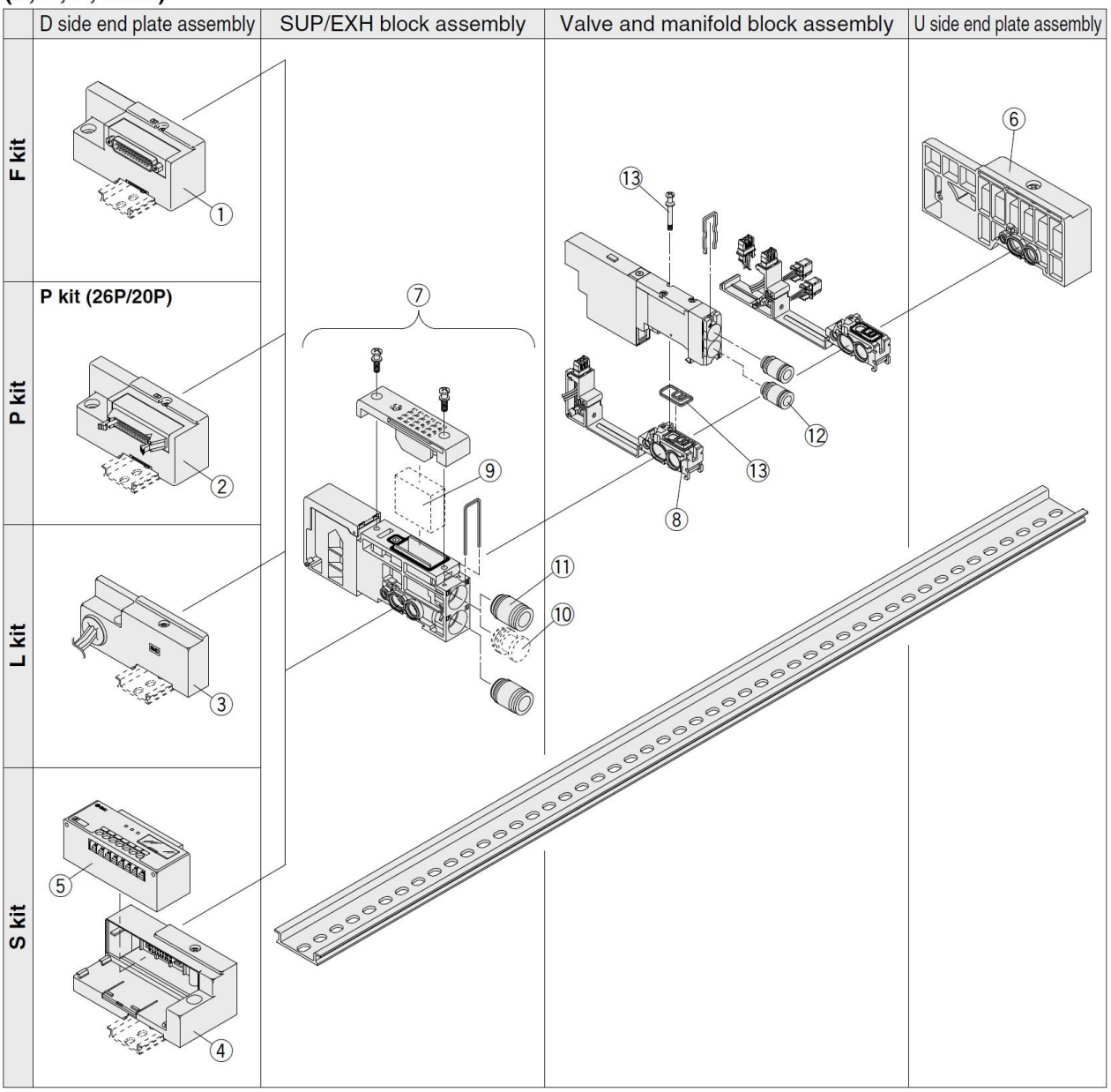
Manifold Specifications' Example

Stations	1	2	3	4	5	6
Single wiring	○	○				○
Double wiring			○	○	○	

* The drawing above shows connections based on the manifold specifications' example in the table to the left.

Manifold Exploded View: SQ1000 (Plug-in Type Manifold) SS5Q13

(F, P, L, S kit)



Manifold Spare Parts

Refer to pages 30 to 35 of "How to Increase Manifold Stations" regarding the mounting of each spare parts.

<① ② ③ ④ D side end plate assembly>

SSQ1000 – 3A – 3 □ – □ □ □

Manifold mounting

Nil	DIN rail mounting type
E	Direct mounting type

Electrical entry

F	F kit	①
P	P kit (26P)	②
PC	P kit (20P)	②
Nil	L kit	③
S	S kit	④

Wiring specifications

0	Without lead wire
S	Single wiring
W	Double wiring

Note) L kit: Nil

Stations

01	For 1 station
⋮	⋮
24	For 24 stations

Note 1) The maximum number of stations will be different depending on the wiring specifications.
Note 2) L kit: Nil

<⑤ SI unit>

Manifold	No.	Description
SDH kit	EX140-SUH1	NKE Corp.: Fieldbus H System (16 output points)
SDQ kit	EX140-SDN1	DeviceNet™ (16 output points)
SDR1 kit	EX140-SCS1	OMRON Corp.: CompoBus/S (16 output points)
SDR2 kit	EX140-SCS2	OMRON Corp.: CompoBus/S (8 output points)
SDV kit	EX140-SMJ1	CC-LINK (16 output points)

<⑥ U side end plate assembly>

(For F, P, S kit)

SSQ1000 – 2A – 3 □ – 1

(For L kit)

SSQ1000 – 2A – 3 □ – 2

Manifold mounting

Nil	DIN rail mounting type
E	Direct mounting type

<⑦ SUP/EXH block assembly>

SSQ1000 – PR – 3 – C8 – □

Port size

C8	One-touch fitting for ø8
N9	One-touch fitting for ø5/16"

Option

Nil	Common exhaust type
R	External pilot
S	Built-in silencer, direct exhaust

Note) Enter "-RS" for both options.

<⑧ Manifold block assembly>

SSQ1000 – 1A – 3 – F0 01 – □ Including gaskets ⑬

Lead wire type

F0	Without lead wire
FS	F kit: D-sub connector kit Single wiring
FW	F kit: D-sub connector kit Double wiring
PS	P kit: Flat ribbon cable kit Single wiring
PW	P kit: Flat ribbon cable kit Double wiring
L0	L kit: Lead wire kit Lead wire length 0.6 m
L1	L kit: Lead wire kit Lead wire length 1.5 m
L2	L kit: Lead wire kit Lead wire length 3 m
SS	S kit: Serial transmission kit Single wiring
SW	S kit: Serial transmission kit Double wiring

Option

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

Applicable stations

01	Station 1
⋮	⋮
24	Station 24

Note 1) "F0": Nil
Note 2) Specify from "01" to "16" for S kit.

<⑨ Element>

SSQ1000 – SE

Note) Part number for a 10 piece set of element.
For replacement procedures, refer to page 10.

<⑩ Port plug>

VVQZ2000 – CP

<⑪ Fitting assembly>

(For P, R port)

VVQ1000 – 51A – C8

Port size

C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"

Note) Purchasing order is available in units of 10 pieces.

<⑫ Fitting assembly>

(For cylinder port)

VVQ1000 – 50A – C3

Port size

C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6
M5	M5 thread
N1	One-touch fitting for ø1/8"
N3	One-touch fitting for ø5/32"
N7	One-touch fitting for ø1/4"

Note) Purchasing order is available in units of 10 pieces.

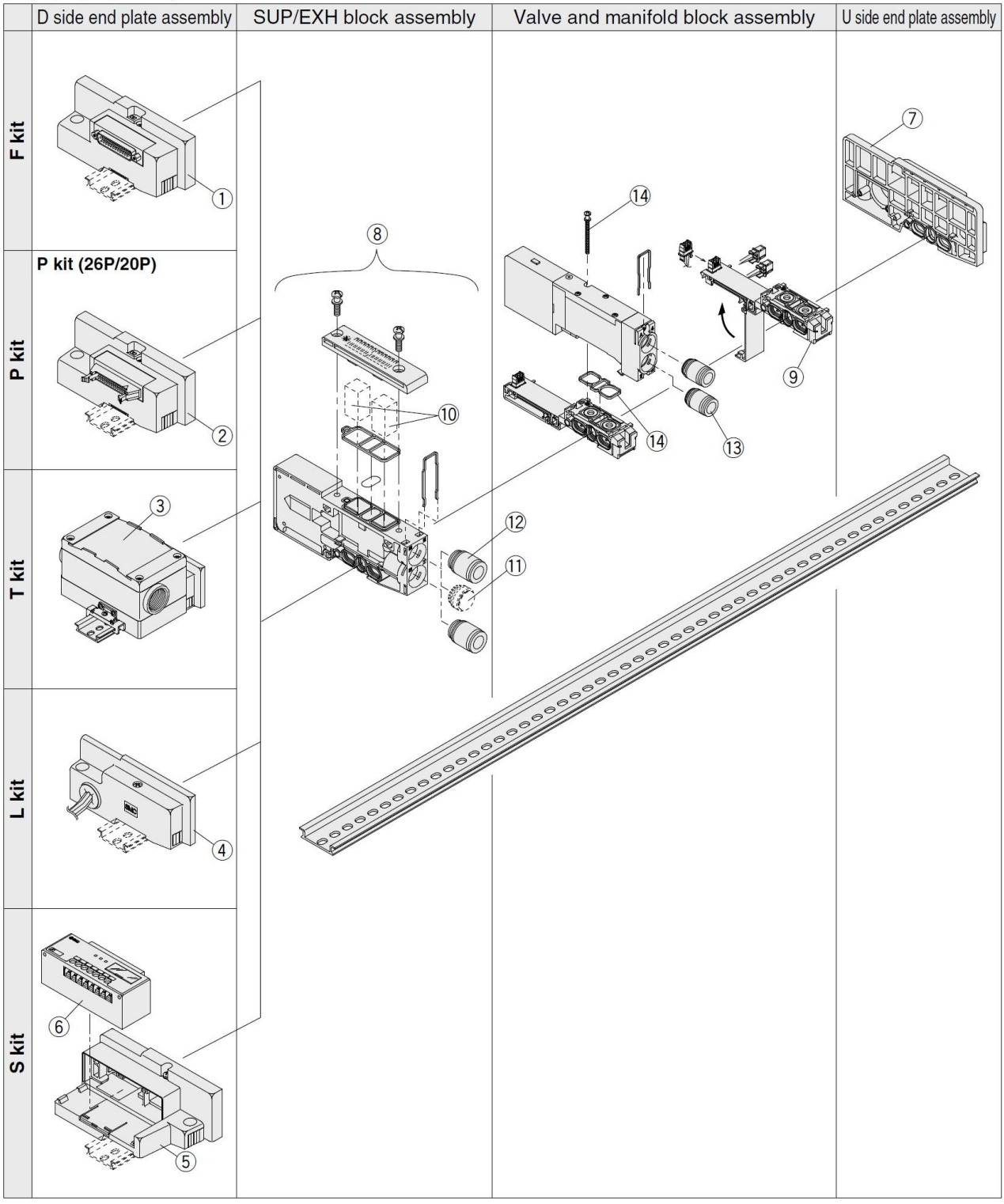
<⑬ Gasket and screw assembly>

SQ1000 – GS

Note) Part number for 10 pieces each of gaskets and screws.

Manifold Exploded View: SQ2000 (Plug-in Type Manifold) SS5Q23

(F, P, T, L, S kit)



Manifold Spare Parts

Refer to pages 30 to 35 of "How to Increase Manifold Stations" regarding the mounting of each spare parts.

<① ② ③ ④ ⑤ D side end plate assembly>

SSQ2000 – 3A – 3 □ – □ □ □

Manifold mounting

Nil	DIN rail mounting type
E	Direct mounting type

Electrical entry

F	F kit	①
P	P kit (26P)	②
PC	P kit (20P)	
T	T kit	③
Nil	L kit	④
S	S kit	⑥

Wiring specifications

0	Without lead wire
S	Single wiring
W	Double wiring

Note) L kit: Nil

Stations

01	For 1 station
⋮	⋮
16	For 16 stations

Note 1) The maximum number of stations will be different depending on the wiring specifications.
Note 2) L kit: Nil

<⑥ SI unit>

Manifold	No.	Description
SDH kit	EX140-SUH1	NKE Corp.: Fieldbus H System (16 output points)
SDQ kit	EX140-SDN1	DeviceNet™ (16 output points)
SDR1 kit	EX140-SCS1	OMRON Corp.: CompoBus/S (16 output points)
SDR2 kit	EX140-SCS2	OMRON Corp.: CompoBus/S (8 output points)
SDV kit	EX140-SMJ1	CC-LINK (16 output points)

<⑦ U side end plate assembly>

(For F, P, T, S kit)

SSQ2000 – 2A – 3 □ – 1

(For L kit)

SSQ2000 – 2A – 3 □ – 2

Manifold mounting

Nil	DIN rail mounting type
E	Direct mounting type

<⑧ SUP/EXH block assembly>

SSQ2000 – PR – 3 – C8 – □

Port size

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

Option

Nil	Common exhaust type
R	External pilot
S	Built-in silencer, direct exhaust

Note) Enter "-RS" for both options.

<⑨ Manifold block assembly>

SSQ2000 – 1A – 3 – F0 01 – □ Including gaskets ⑭

Lead wire type

F0	Without lead wire
FS	F kit: D-sub connector kit Single wiring
FW	F kit: D-sub connector kit Double wiring
PS	P kit: Flat ribbon cable kit Single wiring
PW	P kit: Flat ribbon cable kit Double wiring
TS	T kit: Terminal block kit Single wiring
TW	T kit: Terminal block kit Double wiring
L0	L kit: Lead wire kit Lead wire length 0.6 m
L1	L kit: Lead wire kit Lead wire length 1.5 m
L2	L kit: Lead wire kit Lead wire length 3 m
SS	S kit: Serial transmission kit Single wiring
SW	S kit: Serial transmission kit Double wiring

Option

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

Applicable stations

01	Station 1
⋮	⋮
16	Station 16

Note 1) "F0": Nil

<⑩ Element>

SSQ2000 – SE

Note) Part number for a 10 piece set of element.
For replacement procedures, refer to page 10.

