Two Hand Control Valve

Series VR51

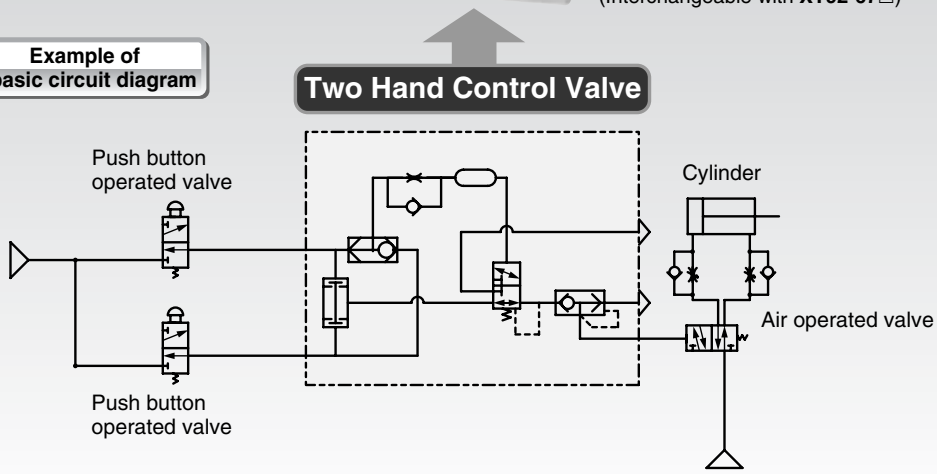
An output is available through synchronized, two-handed operation (within 0.5 s)!



Conforming to EN574

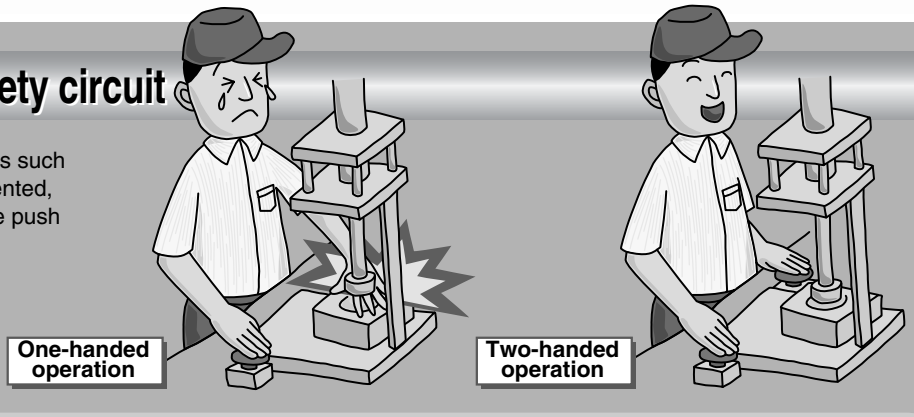
(Interchangeable with **XT92-67□**)

Example of a basic circuit diagram



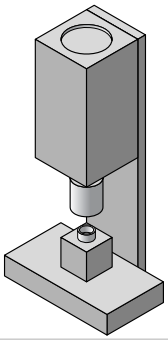
Equipment having a safety circuit

When starting an operation, accidents such as fingers being caught can be prevented, by requiring both hands to start these push button operated valves.

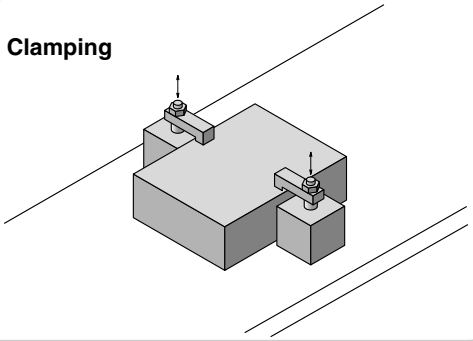


Application Examples

Press fitting with an air cylinder, Caulking

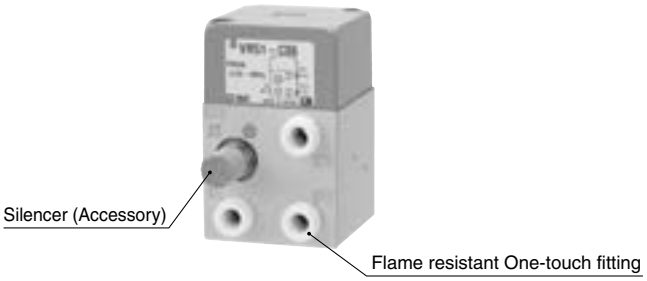


Clamping



Two Hand Control Valve
Series VR51

How to Order



VR51 – C06 B

Two hand control valve

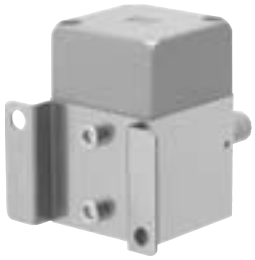
Option

Nil	None
B	With bracket

Connection piping size

C06	Flame resistant One-touch fitting ø6
C07	Flame resistant One-touch fitting ø1/4

With bracket (Option)



Back side mounting



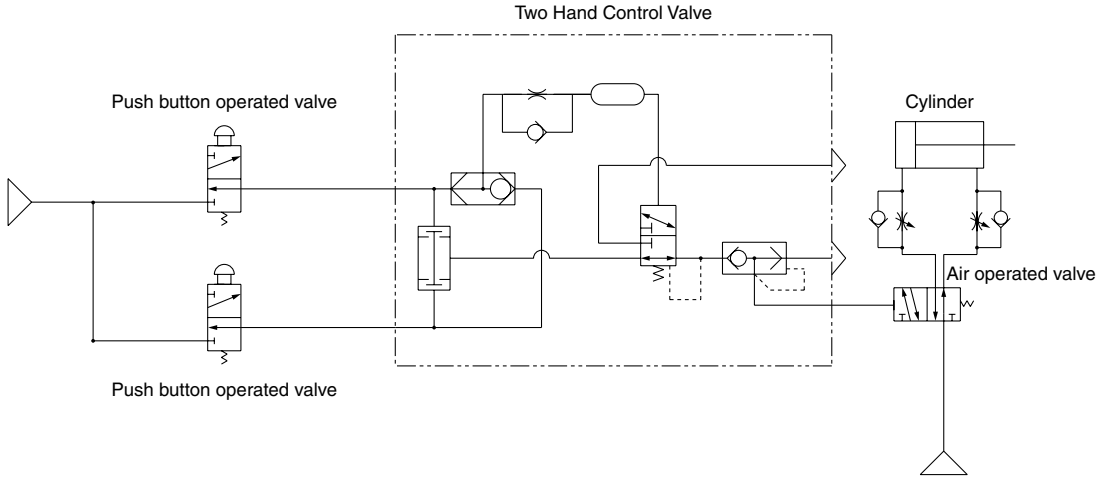
Bottom mounting

Specifications

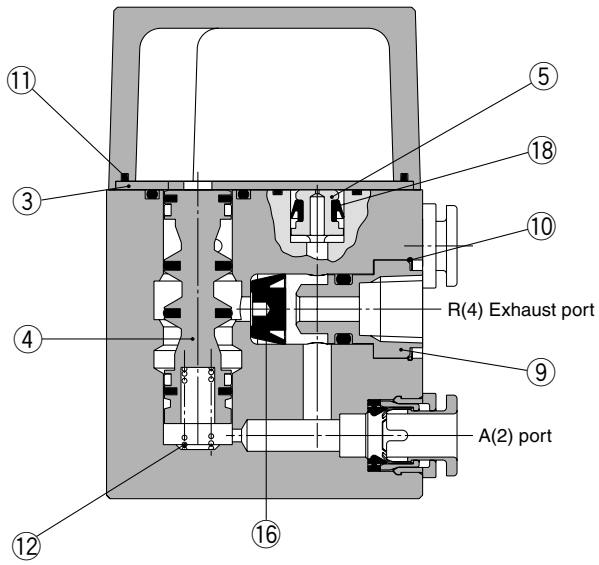
Fluid		Air		
Operating pressure		0.25 to 1 MPa		
Proof pressure		1.5 MPa		
Ambient and fluid temperature		–5 to 60°C (with no freezing)		
Flow characteristics		C [dm³/(s·bar)]	b	Cv
P → A		0.3	—	—
A → R		1.0	0.12	0.25
Port size	**Metric size**	ø6		
	Inch size	ø1/4		
Applicable tubing material Note)		Nylon, Soft nylon, Polyurethane, Flame resistant (FR) soft nylon, FR double layer, FR double layer polyurethane		
Mass		340 g		
Accessory	**Silencer**	Part No.: AN101-01		
Option	**Bracket**	Part No.: VR51B		
Standard		EN574: 1996, EN954-1: 1996 Class: Type III A		

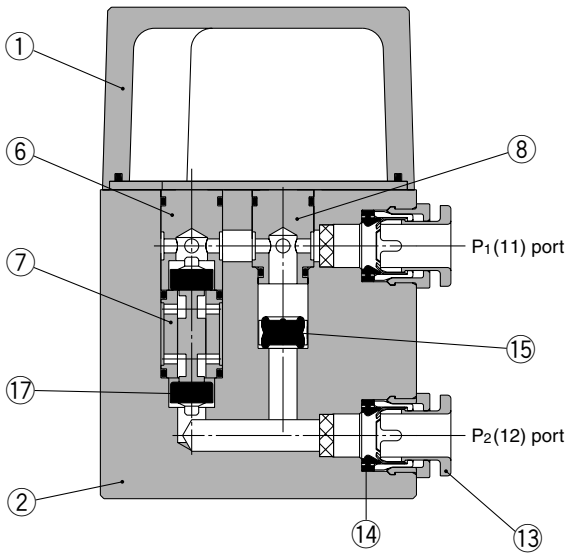
Note) In the case of using soft nylon or polyurethane tubing, use caution when the maximum operating pressure of the tubing is used.

Example of a Basic Circuit Diagram



Construction





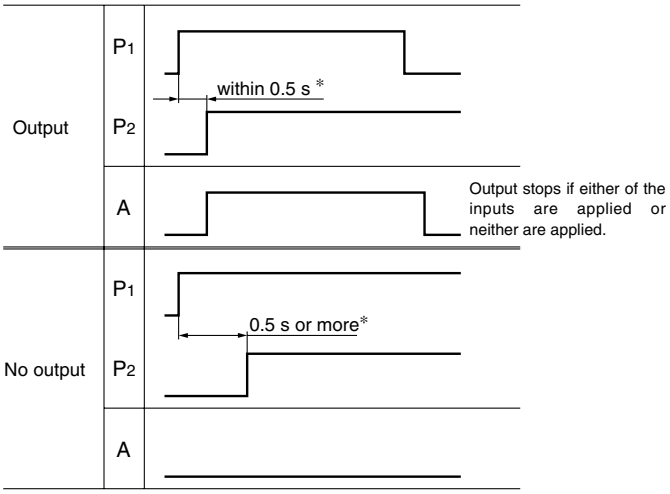
Component Parts

No.	Description	Material	Note
1	**Cover**	Aluminum die-cast	Urban gray
2	**Body**	Aluminum die-cast	Urban white
3	**Plate**	Rolled steel	Nickel plated
4	**Spool valve**	Aluminum alloy	
5	**Orifice**	Brass	Electroless nickel plated
6	**Valve seat**	Aluminum alloy	
7	**Valve guide B**	Aluminum alloy	
8	**Valve guide A**	Aluminum alloy	
9	**Guide**	Brass	Electroless nickel plated

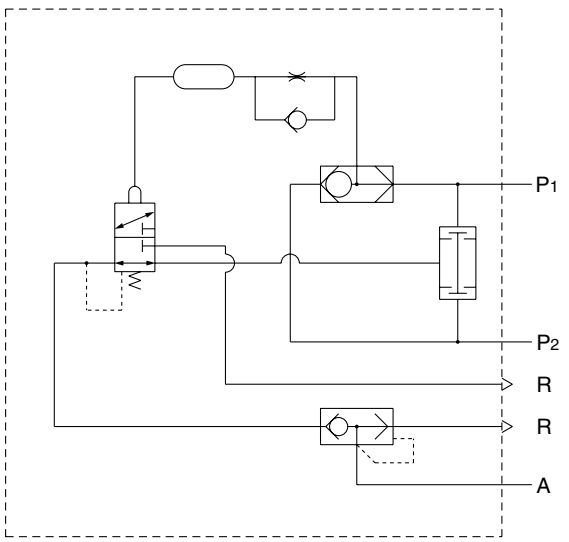
No.	Description	Material	Note
10	**Clip**	Stainless steel	
11	**Gasket**	H-NBR	
12	**Spring**	Stainless steel	
13	**Cassette assembly**		
14	**Seal**	NBR	
15	**Valve**	H-NBR	
16	**Valve**	NBR	
17	**Valve**	H-NBR	
18	**U-shaped seal**	H-NBR	

Timing of Motion

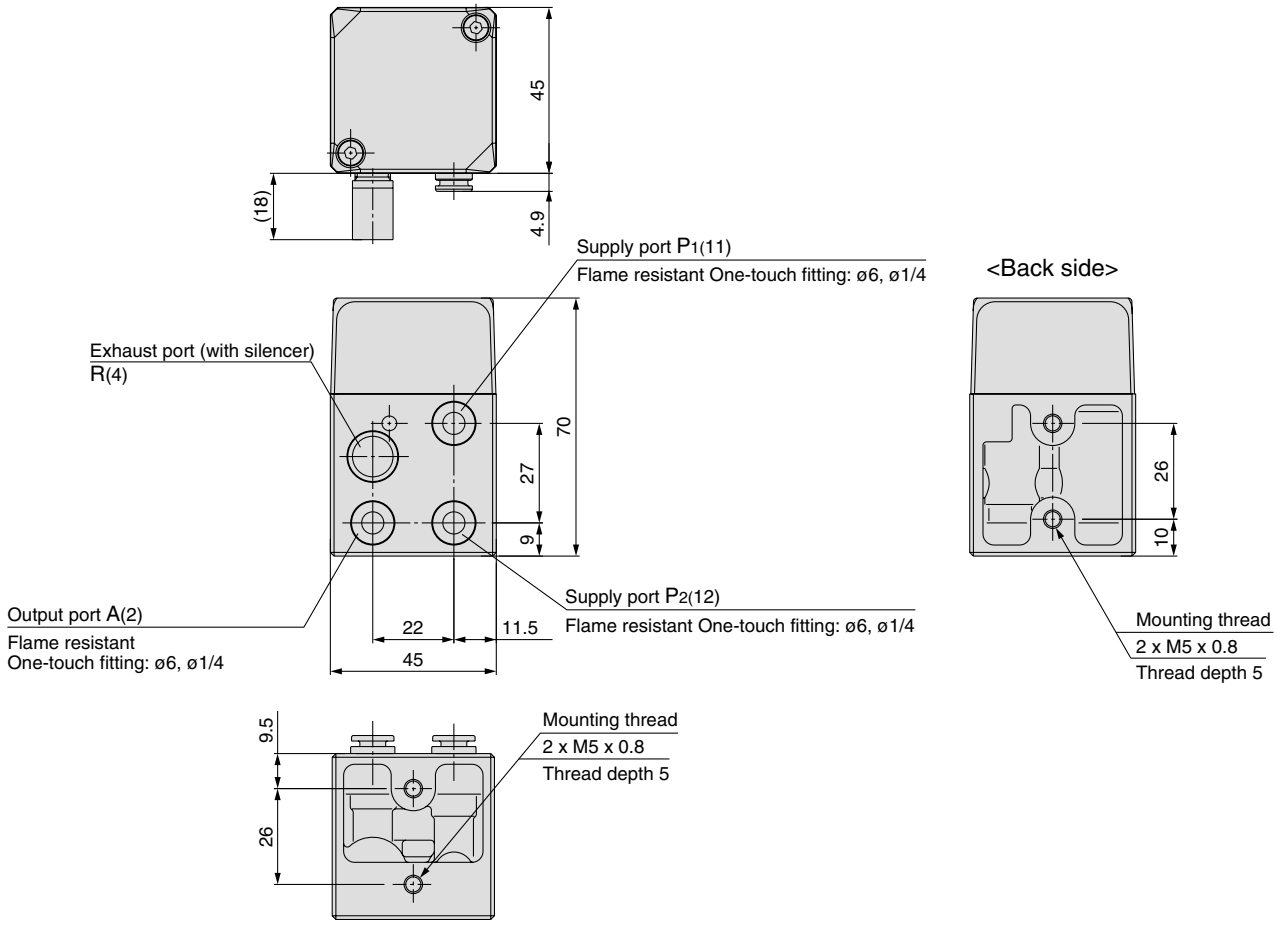
∗ The time lag for operation is different depending on the operating pressure. The higher the operating pressure, the shorter the time lag, and vice versa. When the operating pressure is 1 MPa, the time lag will be within approximately 0.1 seconds.



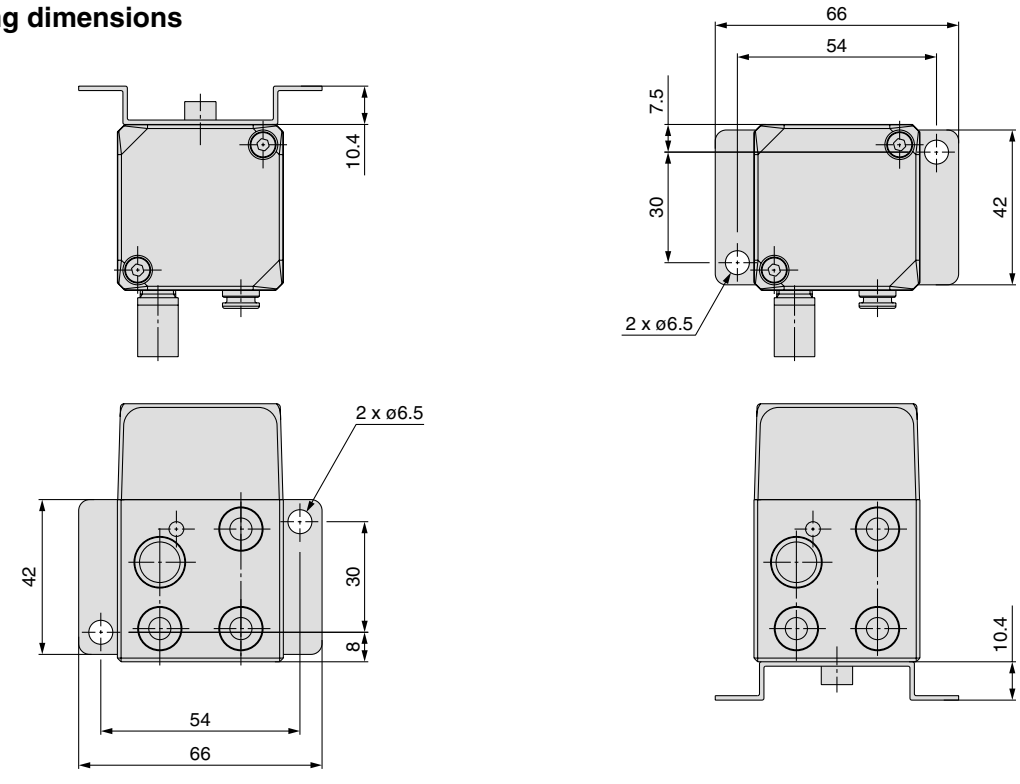
Circuit Diagram



Dimensions



Bracket mounting dimensions



Back side mounting

Bottom mounting

Series VR51
Specific Product Precautions 1

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Design

⚠ Warning

1. Actuator drive

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

2. Maintenance space

The installation should allow sufficient space for maintenance activities.

3. Ventilation

When a valve is used inside a sealed control panel, etc., provide ventilation to prevent a pressure increase caused by exhausted air inside the control panel or temperature rise caused by the heat generated by the valve.

Selection

⚠ Warning

1. Confirm the specification.

The products presented in this catalog are designed only for use in compressed air systems. Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to specifications.)

Contact SMC when using a fluid other than compressed air.

2. Using in low temperature

In the case of using in low temperature, take measures not to freeze the drainage or moisture.

Mounting

⚠ Warning

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

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

2. Instruction manual

Mount and operate the product after reading the manual carefully and understanding its contents.

Also keep the manual where it can be referred to as necessary.

3. Painting and coating

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

Consult with SMC if paint is to be applied to resinous parts, as this may have an adverse effect due to the paint solvent.

⚠ Caution

1. Tubing, with the exception of coiled tubing, requires stationary installation. Do not use standard tubing (non-coiled) in applications where tubing is required to travel within a cable carrier. Tubing that travels may sustain abrasion, extention, or severance due to tensile force, or may result in removal of tubing from fitting. Use caution prior to use for proper application.

Mounting

⚠ Caution

2. Transportation, installation, piping, operation, manipulation, maintenance, and inspection should be conducted by a knowledgeable and experienced person.

Otherwise, electric shock, injuries, fire, etc. may occur.

3. Do not modify the product because this will likely cause injuries and damage.

4. Do not wipe the product with a cloth containing chemicals.

Piping

⚠ Caution

1. Preparation before piping

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

2. When piping on the product

In the case of connecting piping to the product, consult the instruction manual and use caution to avoid making a mistake with the supply port, etc.

3. Connect tubing with some extra length to prevent torsion, stretching, or a moment load from being applied to the fittings and tubing. Damage to the fittings or flattening, as well as bursting or releasing of the tubing may occur, if the above is not followed.

4. The tubing connected to the product should be more than its minimum bending radius. If the minimum bending radius is tighter than that it should be, bending or flating of the tubing may occur.

The minimum bending radius is measured as following in accordance with JIS B 8381-1995.

JIS specifies the tubing deformation ratio measured at the minimum bending ratio to be 25% or less.

∗ Except for the TU, TIUB, TUH, TRBU, TAU and TUS series

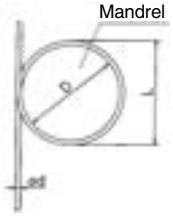
Tube deformation ratio at the minimum bending radius is obtained through the following formula, based on tubing diameter and mandrel diameter by wrapping the same radius mandrel tube.

$$\eta = \left(1 - \frac{L-D}{2d}\right) \times 100$$

Here, η: Deformation ratio (%)
d: Tube diameter (mm)
L: Measured length (mm)
D: Mandrel diameter (mm)
(Twice against the minimum bending radius)

Test temperature: 20 ± 5°C
Relative humidity: 65 ± 5%

Tube deformation ratio at the minimum bending radius



5. Do not use fluids other than specified. The only fluid that can be used is air.

Series VR51
Specific Product Precautions 2

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Handling of One-touch Fittings

⚠ Caution

1. Tube insertion and removal from One-touch fittings

1) Attaching of tubing
   a. Cut the tube perpendicularly, being careful not to damage the outside surface. Use SMC tube cutter "TK-1", "TK-2" or "TK-3". Do not cut the tube with pliers, nippers, scissors, etc., otherwise, the tube will be deformed and troubles may result.
   b. Outside diameter of polyurethane tubing is swelled by applying internal pressure. As such, it may be that the tubing cannot be re-inserted into One-touch fittings. Make sure to confirm the tubing outside diameter, and when the accuracy of the outside diameter is more than + 0.15, insert into One-touch fitting again, not cutting the tubing to use it. When tubing is re-inserted into One-touch fitting, make sure to confirm that the tubing was able to go through the release bush smoothly.
   c. Grasp the tube, slowly push it into the One-touch fittings until it comes to a stop.
   d. Pull the tubing back gently to make sure it has a positive seal. Insufficient installation may cause air to leak or the tube to release.

2) Removal of tubing
   a. Sufficiently depress the release bushing and tubing, making sure to apply even pressure around the release bushing.
   b. Pull out the tubing while depressing the release bushing so that it does not pop out. If the release bushing is not depressed sufficiently, there will be an increased bite on the tubing and it will become more difficult to pull out.
   c. When the removed tubing is reused, first cut off the section of the tubing which has been clamped.
   Reusing the clamped portion of the tubing can cause problems such as leakage, difficulties in removal, etc.

Precautions on Other Tubing Brands

⚠ Caution

1. When using tubing brands other than SMC, confirm that the tubing outside diameter tolerances satisfy the following specifications.

1) Nylon tubing	within ±0.1 mm
2) Soft nylon tubing	within ±0.1 mm
3) Polyurethane tubing	within +0.15 mm within –0.2 mm

Do not use tubing if the outside diameter tolerance is not satisfied. It may not be possible to connect the tubing, or leakage or disconnection may occur after connection.

Lubrication

⚠ Caution

1. Lubrication

1) The valve has been lubricated for life at the manufacturer, and does not require any further lubrication.
2) If a lubrication is applied in the system, use turbine oil Class 1 (no additive), ISO VG32.
   However, once lubrication is applied it must be continued, as loss of the original lubricant may lead to malfunction.

Lubrication

⚠ Caution

Class 1 Turbine Oil (with no additive), ISO VG32

Classification of viscosity cst (40°C) / Viscosity according to ISO Grade	32
Idemitsu Kosan Co., Ltd.	Turbine oil P-32
Nippon Oil Corp.	Turbine oil 32/ Mitsubishi turbine 32
Cosmo Oil Co., Ltd.	Cosmo turbine 32
Japan Energy Corp.	Kyodo turbine 32
Kygnus Oil Co.	Turbine oil 32

Classification of viscosity cst (40°C) / Viscosity according to ISO Grade	32
Kyushu Oil Co.	Stork Turbine 32
Showa Shell Sekiyu K.K.	Turbine 32
Tonen General Sekiyu K.K.	General R turbine 32
Fuji Kosan Co., Ltd.	Fucoal turbine 32

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

Air Supply

⚠ Warning

1. Use clean air.

Do not use compressed air which contains chemicals, synthetic oils containing organic solvents, salts or corrosive gases, etc., as this can cause damage or malfunction.

⚠ Caution

1. Install air filters.

Install air filters close to valves at their upstream side. A filtration degree of 5 μm or less should be selected.

2. Install an air dryer, after cooler or Drain Catch, etc.

Air that includes excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an air dryer, after-cooler or water separator, etc.

3. If excessive carbon powder is seen, install a mist separator on the upstream side of the valve.

If excessive carbon dust is generated by the compressor, it may adhere to the inside of valves and cause malfunction.

Refer to SMC's "Air Cleaning Equipment" catalog for compressed air quality.

Pneumatic Pressure

⚠ Warning

1. Do not use the product with a pressure of under 0.25 MPa. The time lag for operating the VR51 is different depending on the operating pressure. The higher the operating pressure, the shorter the time lag, and vice versa. If used under 0.25 MPa, an output will be available; however, safety is not likely to be maintained, even though the time lag may exceed 0.5 seconds.

Series VR51
Specific Product Precautions 3

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Operating Environment

⚠ Warning

1. Do not use in atmospheres where the valve is in direct contact with corrosive gases, chemicals, salt water, water or steam.

2. Do not use in locations subject to vibration or impact. Confirm the specifications in the main section of the catalog.

3. Use a protective cover, etc., to shield valves from direct sunlight.

4. Shield valves from radiated heat generated by nearby heat sources.

5. Employ suitable protective measures in locations where there is contact with oil or welding spatter, etc.

⚠ Caution

1. Avoid using in a place where there is splashing oil, coolant, or water. In addition, avoid using where dust may adhere to it.

Maintenance

⚠ Warning

1. Perform maintenance procedures as shown in the instruction manual.

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

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

When equipment is serviced, first confirm that measures are in place to prevent dropping of work pieces and run-away of equipment, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.
When the equipment is to be started again after remounting or replacement, first confirm that measures are in place to prevent lurching of actuators, etc., and then confirm that the equipment is operating normally.

3. Low frequency operation

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

4. Perform a periodical inspection if necessary when first starting the product to confirm that the two hand control valve is operating without fail.

There is a probability of an unexpected malfunction or safety may not be maintained due to misoperation.

⚠ Caution

1. During regular maintenance, check for the following and replace any components as necessary.
   a) Scratches, gouges, abrasion, corrosion
   b) Leakage
   c) Flattening or distortion of tubing
   d) Hardening, deterioration or softness of tubing

Maintenance

⚠ Caution

2. Do not repair the fittings or patch the tubing for reuse.
3. Drain flushing
   Remove drainage from air filters regularly.

Caution on Preparing the Buttons for Manipulation

⚠ Caution

1. Design and prepare the buttons in accordance with instruction manuals and European directives [Safety of machinery - Two handed control equipment - Functionality aspects - Design principle] (EN574)

If the manipulating buttons are incorrectly arranged, an unexpected motion is likely to occur and the safety cannot be maintained.

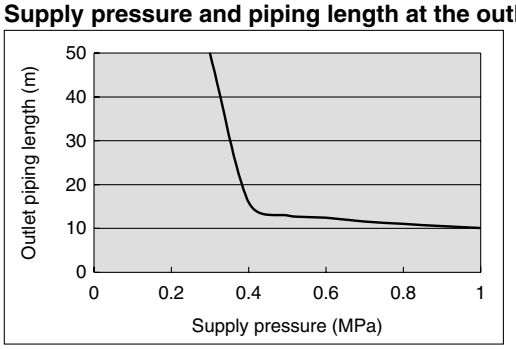
Piping Length in the Outlet Side

⚠ Caution

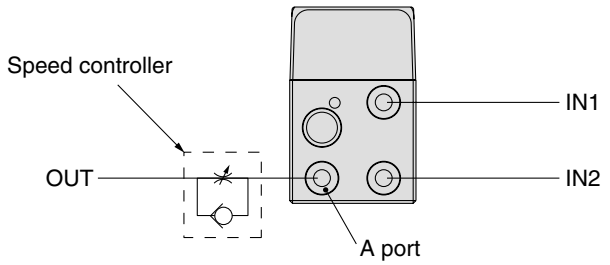
1. When the outlet side piping length of the VR51 series is extremely long or the piping capacity is large due to a branch, output from the A port may not occur when operation buttons are operated simultaneously because the outlet pressure slowly rises.

The applicable piping capacity for the outlet side of the VR51 is indicated by the tubing length of T0604 (I.D. ø4 mm). The outlet side piping length should be less than the values shown in the graph below.

Supply pressure and piping length at the outlet side



When the piping length is long and capacity is large due to a branch, install a speed controller (AS2051F-06, AS3001F-06, etc.) close to the A port of the VR51 in accordance with the below figure. Use the VR51 after adjusting properly to operate it.



5 Port Solenoid Valve

Series VQ7-6/7-8

Metal Seal **Rubber Seal** **ISO Standard Size 1/Size 2**

VQ7-6/Single unit

P.1330



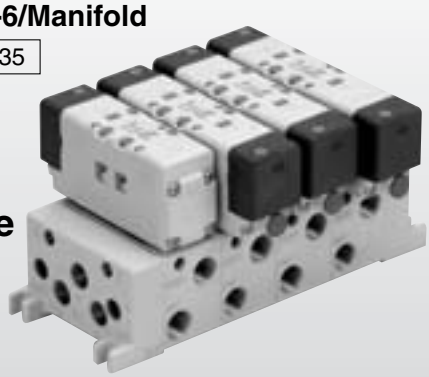
Conforms to ISO standard 5599/I

Interface conforms to ISO standard
Size 1 (VQ7-6) and Size 2 (VQ7-8).

Outstanding high speed response and long service life

VQ7-6/Manifold

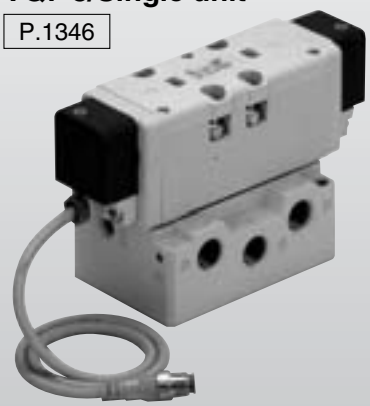
P.1335



Enclosure IP65 compliant Dusttight/Low jetproof type

VQ7-8/Single unit

P.1346



A wide variety of manifold options

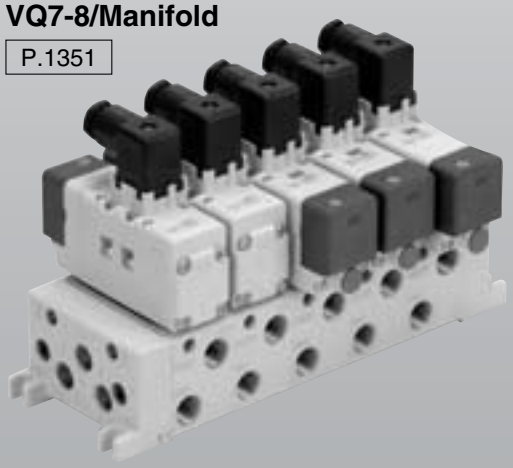
Manifolds can be configured with a wide range of interface options to meet a variety of application requirements.

Lighter weight

Size 1 (3 position) 0.48 kg ···24% less
Size 2 (3 position) 0.75 kg ···15% less **(Compared with previous series)**

VQ7-8/Manifold

P.1351



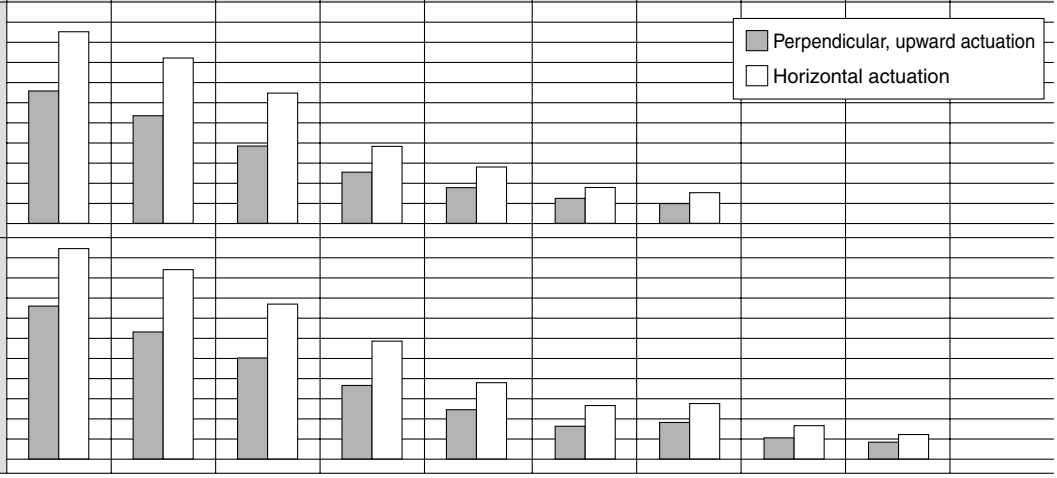
Space-saving profile

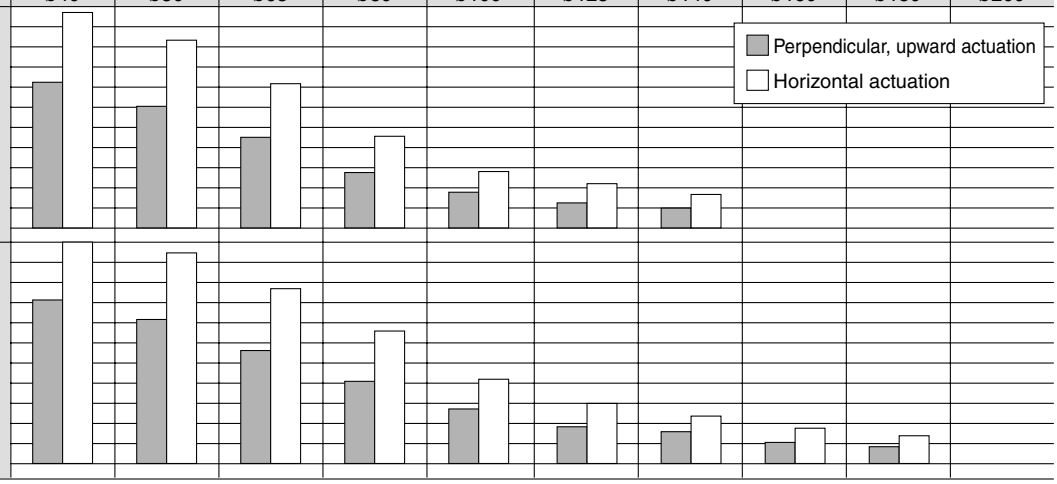
Installation space····· 13% reduction
Installation volume····10% reduction
(Compared with previous series)

Choice of metal or rubber seal increases compatibility with various operating and environmental conditions.

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

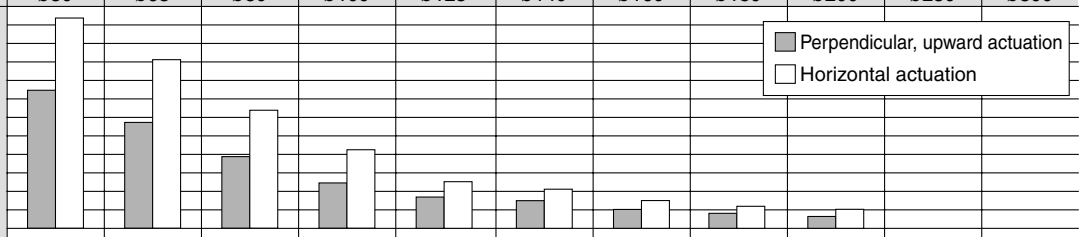
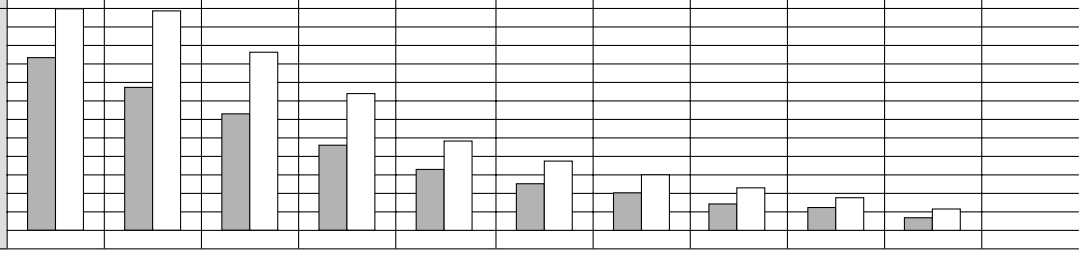
Series	Average speed (mm/s)	Bore size									
		Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm					Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Stroke 1000 mm				
		ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200
VQ7-6-FG-S-□A02	1000 900 800 700 600 500 400 300 200 100 0										
VQ7-6-FG-S-□A03	1000 900 800 700 600 500 400 300 200 100 0										

Series	Average speed (mm/s)	Bore size									
		Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm					Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Stroke 1000 mm				
		ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200
VQ7-6-FG-S-□RA02	1000 900 800 700 600 500 400 300 200 100 0										
VQ7-6-FG-S-□RA03	1000 900 800 700 600 500 400 300 200 100 0										

∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is what the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Series	Average speed (mm/s)	Bore size										
		Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm				Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Stroke 1000 mm						
		ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200	ø250	ø300
VQ7-8-FG-S-□A03 **VQ7-8-FG-S-□RA03**	1100 1000 900 800 700 600 500 400 300 200 100 0											
VQ7-8-FG-S-□A04 **VQ7-8-FG-S-□RA04**	1100 1000 900 800 700 600 500 400 300 200 100 0											

∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is what the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Conditions

Base mounted		Series MB, CA2 / Series CS1/CS2
VQ7-6-FG-S-□A02	SGP (Steel pipe) dia. x Length	6A x 1 m
	Speed controller	AS4000-02
	Silencer	AN200-02
VQ7-6-FG-S-□A03	SGP (Steel pipe) dia. x Length	10A x 1 m
	Speed controller	AS420-03
	Silencer	AN300-03
VQ7-6-FG-S-□RA02	SGP (Steel pipe) dia. x Length	6A x 1 m
	Speed controller	AS4000-02
	Silencer	AN200-02
VQ7-6-FG-S-□RA03	SGP (Steel pipe) dia. x Length	10A x 1 m
	Speed controller	AS420-03
	Silencer	AN300-03

Base mounted		Series MB, CA2 / Series CS1/CS2
VQ7-8-FG-S-□A03	SGP (Steel pipe) dia. x Length	10A x 1 m
	Speed controller	AS4000-03
	Silencer	AN300-03
VQ7-8-FG-S-□A04	SGP (Steel pipe) dia. x Length	15A x 1 m
	Speed controller	AS420-04
	Silencer	AN400-04
VQ7-8-FG-S-□RA03	SGP (Steel pipe) dia. x Length	10A x 1 m
	Speed controller	AS4000-03
	Silencer	AN300-03
VQ7-8-FG-S-□RA04	SGP (Steel pipe) dia. x Length	15A x 1 m
	Speed controller	AS420-04
	Silencer	AN400-04

ISO Standard Solenoid Valve

Series VQ7-6

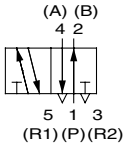
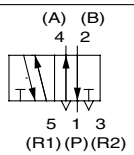
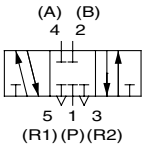
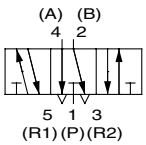
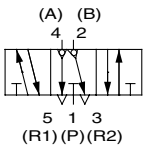
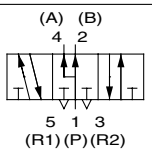
Size 1/Single Unit

CE

How to Order Valves

VQ7 − 6 − FG − S − 3 □ □ □ □ □ □

Passage symbol

FG	
YZ*	
FHG	
FJG	
FPG	
FIG	

* Option

Number of solenoids

S	Single
D	Double

Coil rated

1	100 VAC
2	200 VAC
3	24 VDC
4	12 VDC
9	Other voltages

* Options: 110 VAC, 120 VAC, 220 VAC, 230 VAC, 240 VAC

Option

Nil	None
Z	Light/Surge voltage suppresor
N	With indicator light

Pilot exhaust

Nil	Common exhaust
V	Individual exhaust

Seal

Nil	Metal seal
R	Rubber seal

Sub-plate port size

Nil	Without sub-plate
A02	Side ported 1/4*
A03	Side ported 3/8
B02	Bottom ported 1/4*
B03	Bottom ported 3/8

* Port R is 3/8

Thread type

Nil	Rc
F	G
T	NPTF

Connector

Nil	DIN terminal block (With connector)
O	DIN terminal block (Without connector)
SC	Pre-wired connector

How to Order Sub-plate

VS7 − 1 − A02 □

Port size

A02	Side ported 1/4*
A03	Side ported 3/8
B02	Bottom ported 1/4*
B03	Bottom ported 3/8

* Port 3(R2) and 5(R1) are 3/8

Thread type

Nil	Rc
F	G
T	NPTF

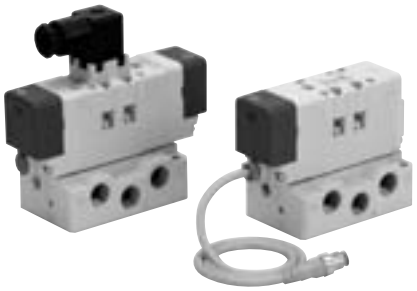
Specifications

Model	Porting specifications			Mass (kg)
	Piping location	1(P), 2(B), 4(A) port size	3(R2), 5(R1) port size	
VS7-1-A02□	Side	1/4	3/8	0.37
VS7-1-A03□		3/8		
VS7-1-B02□	Bottom	1/4	3/8	
VS7-1-B03□		3/8		

Model

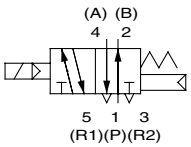
Series	Number of positions		Model		Port size	Flow characteristics						(1) Response time (ms)	(2) Mass (kg)
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)				
						C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv		
VQ7-6	2 position	Single	Metal seal	**VQ7-6-FG-S-□**	1/4	4.1	0.10	0.9	5.2	0.10	1.1	20 or less	0.40
			Rubber seal	**VQ7-6-FG-S-□R**		5.0	0.13	1.1	6.0	0.11	1.4	25 or less	
		Double	Metal seal	**VQ7-6-FG-D-□**		4.1	0.10	0.9	5.2	0.10	1.1	12 or less	0.45
			Rubber seal	**VQ7-6-FG-D-□R**		5.0	0.13	1.1	6.0	0.11	1.4	15 or less	
	3 position	Closed center	Metal seal	**VQ7-6-FHG-D-□**		4.1	0.10	0.9	5.2	0.10	1.1	40 or less	0.48
			Rubber seal	**VQ7-6-FHG-D-□R**		5.0	0.13	1.1	5.6	0.20	1.3	45 or less	
		Exhaust center	Metal seal	**VQ7-6-FJG-D-□**		4.1	0.10	0.9	5.2	0.10	1.1	40 or less	0.48
			Rubber seal	**VQ7-6-FJG-D-□R**		4.8	0.16	1.1	6.0	0.17	1.4	45 or less	
		Double check	Metal seal	**VQ7-6-FPG-D-□**		1.4	–	–	3.1	–	–	50 or less	0.84
			Rubber seal	**VQ7-6-FPG-D-□R**		1.4	–	–	3.1	–	–	50 or less	
		Pressure center	Metal seal	**VQ7-6-FIG-D-□**		4.1	0.10	0.9	5.2	0.08	1.1	40 or less	0.48
			Rubber seal	**VQ7-6-FIG-D-□R**		5.6	0.15	1.2	5.9	0.08	1.3	45 or less	

Note 1) Based on JIS B 8375-1981 (Value for supply pressure of 0.5 MPa, with light/surge voltage suppressor, when using clean air.) Response time values will change depending on pressure and air quality.
Value when ON for double type.
Note 2) Weight without sub-plate. (Sub-plate: 0.37 kg)

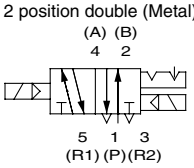


JIS Symbol

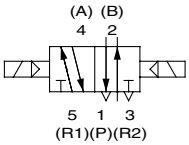
2 position single



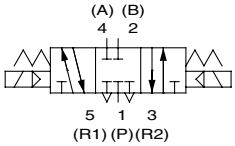
2 position double (Metal)



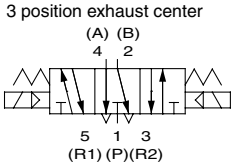
2 position double (Rubber)



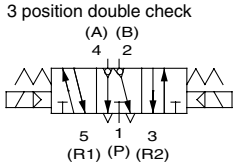
3 position closed center



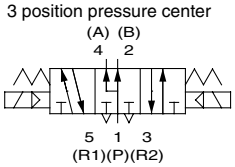
3 position exhaust center



3 position double check



3 position pressure center



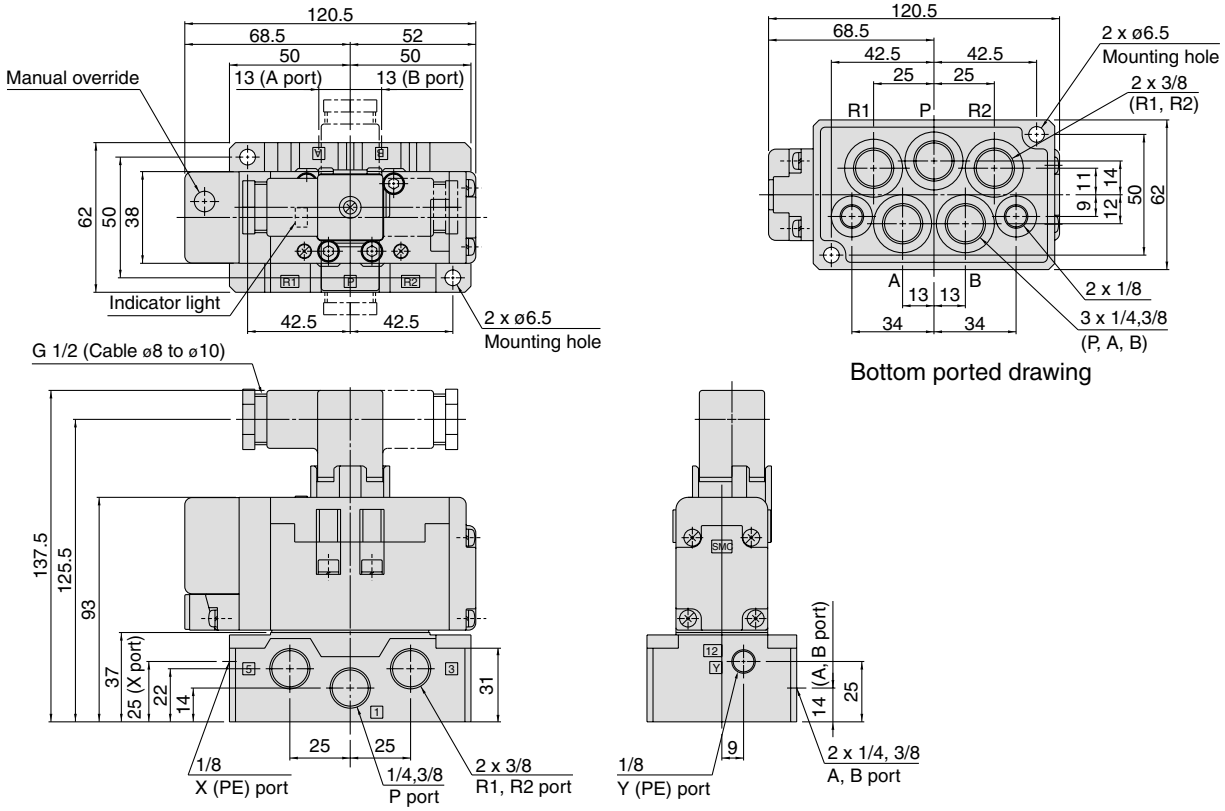
Standard Specifications

Valve specifications	**Valve construction**		Metal seal	Rubber seal
	Fluid		Air/Inert gas	
	Maximum operating pressure		1.0 MPa	
	Min. operating pressure	**Single**	0.15 MPa	0.20 MPa
		Double	0.15 MPa	0.15 MPa
		3 position	0.15 MPa	0.20 MPa
	Ambient and fluid temperature		–10 to 60°C (1)	–5 to 60°C (1)
	Lubrication		Not required	
	Manual override		Push type (Tool required)	
	Shock/Vibration resistance		150/30 m/s² (2)	
	Enclosure		IP65 (Dusttight, Low jetproof)	
Solenoid specifications	**Coil rated voltage**		12 VDC, 24 VDC, 100 VAC, 110 VAC, 200 VAC, 220 VAC, 240 VAC (50/60Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B or equivalent	
	Power consumption (Current)	**24 VDC**	1W DC (42 mA)	
		12 VDC	1W DC (83 mA)	
		100 VAC (3)	1.2 VA (12 mA)	
		110 VAC (3)	1.3 VA (11.5 mA)	
		120 VAC (3)	1.5 VA (12 mA)	
		200 VAC (3)	1.8 VA (8.8 mA)	
		220 VAC (3)	1.8 VA (8.4 mA)	
		230 VAC (3)	2.0 VA (8.7 mA)	
		240 VAC (3)	2.1 VA (8.8 mA)	

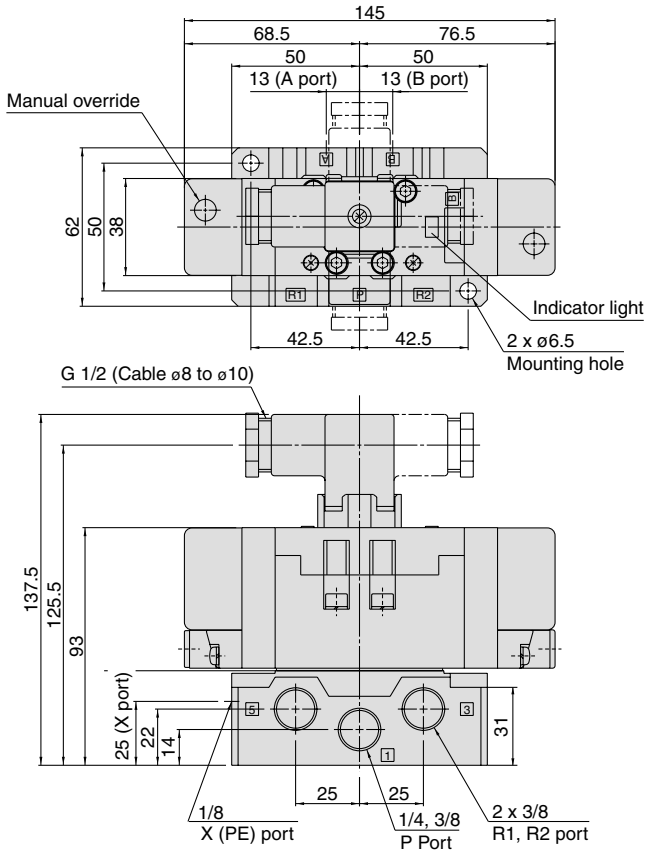
Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 3) The valve with an AC coil comes with a rectifying device; therefore, there is no difference in the consumption current when it is in the inrush and holding states.

DIN Terminal Type

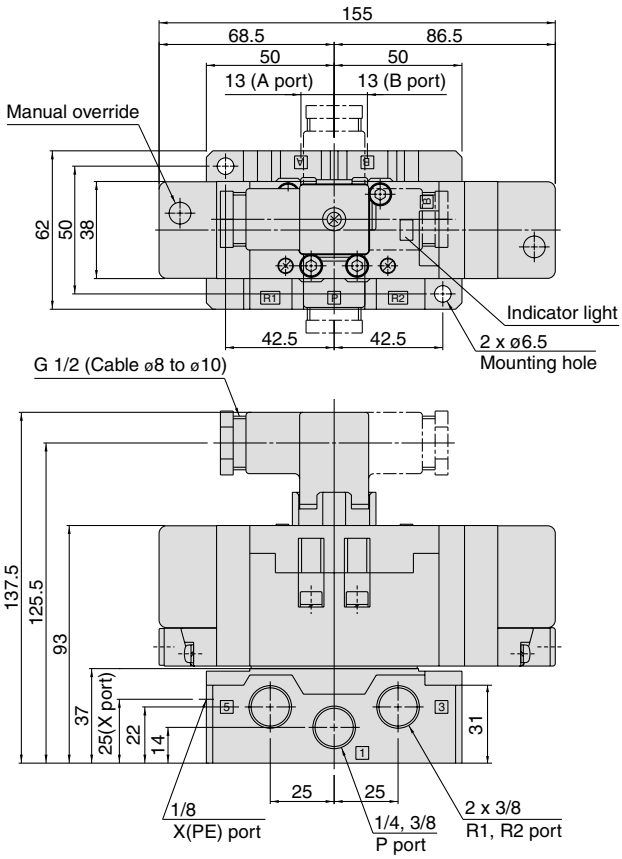
2 position single : VQ7-6-FG-S
single (Reverse pressure): VQ7-6-YZ-S



2 position double : VQ7-6-FG-D
double (Reverse pressure): VQ7-6-YZ-D

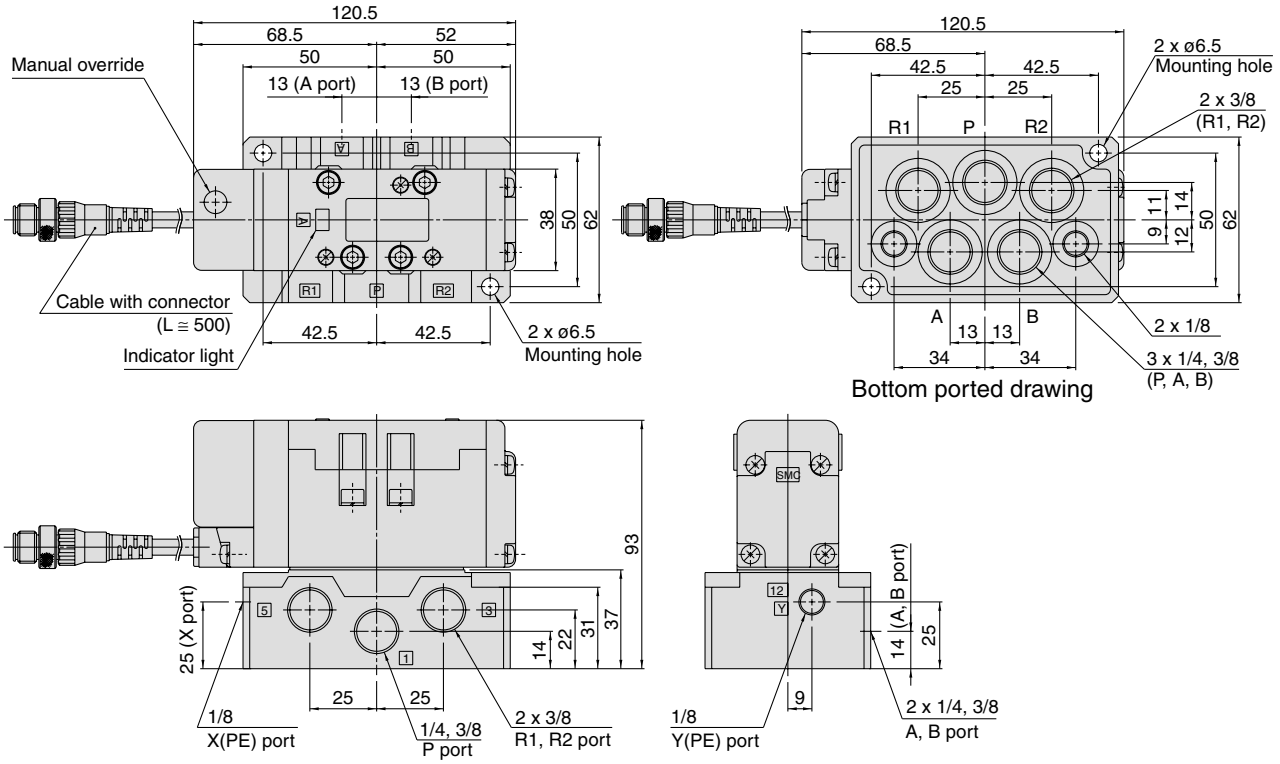


3 position closed center : VQ7-6-FHG-D
exhaust center : VQ7-6-FJG-D
pressure center: VQ7-6-FIG-D

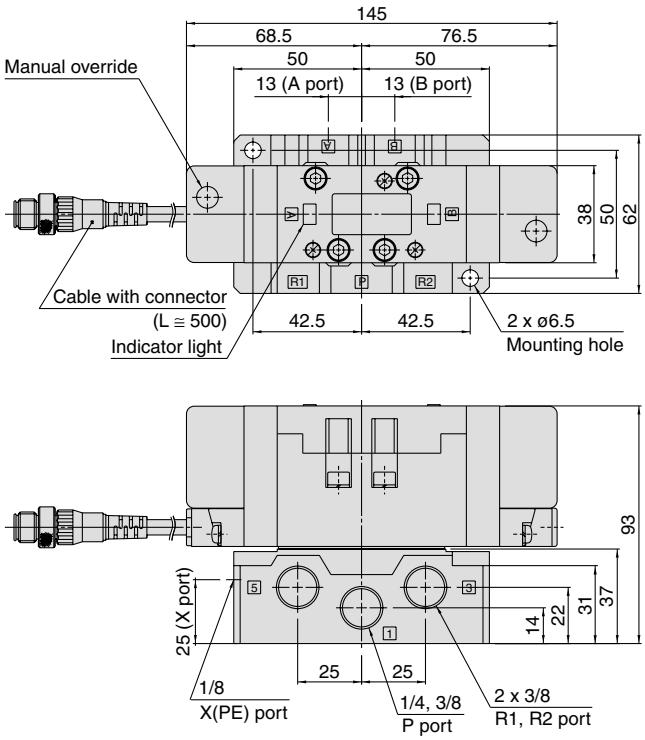


Prewired Connector Type

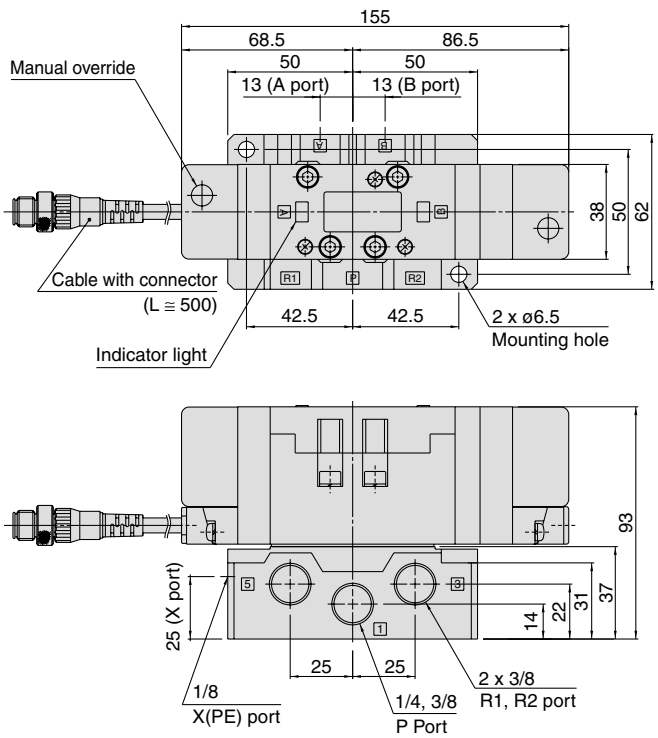
2 position single : VQ7-6-FG-S□□□□SC
single (Reverse pressure): VQ7-6-YZ-S□□□□SC



2 position double : VQ7-6-FG-D-□□□□SC
double (Reverse pressure): VQ7-6-YZ-D-□□□□SC



3 position closed center : VQ7-6-FHG-D-□□□□SC
exhaust center : VQ7-6-FJG-D-□□□□SC
pressure center: VQ7-6-FIG-D-□□□□SC

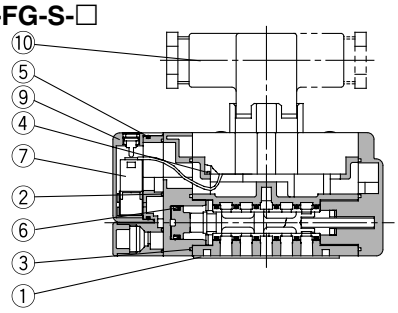


Construction

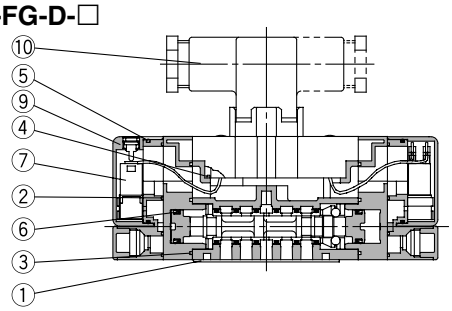
DIN Terminal Type

Metal seal type

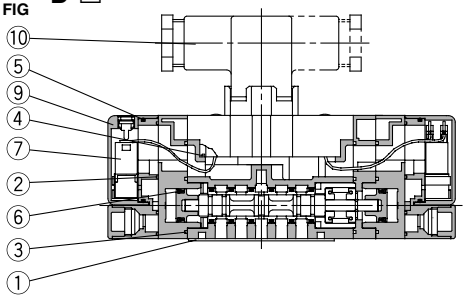
VQ7-6-FG-S-□



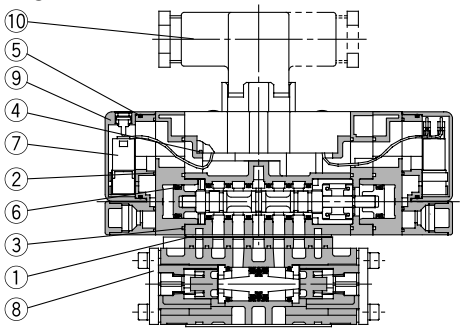
VQ7-6-FG-D-□



VQ7-6-FHG/FJG/FIG-D-□

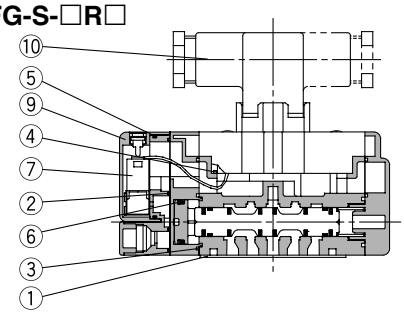


VQ7-6-FPG-D-□

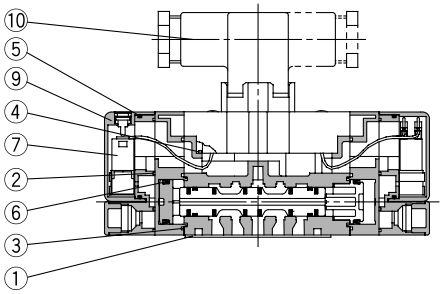


Rubber seal type

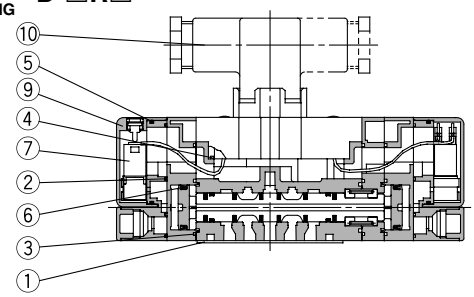
VQ7-6-FG-S-□R□



VQ7-6-FG-D-□R□



VQ7-6-FHG/FJG/FIG-D-□R□



Replacement Parts (For valve)

No.	Description	VQ7-6-FG-S-□	VQ7-6-FG-D-□	VQ7-6-FHG/FJG/FIG-D-□	VQ7-6-FPG-D-□	VQ7-6-FG-S-□R□	VQ7-6-FG-D-□R□	VQ7-6-FHG/FJG/FIG-D-□R□
1	**Gasket**	AXT500-13						
2	**Gasket A**	VQ7060-13-2						
3	**Gasket B**	VQ7060-13-1						
4	**Gasket C**	VQ7060-13-3						
5	**O-ring**	37 x 1.6						
6	**Mini Y seal**	MYN-11				MYN-16		
7	**Pilot valve assembly** (1) (2)	VQZ110Q-□ (5: 24 VDC, 6: 12 VDC, 1: For AC (3))						
8	**Double check spacer**	—			VV71-FPG	—		
9	**Pilot valve cover**	VQ7060-9A-1						
10	**DIN terminal**	UKL-S1						

Note 1) When the voltage is the same, the replacement of pilot valve assembly is possible.
Note 2) Since the substrate circuit in the valve is different, voltage cannot be changed with the pilot valve assembly.
Note 3) The pilot valve for 100 to 240 VAC is common.