<⑪ Port plug>

VVQZ3000 – CP

<⑫ Fitting assembly>

(For P, R port)

VVQ2000 – 51A – C8

Port size

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

Note) Purchasing order is available in units of 10 pieces.

<⑬ Fitting assembly>

(For cylinder port)

VVQ1000 – 51A – C4

Port size

C4	One-touch fitting for ø4
C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
N3	One-touch fitting for ø5/32"
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"

Note) Purchasing order is available in units of 10 pieces.

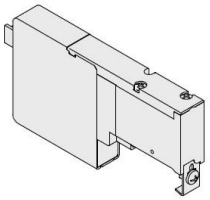
<⑭ Gasket and screw assembly>

SQ2000 – GS

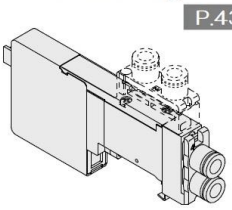
Note) Part number for 10 pieces each of gaskets and screws.

Manifold Options

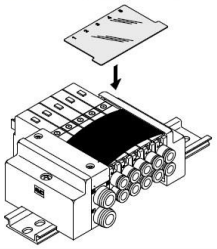
Blanking plate
SSQ1000-10A-4 P.42



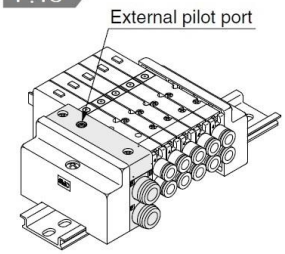
Individual SUP/EXH spacer
SSQ1000-PR1-4-$^{C6}_{L6}$
P.43



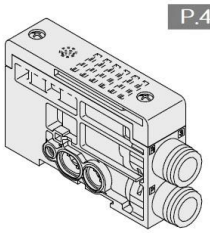
Name plate (-N)
SSQ1000-N3-n P.45



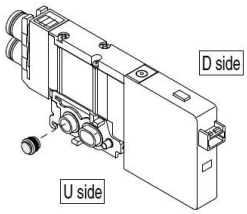
External pilot specifications (-R)
P.46



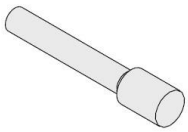
SUP/EXH block
SSQ1000-PR-4-C8 (-S)
P.42



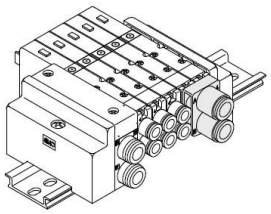
SUP block plate
SSQ1000-B-P P.44



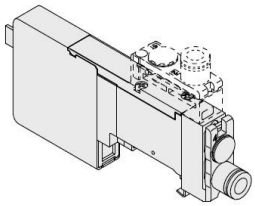
Blanking plug
KQ2P-23/04/06/08
P.45



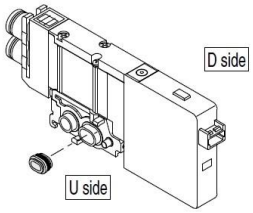
Dual flow fitting
SSQ1000-52A-$^{C8}_{N9}$ P.46



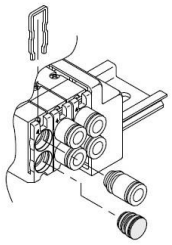
Individual SUP spacer
SSQ1000-P-4-$^{C6}_{L6}$ P.42



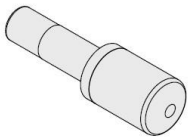
EXH block plate
SSQ1000-B-R P.44



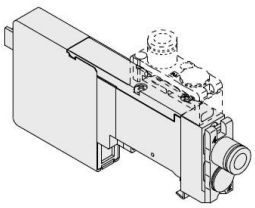
Port plug
VVQZ100-CP P.45



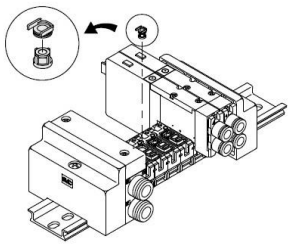
Silencer
(For EXH port) P.46



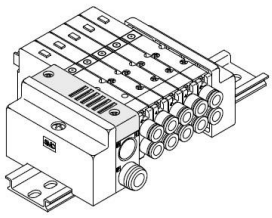
Individual EXH spacer
SSQ1000-R-4-$^{C6}_{L6}$ P.43



Back pressure check valve (-B)
SSQ1000-BP P.44

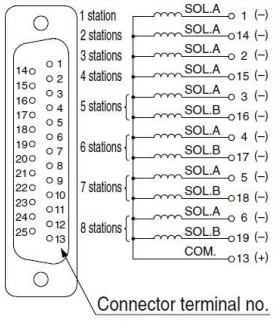


Built-in silencer,
direct exhaust (-S) P.45



Special wiring specifications (-K)
P.52

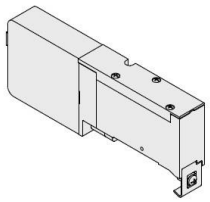
D-sub connector



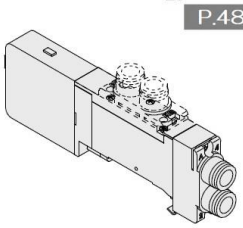
Although the standard products come with double wiring, mixed single and double wiring is available upon request.

Manifold Options

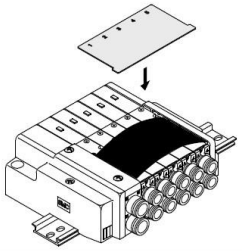
Blanking plate
SSQ2000-10A-4 P.47



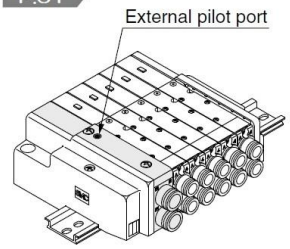
Individual SUP/EXH spacer
SSQ2000-PR1-4-$^{C8}_{L8}$ P.48



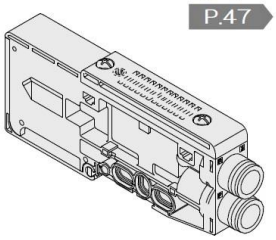
Name plate (-N)
SSQ2000-N3-n P.50



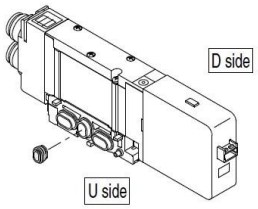
External pilot specifications (-R)
P.51



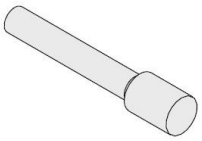
SUP/EXH block
SSQ2000-PR-3-C10(-S)
P.47



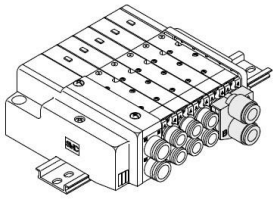
SUP block plate
SSQ1000-B-R P.49



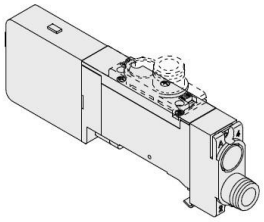
Blanking plug
KQ2P-04/06/08/10 P.50



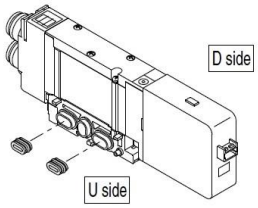
Dual flow fitting
SSQ2000-52A-$^{C10}_{N11}$ P.51



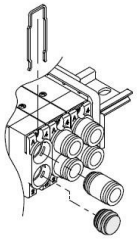
Individual SUP spacer
SSQ2000-P-4-$^{C8}_{L8}$ P.47



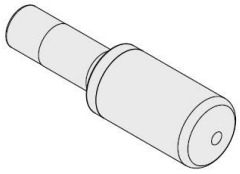
EXH block plate
SSQ2000-B-R P.49



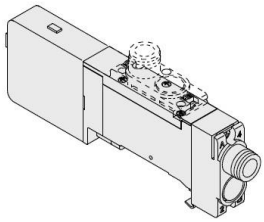
Port plug
VVQZ2000-CP P.50



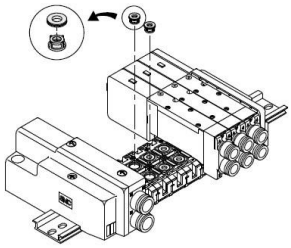
Silencer
(For EXH port) P.51



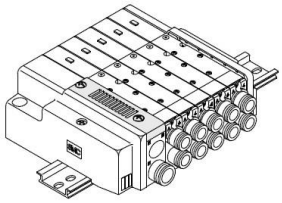
Individual EXH spacer
SSQ2000-R-4-$^{C8}_{L8}$ P.48



Back pressure check valve (-B)
SSQ2000-BP P.49

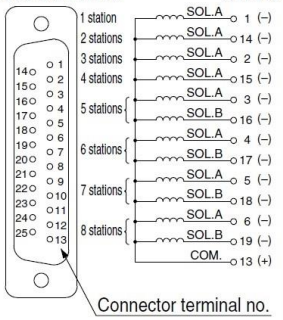


Built-in silencer,
direct exhaust (-S) P.50



Special wiring specifications (-K)
P.52

D-sub connector



Although the standard products come with double wiring, mixed single and double wiring is available upon request.

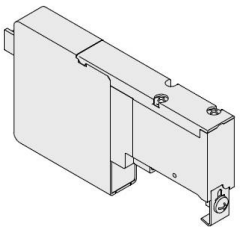
Manifold Option Parts for SQ1000

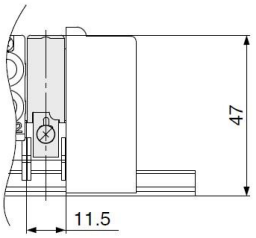
Blanking plate

SSQ1000-10A-4

It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

* Electrical wiring is connected to the manifold station with the blanking plate.





Symbol



SUP/EXH block

SSQ1000-PR-4-C8-□

Port size

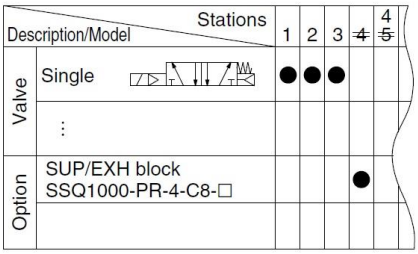
C8	One-touch fittings for ø8
N9	One-touch fittings for ø5/16"

Option

Nil	Standard
R	External pilot specifications
S	Built-in silencer

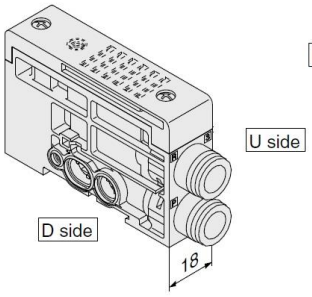
Note) When specifying both options, indicate "-RS".

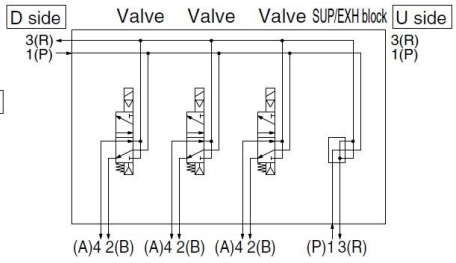
* Specify the spacer mounting position on the manifold specification sheet.



For standard type manifolds, the SUP/EXH block is mounted on the D side.
It is added to the manifold to increase SUP/EXH capacity.

* The number of SUP/EXH blocks that can be added is limited to two sets, one between manifold stations and another on the U side of the manifold, due to the length of the lead wire.
* SUP/EXH blocks are not included in the number of manifold stations.





Individual SUP spacer

SSQ1000-P-4-C6

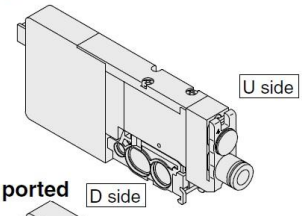
Port size

Side ported	**C6**	One-touch fittings for ø6
	N7	One-touch fittings for ø1/4"
Top ported	**L6**	One-touch fittings for ø6
	LN7	One-touch fittings for ø1/4"

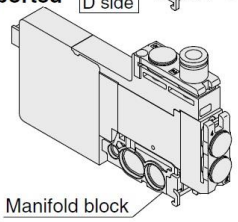
This is used as a supply port for different pressures when using different pressures in the same manifold (for one station). Both sides of the station which is used with supply pressure from the individual SUP spacer are shut off. (Refer to application example.)

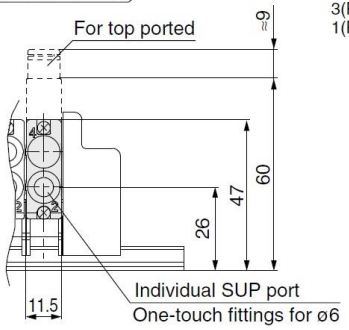
* Specify the spacer mounting position and SUP passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit.
  (Two pieces of SUP block plate that shut off the supply pressure are included with the individual SUP spacer, therefore, it is not necessary to order them separately.)
* No electrical wiring is connected to the manifold station with the individual SUP spacer.
  When the wiring needs to be connected to the stations with the individual SUP spacer mounted, specify it on the manifold specification sheet.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual SUP spacer to the individual EXH spacer).
* The number of spacers is not limited when ordered with the manifold. However, when adding individual for F, P, and J kits, it is limited to two units, one between manifold stations and another on the U side, due to the length of the lead wire.
* Model no. with manifold block:
  SSQ1000-P-4-$\frac{C6}{L6}$-M

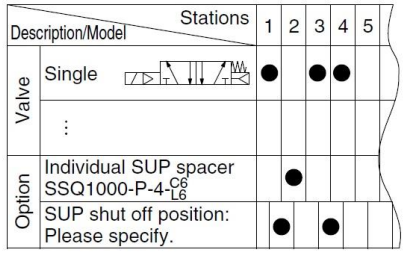
Side ported

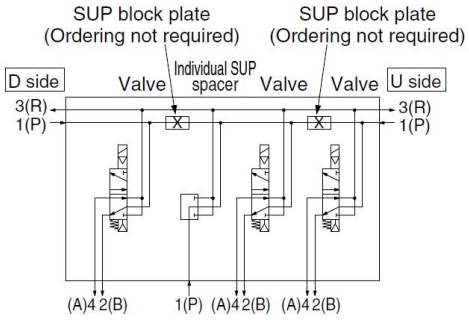


Top ported









Individual EXH spacer

SSQ1000-R-4- C6

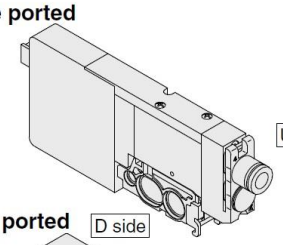
Port size

Side ported	C6	One-touch fittings for ø6
	N7	One-touch fittings for ø1/4"
Top ported	L6	One-touch fittings for ø6
	LN7	One-touch fittings for ø1/4"

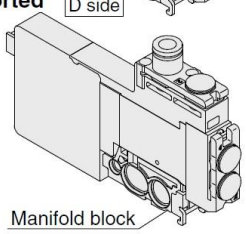
This is used to exhaust an individual valve when the exhaust from a valve interferes with other stations in the circuit (used for one station). Both sides of the station which is to be individually exhausted are shut off. (Refer to application example.)

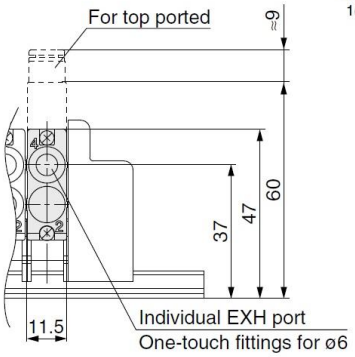
* Specify the spacer mounting position and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit.
  (Two pieces of EXH block plate that shut off the exhaust are included with the individual EXH spacer, therefore, it is not necessary to order them separately.)
* No electrical wiring is connected to the manifold station with the individual EXH spacer.
  When the wiring needs to be connected to the stations with the individual EXH spacer mounted, specify it on the manifold specification sheet.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual EXH spacer to the individual SUP spacer).
* The number of spacers is not limited when ordered with the manifold. However, when adding individual for F, P, and J kits, it is limited to two units, one between manifold stations and another on the U side, due to the length of the lead wire.
* Model no. with manifold block:
  SSQ1000-R-4-$\frac{C6}{L6}$-$\frac{M}{=}$

Side ported

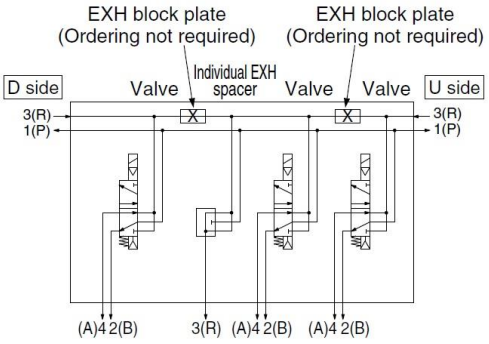


Top ported D side





Description/Model	Stations	1	2	3	4	5
Valve	Single	●		●	●	
	⋮					
Option	Individual EXH spacer SSQ1000-R-4-$\frac{C6}{L6}$		●			
	EXH shut off position: Please specify.	●		●		



Individual SUP/EXH spacer

SSQ1000-PR1-4- C6

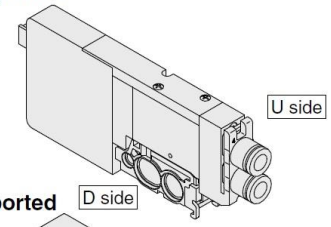
Port size

Side ported	C6	One-touch fittings for ø6
	N7	One-touch fittings for ø1/4"
Top ported	L6	One-touch fittings for ø6
	LN7	One-touch fittings for ø1/4"

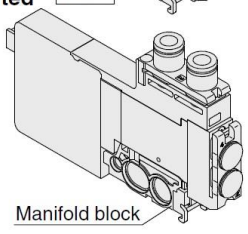
This has both functions of the individual SUP and EXH spacers above.
(Refer to application example.)

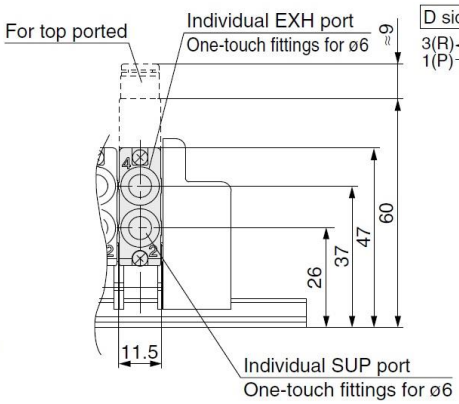
* Specify the spacer mounting position and SUP and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions each for SUP and EXH can be specified per unit.
  (Two pieces each of block plate that shut off the SUP and EXH passages are included with the individual SUP/EXH spacer, therefore, it is not necessary to order them separately.)
* No electrical wiring is connected to the manifold station with the individual SUP/EXH spacer.
  When the wiring needs to be connected to the stations with the individual SUP/EXH spacer mounted, specify it on the manifold specification sheet.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later.
* The number of spacers is not limited when ordered with the manifold. However, when adding individual for F, P, and J kits, it is limited to two units, one between manifold stations and another on the U side, due to the length of the lead wire.
* Model no. with manifold block:
  SSQ1000-PR1-4-$\frac{C6}{L6}$-$\frac{M}{=}$
* Do not install any back pressure check valve on the manifold station, on which the spacer is to be mounted. When installing the back pressure check valve on other manifold station, be sure to specify the manifold station position on the manifold specification sheet instead of ordering by specifying the manifold option symbol "B".

Side ported

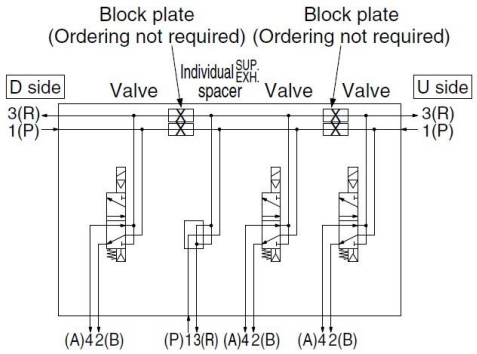


Top ported D side





Description/Model	Stations	1	2	3	4	5
Valve	Single	●		●	●	
	⋮					
Option	Individual SUP/EXH spacer SSQ1000-PR1-4-$\frac{C6}{L6}$		●			
	SUP shut off position: Please specify.	●		●		
	EXH shut off position: Please specify.	●		●		



Manifold Option Parts for SQ1000

SUP block plate

SSQ1000-B-P

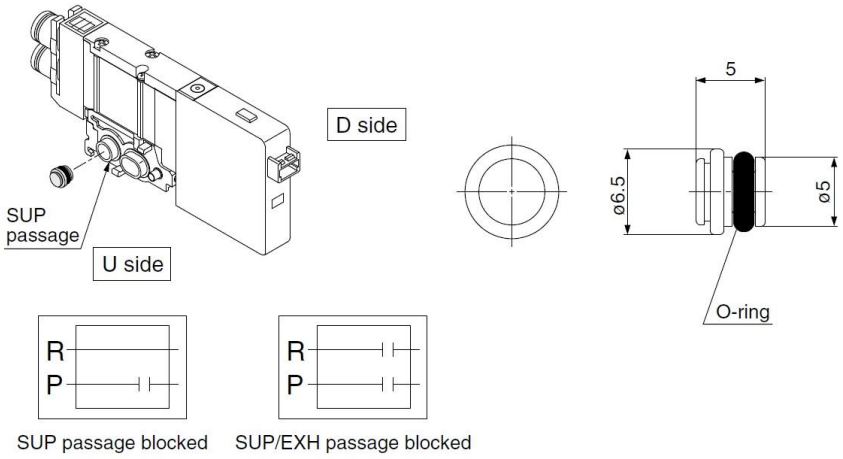
When supplying two different pressures, high and low, to one manifold, this is used between stations with different pressures. Also, it is used with an individual SUP spacer to shut off the air supply.

* Specify the station position on the manifold specification sheet.

<Block indication label>

When using block plates for SUP passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for SUP incorporated with the manifold, a block indication label is attached to the manifold.



EXH block plate

SSQ1000-B-R

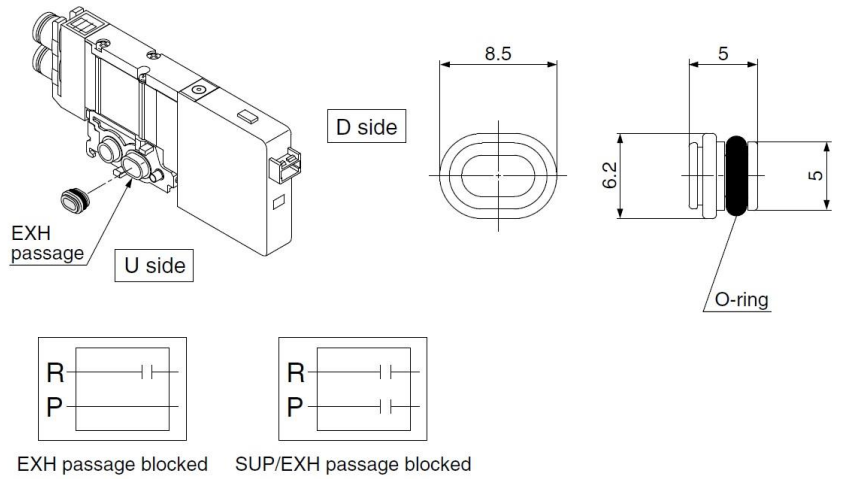
When the exhaust from a valve interferes with other stations in the circuit, this is used between stations to separate exhausts. Also, it is used with an individual EXH spacer to shut off the exhaust of individual valves.

* Specify the station position on the manifold specification sheet.
* Be sure to discharge the exhaust inside the EXH passage from the R port of the SUP/EXH block, etc. so that the exhaust pressure is not sealed.

<Block indication label>

When using block plates for EXH passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for EXH incorporated with the manifold, a block indication label is attached to the manifold.

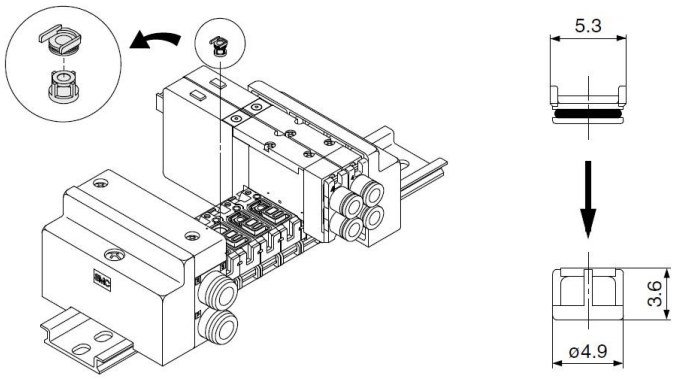


Back pressure check valve [-B]

SSQ1000-BP

It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single action cylinder is used or an exhaust center type solenoid valve is used.

* When a check valve for back pressure prevention is desired, and is to be installed only in certain manifold stations, clearly write the part number and specify the number of stations on the manifold specification sheet.
* When ordering this option incorporated with a manifold, suffix "-B" to the end of the manifold part number.



⚠Caution

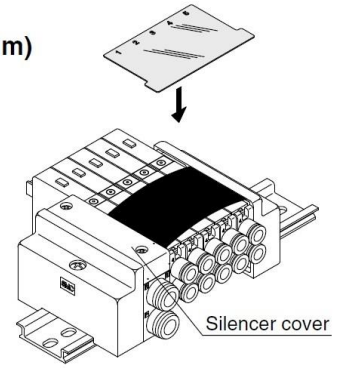
1. The back pressure check valve assembly is assembly parts with a check valve structure. However, as slight air leakage is allowed for the back pressure, take care the exhaust air will not be restricted at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.
3. Since 4 port specification valves (5 (R1) and 3 (R2) are common) are used, back pressure cannot be prevented with dual 3 port valves.

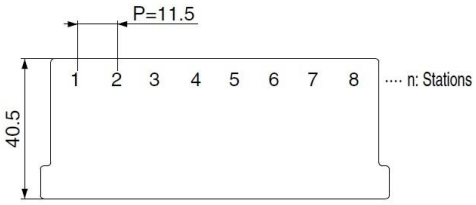
Name plate [-N]

SSQ1000-N3-Stations (1 to maximum)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure. Also, the plate is difficult to bend for manifolds with only a few stations, therefore, remove the silencer cover to install it.

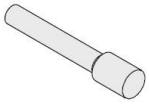
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.



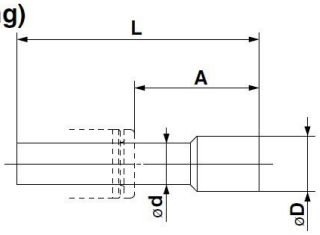


Blanking plug (For One-touch fitting)

KQ2P- 23 / 04 / 06 / 08



It is inserted into an unused cylinder port and SUP/EXH ports.
Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ød	Model	A	L	D
3.2	KQ2P-23	16	31.5	5
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10

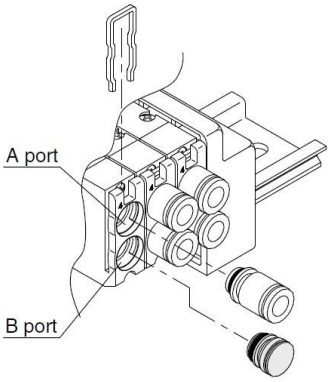
Port plug

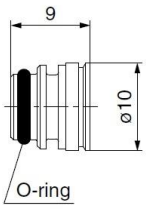
VVQZ100-CP

The plug is used to block the cylinder port when using a 5-port valve as a 3-port valve.