Manifold *Series VV71*
Series VQ7-6

How to Order Manifold

VV71 6 – 02R □ – □ 02D □ □ □

Stations

1	1 station
⋮	⋮
10	10 stations

Note) When equipped with control unit, 1 or 2 stations are used for mounting.

2 (B), 4 (A) port connection

02R	1/4 (R side)
03R	3/8 (R side)
02L	1/4 (L side)
03L	3/8 (L side)
02Y	1/4 (Bottom side)
03Y	3/8 (Bottom side)
C6R	One-touch fitting ø6 (R side)
C8R	One-touch fitting ø8 (R side)
C10R	One-touch fitting ø10 (R side)
C6L	One-touch fitting ø6 (L side)
C8L	One-touch fitting ø8 (L side)
C10L	One-touch fitting ø10 (L side)
*	Mixed

Note) When ports are mixed, indicate piping specifications by means of the manifold specification sheet.

Thread type

Nil	Rc
F	G
T	NPTF

Note) With one-touch fittings: Nil

Silencer box

Nil	None
SB	With

Note) The silencer box mounting position corresponds to piping connection at ports 3 (R2) and 5 (R1).

Air release valve coil rating

Nil	None
1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3	24 VDC
4	12 VDC
9	Other

Thread type

Nil	Rc
F	G
T	NPTF

Note) With one-touch fittings: Nil

1(P), 3(R2), 5(R1) port connection

02D	1/4 (D side)
02U	1/4 (U side)
02B	1/4 (Both sides)
03D	3/8 (D side)
03U	3/8 (U side)
03B	3/8 (Both sides)
C12D	One-touch fitting ø12 (D side)
C12U	One-touch fitting ø12 (U side)
C12B	One-touch fitting ø12 (Both sides)
*	Mixed

Note) When ports are mixed, indicate piping specifications by means of the manifold specification sheet.

Control unit type (See pages 1342 and 1343 for details.)

Control equipment \ Symbol	Nil	A	AP	M	MP	F	G	C	E
Air filter with auto-drain		○	○			○			
Air filter with manual drain				○	○		○		
Regulator		○	○	○	○	○	○		
Air release valve		○	○	○	○			○	○
Pressure switch			○		○				
Blanking plate (Air release valve)						○	○		
Blanking plate (Filter, Regulator)								○	
Blanking plate (Pressure switch)		○		○		○	○	○	
Number of manifold blocks required for mounting (stations)		2	2	2	2	2	2	2	1

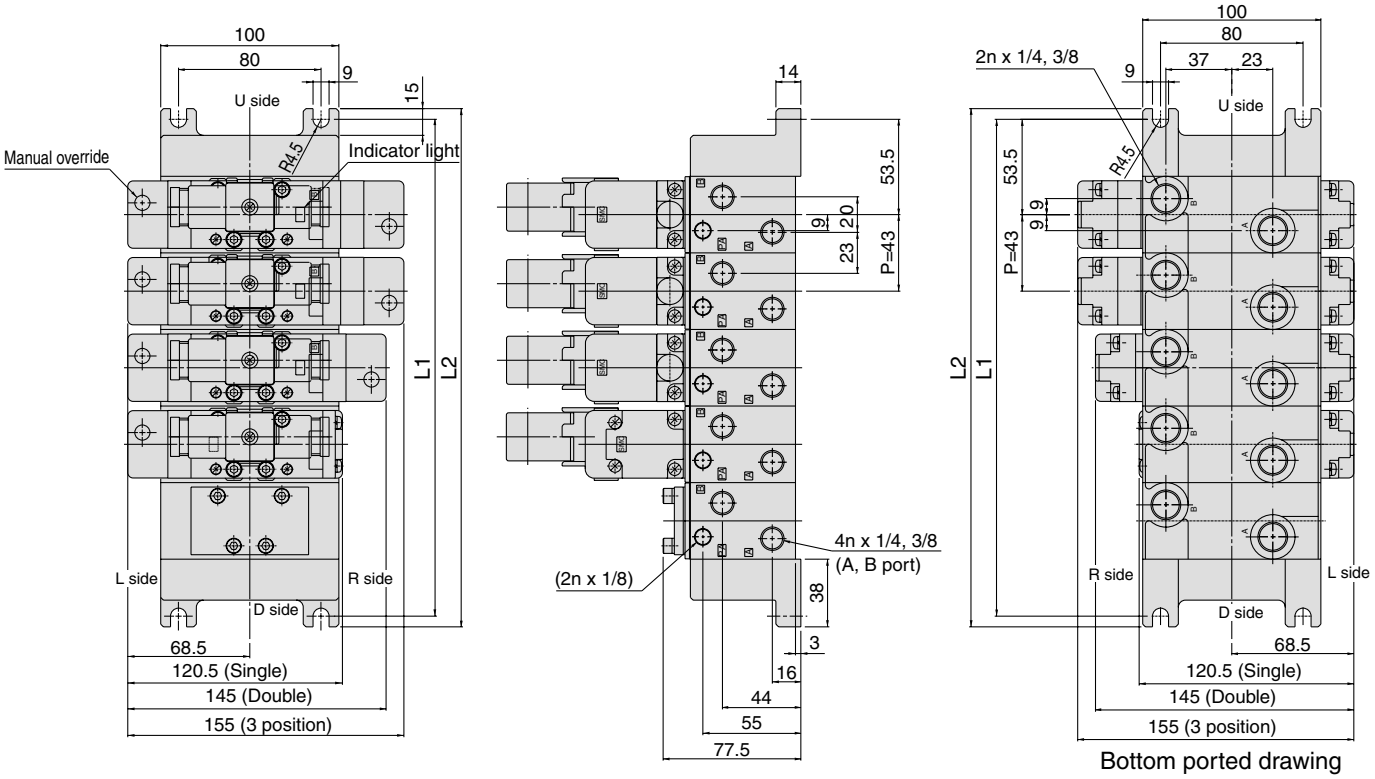
Manifold Specifications

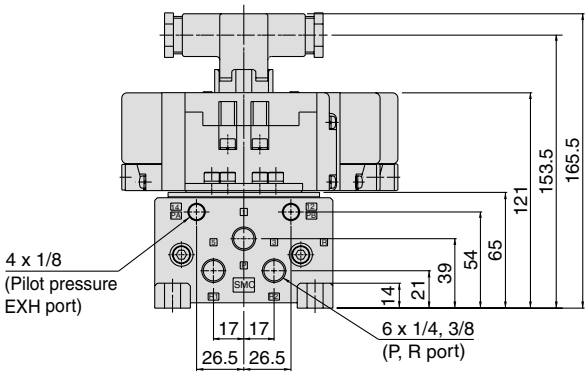
Manifold block size	Applicable solenoid valve	Porting specifications			Stations	Mass (kg)
		2(B), 4(A) port		1(P), 3(R2) 5(R1) port size		
		Port location	Port size			
ISO size 1	Series VQ7-6 ISO size 1	Right, Left	1/4 3/8 C6 (ø6) C8 (ø8) C10 (ø10)	1/4 3/8 C12 (ø12)	Note) Max. 10 stations	0.43n + 0.49 (n: Stations)
		Bottom	1/4 3/8			

Note) When equipped with control unit, 1 or 2 stations are used for mounting.

DIN Terminal Type

VV71□-□-□□□





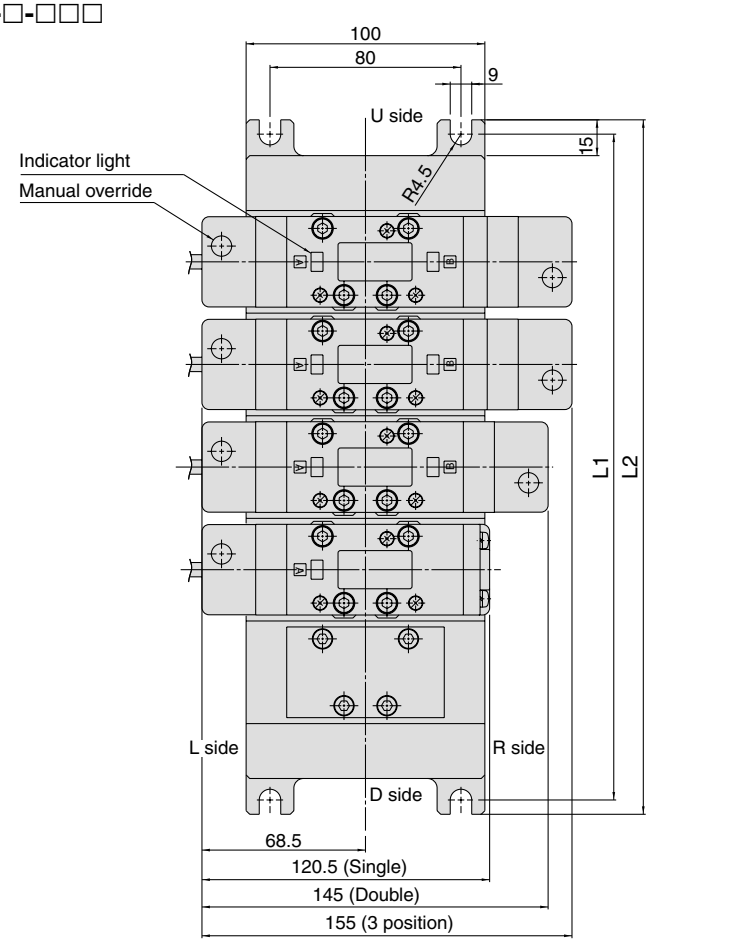
L Dimension

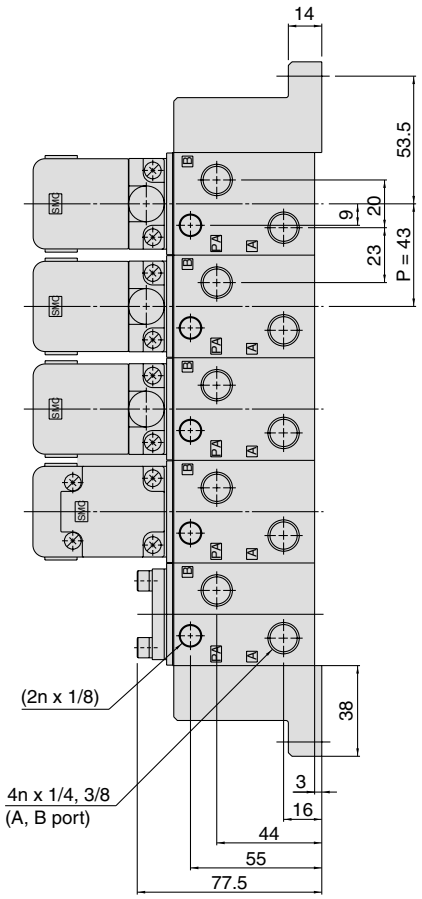
n: Stations

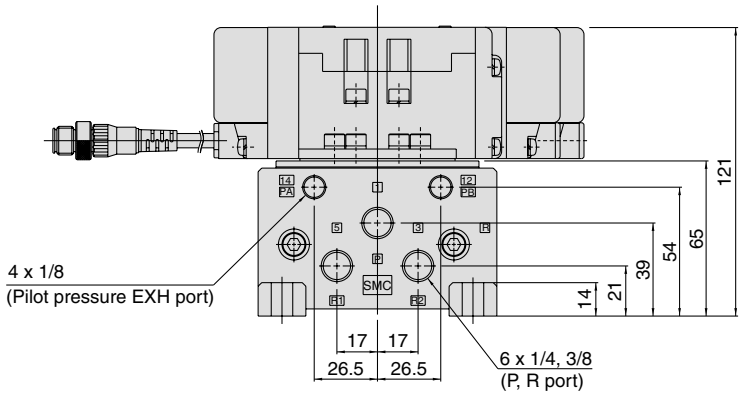
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76

Prewired Connector Type

VV71□-□-□□□







L Dimension

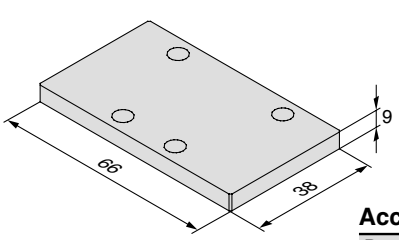
n: Stations

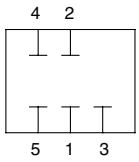
	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76

Manifold Option Parts

Blanking plate assembly
AXT502-9A

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.



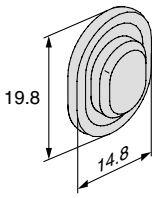


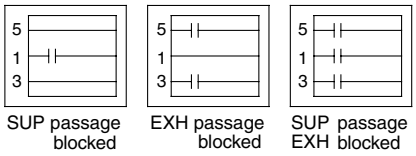
Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-2	4

Block plate (For SUP/EXH passages)
AXT502-14

When two or more different high pressures are supplied to one manifold, block plates are installed between stations having different pressures.
Also, in cases such as when valve exhaust effects other stations in a circuit, block plates are used for exhaust at stations where the exhaust is to be separated.





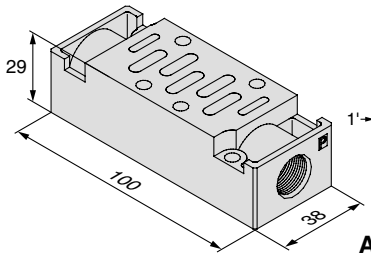
Individual SUP spacer
VV71-P-$^{02}_{03}_{C10}$ □

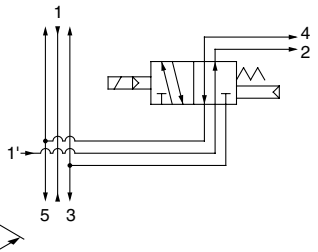
Thread type

Nil	Rc
F	G
T	NPTF

Note) It is not applicable to One-touch fittings.

By mounting individual SUP spacers on a manifold block, it is possible to provide individual supply ports for each valve.



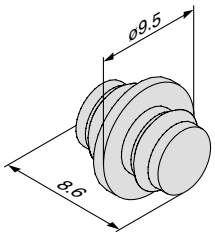


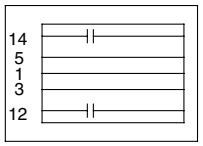
Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

Block plate (For pilot EXH passage)
AZ503-53A

When a valve's pilot valve exhaust effects other valves in a circuit, block plates are used between stations where the pilot exhaust passages are to be separated.





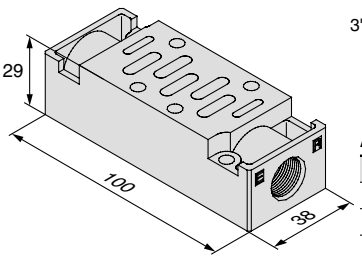
Individual EXH spacer
VV71-R-$^{02}_{03}_{C12}$ □

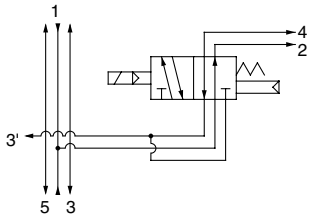
Thread type

Nil	Rc
F	G
T	NPTF

Note) It is not applicable to One-touch fittings.

By mounting individual EXH spacers on a manifold block, exhaust ports can be provided individually for each valve. (3, 5 common EXH type)



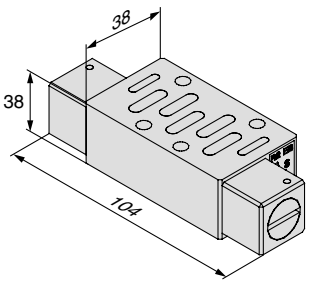


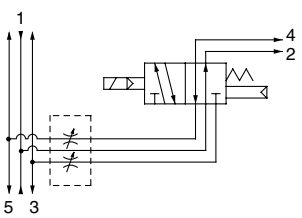
Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

Throttle valve spacer
AXT503-23A

A throttle valve spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.





Accessory

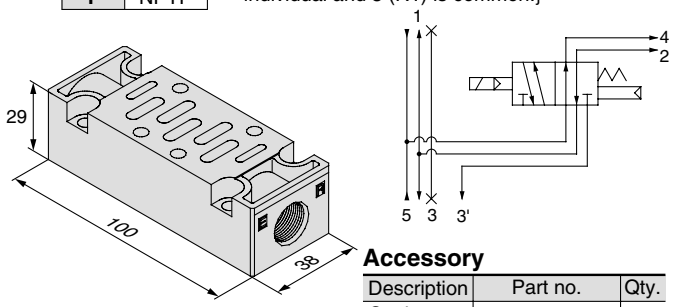
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-5	4

Reverse pressure spacer
AXT502-21A-1□

Thread type

Nil	Rc
F	G
T	NPTF

With reverse pressure control manifold specifications, when pressure is changed individually on one side (ex. high speed cylinder return), pressure can be supplied individually to the R2 side by mounting a reverse pressure spacer. {Port 3 (R2) is individual and 5 (R1) is common.}

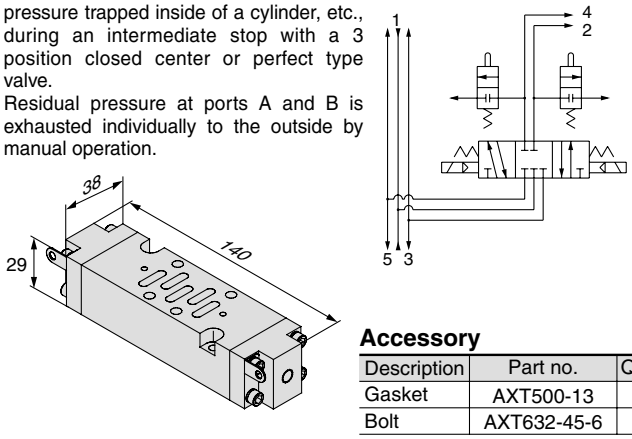


Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

Residual pressure release valve spacer
VV71-R-AB

This is used by mounting on a manifold block in order to exhaust the residual pressure trapped inside of a cylinder, etc., during an intermediate stop with a 3 position closed center or perfect type valve.
Residual pressure at ports A and B is exhausted individually to the outside by manual operation.



Accessory

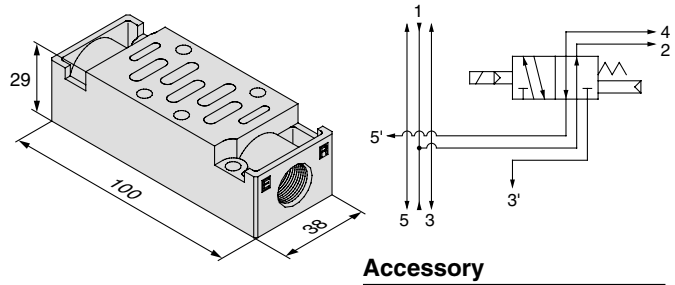
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

R1, R2 individual EXH spacer
VV71-R2-03□

Thread type

Nil	Rc
F	G
T	NPTF

By mounting an individual EXH spacer on a manifold block, individual exhaust is possible from both R1 and R2. {3 (R2) and 5 (R1) are individual ports.}



Accessory

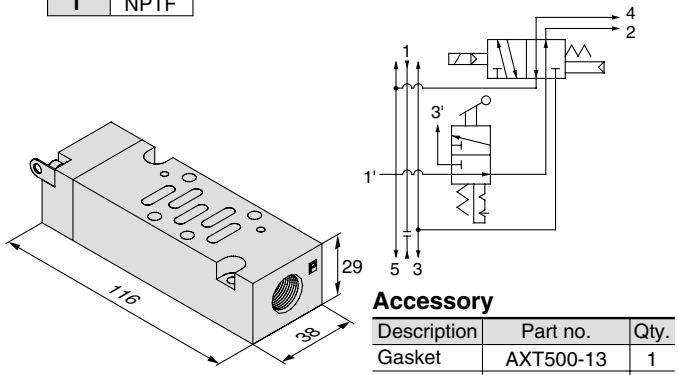
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

Individual SUP spacer with residual pressure release valve
VV71-PR-$^{02}_{03}$□

Thread type

Nil	Rc
F	G
T	NPTF

This is used by mounting on a manifold block in order to stop the inlet side supply pressure in an individual supply spacer, while at the same time exhausting the residual pressure are performed by pressing the manual override, which can be locked by turning it.

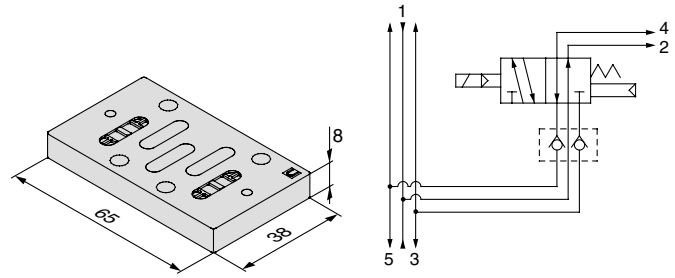


Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

Main EXH back pressure check plate
AXT503-37A

In cases where back pressure effects actuator operation due to simultaneous operation of manifold valves, etc., this effect can be eliminated by installing a plate between the manifold block and the valve from which back pressure is to be prevented.



Accessory

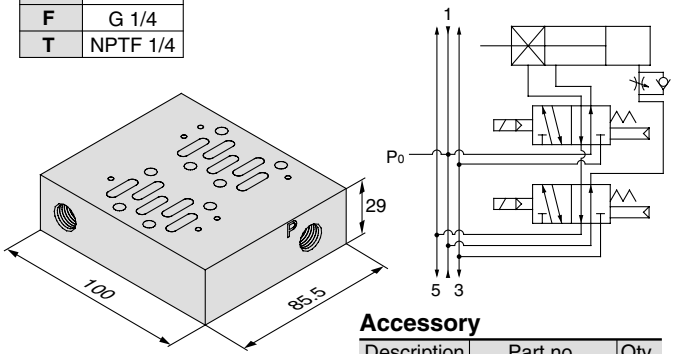
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-4	4

Adapter plate for locked-up cylinder
AXT502-26A□

Thread type

Nil	Rc 1/4
F	G 1/4
T	NPTF 1/4

When using a locked-up cylinder with 2 valves for control, this spacer can be used by mounting on a manifold block. It consists of a circuit equipped with a function to prevent lurching during release.



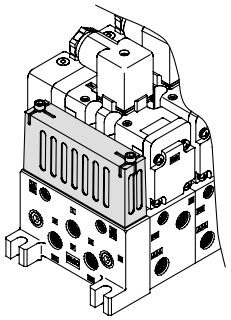
Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	2
Bolt	AXT632-45-6	8

Manifold Option Parts

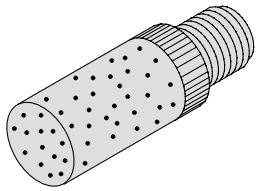
Silencer box
VV71-□□□-□□-SB

This can be provided as a unit on the end plate to reduce manifold exhaust noise and piping labor.



Pilot EXH silencer
AN110-01

This is used by mounting on the pilot exhaust port in order to reduce manifold and single type pilot exhaust noise, and to prevent the entry of dust.

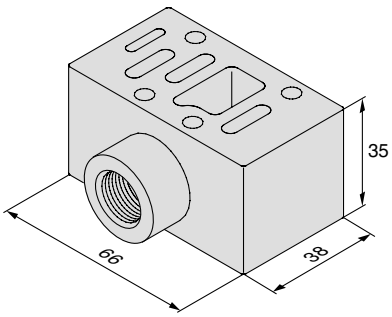


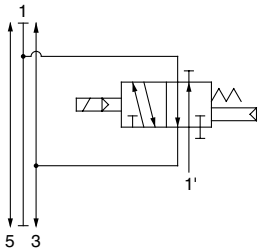
Release valve spacer
AXT502-17A□

Combination of VQ7-6-FG-S (Single) and release valve spacer can be used as air release valve.
Note 1) Mounting on 2 position double and 3 position valves is not possible.

Thread type

Nil	Rc 3/8
F	G 3/8
T	NPTF 3/8





Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT643-45-7	4

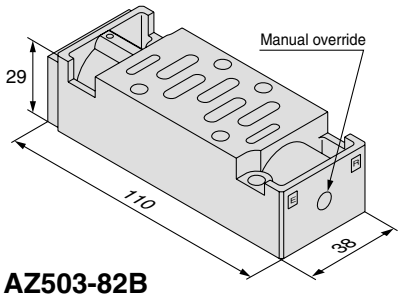
Residual pressure release valve spacer
AZ503-82□

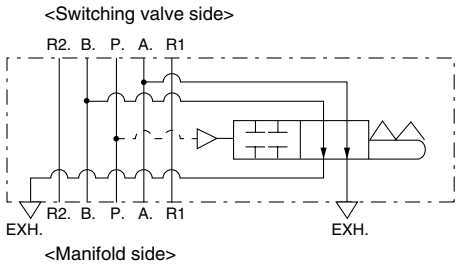
At the same time as pilot pressure is released, residual pressure between the cylinder and valve is released.
There are two pilot types: internal pilot and external pilot types.

Pilot type

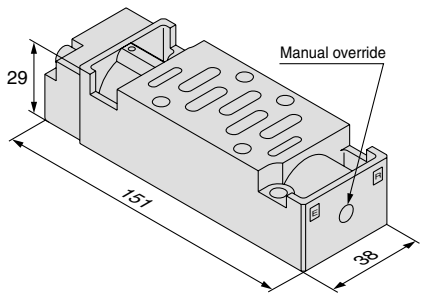
A	Internal pilot
B	External pilot

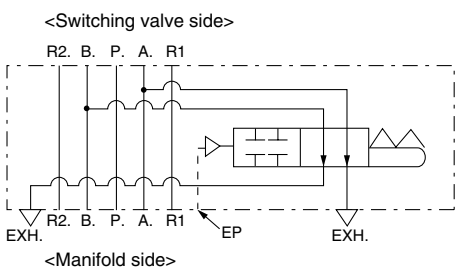
AZ503-82A





AZ503-82B





Accessory

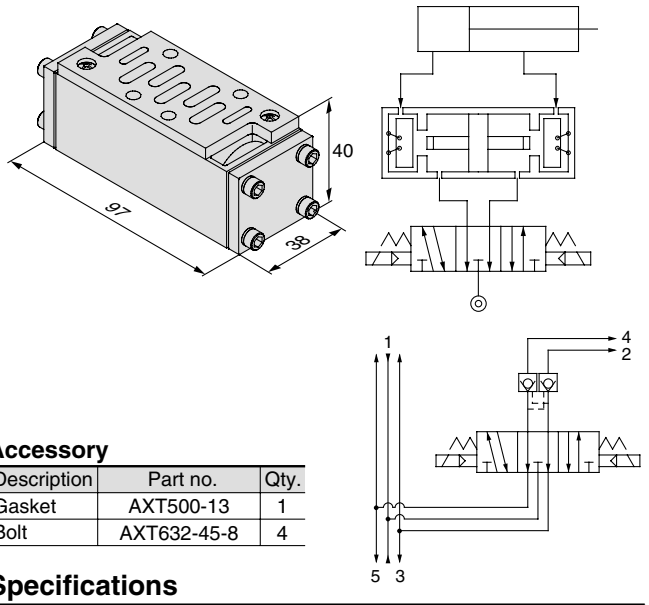
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-6	4

Specifications

Model	AZ503-82A	AZ503-82B
Switching signal type (Pilot type)	Internal pilot	External pilot
Applicable solenoid valve	VQ7-6	
Applicable sub-plate	ISO standard size 1	
Max. operating pressure	1.0 MPa	
Min. operating pressure	0.15 MPa (Pressure generated when the valve element is switched to the stopping side.)	
Ambient and fluid temperature	5 to 60°C	
Lubrication	Non-lube (Use turbine oil Class 1 (ISO VG32), if lubricated.)	

Double check spacer
VV71-FPG

By combining a 3 position exhaust center valve with a double check spacer, an intermediate stopping position of a cylinder can be held for an extended period. It can also be used for drop prevention at the cylinder stroke end when releasing residual supply pressure, by combining it with a 2 position single or double valve.



Accessory

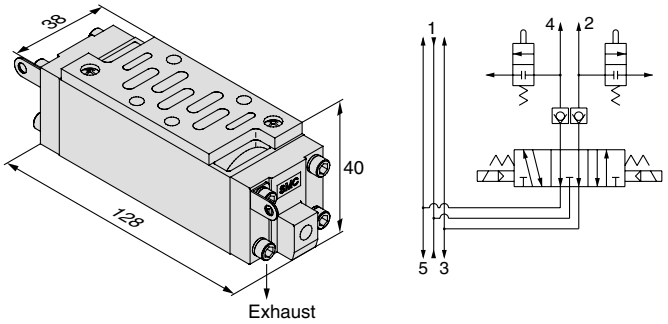
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-8	4

Specifications

Double check spacer part no.		VV71-FPG		
Applicable solenoid or air operated valve		Series VQ7-6, VSA7-6		
Leakage (cm³/min (ANR))	One solenoid energized (One pilot pressurized)	P	R1	130
			R2	
	Both solenoids unenergized (Both pilots unpressurized)	P	R1	130
			R2	
		B	R1	0
		A	R2	

Double check spacer with residual pressure release valve
VV71-FPGR

This is a double check spacer equipped with a residual pressure release function, to release residual pressure inside a cylinder during maintenance or adjustment, etc.



Accessory

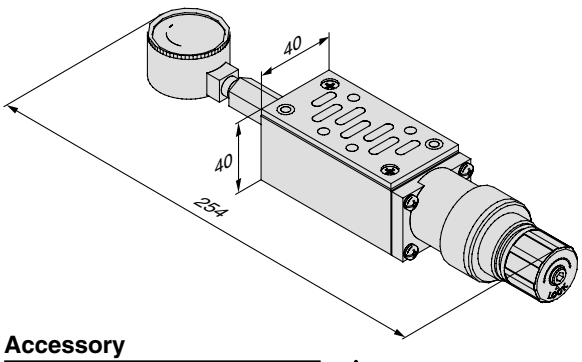
Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-8	4

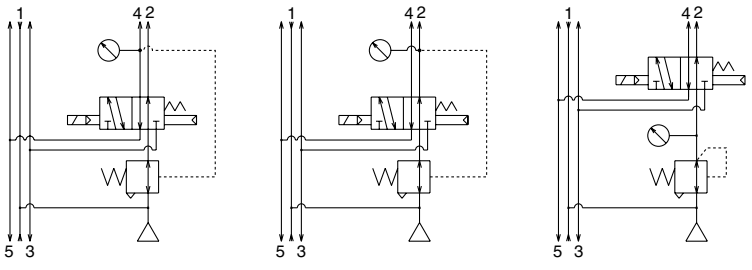
⚠Caution

- Since extended cylinder stops are not possible if there are leaks from piping between the valve and cylinder or from fittings, etc., check for leakage using a neutral liquid detergent.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- Combination of 3 position, closed center and pressure center valves is not possible.
- Set the load weight so that the cylinder side pressure is less than two times the supply side pressure.
- When using the residual pressure release function, confirm the action of actuators, etc., and operate after providing for safety measures.
- Be aware that if the exhaust side of perfect spacer is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

Interface regulator
ARB250-00-$^{P}_{A}_{B}$

Spacer Interface regulators can be placed on top of the manifold block to reduce the pressure of each of the valves.