* Add "A" or "B" at the end of the valve part number when ordering with valves.

Example) SQ1141-5L1-C6-A (N.O. specifications)
• 4 (A) port plug
Example) SQ1141-5L1-C6-B (N.C. specifications)
• 2 (B) port plug
Example) SQ1141-5L1-C6-B-M
(B port plug with manifold block)



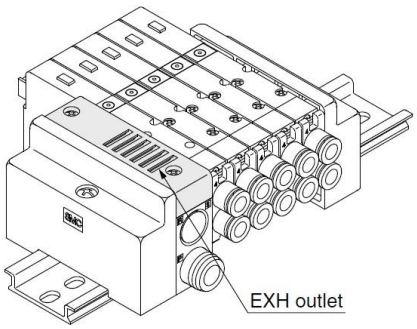


Direct EXH outlet, built-in silencer [-S]

This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)

Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.
* For precautions on handling and how to replace elements, refer to page 10.



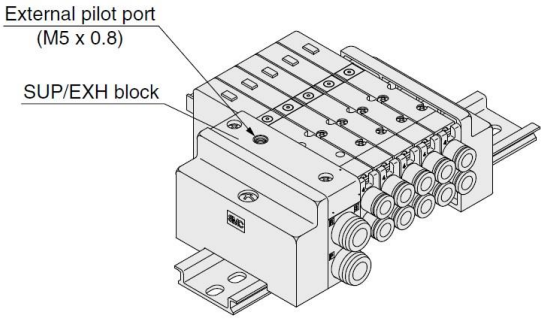
Manifold Option Parts for SQ1000

External pilot specifications [-R]

This can be used when the air pressure is 0.1 to 0.2 MPa lower than the minimum operating pressure of the solenoid valves or used for vacuum specifications.
Add "R" to the part numbers of manifolds and valves to indicate the external pilot specification.
An M5 port will be installed on the top side of the manifold's SUP/EXH block.

● How to order valves (Example)
SQ1140 R -5L1-C6
External pilot specifications

● How to order manifold (Example)
∗ Indicate "R" for an option.
SS5Q14-08FD1-DR
External pilot specifications



Note 1) Not applicable for dual 3 port valves.
Note 2) Valves with the external pilot specifications have a pilot EXH with individual exhaust specifications and EXH can be pressurized. However, the pressure supplied from EXH should be 0.4 MPa or lower.

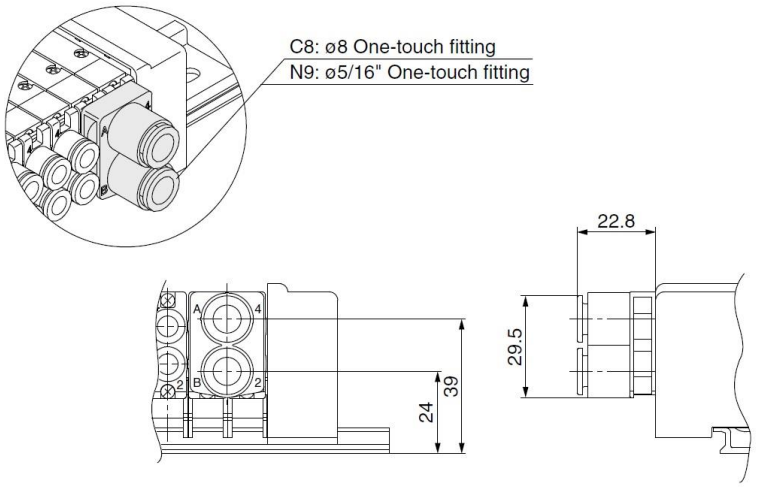
Dual flow fitting

SSQ1000-52A-C8
Port size

C8	ø8
N9	ø5/16"

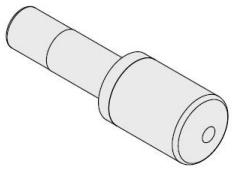
To drive a large bore cylinder, two valve stations are operated simultaneously to double the air flow. This fitting is used on the cylinder ports in this situation. Available sizes are ø8 and ø5/16" One-touch fitting.
∗ When ordering with valves, specify the valve part number without One-touch fitting and list the dual flow fitting part number.

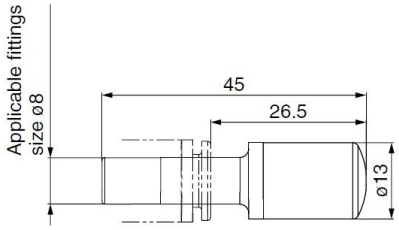
Example) Valve part number (without One-touch fitting part number)
SQ1141-5L1-C0 ····· 2 sets
∗ SSQ1000-52A- C8 / N9 ····· 1 set



Silencer (For EXH port)

This is inserted into the centralized type EXH port (One-touch fitting).





Specifications

Series	Model	Effective area (mm²) (Cv factor)	Noise reduction (dB)
SQ1000	AN15-C08	20 (1.1)	30

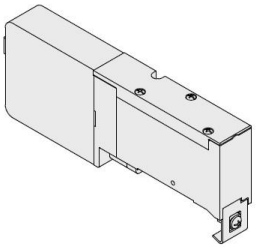
Manifold Option Parts for SQ2000

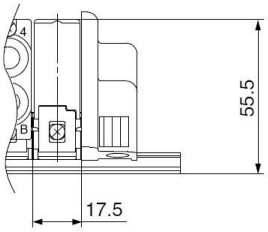
Blanking plate

SSQ2000-10A-4

It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

* Electrical wiring is connected to the manifold station with the blanking plate.





Symbol



SUP/EXH block

SSQ2000-PR-3-C10-□

Port size

C8	One-touch fittings for ø8
C10	One-touch fittings for ø10
N9	One-touch fittings for ø5/16"
N11	One-touch fittings for ø3/8"

Option

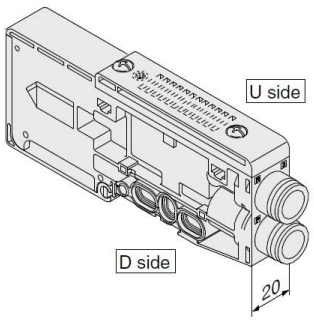
Nil	Standard
R	External pilot specifications
S	Built-in silencer

Note) When specifying both options, indicate "RS".

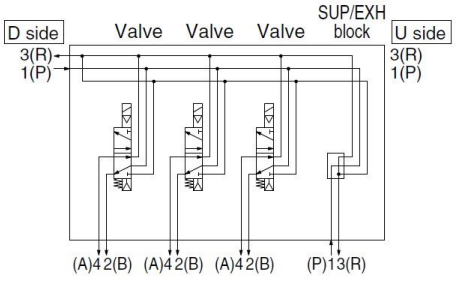
* Specify the spacer mounting position on the manifold specification sheet.

For standard type manifolds, the SUP/EXH block is mounted on the D side.
It is added to the manifold to increase SUP/EXH capacity.

* The number of SUP/EXH blocks that can be added is limited to two sets, one between manifold stations and another on the U side of manifold, due to the length of the lead wire.
* SUP/EXH blocks are not included in the number of manifold stations.



Description/Model	Stations 1	2	3	4	5
Valve: Single	●	●	●		
⋮					
Option: SUP/EXH block SSQ2000-PR-3-C10-□				●	



Individual SUP spacer

SSQ2000-P-4-C8

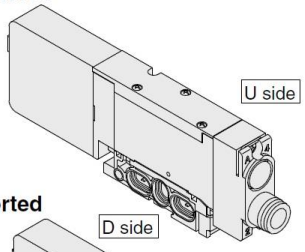
Port size

Side ported	**C8**	One-touch fittings for ø8
	N9	One-touch fittings for ø5/16"
Top ported	**L8**	One-touch fittings for ø8
	LN9	One-touch fittings for ø5/16"

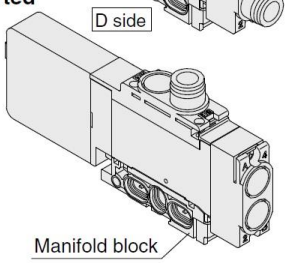
This is used as a supply port for different pressures when using different pressures in the same manifold (for one station).
Both sides of the station which is used with supply pressure from the individual SUP spacer are shut off. (Refer to application example.)

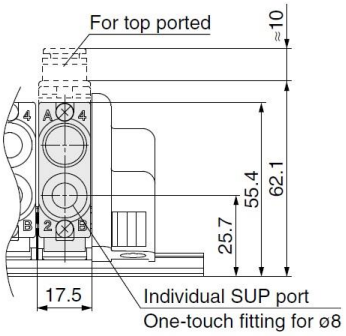
* Specify the spacer mounting position and SUP passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit.
  (Two pieces of SUP block plate that shut off the supply pressure are included with the individual SUP spacer, therefore, it is not necessary to order them separately.)
* No electrical wiring is connected to the manifold station with the individual SUP spacer.
  When the wiring needs to be connected to the stations with the individual SUP spacer mounted, specify it on the manifold specification sheet.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual SUP spacer to the individual EXH spacer).
* The number of spacers is not limited when ordered with the manifold. However, when adding individual for F, P, and J kits, it is limited to two units, one between manifold stations and another on the U side, due to the length of the lead wire.
* Model no. with manifold block:
  SSQ2000-P-4-$\frac{C8}{L8}$-M

Side ported

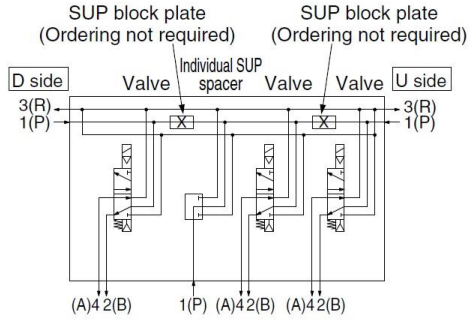


Top ported





Description/Model	Stations 1	2	3	4	5
Valve: Single	●		●	●	
⋮					
Option: Individual SUP spacer SSQ2000-P-4-$\frac{C8}{L8}$		●			
SUP shut off position: Please specify.	●		●		



Manifold Option Parts for SQ2000

Individual EXH spacer

SSQ2000-R-4-C8

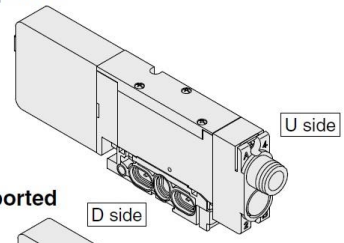
Port size

Side ported	**C8**	One-touch fittings for ø8
	N9	One-touch fittings for ø5/16"
Top ported	**L8**	One-touch fittings for ø8
	LN9	One-touch fittings for ø5/16"

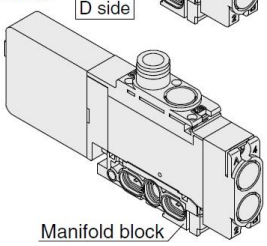
This is used to exhaust an individual valve when the exhaust from a valve interferes with other stations in the circuit (used for one station). Both sides of the station which is to be individually exhausted are shut off. (Refer to application example.)

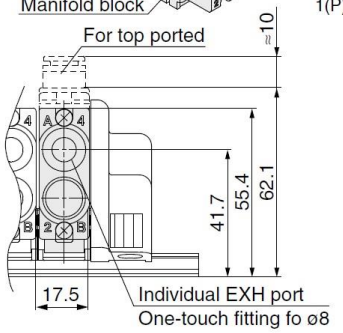
* Specify the spacer mounting position and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions can be specified per unit.
  (Four pieces of EXH block plate that shut off the exhaust are included with the individual EXH spacer, therefore, it is not necessary to order them separately.)
* No electrical wiring is connected to the manifold station with the individual EXH spacer.
  When the wiring needs to be connected to the stations with the individual EXH spacer mounted, specify it on the manifold specification sheet.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later (from the individual EXH spacer to the individual SUP spacer)
* The number of spacers is not limited when ordered with the manifold. However, when adding individual for F, P, and J kits, it is limited to two units, one between manifold stations and another on the U side, due to the length of the lead wire.
* Model no. with manifold block:
  SSQ2000-R-4-$\frac{C8}{L8}$-M$\square\square$

Side ported

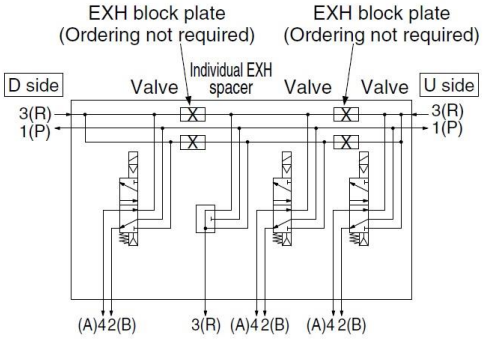


Top ported





Description/Model	Stations 1	2	3	4	5
Valve: Single	●		●	●	
Valve: ⋮					
Option: Individual EXH spacer SSQ2000-R-4-$\frac{C8}{L8}$		●			
Option: EXH shut off position: Please specify.	●		●		



Individual SUP/EXH spacer

SSQ2000-PR1-4-C8

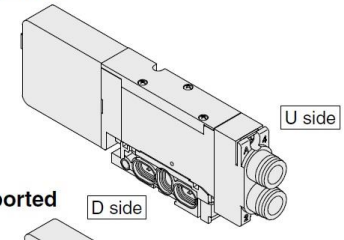
Port size

Side ported	**C8**	One-touch fittings for ø8
	N9	One-touch fittings for ø5/16"
Top ported	**L8**	One-touch fittings for ø8
	LN9	One-touch fittings for ø5/16"

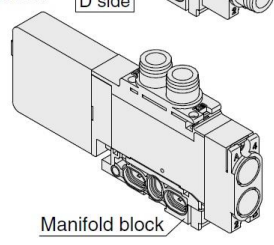
This has both functions of the individual SUP and EXH spacers above. (Refer to application example.)