Accessory

Description	Part no.	Qty.
Gasket	AXT500-13	1
Bolt	AXT632-45-8	4

Part No.

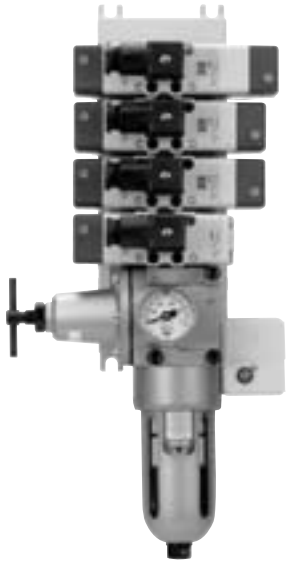
P reduced pressure	ARB250-00-P
A reduced pressure	ARB250-00-A
B reduced pressure	ARB250-00-B

⚠Caution

- When combining a pressure center valve and interface regulator with reduced pressure at ports A and B, use model ARB210-$^{A}_{B}$.
- When combining a reverse pressure valve and interface regulator, use model ARB210-$^{A}_{B}$. Further, it cannot be used with reduced pressure at port P.
- When combining a double check valve and an interface regulator, use a manifold or sub-plate as a basis, and stack them in the following order; the perfect spacer → the interface regulator → the valve.
- When a closed center valve is combined with the interface regulator's A, B port regulation, note that it cannot be used for intermediate stops of a cylinder because there is leakage from relief port on the regulator.

Control Unit

Control equipment (filters, regulators, pressure switches, air release valves) has been made into standardized units which can be mounted on manifolds without any modifications.



Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration degree	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch	
Pressure adjustment range	0.1 to 0.7 MPa
Contact	1 ab
Rated current	(Induction load) 125 VAC 15 A, 250 VAC 15 A
Air release valve (Single only)	
Operating pressure range	0.15 to 1.0 MPa

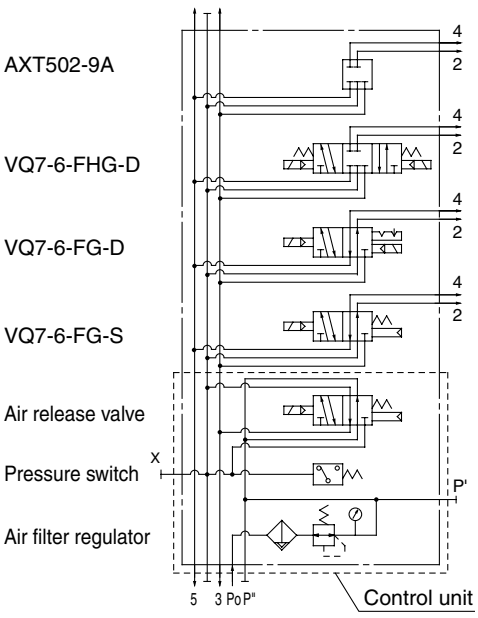
Option

Blanking plate	AXT502-9A (For manifold)
	AXT502-18A (For release valve adapter plate)
	MP2 (For control equipment/filter regulator)
	MP3-1 (For pressure switch)
Release valve adapter plate	AXT502-17A
Pressure switch	IS3100-X230

Control Unit Type

Ordering symbol / Control equipment	Nil	A	AP	M	MP	F	G	C	E
Air filter with auto-drain		○	○			○			
Air filter with manual drain				○	○		○		
Regulator		○	○	○	○	○	○		
Air release valve		○	○	○	○			○	○
Pressure switch			○		○				
Blanking plate (Air release valve)						○	○		
Blanking plate (Filter, Regulator)								○	
Blanking plate (Pressure switch)		○		○		○	○	○	
Number of manifold blocks required for mounting (stations)		2 stations	2 stations	2 stations	2 stations	2 stations	2 stations	2 stations	1 station

Manifold specifications example



Use of Control Unit

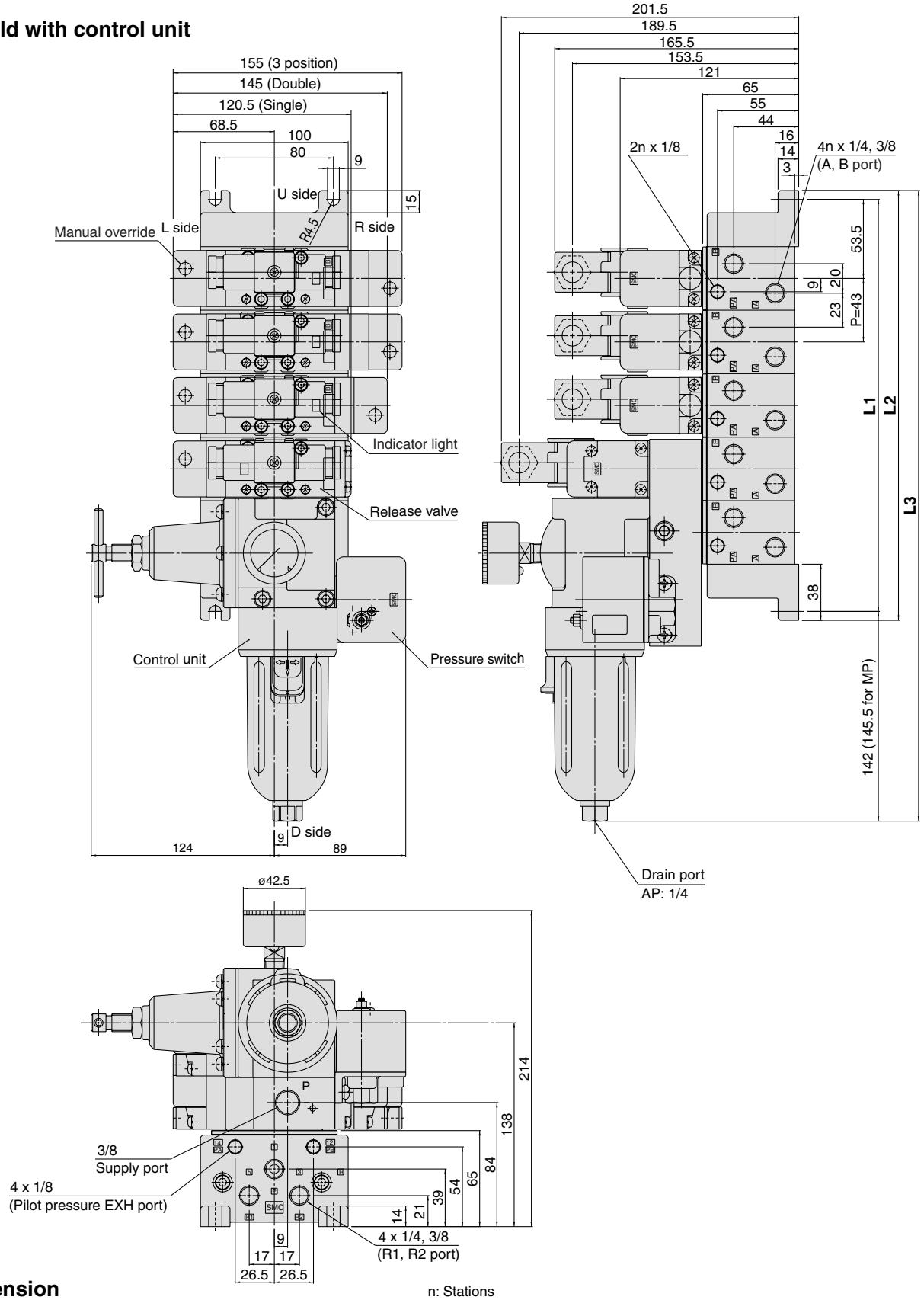
<Construction and piping >

1. The supply pressure (Po) passes through the regulator with filter ① and is adjusted to the prescribed pressure. Next, it goes through the release valve ② (downstream residual pressure switching function used as normally ON) and is supplied to the manifold base side (P).
2. When the release valve ② is OFF, the supply pressure from port Po is blocked, and the air which was being supplied to the manifold side port P passes through the release valve ② and is discharged from port R1.
3. The pressure switch is piped into the outlet side of the release valve ②. (It operates when the release valve ② is energized.) Also, since there is an internal voltage drop of 4V, it may not be possible to confirm the OFF and ON states with a tester, etc.

⚠Caution

- In the case of air filters with auto-drain or manual drain, mount so that the air filter is at the bottom.

Manifold with control unit



L Dimension

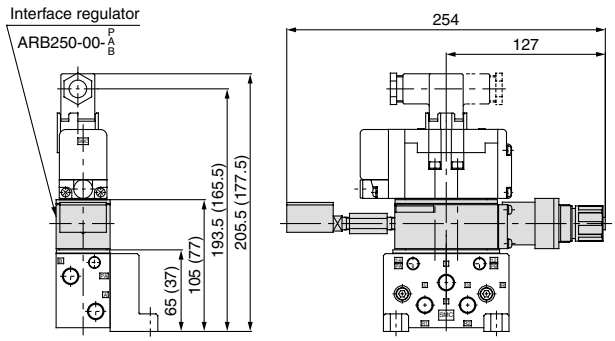
n: Stations

	1	2	3	4	5	6	7	8	9	10	Formula
L1	107	150	193	236	279	322	365	408	451	494	L1 = 43n + 64
L2	119	162	205	248	291	334	377	420	463	506	L2 = 43n + 76
L3	255	298	341	384	427	470	513	556	599	642	L3 = 43n + 212 (215.5)
	(258.5)	(301.5)	(344.5)	(387.5)	(430.5)	(473.5)	(516.5)	(559.5)	(602.5)	(645.5)	

L3 dimensions inside ( ) are for MP.

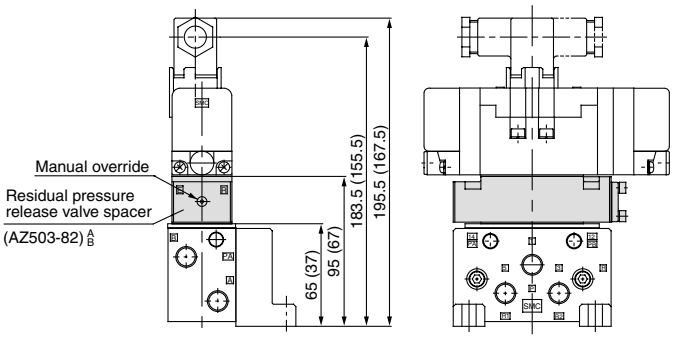
Manifold Option Parts

Interface regulator
ARB250-00-P/A/B



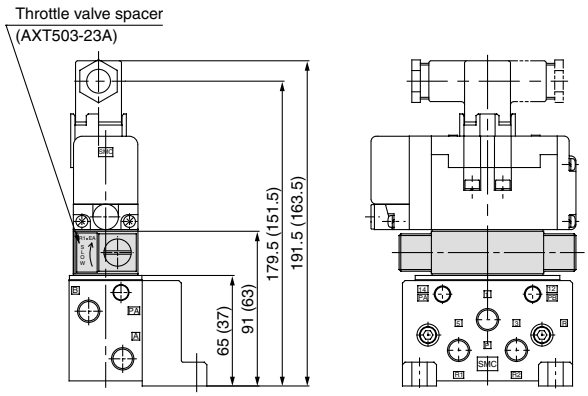
Dimensions inside ( ) are for sub-plate.

Residual pressure release valve spacer
AZ503-82A/B



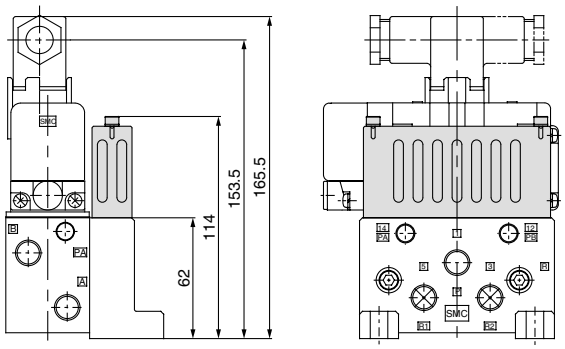
Dimensions inside ( ) are for sub-plate.

Throttle valve spacer
AXT503-23A



Dimensions inside ( ) are for sub-plate.

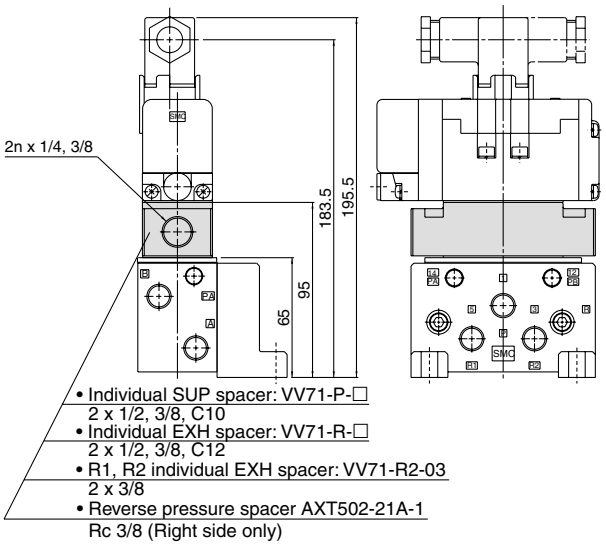
Silencer box
AXT503-60A



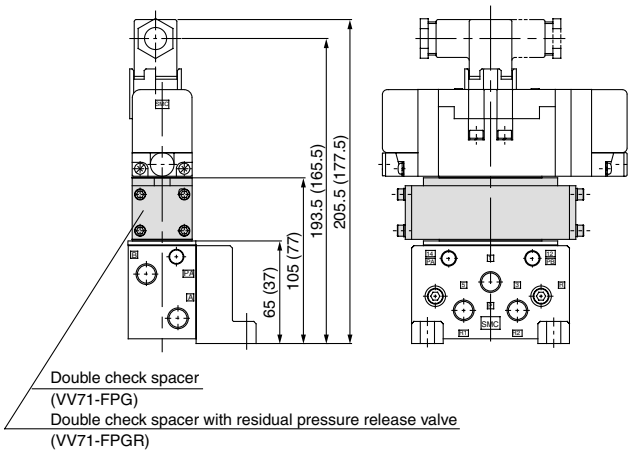
Spare parts

Description	Part no.
Element	AXT503-60-2-4

Individual SUP spacer **VV71-P-□**
Individual EXH spacer **VV71-R-□**
R1, R2 individual EXH spacer **VV71-R2-03**
Reverse pressure spacer **AXT502-21A-1**

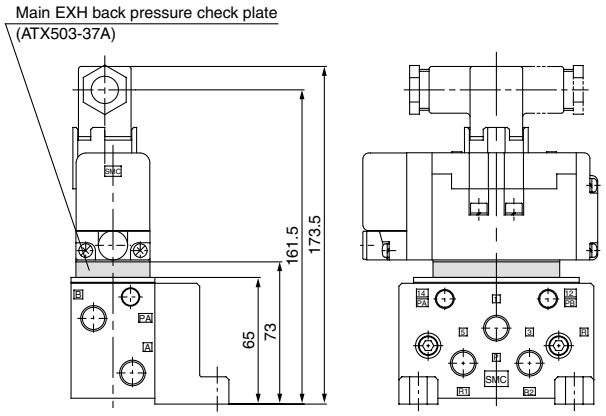


Double check spacer **VV71-FPG**
Double check spacer with residual pressure release valve **VV71-FPGR**

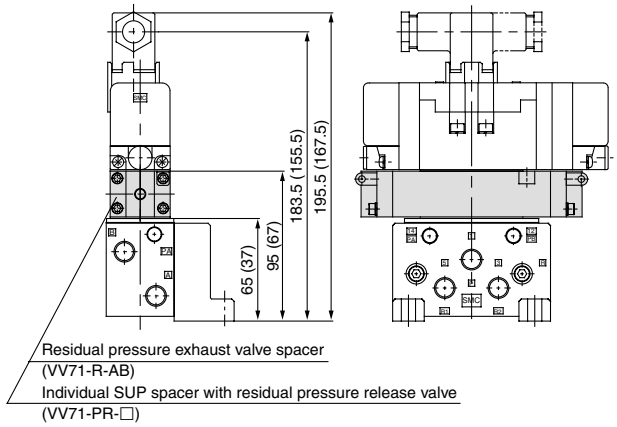


Dimensions inside ( ) are for sub-plate.

Main EXH back pressure check plate
AXT503-37A



Residual pressure release valve spacer **VV71-R-AB**
Individual SUP spacer with residual pressure release valve **VV71-PR-□**



Dimensions inside ( ) are for sub-plate.

ISO Standard Solenoid Valve

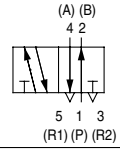
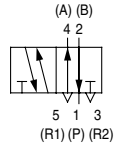
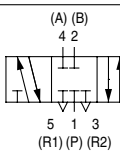
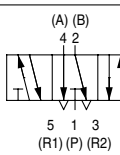
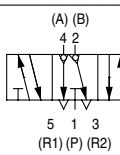
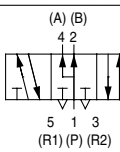
Series VQ7-8

Size 2/Single Unit

How to Order Valves

VQ7 − 8 − FG − S − 3 □ □ □ □ □ □

Passage symbol

FG	
YZ*	
FHG	
FJG	
FPG	
FIG	

(A) (B) 4 2 / 5 1 3 (R1) (P) (R2)

* Option

Number of solenoids

S	Single
D	Double

Coil rated

1	100 VAC
2	200 VAC
3	24 VDC
4	12 VDC
9	Other voltages

* Options: 110 VAC, 120 VAC, 220 VAC, 230 VAC, 240 VAC

Option

Nil	None
Z	Light/Surge voltage suppressor
N	With indicator light

Pilot exhaust

Nil	Common exhaust
V	Individual exhaust

Seal

Nil	Metal seal
R	Rubber seal

Sub-plate port size

Nil	Without sub-plate
A03	Side ported 3/8
A04	Side ported 1/2
A06	Side ported 3/4
B03	Bottom ported 3/8
B04	Bottom ported 1/2
B06	Bottom ported 3/4

Thread type

Nil	Rc
F	G
T	NPTF

Connector

Nil	DIN terminal block (With connector)
O	DIN terminal block (Without connector)
SC	Pre-wired connector

How to Order Sub-plate

VS7 − 2 − A03 □

Port size

A03	Side ported 3/8
A04	Side ported 1/2
A06	Side ported 3/4
B03	Bottom ported 3/8
B04	Bottom ported 1/2
B06	Bottom ported 3/4

Thread type

Nil	Rc
F	G
T	NPTF

Specifications

Model	Porting specifications		Mass (kg)
	Piping location	Port size	
VS7-2-A03□	Side	3/8	0.68
VS7-2-A04□		1/2	
VS7-2-A06□		3/4	1.29
VS7-2-B03□	Bottom	3/8	0.68
VS7-2-B04□		1/2	
VS7-2-B06□		3/4	1.29

Model

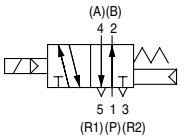
Series	Number of positions		Model		Port size	Flow characteristics						(1) Response time (ms)	(2) Mass (kg)
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)				
						C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv		
VQ7-8	2 position	Single	Metal seal	**VQ7-8-FG-S-□**	3/8	10	0.18	2.4	12	0.24	3.0	40 or less	0.64
			Rubber seal	**VQ7-8-FG-S-□R**		12	0.24	3.0	13	0.27	3.3	45 or less	
		Double	Metal seal	**VQ7-8-FG-D-□**		10	0.18	2.4	12	0.24	3.0	15 or less	0.70
			Rubber seal	**VQ7-8-FG-D-□R**		12	0.24	3.0	13	0.27	3.3	20 or less	
	3 position	Closed center	Metal seal	**VQ7-8-FHG-D-□**		10	0.28	2.4	10	0.24	2.4	45 or less	0.75
			Rubber seal	**VQ7-8-FHG-D-□R**		11	0.25	2.8	11	0.27	2.8	50 or less	
		Exhaust center	Metal seal	**VQ7-8-FJG-D-□**		10	0.16	2.4	10	0.20	2.4	45 or less	0.75
			Rubber seal	**VQ7-8-FJG-D-□R**		11	0.26	2.8	13	0.27	3.3	50 or less	
		Double check	Metal seal	**VQ7-8-FPG-D-□**		7.2	–	–	7.0	–	–	60 or less	1.98
			Rubber seal	**VQ7-8-FPG-D-□R**		7.2	–	–	7.0	–	–	60 or less	
		Pressure center	Metal seal	**VQ7-8-FIG-D-□**		10	0.26	2.4	11	0.25	2.8	45 or less	0.75
			Rubber seal	**VQ7-8-FIG-D-□R**		13	0.27	3.3	12	0.29	3.0	50 or less	

Note 1) Based on JIS B 8375-1981 (Value for supply pressure of 0.5 MPa, with light/surge voltage suppressor, when using clean air.) Response time values will change depending on pressure and air quality. Value when ON for double type.
Note 2) Weight without sub-plate. (Sub-plate: 3/8, 1/2: 0.68 kg, 3/4: 1.29 kg)

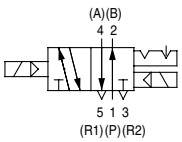


JIS Symbol

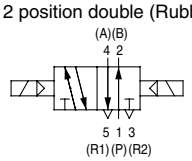
2 position single



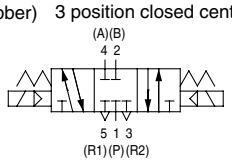
2 position double (Metal)



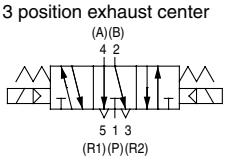
2 position double (Rubber)



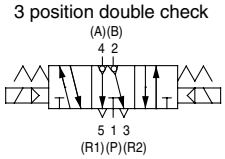
3 position closed center



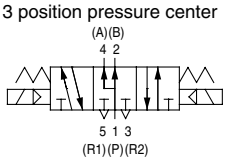
3 position exhaust center



3 position double check



3 position pressure center



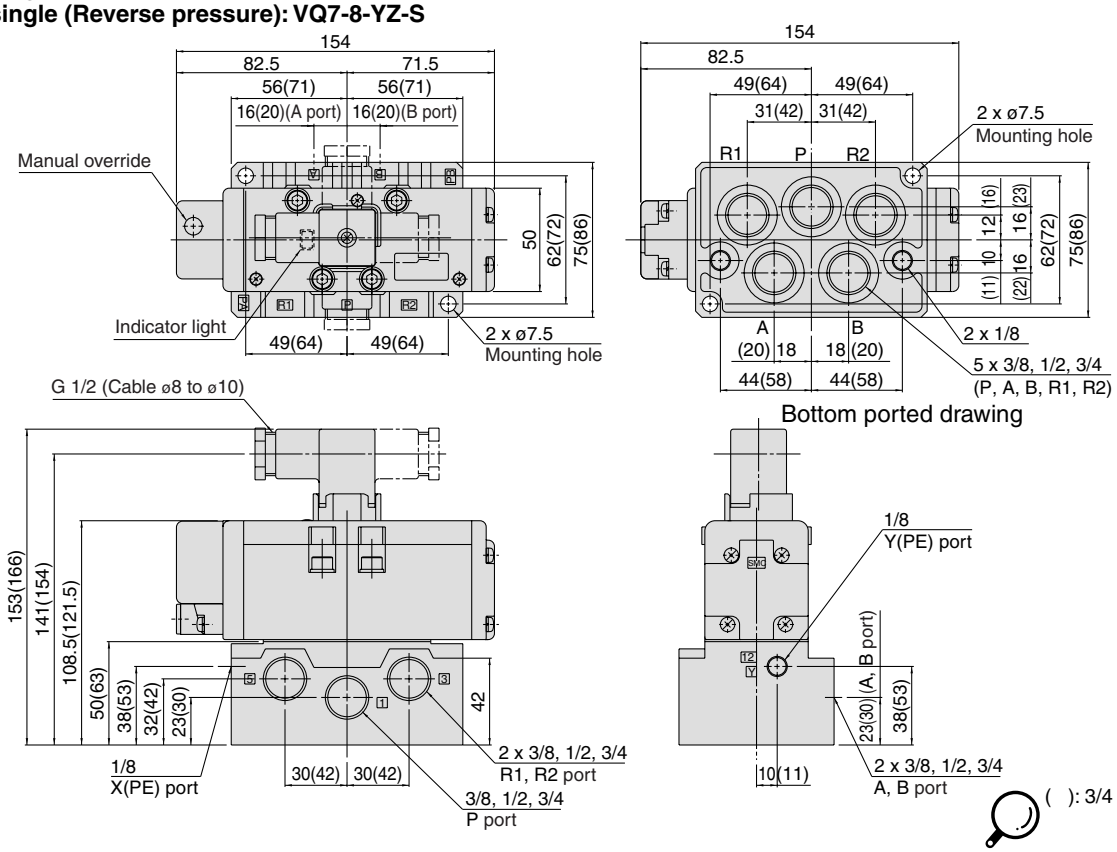
Standard Specifications

Valve specifications	**Valve construction**		Metal seal	Rubber seal
	Fluid		Air/Inert gas	
	Maximum operating pressure		1.0 MPa	
	Min. operating pressure	**Single**	0.15 MPa	0.20 MPa
		Double	0.15 MPa	0.15 MPa
		3 position	0.15 MPa	0.20 MPa
	Ambient and fluid temperature		–10 to 60°C (1)	–5 to 60°C (1)
	Lubrication		Not required	
	Manual override		Push type (Tool required)	
	Shock/Vibration resistance		150/30 m/s² (2)	
	Enclosure		IP65 (Dusttight, Low jetproof)	
Solenoid specifications	**Coil rated voltage**		12 VDC, 24 VDC, 100 VAC, 110 VAC, 200 VAC, 220 VAC, 240 VAC (50/60Hz)	
	Allowable voltage fluctuation		±10% of rated voltage	
	Coil insulation type		Class B or equivalent	
	Power consumption (Current)	**24 VDC**	1 WDC (42 mA)	
		12 VDC	1 WDC (83 mA)	
		100 VAC (3)	1.2 VA (12 mA)	
		110 VAC (3)	1.3 VA (11.5 mA)	
		120 VAC (3)	1.5 VA (12 mA)	
		200 VAC (3)	1.8 VA (8.8 mA)	
		220 VAC (3)	1.8 VA (8.4 mA)	
		230 VAC (3)	2.0 VA (8.7 mA)	
		240 VAC (3)	2.1 VA (8.8 mA)	

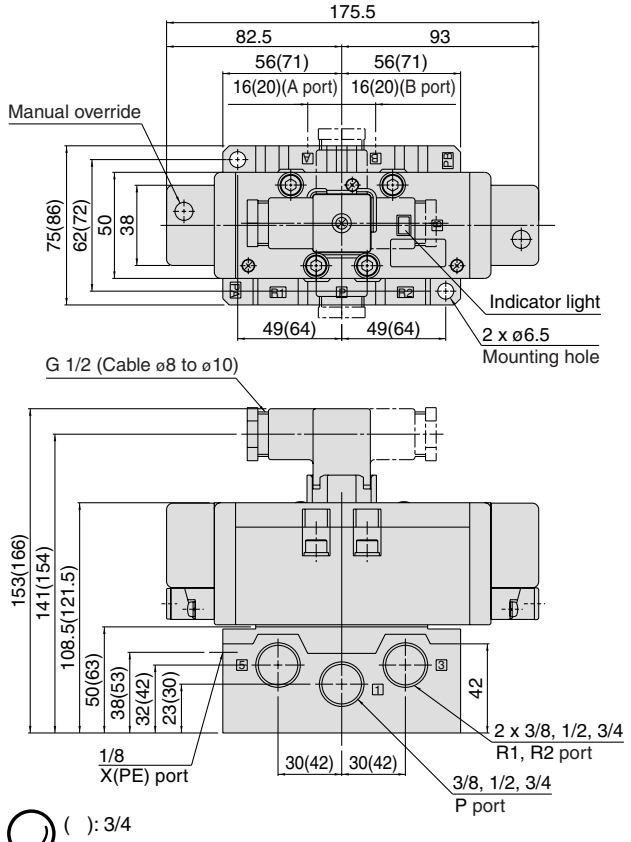
Note 1) Use dry air to prevent condensation when operating at low temperatures.
Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 3) Since AC coil specifications include a rectifying device, there is no difference in power consumption between inrush and holding.

DIN Terminal Type

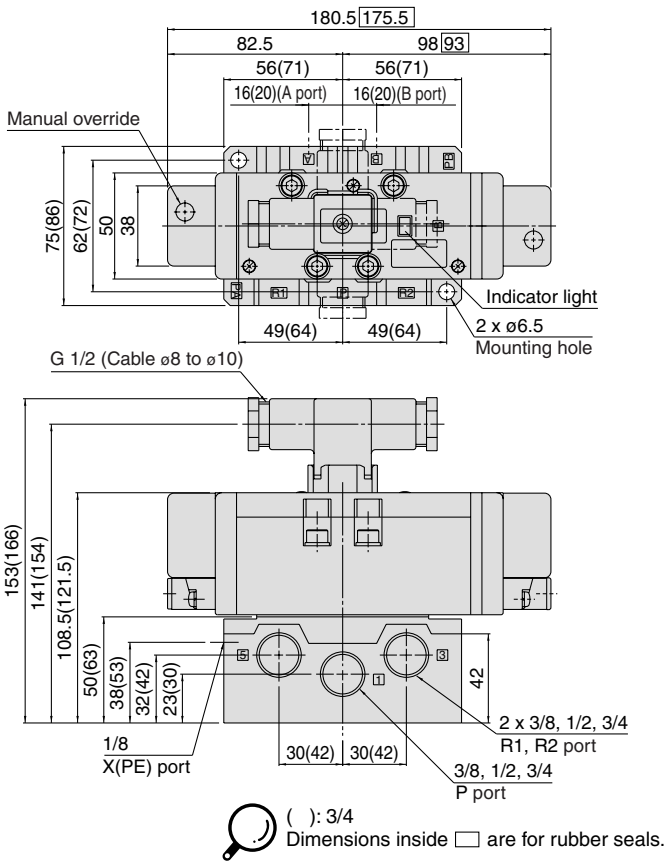
2 position single : VQ7-8-FG-S
single (Reverse pressure): VQ7-8-YZ-S



2 position double : VQ7-8-FG-D
double (Reverse pressure): VQ7-8-YZ-D

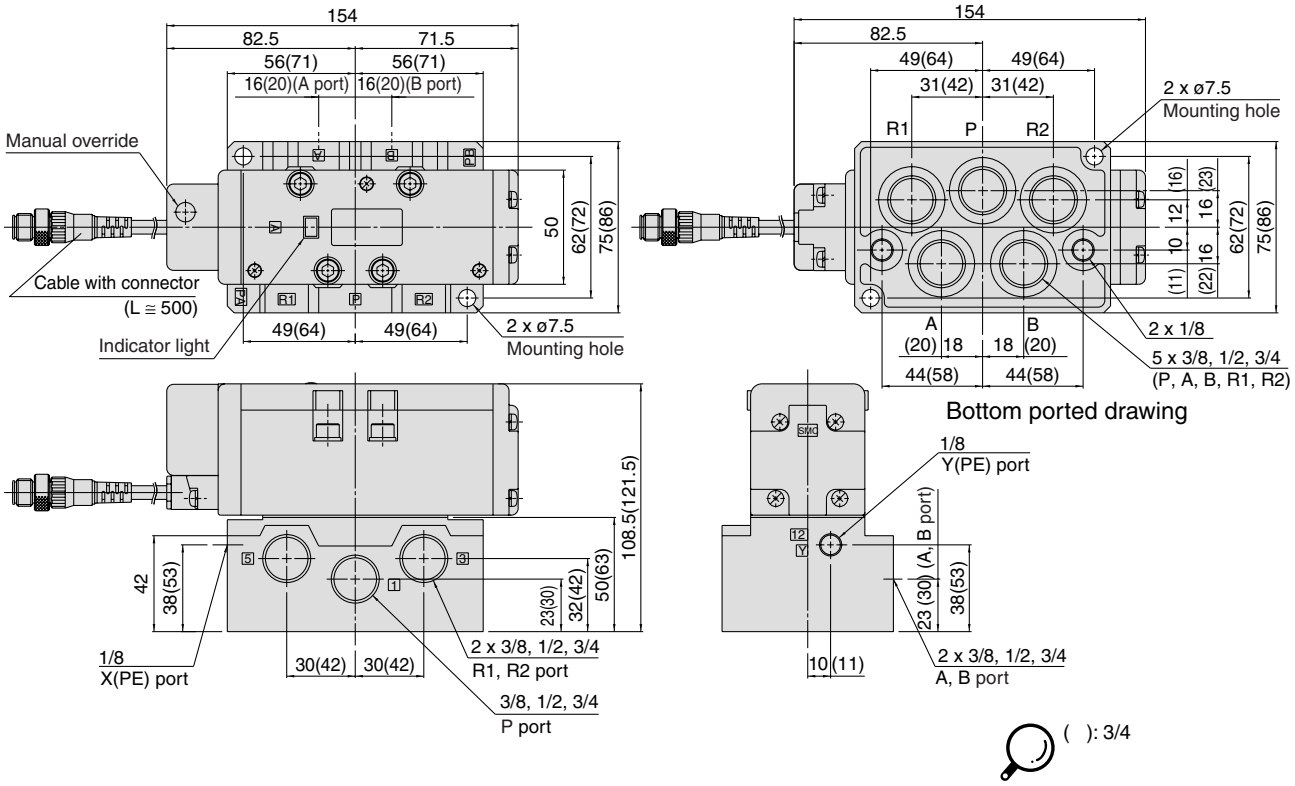


3 position closed center : VQ7-8-FHG-D
exhaust center : VQ7-8-FJG-D
pressure center: VQ7-8-FIG-D

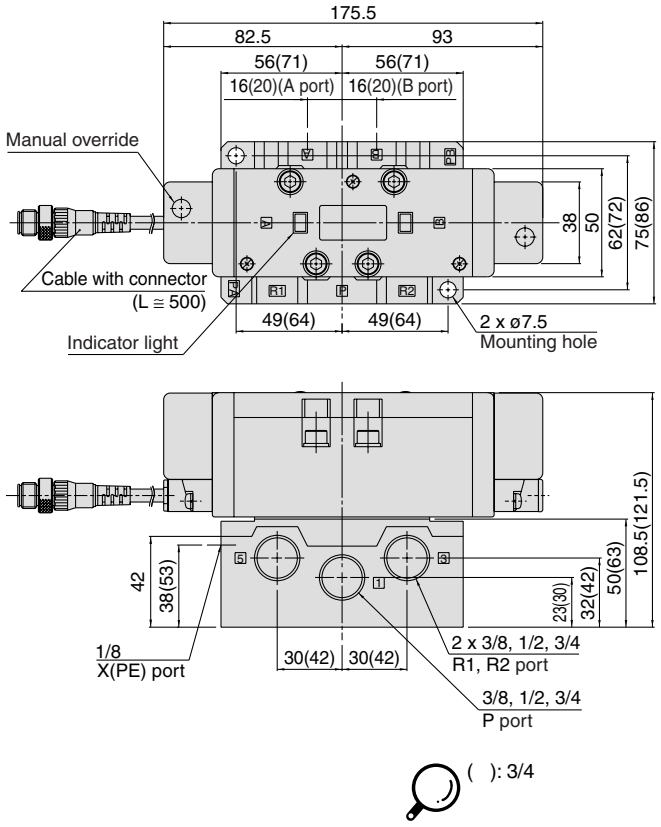


Prewired Connector Type

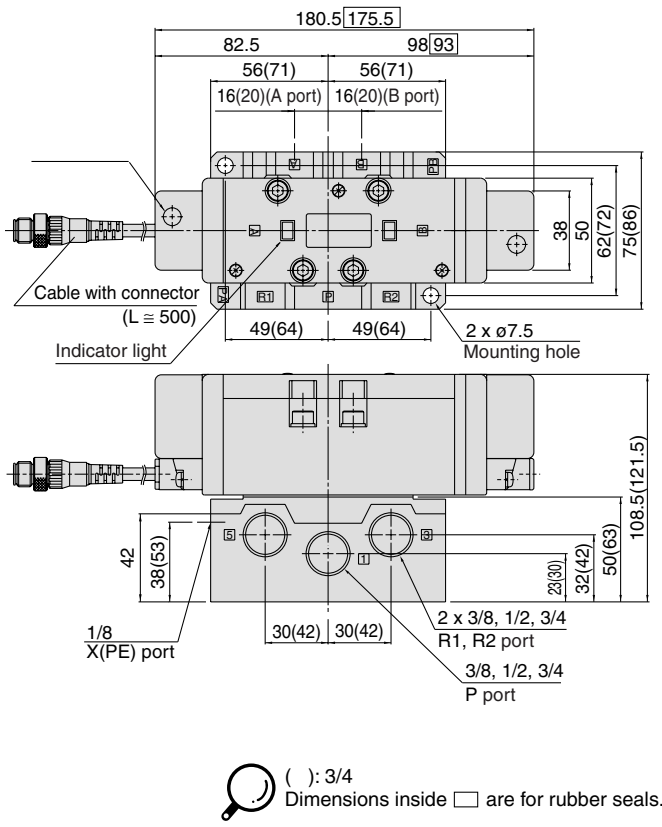
2 position single : VQ7-8-FG-S-□□□□SC
single (Reverse pressure): VQ7-8-YZ-S-□□□□SC



2 position single : VQ7-8-FG-D-□□□□SC
single (Reverse pressure): VQ7-8-YZ-D-□□□□SC



3 position closed center : VQ7-8-FHG-D-□□□□SC
exhaust center : VQ7-8-FJG-D-□□□□SC
pressure center: VQ7-8-FIG-D-□□□□SC

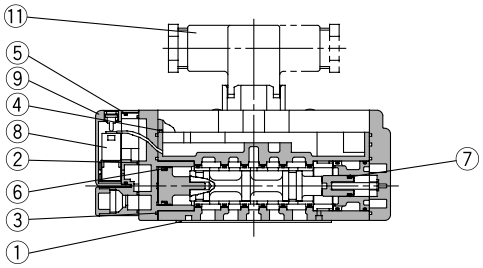


Series VQ7-8
Construction

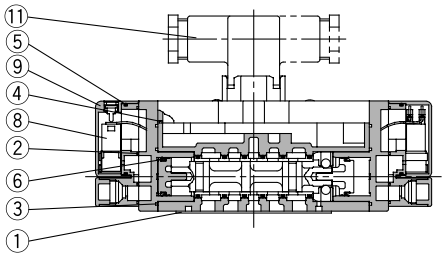
DIN Terminal Type

Metal seal

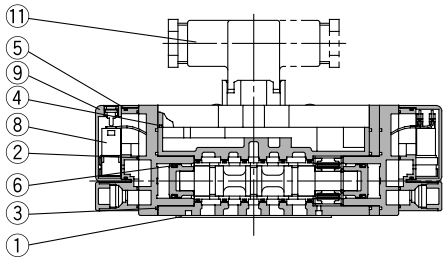
VQ7-8-FG-S-□



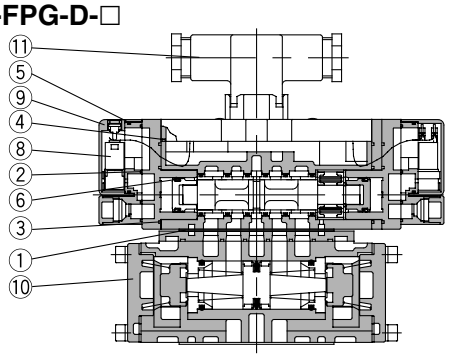
VQ7-8-FG-D-□



VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□

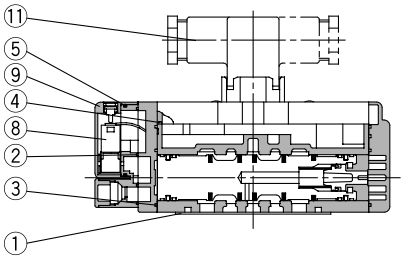


VQ7-8-FPG-D-□

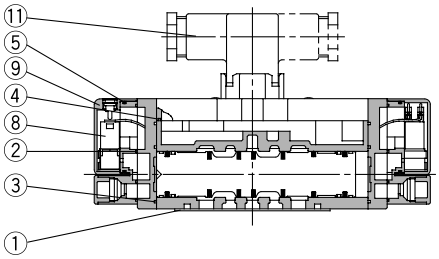


Rubber seal type

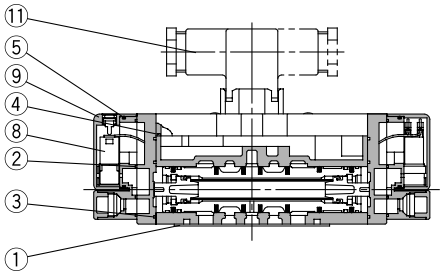
VQ7-8-FG-S-□R□



VQ7-8-FG-D-□R□



VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□R□



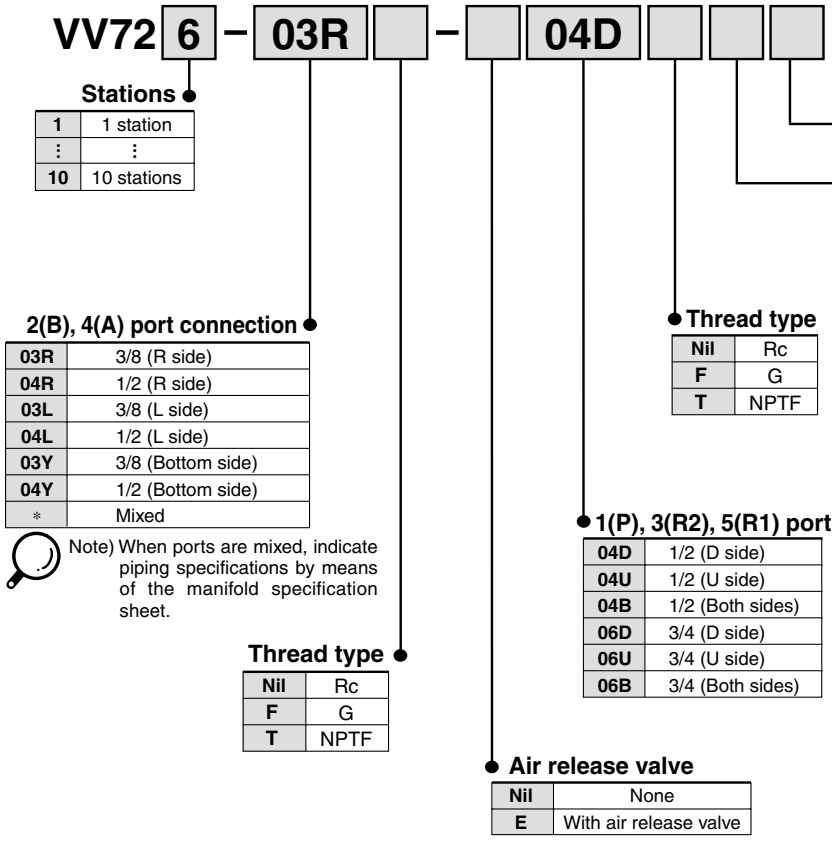
Replacement Parts (For valve)

Number	Description	VQ7-8-FG-S-□	VQ7-8-FG-D-□	VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□	VQ7-8-FPG-D-□	VQ7-8-FG-S-□R□	VQ7-8-FG-D-□R□	VQ7-8-$^{FHG}_{FJG}_{FIG}$-D-□R□
1	**Gasket**	AXT510-13						
2	**Gasket A**	VQ7060-13-2						
3	**Gasket B**	VQ7080-13-1						
4	**Gasket C**	VQ7080-13-3						
5	**O-ring**	37 x 1.6						
6	**Mini Y seal**	MYN-16		MYN-14		—		
7	**Mini Y seal**	MYN-8	—					
8	**Pilot valve assembly** (1) (2)	VQZ110Q-□ (5: 24 VDC, 6: 12 VDC, 1: For AC (3))						
9	**Pilot valve cover**	VQ7060-9A-1						
10	**Double check spacer**	—			VV72-FPG	—		
11	**DIN terminal**	UKL-S1						

Note 1) When the voltage is the same, the replacement of pilot valve assembly is possible.
Note 2) Since the substrate circuit in the valve is different, voltage cannot be changed with the pilot valve assembly.
Note 3) The pilot valve for 100 to 240 VAC is common.

Manifold *Series VV72*
Series VQ7-8

How to Order Manifold

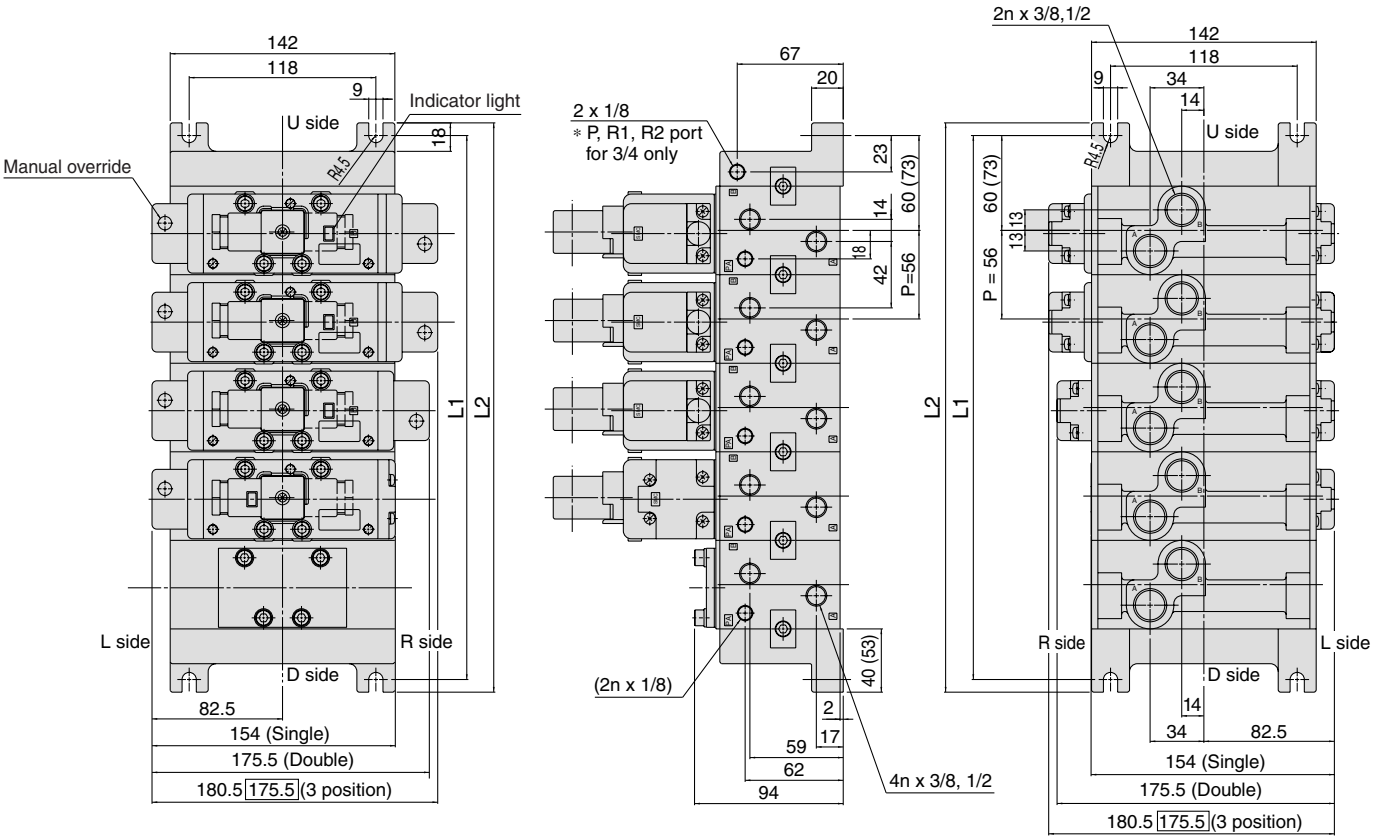


Manifold Specifications

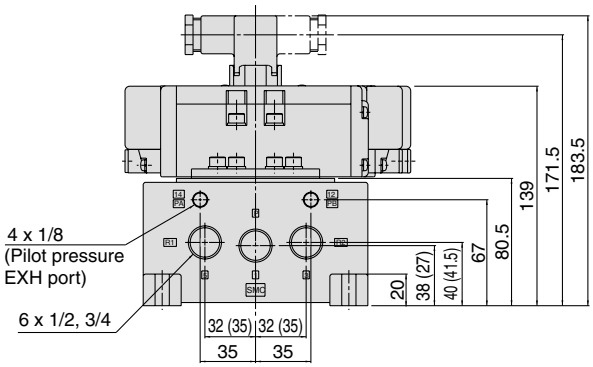
Manifold block size	Applicable solenoid valve	Porting specifications		Stations	Mass (kg)
		2(B), 4(A) port size	1(P), 3(R2) 5(R1) port size		
ISO size 2	Series VQ7-8 ISO size 2	3/8 1/2	1/2 3/4	Max. 10 stations	0.96n + 0.77 (n: Stations)

DIN Terminal Type

VV72□-□-□□□



Bottom ported drawing



L Dimension

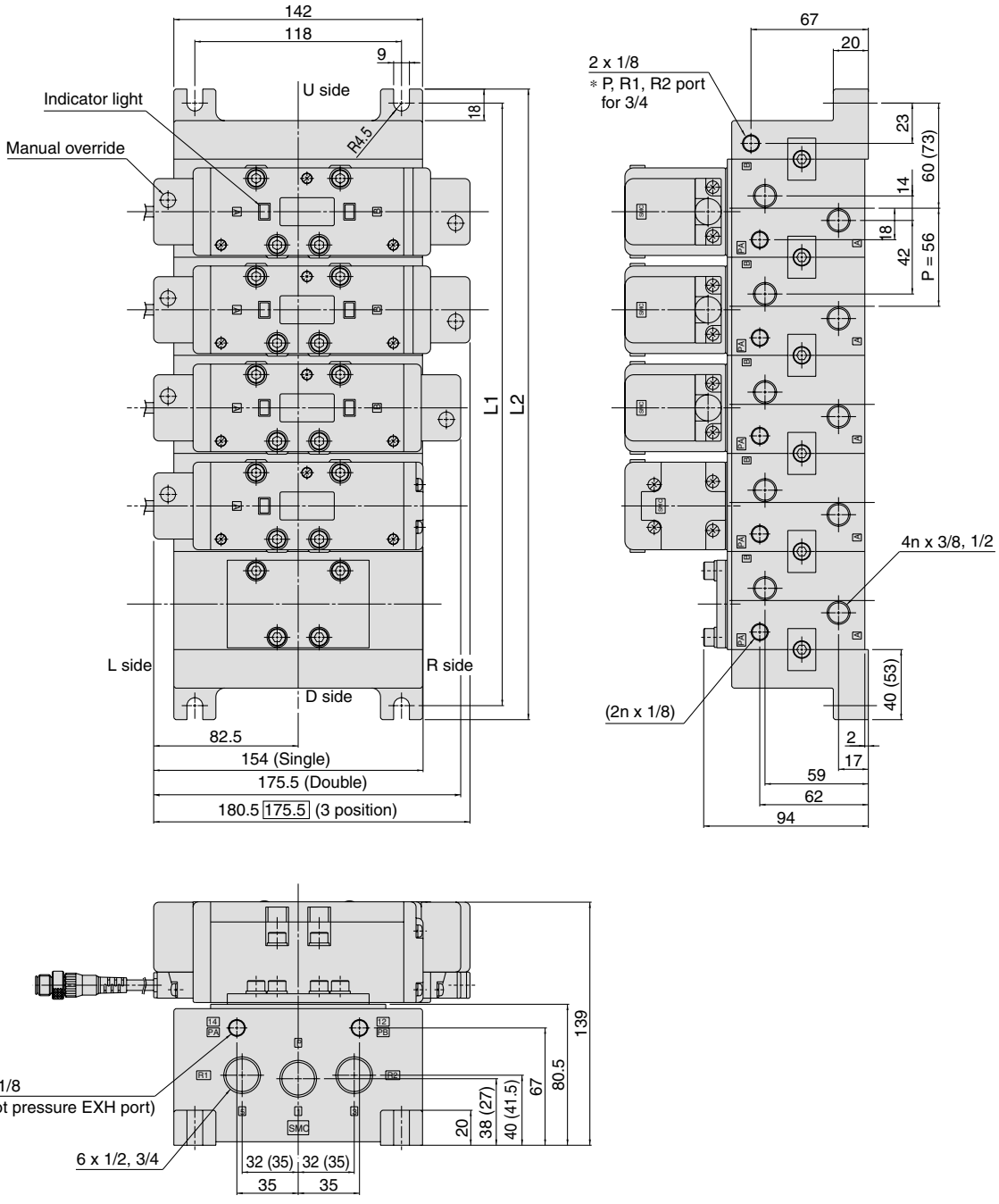
P, R1, R2 port	L \ n	1	2	3	4	5	6	7	8	9	10	Formula
1/2	**L1**	120	176	232	288	344	400	456	512	568	624	n: Stations L1 = 56n + 64
	L2	136	192	248	304	360	416	472	528	584	640	L2 = 56n + 80
3/4	**L1**	146	202	258	314	370	426	482	538	594	650	n: Stations L1 = 56n + 90
	L2	162	218	274	330	386	442	498	554	610	666	L2 = 56n + 106

Note) L dimension of SB type with a port size of 1/2 is the same as of SB type with a port size of 3/4.

( ): 3/4
Dimensions inside □ are for rubber seals.

Pre-wired Connector Type

VV72□-□-□□□



L Dimension

P, R1, R2 port	L \ n	1	2	3	4	5	6	7	8	9	10	Formula
1/2	**L1**	120	176	232	288	344	400	456	512	568	624	n: Stations L1 = 56n + 64 L2 = 56n + 80
	L2	136	192	248	304	360	416	472	528	584	640	
3/4	**L1**	146	202	258	314	370	426	482	538	594	650	n: Stations L1 = 56n + 90 L2 = 56n + 106
	L2	162	218	274	330	386	442	498	554	610	666	

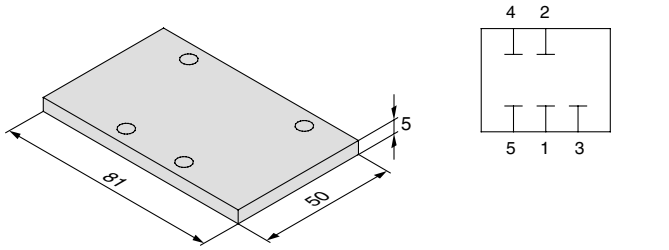
Note) L dimension of SB type with a port size of 1/2 is the same as of SB type with a port size of 3/4.

( ): 3/4
Dimensions inside □ are for rubber seals.

Manifold Option Parts

Blanking plate assembly
AXT512-9A

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.

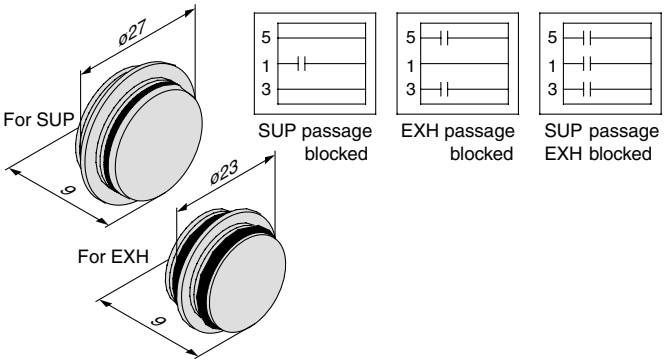


Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-2	4

Block plate (For SUP/EXH passages)
AXT512-14-1A (For SUP)
AXT512-14-2A (For EXH)

When two or more different high pressures are supplied to one manifold, block plates are installed between stations having different pressures.
Also, in cases such as when valve exhaust effects other stations in a circuit, block plates are used for exhaust at stations where the exhaust is to be separated.

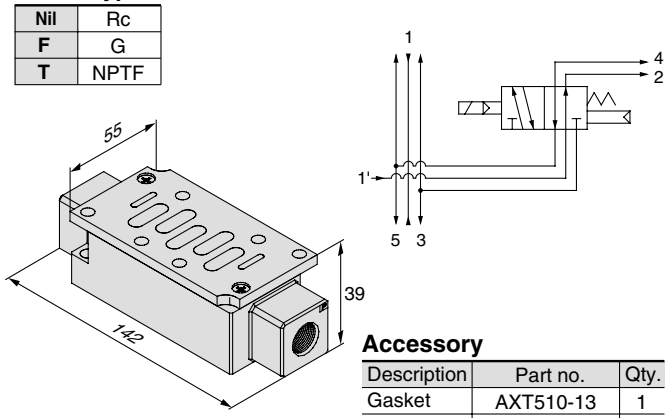


Individual SUP spacer
VV72-P-$^{03}_{04}$ □

Thread type

Nil	Rc
F	G
T	NPTF

By mounting individual SUP spacers on a manifold block, it is possible to provide individual supply ports for each valve.

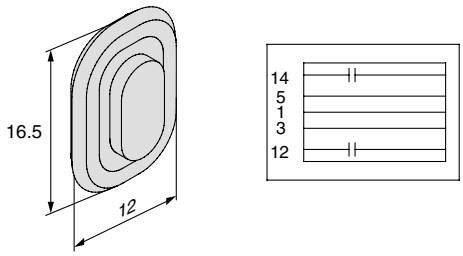


Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

Block plate (For pilot EXH passage)
AZ512-49A

When a valve's pilot valve exhaust effects other valves in a circuit, block plates are used between stations where the pilot exhaust passages are to be separated.

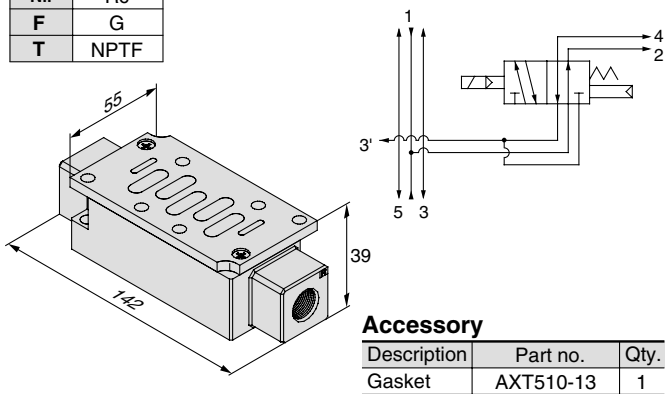


Individual EXH spacer
VV72-R-$^{03}_{04}$ □

Thread type

Nil	Rc
F	G
T	NPTF

By mounting individual EXH spacers on a manifold block, exhaust ports can be provided individually for each valve. (3, 5 common exhaust type)

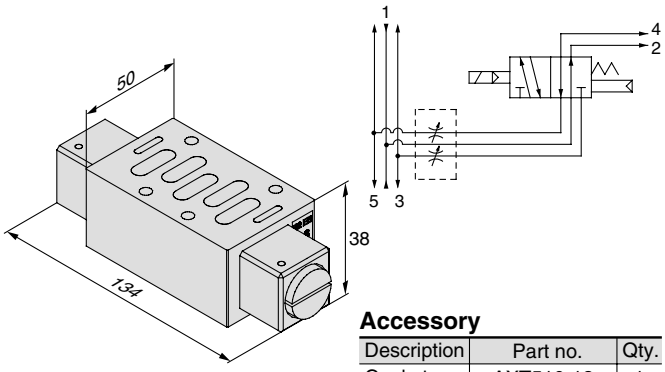


Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

Throttle valve spacer
AXT510-32A

A throttle valve spacer is mounted on a manifold block to control cylinder speed by throttling exhaust air flow.



Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

Reverse pressure spacer
AXT519-19A-□□

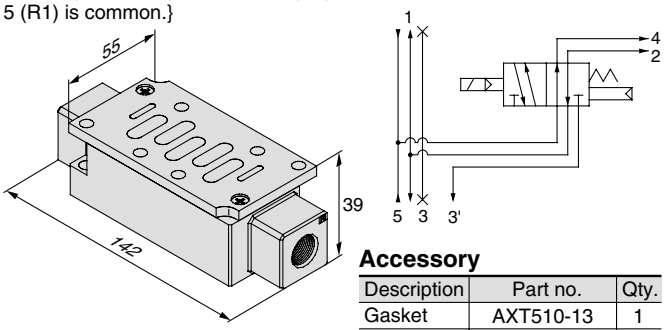
Thread type

Nil	Rc
F	G
T	NPTF

Port size

1	3/8
2	1/2

With reverse pressure control manifold specifications, when pressure is changed individually on one side (ex. high speed cylinder return), pressure can be supplied individually to the R2 side by mounting a reverse pressure spacer. {Port 3 (R2) is individual and 5 (R1) is common.}

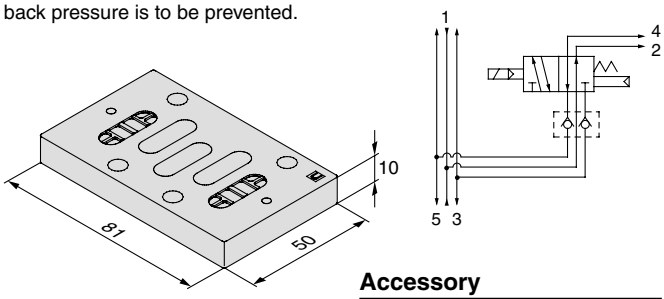


Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

Main EXH back pressure check plate
AXT512-25A

In cases where back pressure effects actuator operation due to simultaneous operation of manifold valves, etc., this effect can be eliminated by installing a plate between the manifold block and the valve from which back pressure is to be prevented.



Accessory

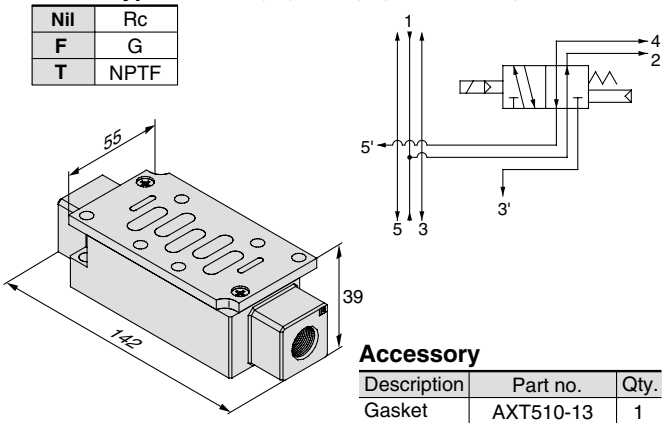
Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-3	4

R1/R2 individual EXH spacer
VV72-R2-04□

Thread type

Nil	Rc
F	G
T	NPTF

By mounting an individual EXH spacer on a manifold block, individual exhaust is possible from both R1 and R2. {3 (R2) and 5 (R1) are individual ports.}



Accessory

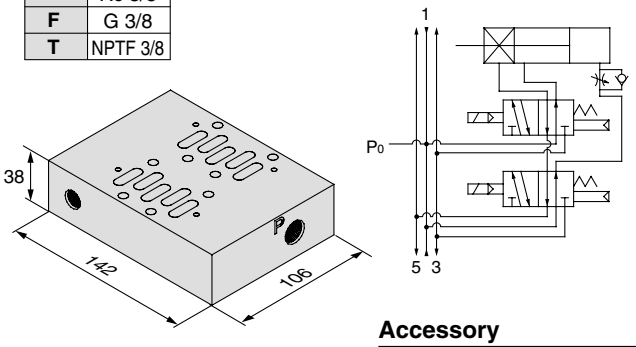
Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

Adapter plate for locked-up cylinder
AXT602-6A□

Thread type

Nil	Rc 3/8
F	G 3/8
T	NPTF 3/8

When using a locked-up cylinder with 2 valves for control, this spacer can be used by mounting on a manifold block. It consists of a circuit equipped with a function to prevent lurching during release.