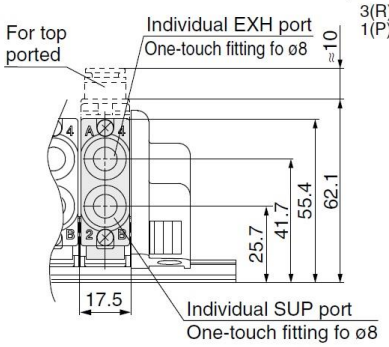
* Specify the spacer mounting position and SUP and EXH passage shut off positions on the manifold specification sheet. Up to two shut off positions each for SUP and EXH can be specified per unit.
  [Block plates that shut off the SUP and EXH passages are included with the individual SUP/EXH spacer, therefore, it is not necessary to order them separately (2 pcs. of SUP block plate and 4 pcs. of EXH block plate).]
* No electrical wiring is connected to the manifold station with the individual SUP/EXH spacer.
  When the wiring needs to be connected to the stations with the individual SUP/EXH spacer mounted, specify it on the manifold specification sheet.
* By changing the fitting shown in the drawing and the block plates, the spacer's specification can be changed later.
* The number of spacers is not limited when ordered with the manifold. However, when adding individual for F, P, and J kits, it is limited to two units, one between manifold stations and another on the U side, due to the length of the lead wire.
* Model no. with manifold block:
  SSQ2000-PR1-4-$\frac{C8}{L8}$-M$\square\square$
* Do not install any back pressure check valve on the manifold station, on which the spacer is to be mounted. When installing the back pressure check valve on other manifold station, be sure to specify the manifold station position on the manifold specification sheet instead of ordering by specifying the manifold option symbol "B".

Side ported

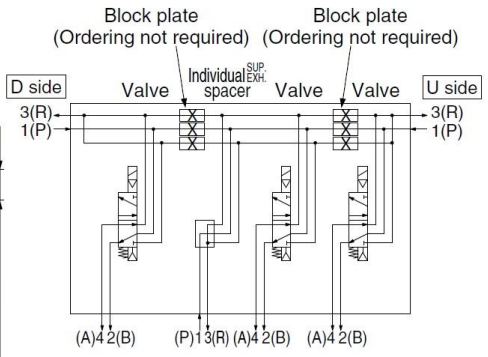


Top ported





Description/Model	Stations 1	2	3	4	5
Valve: Single	●		●	●	
Valve: ⋮					
Option: Individual SUP/EXH spacer SSQ2000-PR1-4-$\frac{C8}{L8}$		●			
Option: SUP shut off position: Please specify.	●		●		
Option: EXH shut off position: Please specify.	●		●		



SUP block plate

SSQ1000-B-R

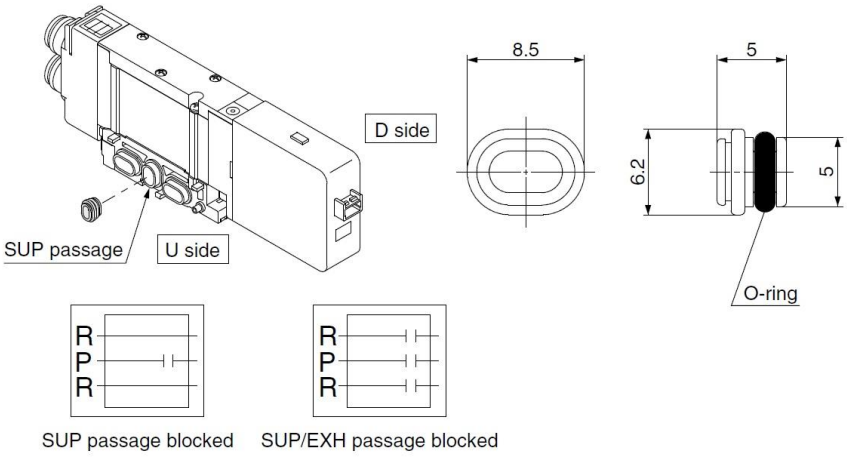
When supplying two different pressures, high and low, to one manifold, this is used between stations with different pressures. Also, it is used with an individual SUP spacer to shut off the air supply.

* Specify the station position on the manifold specification sheet.

<Block indication label>

When using block plates for SUP passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for SUP incorporated with the manifold, a block indication label is attached to the manifold.



EXH block plate

SSQ2000-B-R

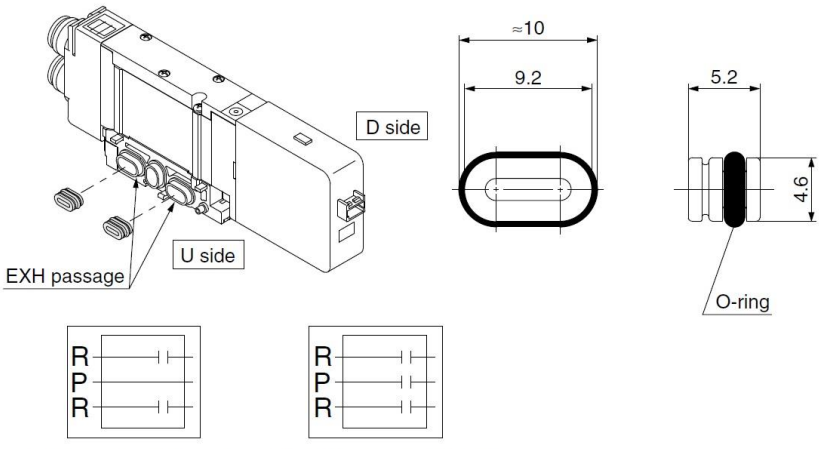
When the exhaust from a valve interferes with other stations in the circuit, this is used between stations to separate exhausts. Also, it is used with an individual EXH spacer to shut off the exhaust of individual valves.

* Specify the station position on the manifold specification sheet.
* Be sure to discharge the exhaust inside the EXH passage from the R port of the SUP/EXH block, etc. so that the exhaust pressure is not sealed.

<Block indication label>

When using block plates for EXH passage, indication label for confirmation of the blocking position from outside is attached. (One label of each)

* When ordering a block plate for EXH incorporated with the manifold, a block indication label is attached to the manifold.

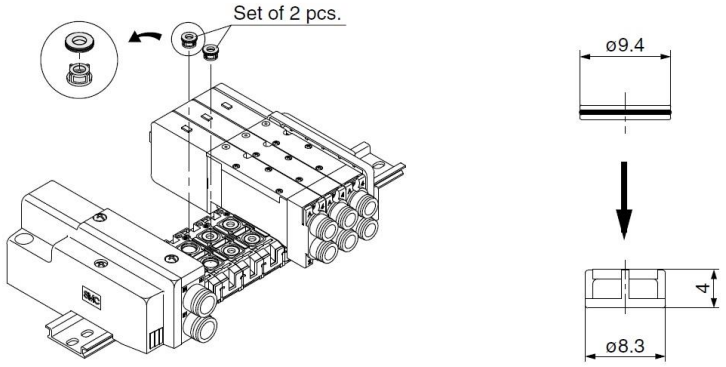


Back pressure check valve [-B]

SSQ2000-BP

It prevents cylinder malfunction caused by other valve exhaust. Insert it into R (EXH) port on the manifold side of a valve which is affected. It is effective when a single action cylinder is used or an exhaust center type solenoid valve is used.

* When a check valve for back pressure prevention is desired, and is to be installed only in certain manifold stations, clearly write the part number and specify the number of stations on the manifold specification sheet.
* When ordering this option incorporated with a manifold, suffix "-B" to the end of the manifold part number.



⚠Caution

1. The back pressure check valve assembly is assembly parts with a check valve structure. However, as slight air leakage is allowed for the back pressure, take care the exhaust air will not be restricted at the exhaust port.
2. When a back pressure check valve is mounted, the effective area of the valve will decrease by about 20%.

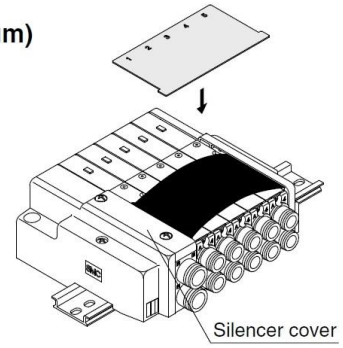
Manifold Option Parts for SQ2000

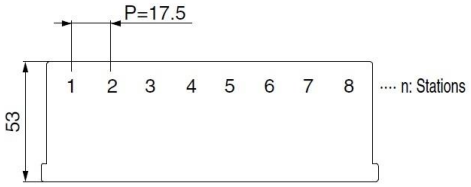
Name plate [-N]

SSQ2000-N3-Stations (1 to maximum)

It is a transparent resin plate for placing a label that indicates solenoid valve function, etc.
Insert it into the groove on the side of the end plate and bend it as shown in the figure. Also, the plate is difficult to bend for manifolds with only a few stations, therefore, remove the silencer cover to install it.

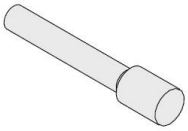
* When ordering this option incorporated with a manifold, suffix "-N" to the end of the manifold part number.



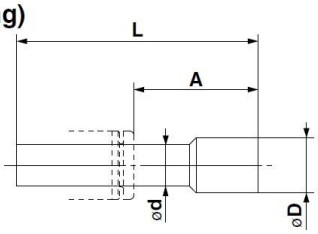


Blanking plug (For One-touch fitting)

KQ2P- 04 / 06 / 08 / 10



It is inserted into an unused cylinder port and SUP/EXH ports.
Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ø**d**	Model	**A**	**L**	**D**
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12

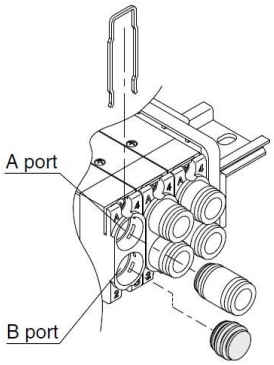
Port plug

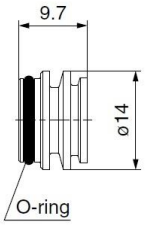
VVQZ2000-CP

The plug is used to block the cylinder port when using a 5-port valve as a 3-port valve.

* Add "A" or "B" at the end of the valve part number when ordering with valves.

Example) SQ2141-5L1-C8-A (N.O. specifications)
• 4(A) port plug
Example) SQ2141-5L1-C8-B (N.C. specifications)
• 2(B) port plug
Example) SQ2141-5L1-C8-B-M
(B port plug with manifold block)



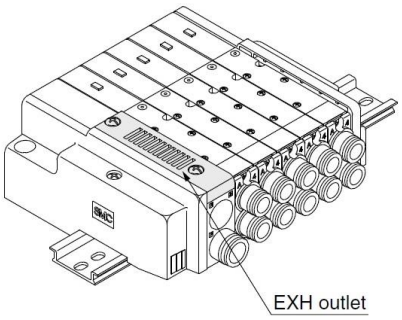


Direct EXH outlet, built-in silencer [-S]

This is a type with an exhaust port atop the manifold end plate. The built-in silencer exhibits an excellent noise suppression effect. (Noise reduction: 30 dB)

Note) A large quantity of drainage generated in the air source results in exhaust of air together with drainage.

* When ordering this option incorporated with a manifold, suffix "-S" to the end of the manifold part number.
* For precautions on handling and how to replace elements, refer to page 10.

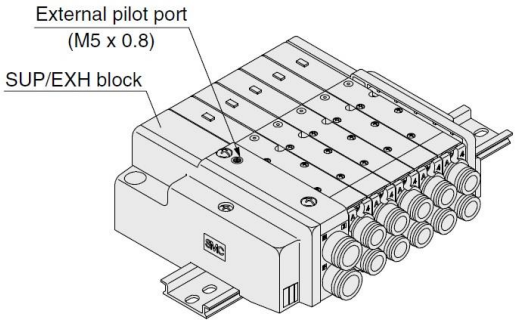


External pilot specifications [-R]

This can be used when the air pressure is 0.1 to 0.2 MPa lower than the minimum operating pressure of the solenoid valves or used for vacuum specifications.
Add "R" to the part numbers of manifolds and valves to indicate the external pilot specifications.
An M5 port will be installed on the top side of the manifold's SUP/EXH block.

● How to order valves (Example)
SQ2140 R -5L1-C6
• External pilot specifications

● How to order manifold (Example)
* Indicate "R" for an option.
SS5Q24-08FD1-DR
• External pilot specifications



Note 1) Not applicable for dual 3 port valves.
Note 2) Valves with the external pilot specifications have a pilot EXH with individual exhaust specifications and EXH can be pressurized. However, the pressure supplied from EXH should be 0.4 MPa or lower.

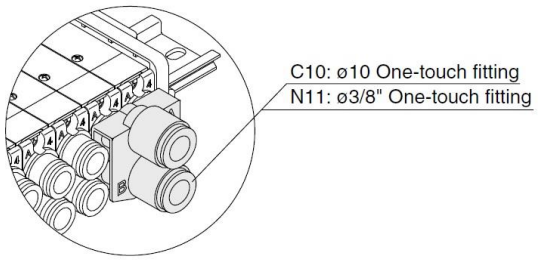
Dual flow fitting

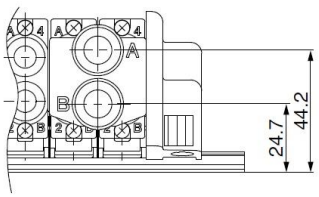
SSQ2000-52A-C10
• **Port size**

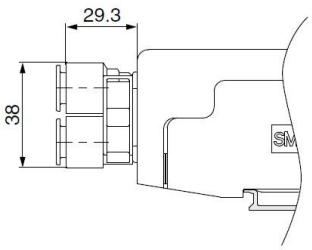
C10	ø10
N11	ø3/8"

To drive a large bore cylinder, two valve stations are are operated simultaneously to double the air flow.This fitting is used on the cylinder ports in this situation. Available sizes are ø10 and ø3/8" One-touch fittings.
* When ordering with valves, specify the valve part number without One-touch fitting and list the dual flow fitting part number.

Example) Valve part number (without Onetouch fitting)
SQ2141-5L1-C0 ····· 2 sets
* SSQ2000-52A-C10/N11 ····· 1 set

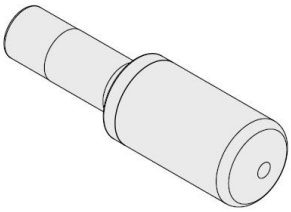


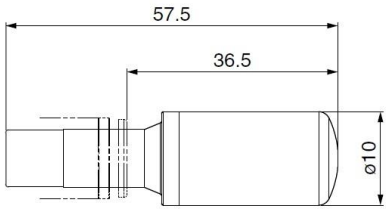




Silencer (For EXH port)

This is inserted into the centralized type EXH port (One-touch fitting).





Specifications

Series	Model	Effective area (mm²) (Cv factor)	Noise reduction (dB)
SQ2000	AN20-C10	30 (1.6)	30

Manifold Option for SQ1000/2000

Special Wiring Specifications

In the internal wiring of F kit and P kit, double wiring (connected to SOL. A and SOL. B) is adopted for each station regardless of the valve and option types. Mixed wiring of single and double wiring can be specified for the wiring specification.

1. How to order

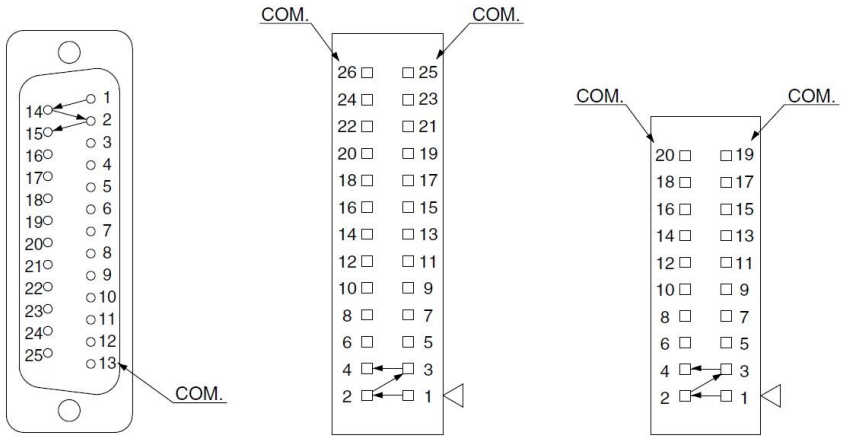
Indicate option symbol " -K " in the manifold part number and be sure to specify station positions for single or double wiring on the manifold specification sheet.

Example) **SS5Q14 - 09 FD0 - DKS**

• Others, option symbols: to be indicated alphabetically.

2. Wiring specifications

Connector terminal numbers are connected from solenoid station 1 on the A side in the order indicated by the arrows without skipping any terminal numbers.



F kit
D-sub connector
(for 25P)

P kit
Flat ribbon cable connector
(for 26 P)

P kit
Flat ribbon cable connector
(for 20P)

3. Maximum stations

The maximum number of manifold stations is determined by the number of solenoids. Count one point for a single solenoid type and two points for a double solenoid type. Determine the number of stations so that the total number of solenoids is no more than the maximum points in the table below.

Kit	**F kit** (D-sub connector)	**P kit** (Flat ribbon cable connector)	
Type	FD□ 25P	PD□ 26P	PDC 20P
Max. points	24 points	24 points	18 points

Note) Maximum stations ···· SQ1000: 24 stations
SQ2000: 16 stations

Special DIN Rail Length (DIN Rail Mounting (-D) Only)

The standard DIN rail provided is approximately 30 mm longer than the overall length of the manifold with a specified number of stations.
The following options are also available.

● DIN rail length longer than the standard type (for stations to be added later, etc.)

In the manifold part number, specify "-D" for the manifold mounting symbol and add the number of required stations after the symbol.

Example) **SS5Q14- 08FD0 - D09BNK**

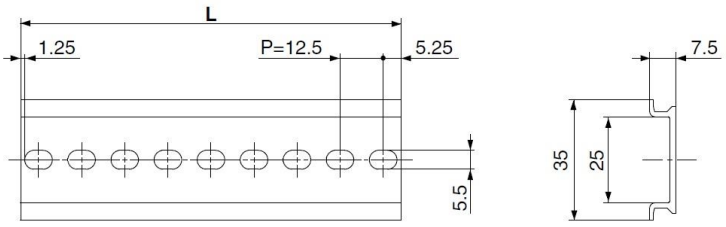
- 8 station manifold
- Option symbols (alphabetically)
- DIN rail for 9 stations

● Ordering DIN rail only

DIN rail part number

AXT100- DR - n

Note) For "n", enter a number from the "No." line in the table below.
For L dimension, refer to the dimensions of each kit.



L Dimension

L = 12.5 x n + 10.5

No.	1	2	3	4	5	6	7	8	9	10
L dimension	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5

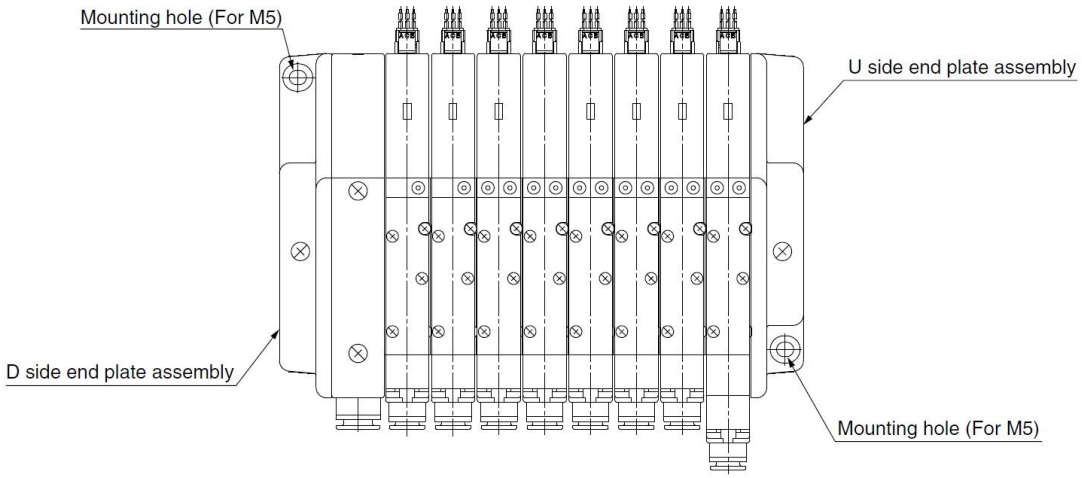
No.	11	12	13	14	15	16	17	18	19	20
L dimension	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

No.	21	22	23	24	25	26	27	28	29	30
L dimension	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5

No.	31	32	33	34	35	36	37	38	39	40
L dimension	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Direct Mounting Type (-E) (SQ2000 C Kit Only)

Manifold is mounted by using mounting holes of both sides of the manifold.
DIN rail is not sticking out of the edge of end plate.
Furthermore, the reinforcing part that comes to the bottom of the DIN rail is attached to the end plate assembly.



Manifold Option for SQ1000/2000

Negative Common Specifications

The following valve part numbers are for negative common specifications. Manifold part numbers are the same as standard.

● How to order negative common valves (Example)

SQ1140 N -5L1-C6

• Negative common specifications

Inch-size One-touch Fittings

For One-touch fittings in inch sizes, use the following part numbers. Also, the color of the release button is orange.

● How to order valves (Example)

SQ1140-5L1-□ N7

Port location • **Cylinder port**

Nil	Side ported
L	Top ported

Symbol		N1	N3	N7	N9
Applicable tubing O.D. (Inch)		ø1/8"	ø5/32"	ø1/4"	ø5/16"
4(A), 2(B) port	**SQ1000**	●	●	●	—
	SQ2000	—	●	●	●

● How to order manifold (Example)

Add "00T" at the end of the part number.

SS5Q14-08 FD0 -DN -00T

• 1 (P), 3 (R) port in inch size
{ SQ1000: ø5/16" (N9)
{ SQ2000: ø3/8" (N11)

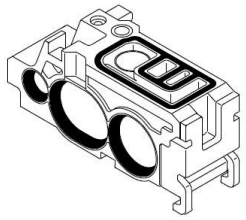
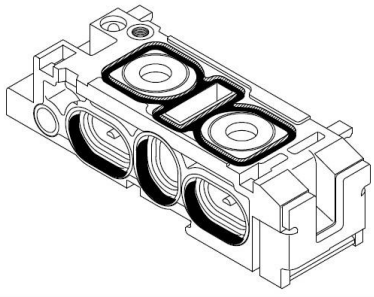
How to Increase Manifold Stations for SQ1000/2000

1. How to Increase Manifold Stations

What to order

• Valves with manifold block or the manifold blocks shown below. For F kit, and P kit, also order the lead wire assemblies in the next section.

Manifold Block Part No.

SQ1000	SQ2000
	
SSQ1000−1A−4−□	**SSQ2000−1A−4−□**

Option •

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

How to Increase Manifold Stations for SQ1000/2000

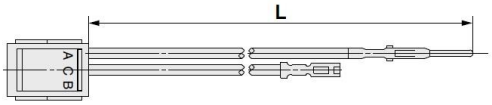
For F kit, P kit

What to order: Lead wire assembly

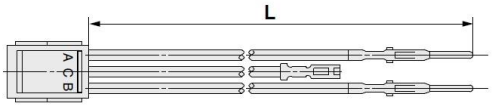
SQ1000

D-sub connector kit (F kit)

● For single wiring **SSQ1000−40A−F−205**



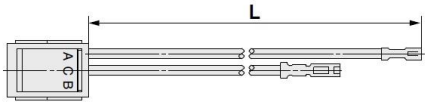
● For double wiring **SSQ1000−41A−F−280**



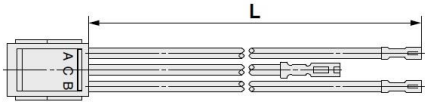
Stations	Symbol (L dimension)	Stations	Symbol (L dimension)
Station 2	165	Station 14	320
Station 3	175	Station 15	335
Station 4	190	Station 16	350
Station 5	205	Station 17	365
Station 6	215	Station 18	375
Station 7	230	Station 19	385
Station 8	245	Station 20	400
Station 9	260	Station 21	405
Station 10	280	Station 22	420
Station 11	290	Station 23	435
Station 12	300	Station 24	450
Station 13	310		

Flat ribbon cable kit (P kit)

● For single wiring **SSQ1000−40A−P−200**



● For double wiring **SSQ1000−41A−P−275**

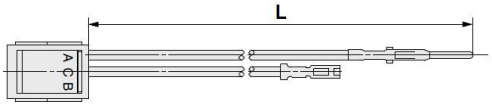


Stations	Symbol (L dimension)	Stations	Symbol (L dimension)
Station 2	160	Station 14	315
Station 3	170	Station 15	330
Station 4	185	Station 16	345
Station 5	200	Station 17	360
Station 6	210	Station 18	370
Station 7	225	Station 19	380
Station 8	240	Station 20	395
Station 9	255	Station 21	400
Station 10	275	Station 22	415
Station 11	285	Station 23	430
Station 12	295	Station 24	445
Station 13	305		

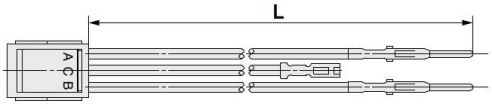
SQ2000

D-sub connector kit (F kit)

● For single wiring **SSQ1000−40A−F−250**



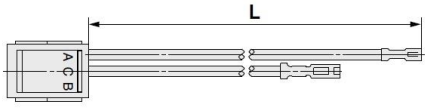
● For double wiring **SSQ1000−41A−F−350**



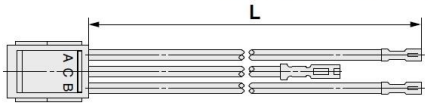
Stations	Symbol (L dimension)	Stations	Symbol (L dimension)
Station 2	190	Station 14	430
Station 3	210	Station 15	450
Station 4	230	Station 16	470
Station 5	250	Station 17	490
Station 6	270	Station 18	510
Station 7	290	Station 19	530
Station 8	310	Station 20	550
Station 9	330	Station 21	570
Station 10	350	Station 22	590
Station 11	370	Station 23	610
Station 12	390	Station 24	630
Station 13	410		

Flat ribbon cable kit (P kit)

● For single wiring **SSQ1000−40A−P−250**



● For double wiring **SSQ1000−41A−P−350**



Stations	Symbol (L dimension)	Stations	Symbol (L dimension)
Station 2	190	Station 14	430
Station 3	210	Station 15	450
Station 4	230	Station 16	470
Station 5	250	Station 17	490
Station 6	270	Station 18	510
Station 7	290	Station 19	530
Station 8	310	Station 20	550
Station 9	330	Station 21	570
Station 10	350	Station 22	590
Station 11	370	Station 23	610
Station 12	390	Station 24	630
Station 13	410		

How to Increase Manifold Stations for SQ1000/2000

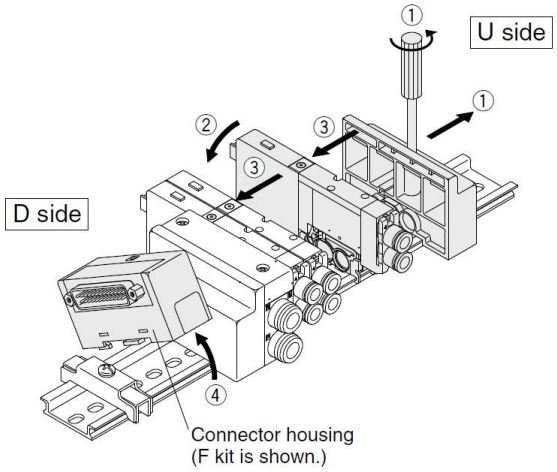
Steps for adding stations

① Loosen the clamp screw on the U side end plate and open the manifold.