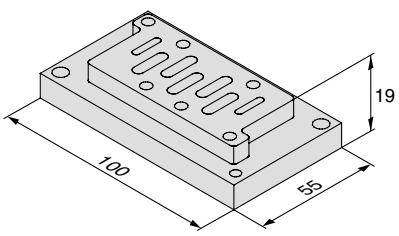


Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	2
Bolt	AXT632-54-5	8

Conversion adapter plate
VV72-V-1

This conversion adapter plate allows a VQ7-6 (size 1) valve to be mounted on a VQ7-8 manifold base.
(V type)



When a conversion adapter plate is mounted, remove the adapter plate on the manifold block and assemble in the order of gasket and conversion adapter plate.

Accessory

Description	Part no.	Qty.
Gasket	AXT512-11	1
Bolt	M6 x 20 (With switch)	2
	M4 x 20 (With switch)	2

Manifold Option Parts

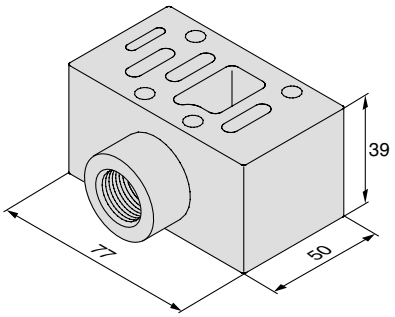
Release valve spacer

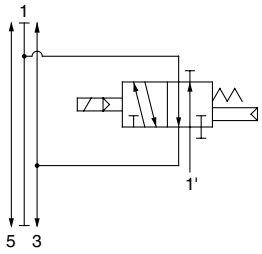
AXT512-17A□

Combination of VQ7-8-FG-S (Single) and release valve spacer can be used as air release valve.
Note) Mounting on 2 position double and 3 position valves is not possible.

Thread type

Nil	Rc(3/8)
F	G(3/8)
T	NPTF(3/8)





Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

Residual pressure release valve spacer

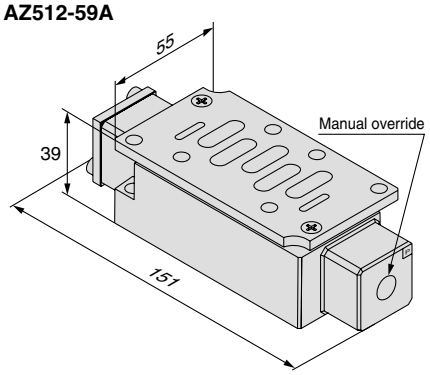
AZ512-59□

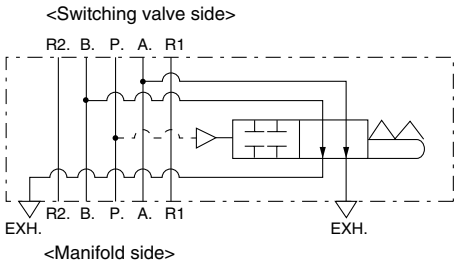
At the same time as pilot pressure is released, residual pressure between the cylinder and valve is released.
There are two pilot types: internal pilot and external pilot types.

Pilot type

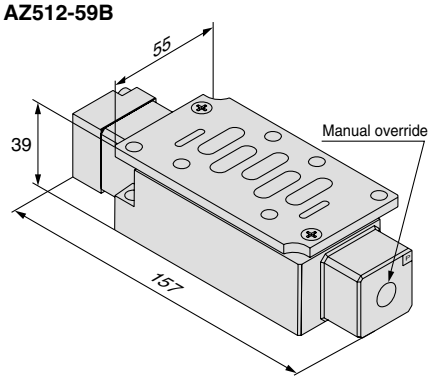
A	Internal pilot
B	External pilot

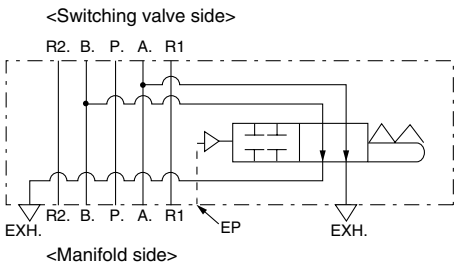
AZ512-59A





AZ512-59B





Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-5	4

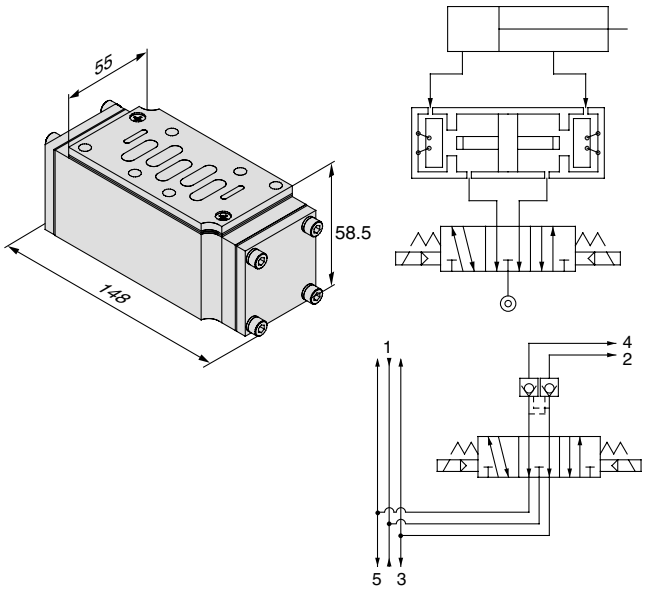
Specifications

Model	AZ512-59A	AZ512-59B
Switching signal type (Pilot type)	Internal pilot	External pilot
Applicable solenoid valve	VQ7-8	
Applicable sub-plate	ISO standard size 1	
Max. operating pressure	1.0 MPa	
Min. operating pressure	0.15 MPa (Pressure generated when the valve element is switched to the stopping side.)	
Ambient and fluid temperature	5 to 60°C	
Lubrication	Non-lube (Use turbine oil Class 1 (ISO VG32), if lubricated.)	

Manifold Option Parts

Double check spacer
VV72-FPG

By combining a 3 position exhaust center valve with a double check spacer, an intermediate stopping position of a cylinder can be held for an extended period. It can also be used for drop prevention at the cylinder stroke end when releasing residual supply pressure, by combining it with a 2 position single or double valve.

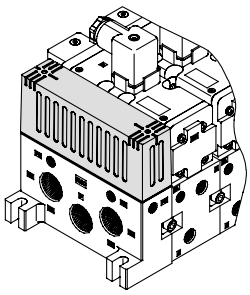


⚠Caution

- Since extended cylinder stops are not possible if there are leaks from piping between the valve and cylinder or from fittings, etc., check for leakage using a neutral liquid detergent.
- Since One-touch fittings allow slight air leakage, screw piping is recommended when stopping the cylinder in the middle for a long time.
- Combination of 3 position, closed center and pressure center valves is not possible.
- Set the load weight so that the cylinder side pressure is less than two times the supply side pressure.
- When using the residual pressure release function, confirm the action of actuators, etc., and operate after providing for safety measures.
- Be aware that if the exhaust side of perfect spacer is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

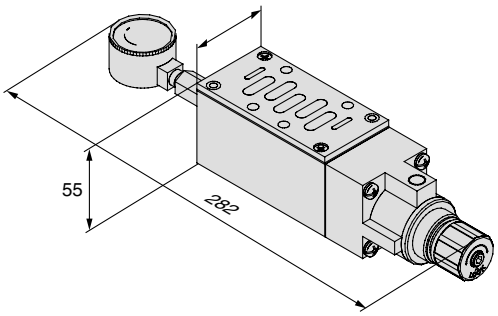
Silencer box
VV72-□□□-□□-SB

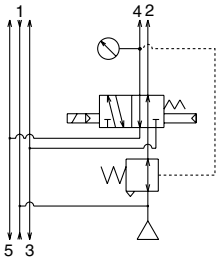
This can be provided as a unit on the end plate to reduce manifold exhaust noise and piping labor.



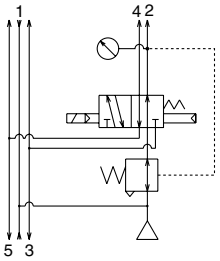
Interface regulator
ARB350-00-$^{P}_{A}$ $_{B}$

Spacer Interface regulators can be placed on top of the manifold block to reduce the pressure of each of the valves.

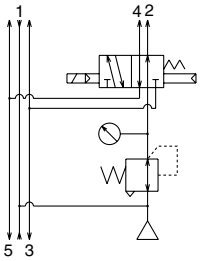




Regulating port A



Regulating port B



Regulating port P

Accessory

Description	Part no.	Qty.
Gasket	AXT510-13	1
Bolt	AXT632-54-6	4

Part No.

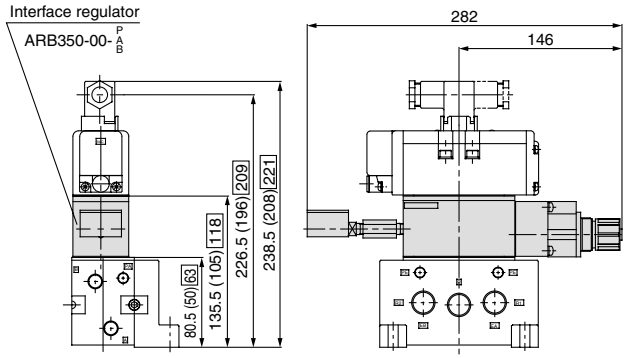
P reduced pressure	ARB350-00-P
A reduced pressure	ARB350-00-A
B reduced pressure	ARB350-00-B

⚠Caution

- When combining a pressure center valve and interface regulator with reduced pressure at ports A and B, use model ARB310-$^{A}_{B}$.
- When combining a reverse pressure valve and interface regulator, use model ARB310-$^{A}_{B}$. Further, it cannot be used with reduced pressure at port P.
- When combining a double check valve and an interface regulator, use a manifold or sub-plate as a basis, and stack them in the following order; the perfect spacer → the interface regulator → the valve.
- When a closed center valve is combined with the interface regulator's A, B port regulation, note that it cannot be used for intermediate stops of a cylinder because there is leakage from relief port on the regulator.

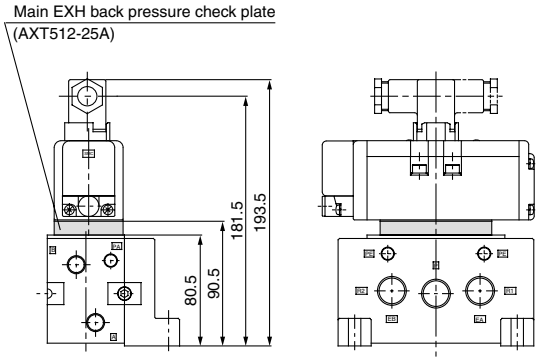
Manifold Option Parts

Interface regulator
ARB350-00-$^{P}_{A}_{B}$

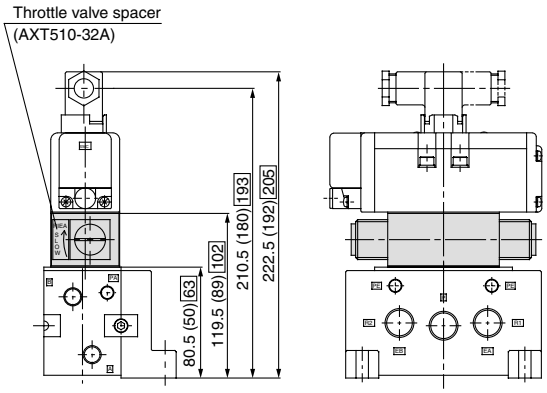


Dimensions inside ( ) are for sub-plate aperture 3/8 and 1/2.
Dimensions inside ☐ are for sub-plate aperture 3/4.

Main EXH back pressure check plate
AXT512-25A

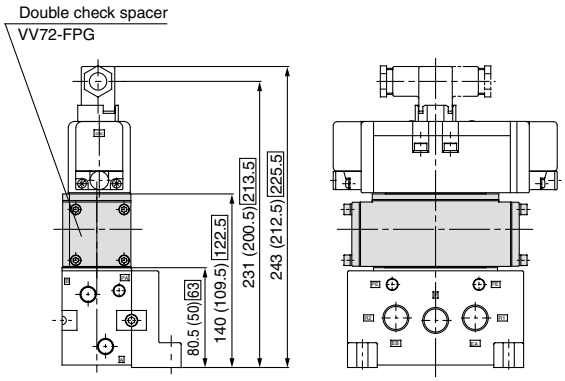


Throttle valve spacer
AXT510-32A



Dimensions inside ( ) are for sub-plate aperture 3/8 and 1/2.
Dimensions inside ☐ are for sub-plate aperture 3/4.

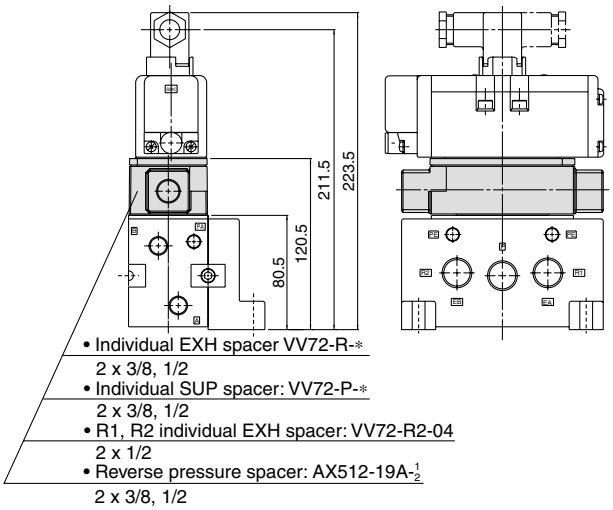
Double check spacer
VV72-FPG



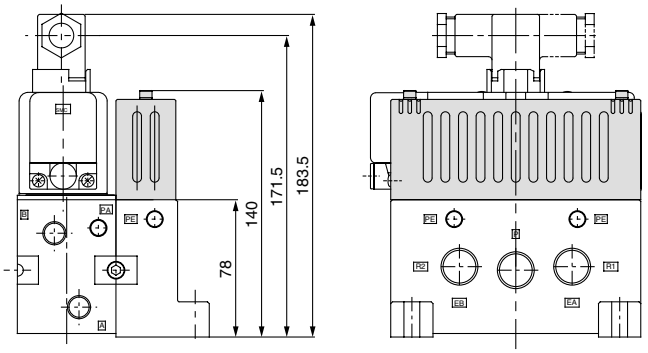
Dimensions inside ( ) are for sub-plate aperture 3/8 and 1/2.
Dimensions inside ☐ are for sub-plate aperture 3/4.

Manifold Option Parts

Individual EXH spacer **VV72-R-03, 04**
Individual SUP spacer **VV72-P-03, 04**
R1/R2 individual EXH spacer **VV72-R2-04**
Reverse pressure spacer **AXT512-19A-$^{1}_{2}$**



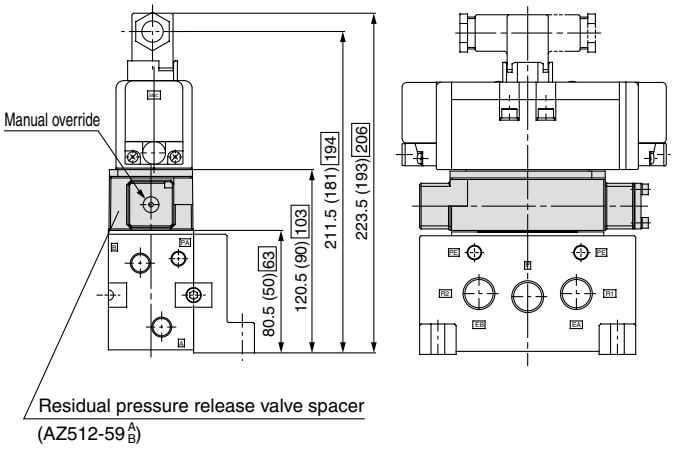
Silencer box
AXT512-26A



Spare parts

Description	Part no.
Element	AXT512-26-2

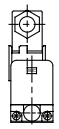
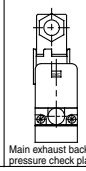
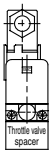
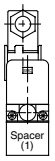
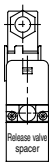
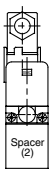
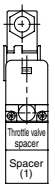
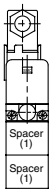
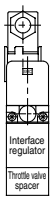
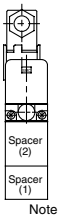
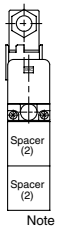
Residual pressure release valve spacer
AZ512-59$^{A}_{B}$

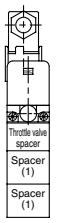
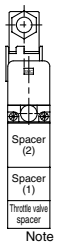
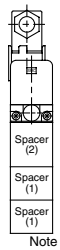
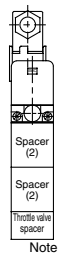
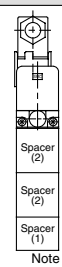


Dimensions inside ( ) are for sub-plate aperture 3/8 and 1/2.
Dimensions inside ☐ are for sub-plate aperture 3/4.

Manifold Option Parts/Mounting Bolt Part No.

VQ7-6 Mounting Bolt Part No.

Number of options		0		Single stack					Double stack				
Mounting bolt	No.	AXT632-45-1	AXT632-45-2	AXT632-45-4	AXT632-45-5	AXT632-45-6	AXT632-45-7	AXT632-45-8	AXT632-45-9	AXT632-45-10	AXT632-45-11	AXT632-45-12	AXT632-45-13
	Size	M5 x 35 with SW	M5 x 15 with SW	M5 x 45 with SW	M5 x 60 with SW	M5 x 65 with SW	M5 x 70 with SW	M5 x 75 with SW	M5 x 90 with SW	M5 x 95 with SW	M5 x 100 with SW	M5 x 105 with SW	M5 x 115 with SW
Option mounting diagram												 Note 2)	 Note 3)

Number of options		Triple stack				
Mounting bolt	No.	AXT632-45-14	AXT632-45-16	AXT632-45-17	AXT632-45-18	AXT632-45-19
	Size	M5 x 120 with SW	M5 x 130 with SW	M5 x 135 with SW	M5 x 140 with SW	M5 x 145 with SW
Option mounting diagram			 Note 1)	 Note 2)	 Note 3)	 Note 3)

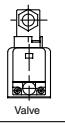
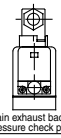
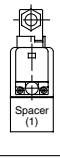
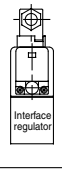
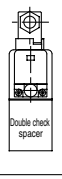
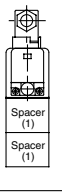
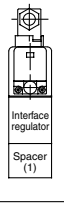
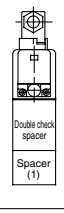
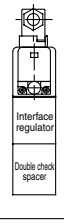
The installation position of spacer (1) in the option mounting diagrams is limited only by the precautions given below.

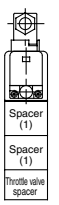
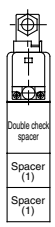
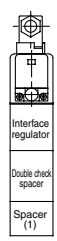
Spacers

- Main EXH back pressure check plate
- Throttle valve spacer
- Release valve spacer
- Spacer (1)
  - Individual SUP spacer
  - Individual EXH spacer
  - R1, R2 individual EXH spacer
  - Reverse pressure spacer
  - Residual pressure release valve spacer
  - Individual SUP spacer with residual pressure release valve
- Spacer (2)
  - Interface regulator (P port regulation)
  - Interface regulator (A port regulation)
  - Interface regulator (B port regulation)
  - Double check spacer
  - Double check spacer with residual pressure release valve

Note 1) A throttle valve spacer and double check spacer (including those with residual pressure release valve) cannot be combined.
Note 2) When a double check spacer (Top) (including those with residual pressure release valve) and individual EXH spacer (Bottom) are combined with a R1, R2 individual EXH spacer (Bottom), be careful regarding the installation position.
Note 3) When an interface regulator (Top) and double check spacer (Bottom) (including those with residual pressure release valve) (Bottom) are combined, be careful regarding the installation position.

VQ7-8 Mounting Bolt Part No.

Number of options		0		Single stack				Double stack			
Mounting bolt	No.	AXT632-54-1	AXT632-54-2	AXT632-54-3	AXT632-54-5	AXT632-54-6	AXT632-54-7	AXT632-54-8	AXT632-54-9	AXT632-54-10	AXT632-54-11
	Size	M6 x 45 with SW	M6 x 18 with SW	M6 x 55 with SW	M6 x 85 with SW	M6 x 100 with SW	M6 x 105 with SW	M6 x 125 with SW	M6 x 140 with SW	M6 x 145 with SW	M6 x 160 with SW
Option mounting diagram											

Number of options		Triple stack			
Mounting bolt	No.	AXT632-54-12	AXT632-54-13	AXT632-54-14	AXT632-54-15
	Size	M6 x 165 with SW	M6 x 180 with SW	M6 x 185 with SW	M6 x 200 with SW
Option mounting diagram					

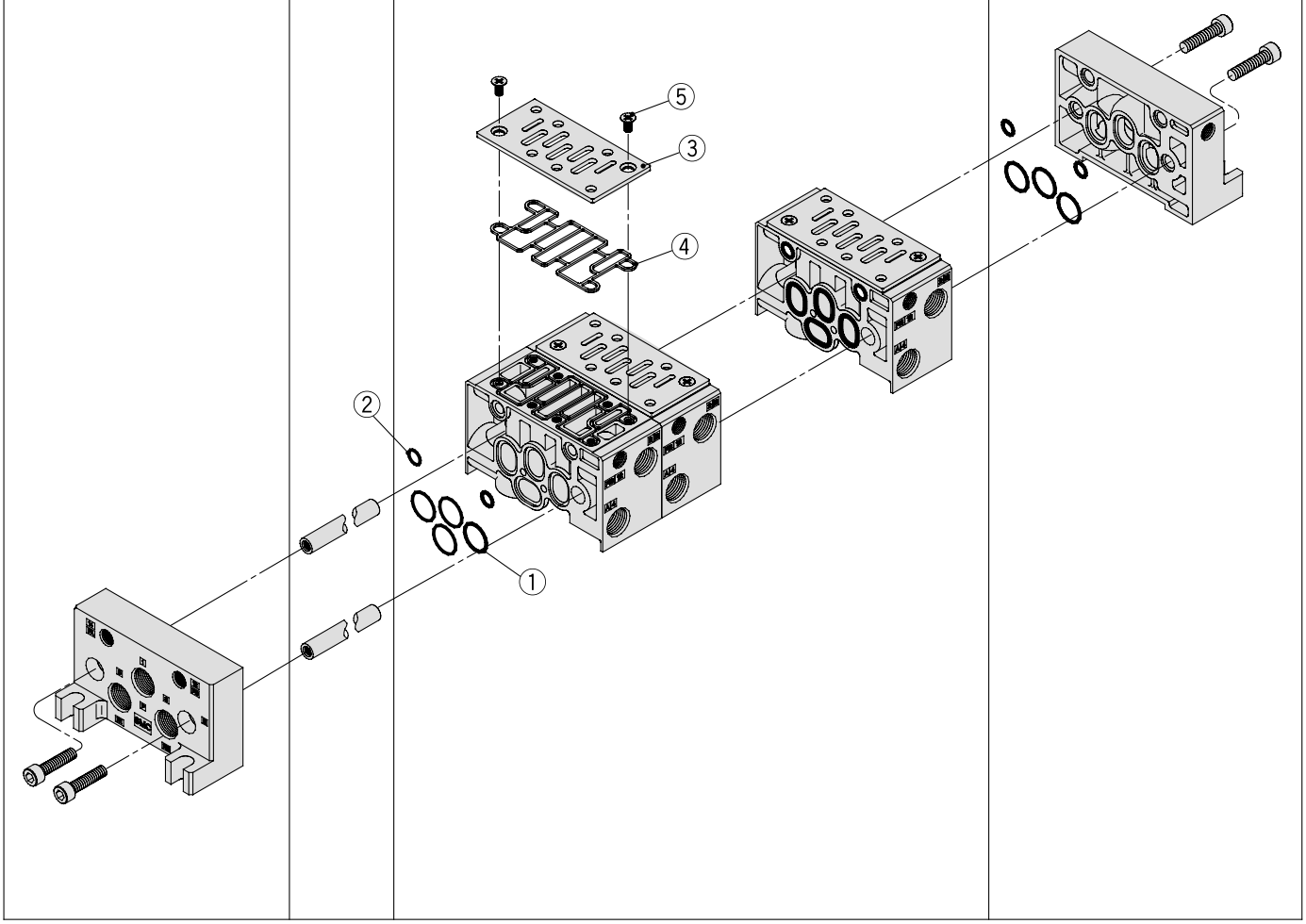
Spacers

- Main EXH back pressure check plate
- Interface regulator (P port regulation)
- Interface regulator (A port regulation)
- Interface regulator (B port regulation)
- Double check spacer
- Spacer (1)
  - Individual SUP spacer
  - Individual EXH spacer
  - R1, R2 individual EXH spacer
  - Reverse pressure spacer
  - Residual pressure release valve spacer
- Throttle valve spacer
- Release valve spacer

Note 1) A throttle valve spacer and double check spacer cannot be combined.
Note 2) There is no limitation on the mounting position for spacer (1).
Note 3) When a double check spacer (Top) (including those with residual pressure release valve) and individual EXH spacer (Bottom) are combined with a R1, R2 individual EXH spacer (Bottom), be careful regarding the installation position.
Note 4) When an interface regulator (Top) and double check spacer (Bottom) (including those with residual pressure release valve) (Bottom) are combined, be careful regarding the installation position.

Exploded View of Manifold/VQ7-6

D side end plate assembly	Tension bolt	Manifold block assembly	U side end plate assembly



<End Plate Assembly>

AXT502 − ☐ A − ☐☐

End plate position

L	U side
R	D side

P, R port size

02	1/4
03	3/8
C12	One-touch fitting for ø12

Thread type

Nil	Rc
F	G
T	NPTF

Note) It is not applicable to One-touch fittings.

<Tension Bolt Part No.>

AXT502 − 34 − ☐

Stations

2	For 2 stations
3	For 3 stations
⋮	⋮
10	For 10 stations

Note) These tie-rods are solid pieces for each number of stations.

<Manifold Block Assembly>

AXT502 − 1A − ☐☐☐ − ☐

Porting specifications

A	Side
B	Bottom

Cylinder port location

L	L side
R	R side

Cylinder port size

02	1/4
03	3/8
C6 (1)	One-touch fitting for ø6
C8 (1)	One-touch fitting for ø8
C10 (1)	One-touch fitting for ø10

Thread type

Nil	Rc
F	G
T	NPTF

Note) It is not applicable to One-touch fittings.

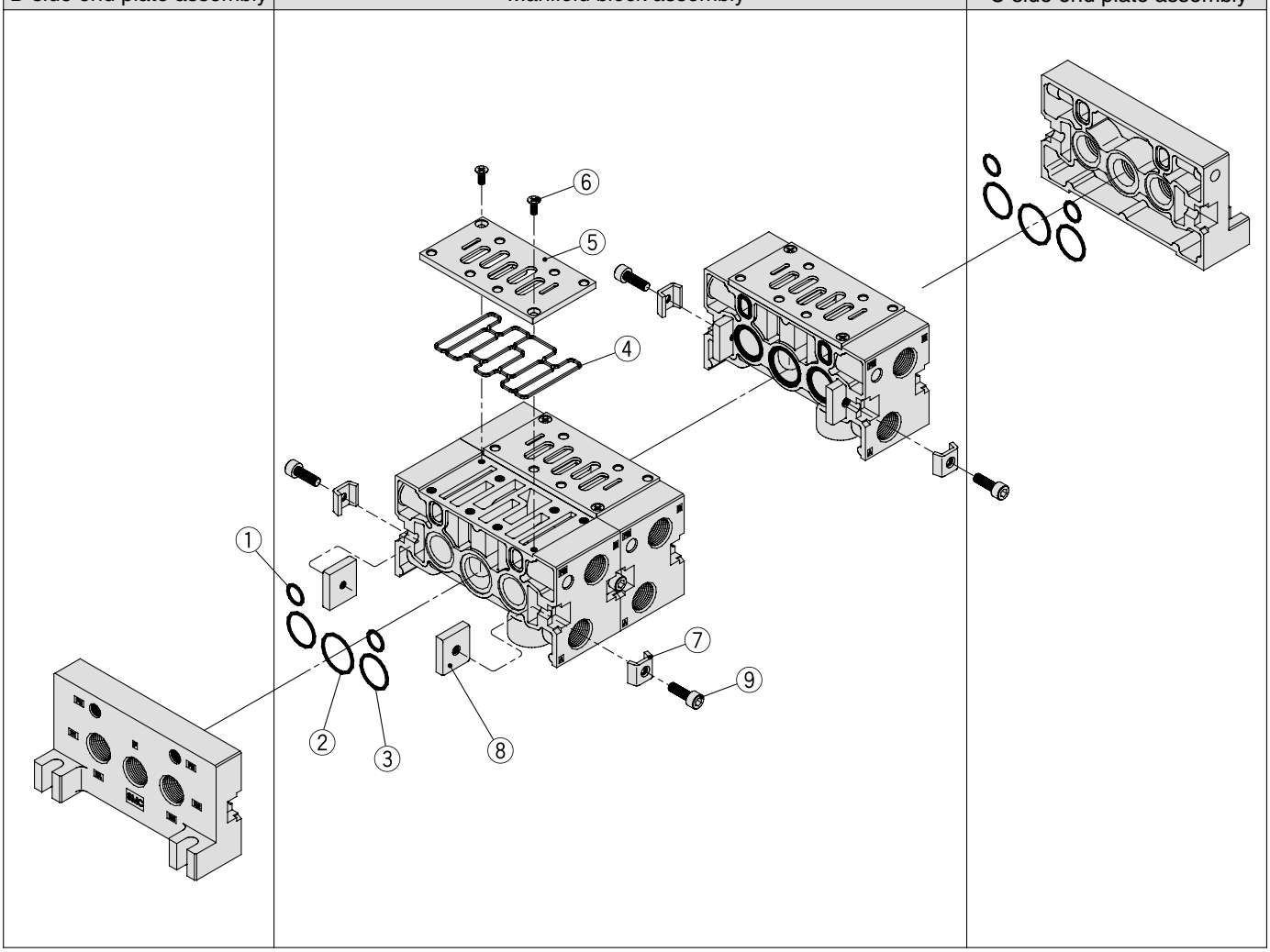
Note 1) Side piping only
Note 2) In this manifold block assembly, the tension bolt for increasing station (1 station) is included.

Replacement Parts (For manifold block)

	Part no.	Description	Qty.	Material
1	AXT502-19	O-ring	4	NBR
2	AXT502-20	O-ring	2	NBR
3	AXT502-22-2	Plate	1	SPCC
4	AXT502-31	Gasket	1	NBR
5	M4 x 8	Oval countersunk head screw	2	SWRH

Exploded View of Manifold/VQ7-8

D side end plate assembly	Manifold block assembly	U side end plate assembly



<End Plate Assembly>

AXT512 – □ A – □□

End plate position

L	U side
R	D side

P, R port size

04	1/2
06	3/4
C12	One-touch fitting for ø12

Thread type

Nil	Rc
F	G
T	NPTF

Note) It is not applicable to One-touch fittings.