② Mount the manifold block or valve with manifold block to be added.

③ Press on the end plate to eliminate any space between the manifold blocks and tighten the clamp screw.
(Proper tightening torque: 0.8 to 1.0 N·m)

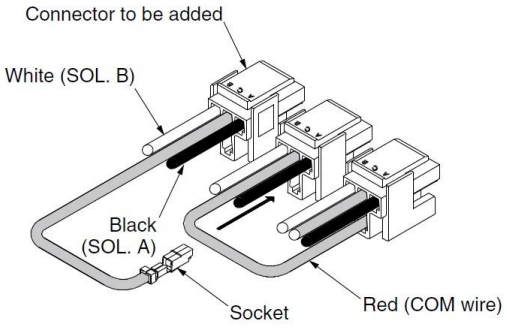
④ In the case of F kit or P kit, remove the connector housing from the DIN rail and connect the wiring.



2. Connection Method

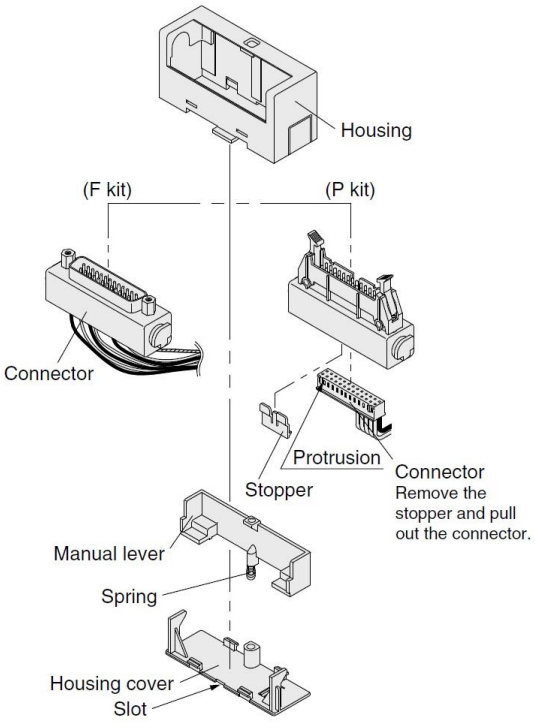
(1) Connecting common wire

Insert the red lead wire (common wire) of the connector to be added into the adjacent connector as shown in the drawing below. After inserting, lightly pull on the wire to confirm that the socket is locked.



(2) Pulling out connector

Pull out the connector to connect the lead wires for SOL. A and SOL. B. Insert a flat head screwdriver into the slot of the housing cover and remove it.
Remove the manual lever and pull out the connector.



F, P kit

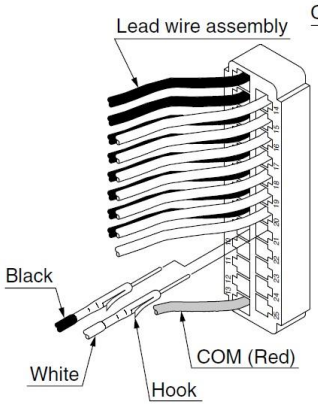
(3) Connector connection/Connect the black and white lead wire pins to the positions shown below in accordance with each kit.

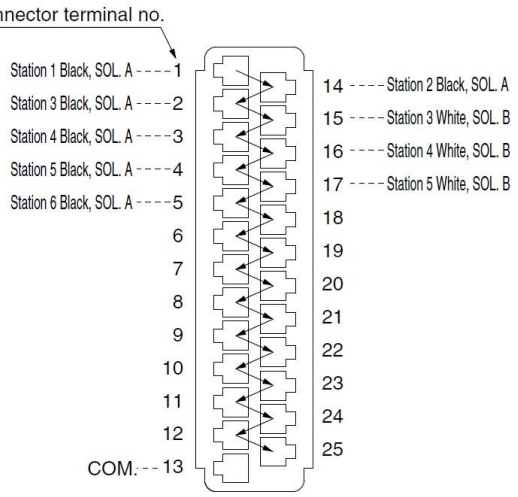
⚠Caution 1. After inserting the pin, confirm that the pin hook is locked by lightly pulling the lead wire.

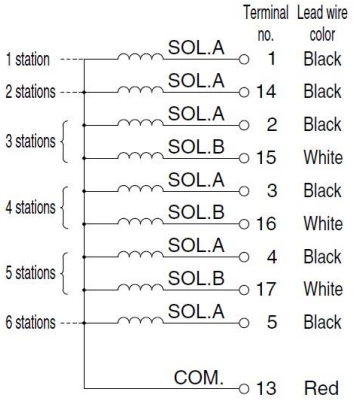
2. Do not pull the lead wire forcefully when connecting. Also, take care that lead wires do not get caught between manifolds or when remounting the housing.

Wiring (F Kit: D-sub Connector Kit)

Procedure) Based on the manifold specifications, station 1 of SOL.A (black wire) will be terminal number 1 of the D-sub connector, and for station 2 and thereafter, connect black wires, then white wires in the order as shown below by the arrows.







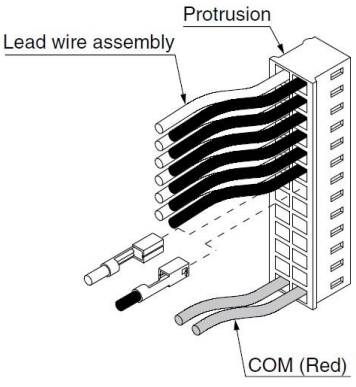
Manifold Specifications' Example

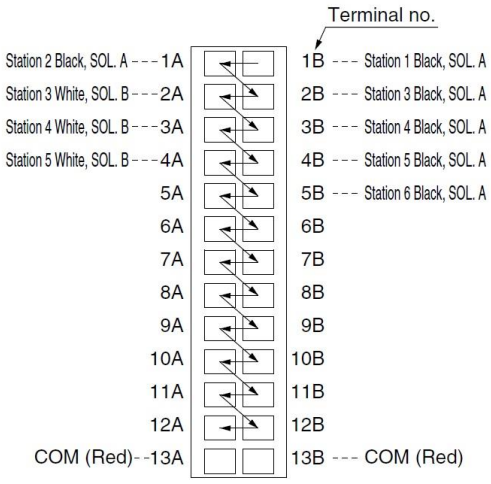
Stations	1	2	3	4	5	6
Single wiring	○	○				○
Double wiring			○	○	○	

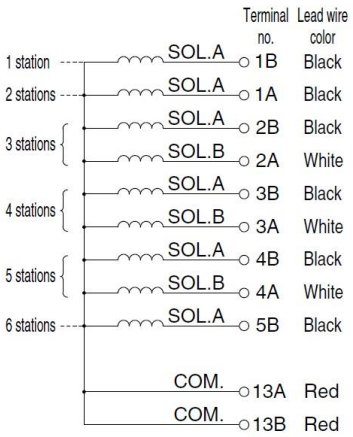
* The drawing above shows connections based on the manifold specifications' example in the table to the left.

Wiring (P Kit: Flat Ribbon Cable Kit)

Procedure) Based on the manifold specifications, station 1 of SOL.A (black wire) will be terminal number 1B of the flat ribbon cable connector, and for station 2 and thereafter, connect black wires, then white wires in the order as shown below by the arrows.







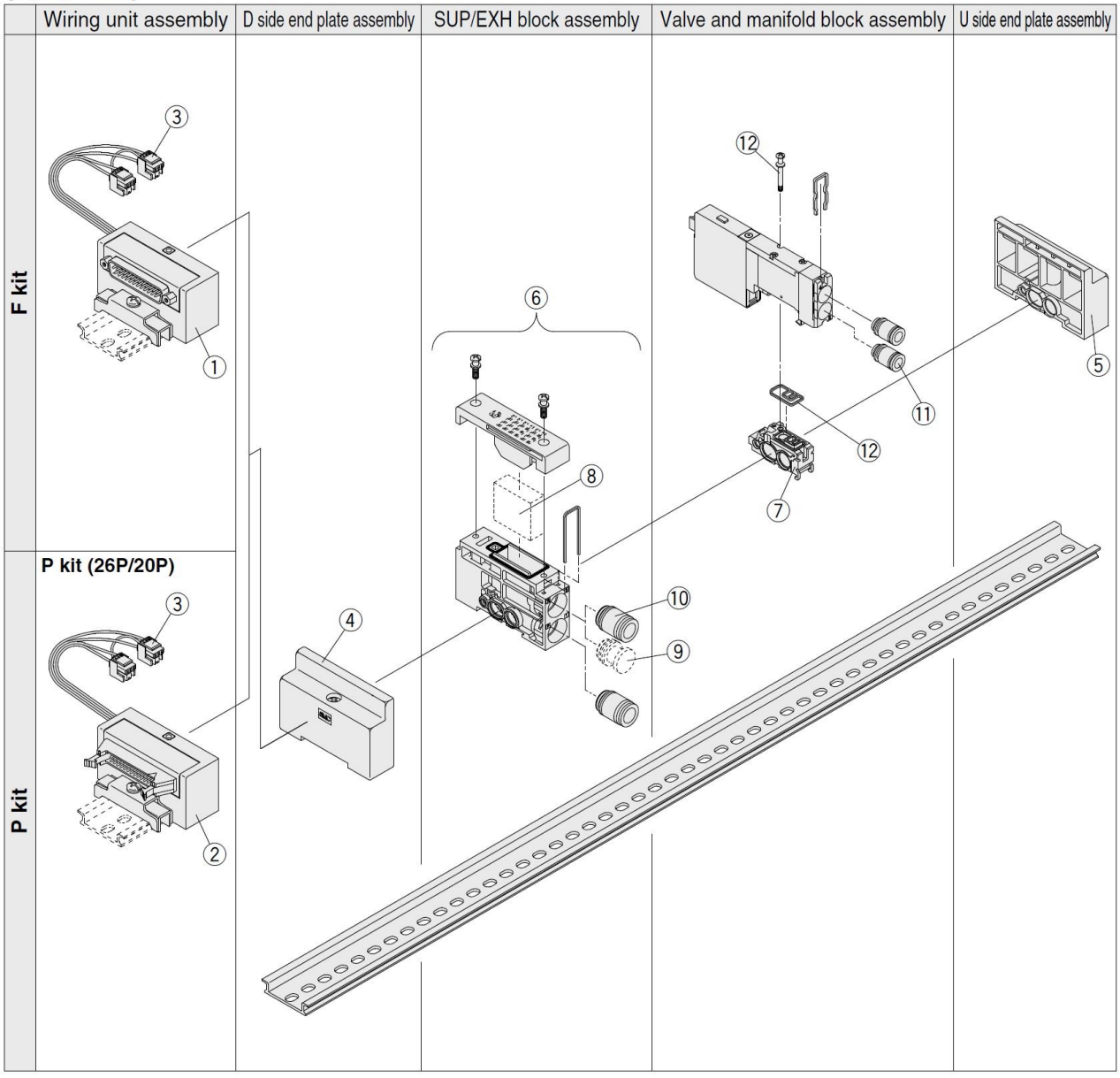
Manifold Specifications' Example

Stations	1	2	3	4	5	6
Single wiring	○	○				○
Double wiring			○	○	○	

* The drawing above shows connections for type 26P flat ribbon cable connector based on the manifold specifications' example in the table to the left.
For type 20P, the connection will be the same as above except that COM changes to 10A and 10B.

Manifold Exploded View: SQ1000 (Plug Lead Type Manifold) SS5Q14

(F, P, C kit)



Manifold Spare Parts

Refer to pages 55 to 57 of "How to Increase Manifold Stations" regarding the mounting of each spare parts.

<① D-sub connector housing assembly>

AXT100 − 40 − FL25 − [S] [03]

Wiring

S	Single wiring
D	Double wiring

Stations

01	For 1 station
⋮	⋮
24	For 24 stations

<② Flat ribbon cable connector housing assembly>

AXT100 − 40 − PL26 / PL20 − [S] [03]

Wiring

S	Single wiring
D	Double wiring

Stations Note)

01	For 1 station
⋮	⋮
24	For 24 stations

Note)
PL26: 01 to 24 (P kit, 26P)
PL20: 01 to 18 (P kit, 20P)

<③ Lead wire assembly>

(For F kit)

For station 1 **SSQ1000 − 4 [1] B − F − 155**

Wiring

0	For single (2-wire)
1	For double (3-wire)

For station 2 to 24 **SSQ1000 − 4 [1] A − F − [205]**

Wiring

0	For single (2-wire)
1	For double (3-wire)

Lead wire length

Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)
Station 2	165	Station 8	245	Station 14	320	Station 20	400
Station 3	175	Station 9	260	Station 15	335	Station 21	405
Station 4	190	Station 10	280	Station 16	350	Station 22	420
Station 5	205	Station 11	290	Station 17	365	Station 23	435
Station 6	215	Station 12	300	Station 18	375	Station 24	450
Station 7	230	Station 13	310	Station 19	385		

(For P kit)

For station 1 **SSQ1000 − 4 [1] B − P − 150**

Wiring

0	For single (2-wire)
1	For double (3-wire)

For station 2 to 24 **SSQ1000 − 4 [1] A − P − [200]**

Wiring

0	For single (2-wire)
1	For double (3-wire)

Lead wire length

Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)
Station 2	160	Station 8	240	Station 14	315	Station 20	395
Station 3	170	Station 9	255	Station 15	330	Station 21	400
Station 4	185	Station 10	275	Station 16	345	Station 22	415
Station 5	200	Station 11	285	Station 17	360	Station 23	430
Station 6	210	Station 12	295	Station 18	370	Station 24	445
Station 7	225	Station 13	305	Station 19	380		

(For C kit)

AXT661 − 1 [3] AL − [ ]

Wiring

3	For double (3-wire)
4	For single (2-wire)

Lead wire length

Symbol	L dimension (mm)
Nil	300
6	600
10	1000
15	1500
20	2000
25	2500
30	3000
50	5000

<④ D side end plate assembly>

SSQ1000 − 3A − 4

<⑤ U side end plate assembly>

SSQ1000 − 2A − 4

<⑥ SUP/EXH block assembly>

SSQ1000 − PR − 4 − [C8] − [ ]

Port size

C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"

Option

Nil	Common exhaust type
R	External pilot
S	Built-in silencer, direct exhaust

Note) Enter "-RS" for both options.

<⑦ Manifold block assembly>

SSQ1000 − 1A − 4 − [ ] Including gaskets ⑫

Option

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

<⑧ Element>

SSQ1000 − SE

Note) Part number for a 10 piece set of elements. Refer to page 10 for replacement procedures.

<⑨ Port plug>

VVQZ2000 − CP

<⑩ Fitting assembly>

(For P, R port)

VVQ1000 − 51A − [C8]

Port size

C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"

Note) Purchasing order is available in units of 10 pieces.

<⑪ Fitting assembly>

(For cylinder port)

VVQ1000 − 50A − [C6]

Port size

C3	One-touch fitting for ø3.2
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6
M5	M5 thread
N1	One-touch fitting for ø1/8"
N3	One-touch fitting for ø5/32"
N7	One-touch fitting for ø1/4"

Note) Purchasing order is available in units of 10 pieces.

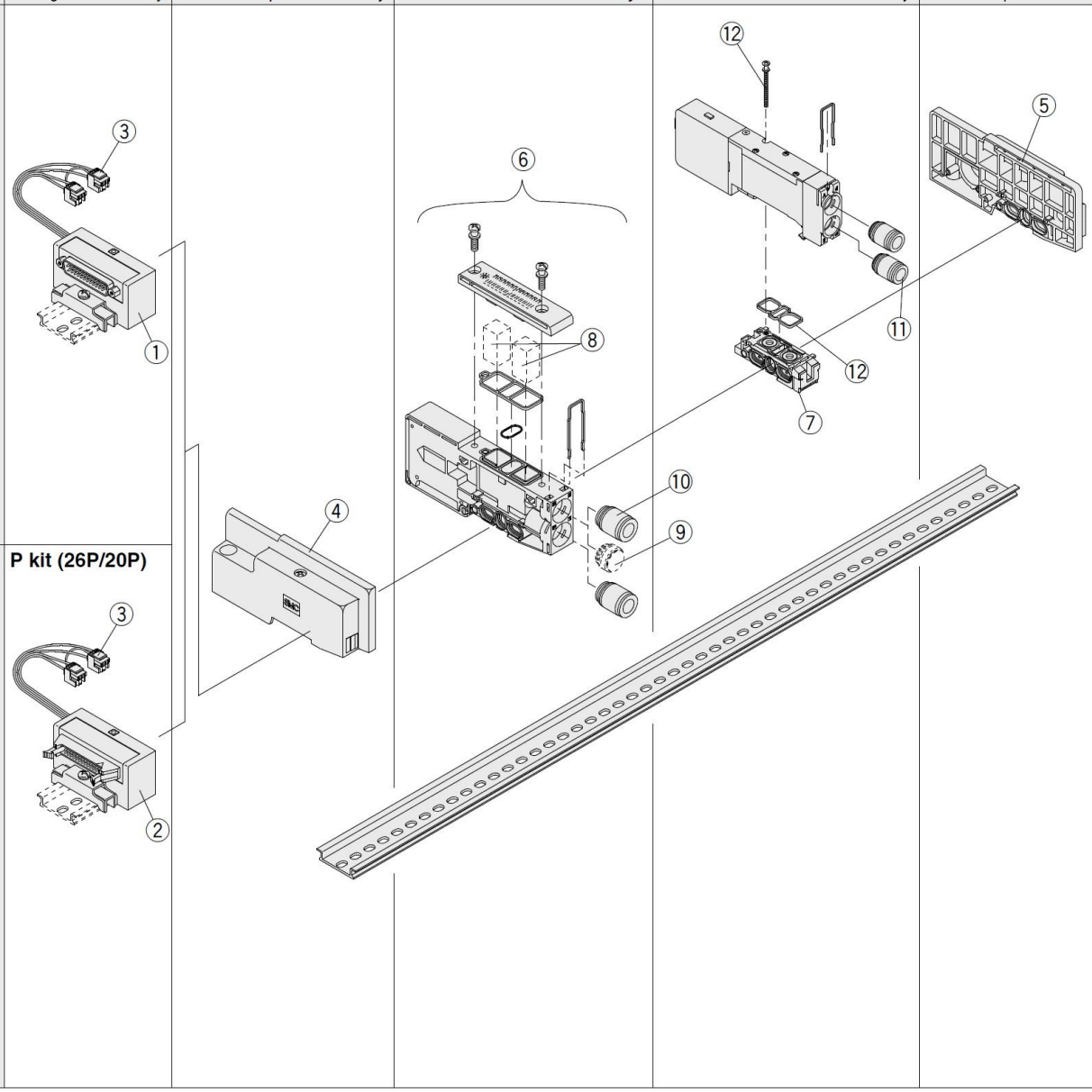
<⑫ Gasket and screw assembly>

SQ1000 − GS

Note) Part number for 10 pieces each of gaskets and screws.

Manifold Exploded View: SQ2000 (Plug Lead Type Manifold) SS5Q24

(F, P, C kit)

	Wiring unit assembly	D side end plate assembly	SUP/EXH block assembly	Valve and manifold block assembly	U side end plate assembly
F kit					
P kit	P kit (26P/20P)				

Manifold Spare Parts

Refer to pages 55 to 57 of "How to Increase Manifold Stations" regarding the mounting of each spare parts.

<① D-sub connector housing assembly>

AXT100 – 41 – FL25 – [S] [03]

Wiring

S	Single wiring
D	Double wiring

Stations

01	For 1 station
⋮	⋮
12	For 12 stations

<② Flat ribbon cable connector housing assembly>

AXT100 – 41 – PL26 / PL20 – [S] [03]

Wiring

S	Single wiring
D	Double wiring

Stations Note)

01	For 1 station
⋮	⋮
12	For 12 stations

Note)
PL26: 01 to 12 (P kit, 26P)
PL20: 01 to 09 (P kit, 20P)

<③ Lead wire assembly>

(For F kit)

For station 1 **SSQ1000 – 4 [1] B – F – 170**

Wiring

0	For single (2-wire)
1	For double (3-wire)

For station 2 to 24 **SSQ1000 – 4 [1] A – F – [230]**

Wiring

0	For single (2-wire)
1	For double (3-wire)

Lead wire length

Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)
Station 2	190	Station 8	310	Station 14	430	Station 20	550
Station 3	210	Station 9	330	Station 15	450	Station 21	570
Station 4	230	Station 10	350	Station 16	470	Station 22	590
Station 5	250	Station 11	370	Station 17	490	Station 23	610
Station 6	270	Station 12	390	Station 18	510	Station 24	630
Station 7	290	Station 13	410	Station 19	530		

(For P kit)

For station 1 **SSQ1000 – 4 [1] B – P – 170**

Wiring

0	For single (2-wire)
1	For double (3-wire)

For station 2 to 24 **SSQ1000 – 4 [1] A – P – [310]**

Wiring

0	For single (2-wire)
1	For double (3-wire)

Lead wire length

Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)	Stations	L dimension (mm)
Station 2	190	Station 8	310	Station 14	430	Station 20	550
Station 3	210	Station 9	330	Station 15	450	Station 21	570
Station 4	230	Station 10	350	Station 16	470	Station 22	590
Station 5	250	Station 11	370	Station 17	490	Station 23	610
Station 6	270	Station 12	390	Station 18	510	Station 24	630
Station 7	290	Station 13	410	Station 19	530		

(For C kit)

AXT661 – 1 [3] AL – [6]

Wiring

3	For double (3-wire)
4	For single (2-wire)

Lead wire length

Symbol	L dimension (mm)
Nil	300
6	600
10	1000
15	1500
20	2000
25	2500
30	3000
50	5000

<④ D side end plate assembly>

SSQ2000 – 3A – 4 [ ]

Manifold mounting

Nil	DIN rail mounting type
E	Direct mounting type

<⑤ U side end plate assembly>

SSQ2000 – 2A – 4 [ ] – 1

Manifold mounting

Nil	DIN rail mounting type
E	Direct mounting type

<⑥ SUP/EXH block assembly>

SSQ2000 – PR – 3 – [C10] – [ ]

Port size

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

Option

Nil	Common exhaust type
R	External pilot
S	Built-in silencer, direct exhaust

Note) Enter "-RS" for both options.

<⑦ Manifold block assembly>

Including gaskets ⑫

SSQ2000 – 1A – 4 – [ ]

Option

Nil	None
B	Back pressure check valve
R	External pilot specifications

Note) Enter "-BR" for both options.

<⑧ Element>

SSQ2000 – SE

Note) Part number for a 10 piece set of elements. Refer to page 10 for replacement procedure.

<⑨ Port plug>

VVQZ3000 – CP

<⑩ Fitting assembly>

(For P, R port)

VVQ2000 – 51A – [C10]

Port size

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

Note) Purchasing order is available in units of 10 pieces.

<⑪ Fitting assembly>

(For cylinder port)

VVQ1000 – 51A – [C8]

Port size

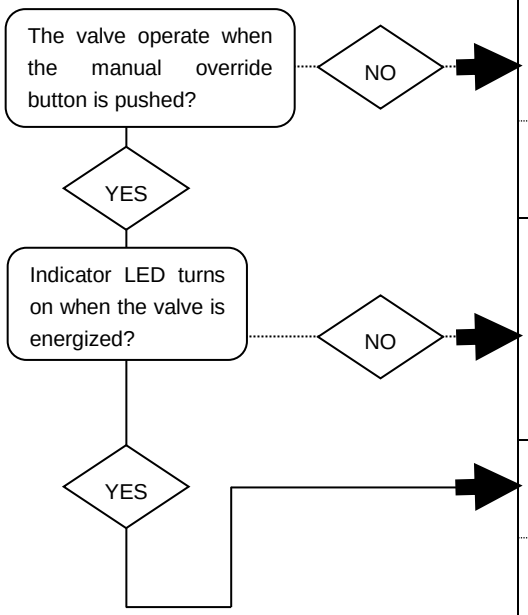
C4	One-touch fitting for ø4
C6	One-touch fitting for ø6
C8	One-touch fitting for ø8
N3	One-touch fitting for ø5/32"
N7	One-touch fitting for ø1/4"
N9	One-touch fitting for ø5/16"

Note) Purchasing order is available in units of 10 pieces.

<⑫ Gasket and screw assembly>

SQ2000 – GS

Note) Part number for 10 pieces each of gaskets and screws.

Problem	For valve failure, take following countermeasure referring to Problem.	Possible causes	Countermeasures
Operation failure Air is not switched.		1) Sliding failure or sticking of the main valve Foreign matter coming from the air source is caught in the main valve, causing sliding failure or sticking.	• Replace the valve. • Purify the air source.
		2) Decreased pressure Air source pressure is reduced and minimum operating pressure of the valve was not reached.	• Adjust the pressure within the specification range for the valve.
		1) Non-conformance of electric system • Incorrect wiring • Fuse blown out, breakage of lead wire • Incorrect contact at the contact and connection • Sequencer non-conformance • Supply voltage insufficient	Check all possible causes and make sure the wiring is correct. Replace the part, if necessary.
		1) Drop of supply voltage Even if the indicator LED turns on, the valve may not operate due to voltage drop.	• Check the supply voltage. Take corrective action if voltage drop is confirmed.
		2) Leakage current The valve does not switch due to the residual voltage when OFF.	Check the residual voltage. Keep the residual voltage at 3% of the rated voltage (DC coil) or less.
		3) Failure of the installed pilot valve • Pilot valve coil breakage • Foreign matter is caught in the pilot valve armature. • Swelling of the pilot valve poppet • Pilot valve coil burnt (High voltage, difference of the coil specifications, entry of water)	• Replace the pilot valve assembly. • Clean the air supply • Check the voltage, and replace the pilot valve assembly. • Protect the valve, especially the coil to prevent being exposed to water.
Response failure Slow response		1) Leakage current Response delayed due to the residual voltage when the valve is off.	Check the residual voltage. Keep the residual voltage at 3% of the rated voltage (DC coil) or less.
		2) Clogging of manifold filter element	• Clean the element or replace it.
		3) Sliding failure or sticking of the main valve. Foreign matter coming from the air source is caught in the main valve, causing sliding failure or sticking.	• Replace the valve. • Clean the air supply
Air leakage	Check the air leakage point 1. Leakage between the valve and base	1-1) Valve mounting screw is loose	Make sure that the gasket of the valve mounting surface is not displaced or deformed before tightening. Appropriate tightening torque • SQ1000 : 0.17 to 0.23N・m • SQ2000 : 0.25 to 0.35N・m If gasket is scratched, replace the gasket.
		1-2) Gasket is caught	Replace the gasket.
		1-3) Foreign matter is caught	Eliminate foreign matter with air blow. If gasket is scratched, replace the gasket.

Problem	For valve failure, take following countermeasure referring to Problem.	Possible causes	Countermeasures
Air leakage	2. Air leaks from the One-touch fitting.	2-1) Tube is not inserted all the way into the fitting. 2-2) Tube has a gouge 2-3) The cut surface of the tube is slanted.	Check all possible causes and make sure the piping is correct. Replace the part, if necessary.
		2-4) One-touch fitting seal is damaged	Replace One-touch fitting assembly
	3. Air leakage from the exhaust (R) port. Note) Metal seal type has approximately 200cc of leakage per valve set. This is within specification value. (Supply pressure: 0.5 MPa)	3-1) Internal leakage increased because foreign matter coming from the air source is caught in the main valve.	• Replace the valve. • Purify the air source.
	4. Air leaks from the manifold	4-1) Loose DIN rail clamp screw	Hold manifolds tightly for tightening so that there is no gap between the valves. Appropriate tightening torque 0.8 to 1.0N・m

Revision	
B	Specific Product Precautions Manifold Options 2020.7

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