<Manifold Block Assembly>

AXT512 – 1A – □□□ – □

Wiring specifications

A	Side
B	Bottom

Cylinder port size

03	3/8
04	1/2

Thread type

Nil	Rc
F	G
T	NPTF

Cylinder port location

L	L side
R	R side

Replacement Parts (For manifold block)

	Part no.	Description	Qty.	Material
1	AXT512-13	O-ring	2	NBR
2	AS568-022	O-ring	1	NBR
3	AS568-020	O-ring	2	NBR
4	AXT512-5	Gasket	1	NBR
5	AXT512-4	Plate	1	SPCC
6	M4 x 10	Oval countersunk head screw	2	SWRH
7	AXT512-6-1	Connection fitting A	2	SPCC
8	AXT512-6-4	Connection fitting B	2	SS
9	AXT512-6-3	Hexagon socket head screw	2	SCM

Series VQ7-6/VQ7-8
Specific Product Precautions 1

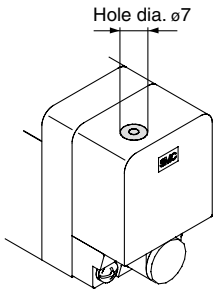
Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

⚠Warning

Manual Override Operation

Since connected equipment will be actuated when the manual override is operated, first confirm that conditions are safe.
Push type is standard. (Tool required)

Push type (Tool required)



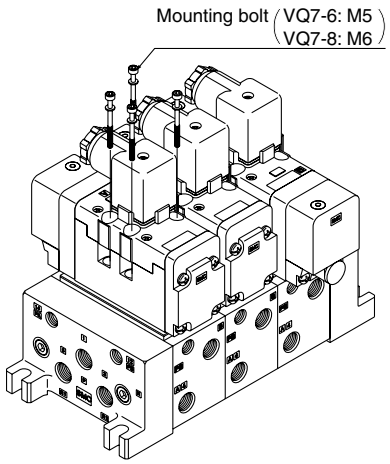
Push down on the manual override button with a small screwdriver until it stops. (Approx. 1.5 mm)
Release the screwdriver and the manual override will return.

⚠Caution

Mounting of Valves

After confirming the gasket is correctly placed under the valve, securely tighten the bolts with the proper torque shown in the table below.

Series	Proper tightening torque (N·m)
VQ7-6	2.3 to 3.7
VQ7-8	4.0 to 6.0



⚠Caution

Installation and Removal of Pilot Valve Cover

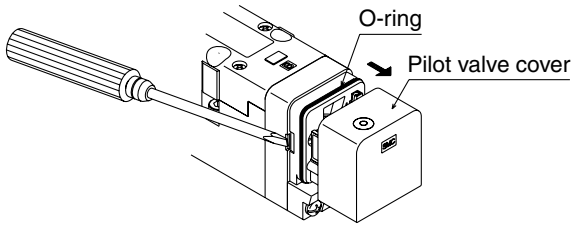
Installation and Removal of Pilot Valve cover

● **Removal**

To remove the pilot valve cover, spread the cover's hook outward about 1 mm with a flat head screw driver, and pull the cover straight off. If it is pulled off at an angle, the pilot valve may be damaged or the protective O-ring may be scratched.

● **Installation**

Put the cover back on straight without touching the pilot valve, and push it all the way until the cover's hook locks, without twisting the protective O-ring. (When pushed in, the hook opensand locks automatically.)

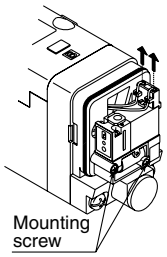


⚠Caution

Replacement of Pilot Valves

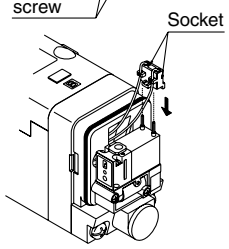
● **Removal**

1. Remove the sockets which are installed on the pilot valve pins by pulling them straight upward.
2. Remove the pilot valve mounting screws with a small screwdriver.

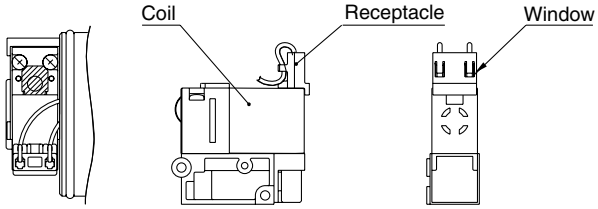


● **Installation**

1. After confirming installation of the gasket, securely tighten the mounting screws with the proper torque shown in the table below.
2. Put the sockets on straight and install them securely so that the receptacle housings touch the coil surface as shown in the drawing below.
   If they are pushed in with excessive force, there is a danger of the sockets coming off of the receptacle housings. Confirm that the sockets do not protrude from the windows on the side of the receptacle housings.



Mounting screw	Proper tightening torque (N·m)
M1.7 x 12	0.12 to 0.13



Series VQ7-6/VQ7-8
Specific Product Precautions 2

Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

⚠Warning

How to Wire DIN Terminal

ISO#: DIN 43650 A compatible

Connection

1. Loosen the top screw and remove the connector housing from the terminal spades on the solenoid.
2. Remove the housing screw and insert a screwdriver into the slot area on the underside of the DIN cap and carefully separate block and housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the core of the lead wire into the terminal in accordance with the prescribed connection method, and attach securely with the terminal screws.
4. Tighten the ground nut to secure the wire.

Change of electrical entry (Orientation)

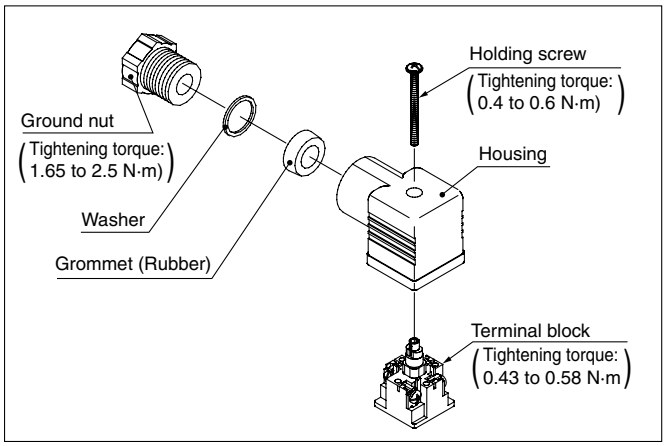
After separating terminal block and housing, the cord entry direction can be changed by attaching the housing in the desired direction (4 directions in 90° increments).

Precautions

Pull a connector out vertically, never at an angle.

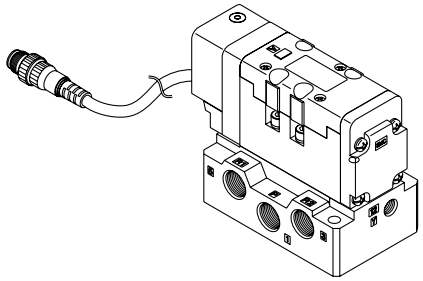
Applicable cable

O.D.: ø8 to ø12 (When you use the cord longer than ø9, cut the inside of grommet along the cutout and then insert the code.)



Using a Pre-wired Connector

4 core wire round type connector (M12) conforming to NECA (Nippon Electric Control Equipment Industries Association) standard 4202

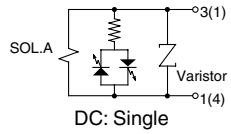


How to Calculate the Flow Rate

Refer to front matters 44 to 47 for How to Calculate the Flow Rate.

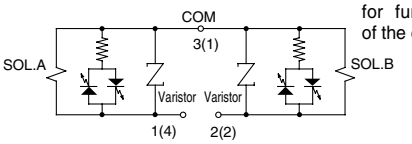
⚠Caution

Internal Wiring Specifications

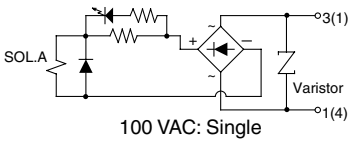


DC: Single

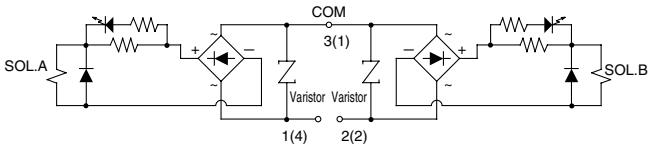
Note) Regarding the wiring for DC, coil surge voltage generated when OFF is about 60V. Please contact SMC separately for further suppression of the coil surge voltage.



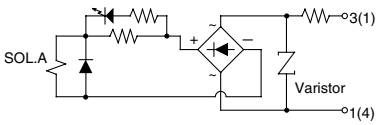
DC: Double



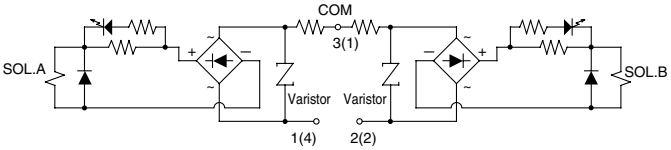
100 VAC: Single



100 VAC: Double



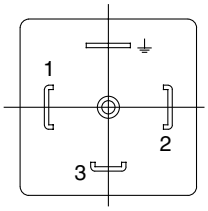
200 VAC or more: Single



200 VAC or more: Double

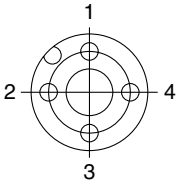
Terminal numbers in the circuits are for a DIN connector.
Numbers inside ( ) are pre-wired connector pin numbers.

DIN terminal wiring specifications



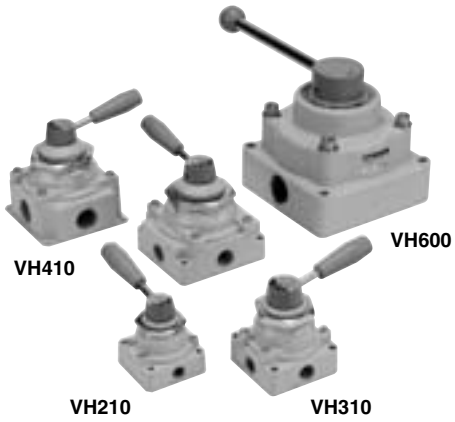
Terminal no.
1: A side SOL.
2: B side SOL.
3: COM terminal

Pre-wired connector wiring specifications



Pin no.
1: COM. pin
2: B side SOL.
3: Not in use
4: A side SOL.

Hand Valve
Series VH



Specifications

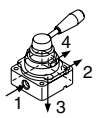
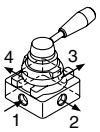
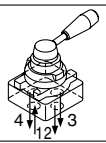
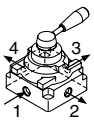
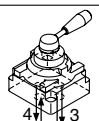
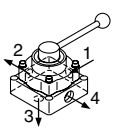
Fluid		Air
Proof pressure		1.5 MPa
Max. operating pressure	**VH200/300/400**	1.0 MPa
	VH600	0.7 MPa
Ambient temperature and operating fluid temperature		–5 to 60°C (No freezing)
Operating angle		90°
Lubrication		Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)

Option

Bottom ported	VH300/400
Panel mounted	VH200/300/400
Different 1(P) port location (On handle side)	All models applicable *

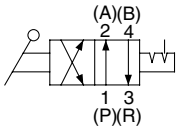
* Note that 1(P) port of VH600 is located on handle side as standard.

Model

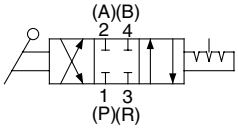
Series	Port size Rc	Number of positions	Piping direction	Model		Effective area (mm²)	Mass (kg)
				Body mounted	Panel mounted		
VH2	1/4	3 (Closed center)		VH200-02	VH210-02	7.5	0.42
		3 (Exhaust center)		VH201-02	VH211-02		
		2 (Position)		VH202-02	VH212-02		
VH3	1/4, 3/8	3 (Closed center)		VH300-02/03	VH310-02/03	Rc 1/4: 17 Rc 3/8: 20	0.71
		3 (Exhaust center)		VH301-02/03	VH311-02/03		
		2 (Position)		VH302-02/03	VH312-02/03		
		3 (Closed center)		VH320-02/03	VH330-02/03		
		3 (Exhaust center)		VH321-02/03	VH331-02/03		
		2 (Position)		VH322-02/03	VH332-02/03		
VH4	1/4 to 3/4	3 (Closed center)		VH400-02 to 06	VH410-02 to 06	Rc 1/4: 45 Rc 3/8: 49 Rc 1/2: 55 Rc 3/4: 58	1.28
		3 (Exhaust center)		VH401-02 to 06	VH411-02 to 06		
		2 (Position)		VH402-02 to 06	VH412-02 to 06		
		3 (Closed center)		VH420-02 to 06	VH430-02 to 06		
		3 (Exhaust center)		VH421-02 to 06	VH431-02 to 06		
		2 (Position)		VH422-02 to 06	VH432-02 to 06		
VH6	3/4, 1	3 (Closed center)		VH600-06/10	–	Rc 3/4: 185 Rc 1: 194	9.7
		3 (Exhaust center)		VH601-06/10			
		2 (Position)		VH602-06/10			

JIS Symbol

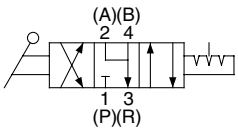
2 position



Closed center

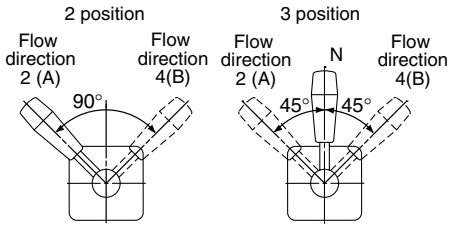


Exhaust center



Handle Operation Angle and Air Flow Direction

(Refer to the figures of piping direction to the right.)



How to Order

VH 2 0 1 – □ 02 – □ – □

Hand valve

Body size (Base size)

2	1/4 base
3	3/8 base
4	1/2 base
6	1 base

Piping/Mounting

Symbol	Piping Note)	Mounting method
0	Side	Body
1	Side	Panel mounting
2	Bottom	Body
3	Bottom	Panel mounting

Note) Only side piping is available for VH200 and VH600 and 3(R) port is located on the bottom.

Function

0	3 position closed center
1	3 position exhaust center
2	2 position

Thread type

Nil	Rc
F	NPT
N	G

Port size (Nominal size)

Symbol	Port size (Nominal size)	Applicable body size
02	1/4	2, 3, 4
03	3/8	3, 4
04	1/2	4
06	3/4	6
10	1	6

Suffix symbol

Nil	Standard
L	Long handle (Applicable to VH300/400)
R	1(P) port 180° location change

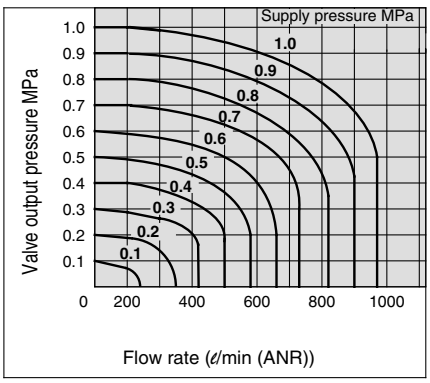
∗ When specifying more than one option, indicate symbols alphabetically.

Made to Order

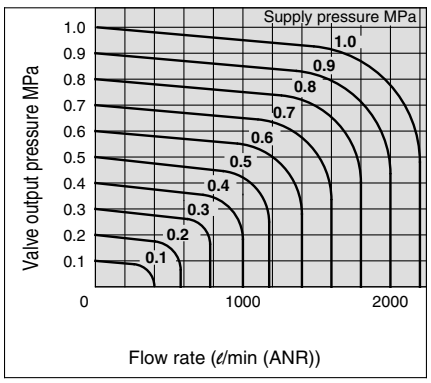
Nil	Standard
X116	Handle (Red)

Flow Characteristics

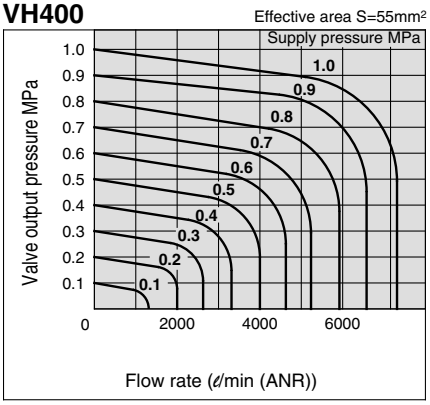
VH200



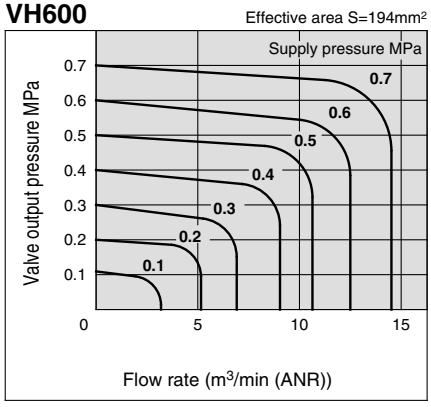
VH300



VH400

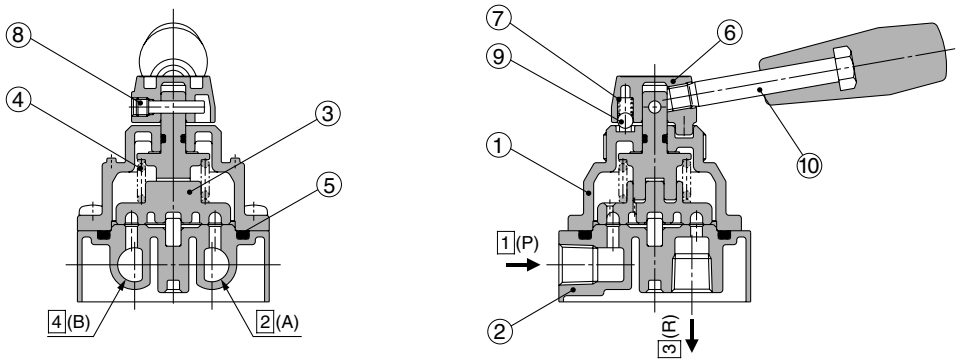


VH600

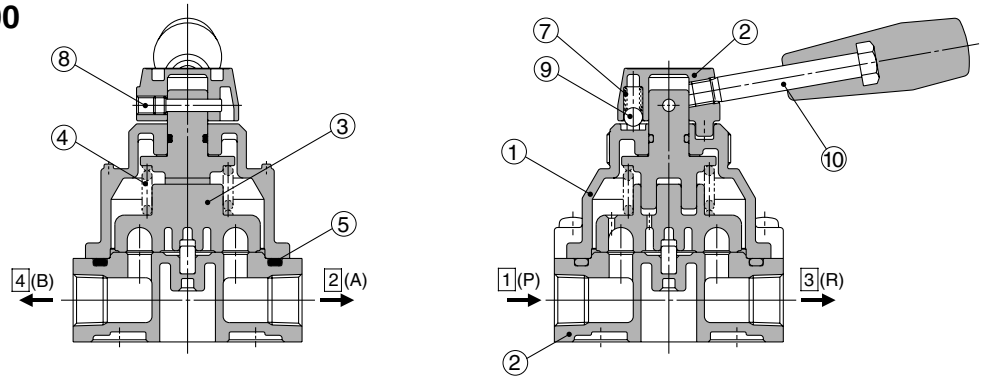


Construction

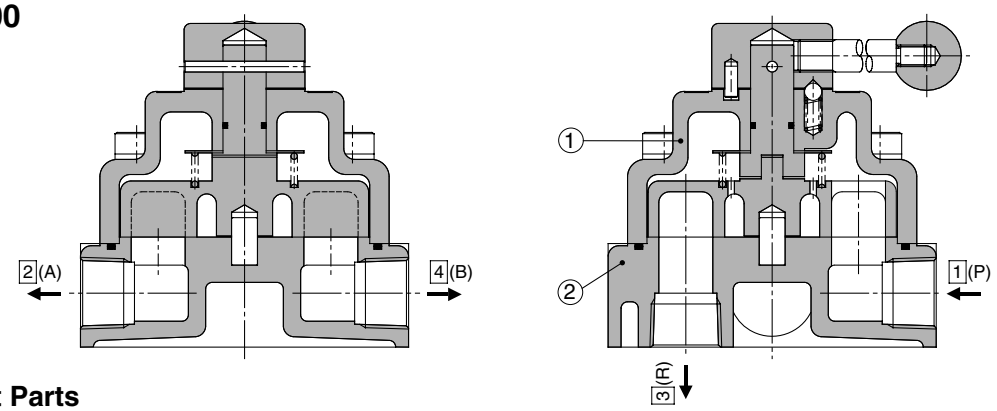
VH200



VH300/400



VH600



Component Parts

No.	Description	Material	
		VH200/300/400	VH600
1	Cover	Zinc die-casted	Cast iron
2	Body	Aluminium die-casted	Cast iron

Replacement Parts

Description	No.	Component parts	Material	Part no.		
				VH200	VH300	VH400
Maintenance and repair kit *	3	Slide ring	Resin	KT-VH2□□-N	KT-VH3□□-N	KT-VH4□□-N
	4	Slide ring spring	Piano wire			
	5	O-ring	NBR			
Handle head assembly *	6	Handle head	Zinc alloy	24403A	24413A	24413A
	7	Spring	Piano wire			
	8	Pin	Structural steel			
	9	Steel ball	SUJ			
Handle head assembly *	6	Handle head	Zinc alloy	244036A	244125A	244125A
	7	Spring	Piano wire			
	8	Pin	Structural steel			
	9	Steel ball	SUJ			
	10	Handle	—			
Handle	10	Standard	—	244032	244032	244032
		Long type		—	244127	244223
		Red		244035	244035	244035

Note) Replacement parts for the VH600 series are not available.
* Including grease.

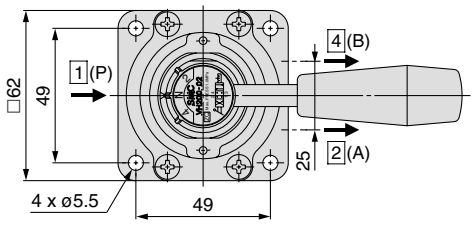
Part No. of Lock Nut for Panel Mounting

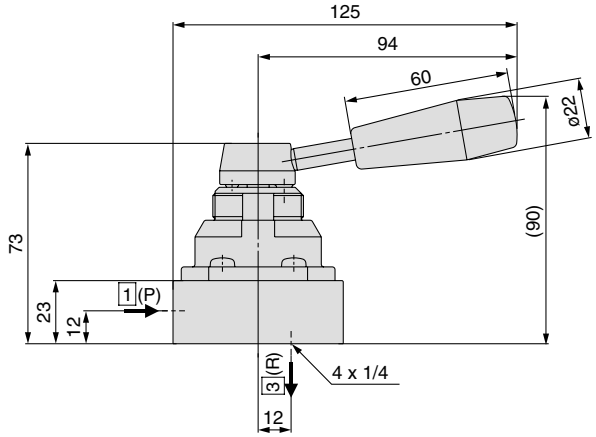
Series	Part no.
VH200	244010
VH300	24418
VH400	240258

Note) Not applicable to the VH 600 series.

Dimensions: Body Mounted

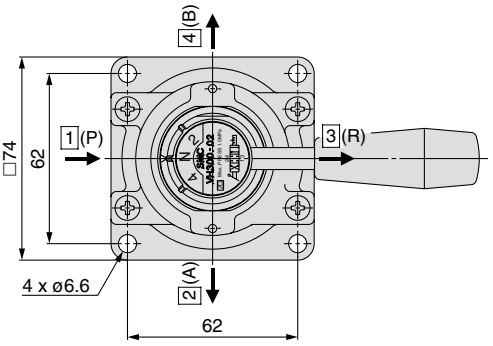
VH20□-02

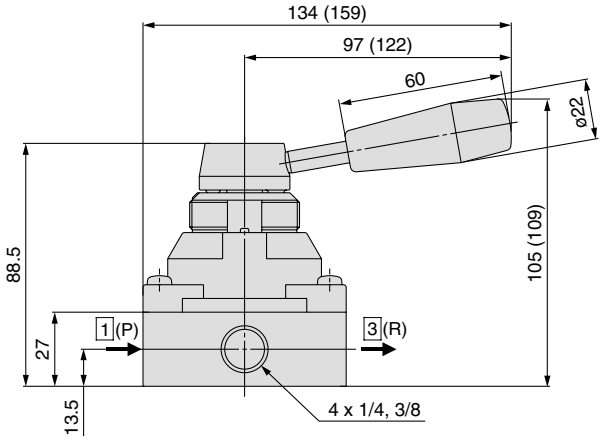




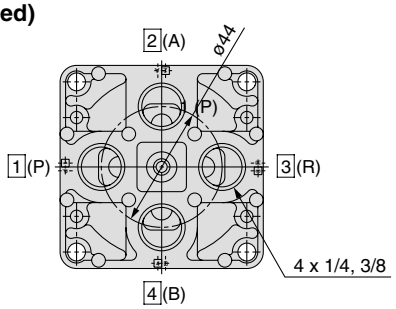
VH30□-02/03

( ): Long handle type





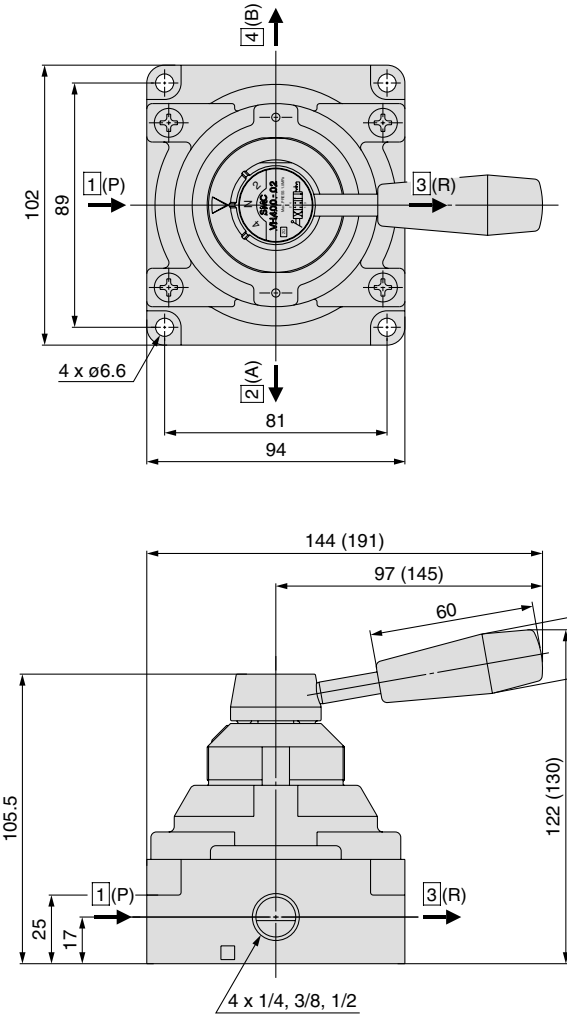
VH32□-02/03
(Bottom ported)



Dimensions: Body Mounted

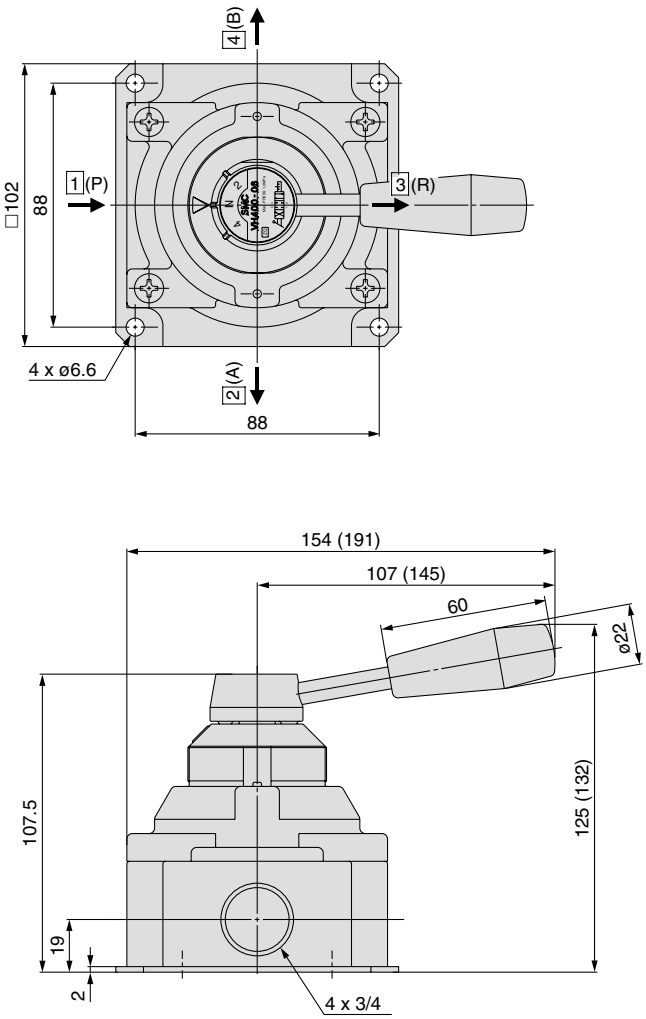
VH40□-02 to 04

( ): Long handle type

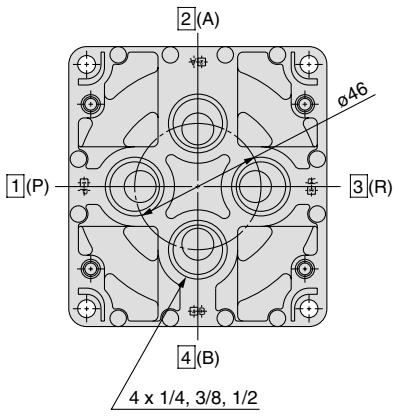


VH40□-06

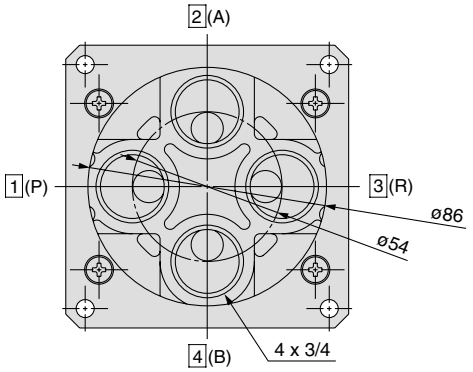
( ): Long handle type



VH42□-02 to 04
(Bottom ported)

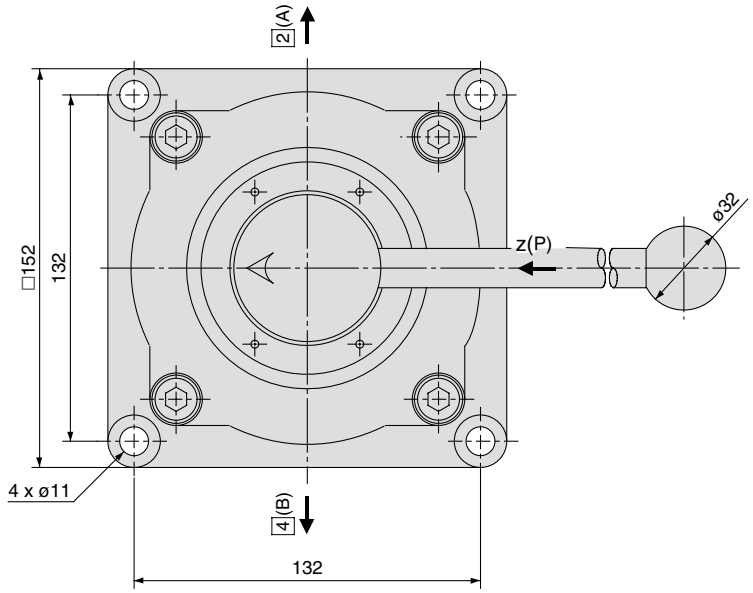


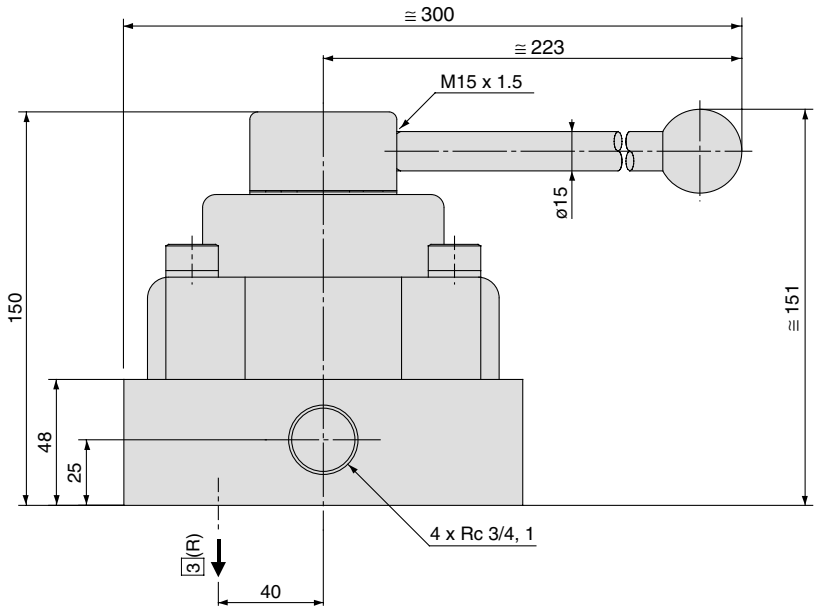
VH42□-06
(Bottom ported)



Dimensions: Body Mounted

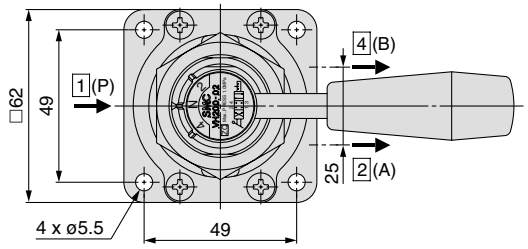
VH600-06/10

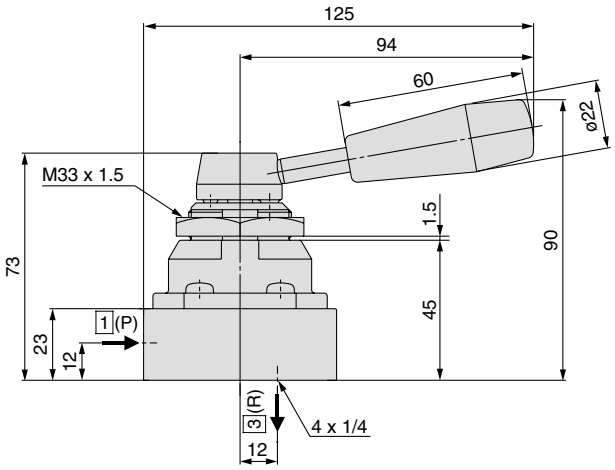




Dimensions: Panel Mounted

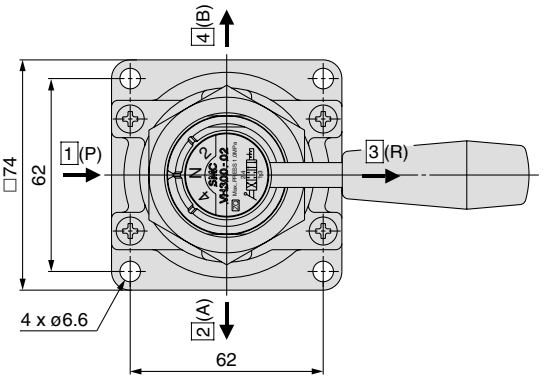
VH21□-02

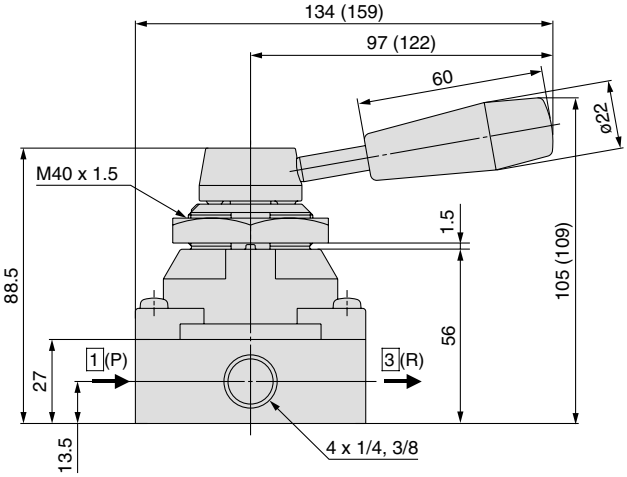




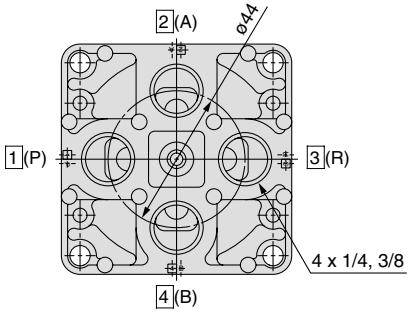
VH31□-02/03

( ): Long handle type

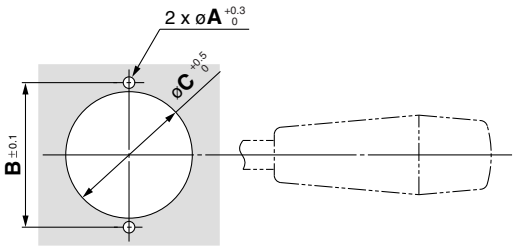




VH33□-02/03
(Bottom ported)



Panel cut dimension



Max. panel thickness D

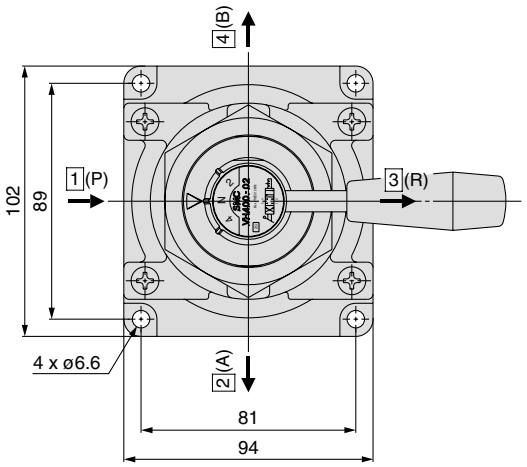
(mm)

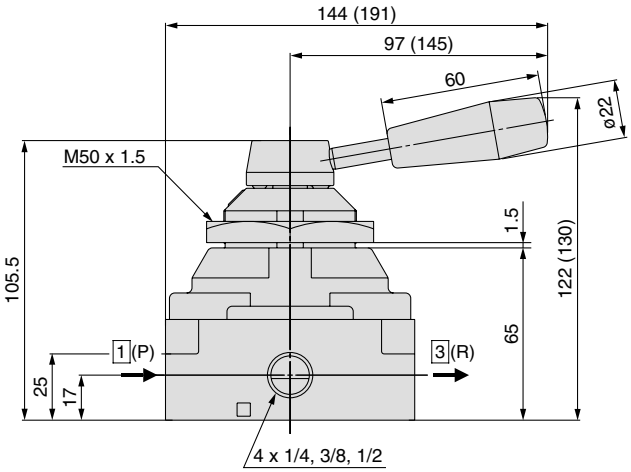
	A	B	C	D
VH200	3.2	40	35	3.5
VH300	3.2	51	41	6
VH400	3.2	64	51	8

Dimensions: Panel Mounted

VH41□-02 to 04

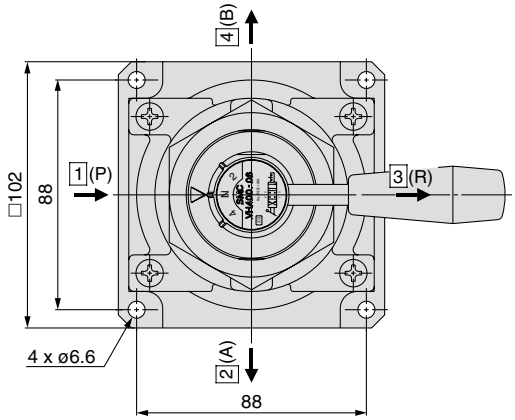
( ): Long handle type

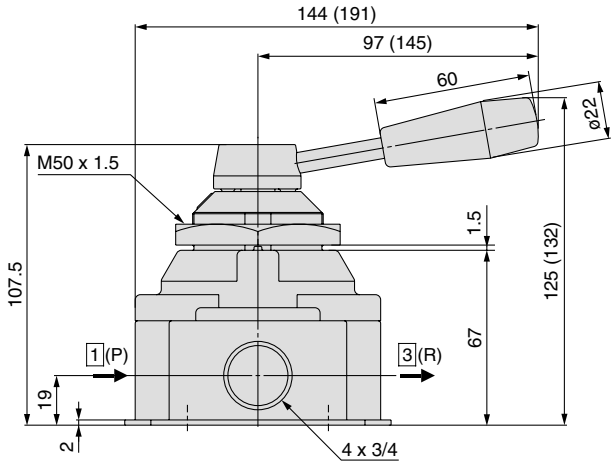




VH41□-06

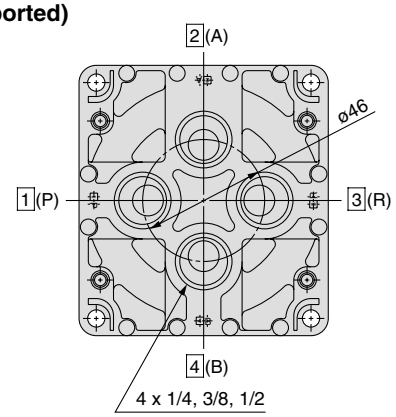
( ): Long handle type





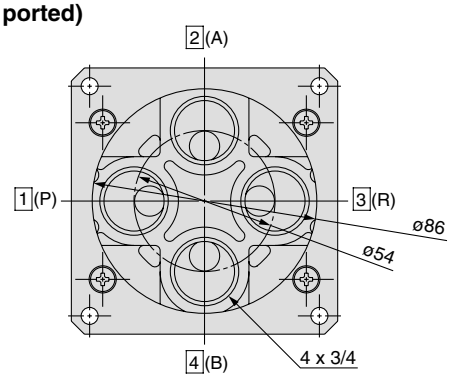
VH43□-02 to 04

(Bottom ported)



VH43□-06

(Bottom ported)



Series VH
Specific Product Precautions

Be sure to read defore handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Design

⚠Warning

1. Not suitable for use as a selector valve or a divider valve.
The valve can malfunction due to air leakage.

2. Not suitable for negative pressure.
The valve can malfunction due to air leakage.

3. Do not supply air pressure from other ports than 1(P) port.
Air leakage may occur when the pressure is supplied from other ports.

Selection

⚠Warning

1. Intermediate stop
When stopping the cylinder piston in the middle using the 3 position closed center valve, it is not possible to stop it correctly and precisely as the hydraulic equipment due to the air compressibility. Do not use this valve because it has slight air leakage and can not hold a stopping position. When it is necessary to hold a stopping position, select an equipment to prevent displacement and design the circuit.

⚠Caution

1. Use in low temperature environments
The valve can be used at a temperature down to –5°C. Take appropriate measures to avoid freezing of drainage, moisture, etc.

2. Operation method
The valve must be switched to each position instantly and securely. Stopping the handle halfway between the extreme positions may cause malfunction.

Piping

⚠Caution

1. Ensure connection so that air is supplied to the port "1(P)" port.
Air leakage may occur when the pressure is supplied from other ports.

2. Note that in the case of the option of different "1(P)" porting position, porting indication on the body and flow direction by handle operation are reversed.

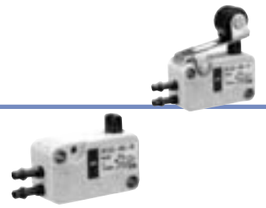
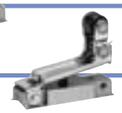
Environment

⚠Warning

1. When the valve is exposed to a large amount of dust, install a silencer into the port "3(R)". When dust enters the valve from the port "3(R)", it may cause air leakage.

Mechanical Valves

Series Variation

Model	VM1000	VM100	VM200	VM400	VZM500	VZM400	VFM300	VFM200	VM800
Dimensions (mm)	Side ported 11 x 36 x 16 Bottom ported 11 x 28 x 25	Side ported 17 x 44 x 25 Bottom ported 17 x 44 x 30	25 x 40 x 52	21 x 35 x 53	18 x 28 x 87	18 x 30 x 91	26 x 35 x 94	23 x 40 x 115	30 x 40 x 57
Basic									
Roller lever									
One way roller lever									
Straight plunger									
Roller plunger									
Cross roller plunger									
Toggle lever									
Push button (Mushroom)									
Push button (Extended)									
Push button (Flush)									
Twist selector (2 position)									
Key selector (2 position)									
Twist selector (3 position)									
Foot pedal									
Push-pull									
	P. 1830	P. 1834	P. 1842	P. 1848	P. 1863	P. 1857	P. 1870	P. 1876	P. 1854
Effective area (mm²)	1	2.5	19	7	10.8	9.9	18	18	6
Number of ports	2, 3	2, 3	2, 3	3	5	5	5	5	3
Function	Poppet	Poppet	Poppet	Balanced poppet	Rubber spool	Metal spool	Rubber spool	Metal spool	Balanced poppet

Roller lever



Adjustable roller lever



Adjustable rod lever



VM□ VMG VR□ VH□

Micro Mechanical Valve
Series VM1000

Miniature stucture requires little mounting space.

Built-in hose nipple connection.

Piping options:
Side piping, Bottom piping

Over Travel after actuation (mechanical operated types)



Specifications

Valve type	N.C. poppet
Number of ports	2 or 3
Piping	Side or bottom ported
Fluid	Air/Inert gas
Operating pressure	0 to 0.8 MPa
Ambient and fluid temperature	–5 to 60°C (No freezing)
Effective area	1 mm^2
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Fitting	With hose nipple
Mass (Basic)	6 g

Option

Total travel (T.T.)	2.5 mm (Basic)

• A commercially available actuator for the V microswitch can be installed.
• However, be aware that there are different microswitches, such as the P.T./O.T. or F.O.F. types.
• T.T. 2.5 mm is available for basic style only.

Model

	Actuator	Piping	Number of ports	Applicable tubing		Note
				T0425	TU0425/T0403	
Mechanical operation	Basic	Side ported	3 port	VM1000-4N-00	VM1000-4NU-00	
			2 port	VM1100-4N-00	VM1100-4NU-00	
		Bottom ported	3 port	VM1010-4N-00	VM1010-4NU-00	
			2 port	VM1110-4N-00	VM1110-4NU-00	
	Roller lever	Side ported	3 port	VM1000-4N-01	VM1000-4NU-01	
			2 port	VM1100-4N-01	VM1100-4NU-01	
		Bottom ported	3 port	VM1010-4N-01	VM1010-4NU-01	
			2 port	VM1110-4N-01	VM1110-4NU-01	
	One way roller lever	Side ported	3 port	VM1000-4N-02	VM1000-4NU-02	
			2 port	VM1100-4N-02	VM1100-4NU-02	
		Bottom ported	3 port	VM1010-4N-02	VM1010-4NU-02	
			2 port	VM1110-4N-02	VM1110-4NU-02	
Manual operation	Toggle lever	Side ported	3 port	VM1000-4N-08	VM1000-4NU-08	
			2 port	VM1100-4N-08	VM1100-4NU-08	
		Bottom ported	3 port	VM1010-4N-08	VM1010-4NU-08	
			2 port	VM1110-4N-08	VM1110-4NU-08	
	Push button	Side ported	3 port	VM1000-4N-32R	VM1000-4NU-32R	Red
			2 port	VM1100-4N-32R	VM1100-4NU-32R	Red
		Bottom ported	3 port	VM1010-4N-32R	VM1010-4NU-32R	Red
			2 port	VM1110-4N-32R	VM1110-4NU-32R	Red
		Side ported	3 port	VM1000-4N-32B	VM1000-4NU-32B	Black
			2 port	VM1100-4N-32B	VM1100-4NU-32B	Black
		Bottom ported	3 port	VM1010-4N-32B	VM1010-4NU-32B	Black
			2 port	VM1110-4N-32B	VM1110-4NU-32B	Black
		Side ported	3 port	VM1000-4N-32G	VM1000-4NU-32G	Green
			2 port	VM1100-4N-32G	VM1100-4NU-32G	Green
		Bottom ported	3 port	VM1010-4N-32G	VM1010-4NU-32G	Green
			2 port	VM1110-4N-32G	VM1110-4NU-32G	Green

Note) To replace the push button and push button cover alone, refer to page 1888.
Other parts and actuator cannot be replaced.

How to Order

VM1 [0] [0] [0] – [4N] – [00] [R]

Number of ports

0	3 port
1	2 port

Piping

0	Side ported
1	Bottom ported

Total travel/Basic (T.T.)

0	4.8 mm
1	2.5 mm (Option)*

* Basic only.

Applicable tubing (Material/Size)

4N	Nylon ø4/2.5 (T0425)
4NU	Nylon ø4/3 (T0403)
	Soft Nylon ø4/2.5 (TS0425)
	Polyurethane ø4/2.5 (TU0425)

Actuator type

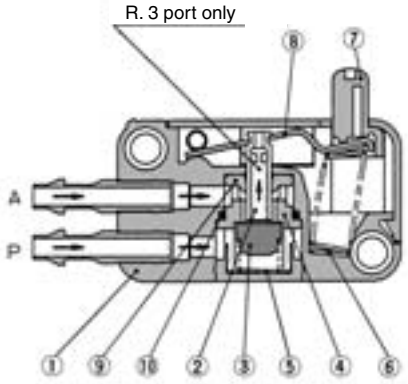
00	Basic
01	Roller lever
02	One way roller lever
08	Toggle lever
32	Push button

Color of push button

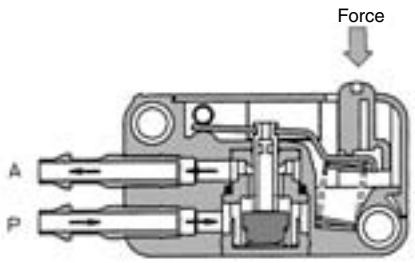
R	Red
G	Green
B	Black

Construction

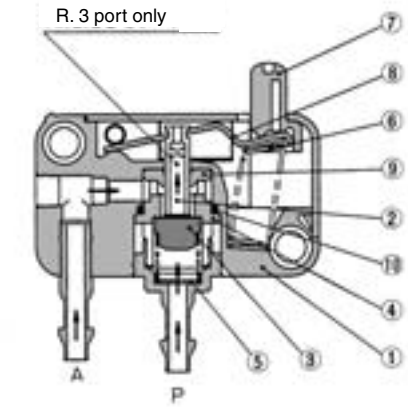
Side ported/Non-actuated



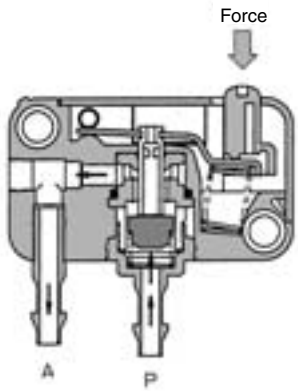
Side ported/Actuated



Bottom ported/Non-actuated



Bottom ported/Actuated



Component Parts

No.	Description	Material	Note
1	**Body**	PBT	
2	**Valve**	POM	
3	**Valve**	NBR	
4	**Retainer**	POM	
5	**Spring**	Stainless steel	

No.	Description	Material	Note
6	**Spring**	Stainless steel	
7	**Plunger**	POM	T.T. = 2.5 mm only, w/threads
8	**Lever**	Stainless steel	
9	**Packing**	NBR	
10	**O-ring**	NBR	

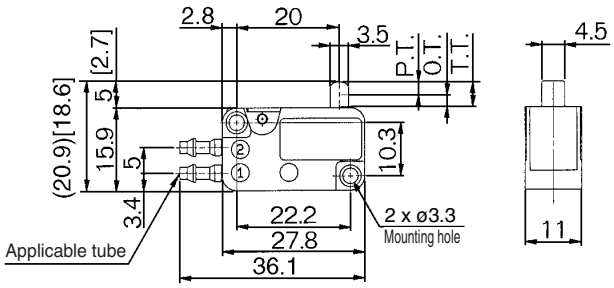
Series VM1000/Side Ported

Basic

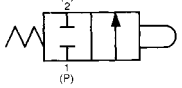
VM1000-4N-00
VM1000-4NU-00
VM1100-4N-00
VM1100-4NU-00



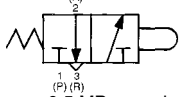
[ ]: T.T. = 2.5 mm



JIS Symbol/2 port



3 port



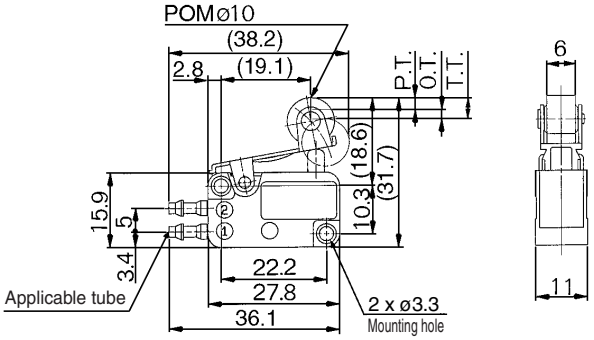
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Side ported	3 port	**VM1000-4N-00**	**VM1000-4NU-00**
	2 port	**VM1100-4N-00**	**VM1100-4NU-00**
F.O.F. *		6 N	
P.T.		2.5 mm [2.0 mm]	
O.T.		2.3 mm [0.5 mm]	
T.T.		4.8 mm [2.5 mm]	

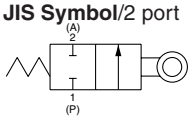
Roller lever

VM1000-4N-01
VM1000-4NU-01
VM1100-4N-01
VM1100-4NU-01

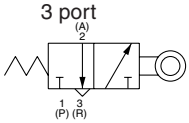




JIS Symbol/2 port



3 port



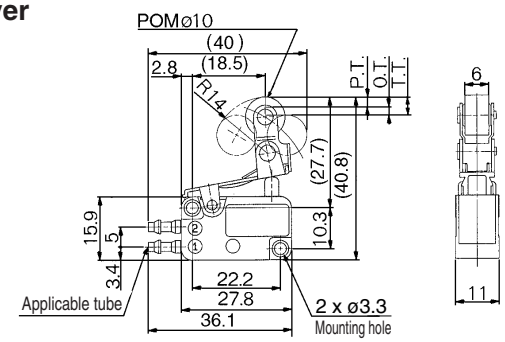
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Side ported	3 port	**VM1000-4N-01**	**VM1000-4NU-01**
	2 port	**VM1100-4N-01**	**VM1100-4NU-01**
F.O.F. *		6 N	
P.T.		2.5 mm	
O.T.		2.0 mm	
T.T.		4.5 mm	

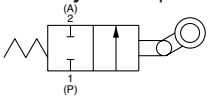
One way roller lever

VM1000-4N-02
VM1000-4NU-02
VM1100-4N-02
VM1100-4NU-02

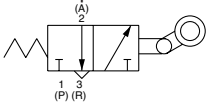




JIS Symbol/2 port



3 port



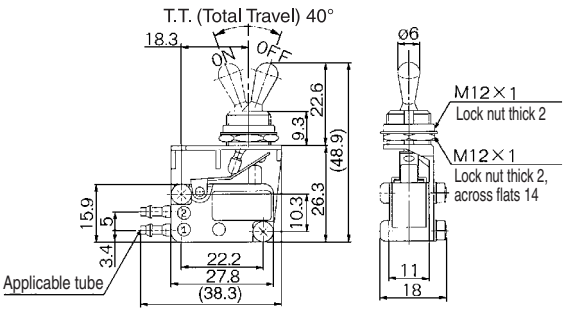
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403,TS0425
Side ported	3 port	**VM1000-4N-02**	**VM1000-4NU-02**
	2 port	**VM1100-4N-02**	**VM1100-4NU-02**
F.O.F. *		6 N	
P.T.		2.5 mm	
O.T.		2.0 mm	
T.T.		4.5 mm	

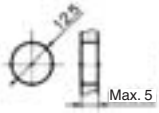
Toggle lever

VM1000-4N-08
VM1000-4NU-08
VM1100-4N-08
VM1100-4NU-08

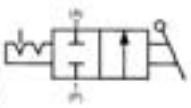




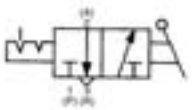
Panel mounting hole



JIS Symbol/2 port



3 port



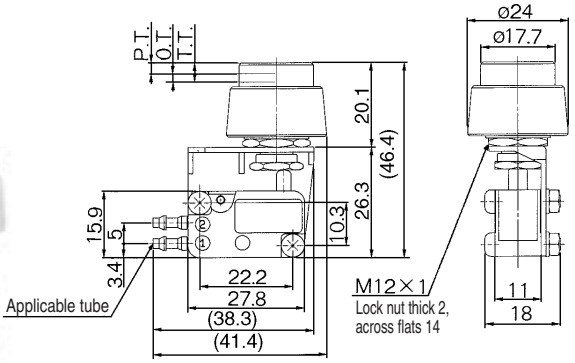
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Side ported	3 port	**VM1000-4N-08**	**VM1000-4NU-08**
	2 port	**VM1100-4N-08**	**VM1100-4NU-08**
F.O.F. *		4 N	
P.T.		40°	

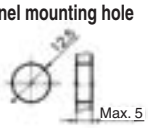
Push button

VM1000-4N-32
VM1000-4NU-32
VM1100-4N-32
VM1100-4NU-32

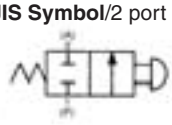




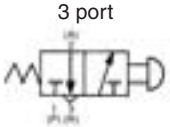
Panel mounting hole



JIS Symbol/2 port



3 port



∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Side ported	3 port	**VM1000-4N-32**	**VM1000-4NU-32**
	2 port	**VM1100-4N-32**	**VM1100-4NU-32**
F.O.F. *		6 N	
P.T.		2.5 mm	
O.T.		2.0 mm	
T.T.		4.5 mm	

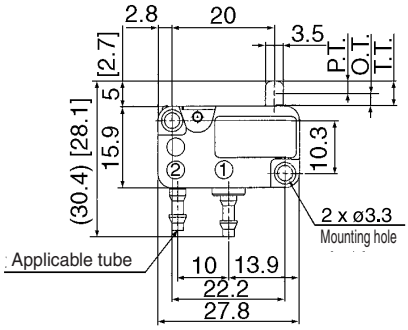
Series VM1000/Bottom Ported

Basic

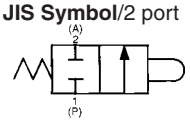
VM1010-4N-00
VM1010-4NU-00
VM1110-4N-00
VM1110-4NU-00



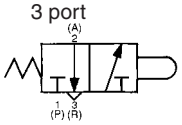
[ ]: T.T. = 2.5 mm



JIS Symbol/2 port



3 port



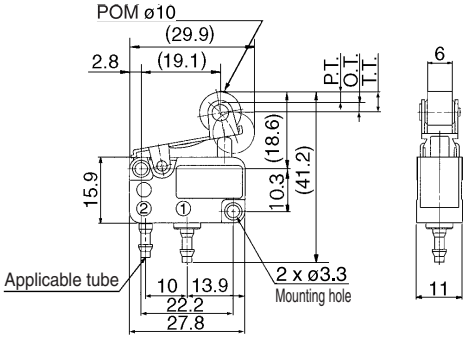
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Bottom ported	3 port	**VM1010-4N-00**	**VM1010-4NU-00**
	2 port	**VM1110-4N-00**	**VM1110-4NU-00**
F.O.F. ∗		6 N	
P.T.		2.5 mm	
O.T.		2.3 mm [0.5 mm]	
T.T.		4.8 mm [2.5 mm]	

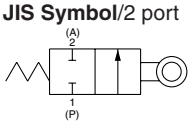
Roller lever

VM1010-4N-01
VM1010-4NU-01
VM1110-4N-01
VM1110-4NU-01

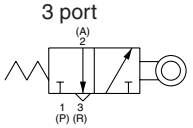




JIS Symbol/2 port



3 port



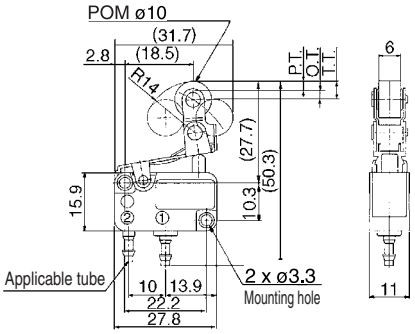
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Bottom ported	3 port	**VM1010-4N-01**	**VM1010-4NU-01**
	2 port	**VM1110-4N-01**	**VM1110-4NU-01**
F.O.F. ∗		6 N	
P.T.		2.5 mm	
O.T.		2.0 mm	
T.T.		4.5 mm	

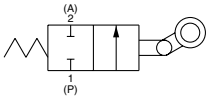
One way roller lever

VM1010-4N-02
VM1010-4NU-02
VM1110-4N-02
VM1110-4NU-02

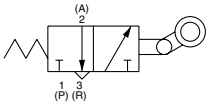




JIS Symbol/2 port



3 port



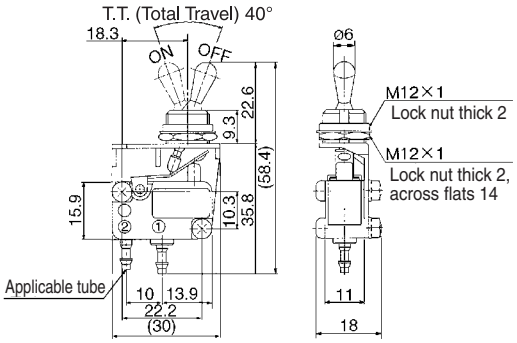
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403,TS0425
Bottom ported	3 port	**VM1010-4N-02**	**VM1010-4NU-02**
	2 port	**VM1110-4N-02**	**VM1110-4NU-02**
F.O.F. ∗		6 N	
P.T.		2.5 mm	
O.T.		2.0 mm	
T.T.		4.5 mm	

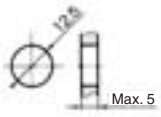
Toggle lever

M1010-4N-08
VM1010-4NU-08
VM1110-4N-08
VM1110-4NU-08

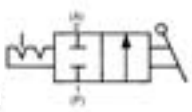




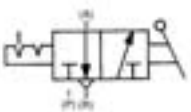
Panel mounting hole



JIS Symbol/2 port



3 port



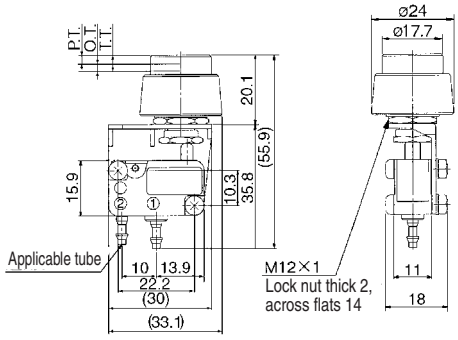
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Bottom ported	3 port	**VM1010-4N-08**	**VM1010-4NU-08**
	2 port	**VM1110-4N-08**	**VM1110-4NU-08**
F.O.F. ∗		4 N	
P.T.		40°	

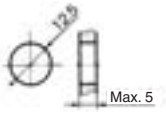
Push button

VM1010-4N-32
VM1010-4NU-32
VM1110-4N-32
VM1110-4NU-32

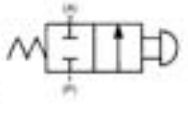




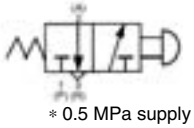
Panel mounting hole



JIS Symbol/2 port



3 port



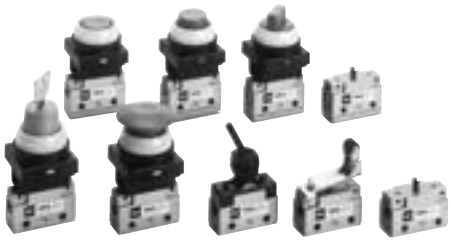
∗ 0.5 MPa supply

		Applicable tubing	
		T0425	TU0425, T0403, TS0425
Bottom ported	3 port	**VM1010-4N-32**	**VM1010-4NU-32**
	2 port	**VM1110-4N-32**	**VM1110-4NU-32**
F.O.F. ∗		6 N	
P.T.		2.5 mm	
O.T.		2.0 mm	
T.T.		4.5 mm	

2/3 Port Mechanical Valve

Series VM100

Compact size.
Piping options:
Side piping, Bottom piping
A variety of actuator types.



Specifications

Piping	Side ported	Bottom ported
Fluid	Air/Inert gas	
Operating pressure	–100 kPa to 1.0 MPa	
Ambient and fluid temperature	–5 to 60°C (No freezing)	
Effective area	2.5 mm²	
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)	
Port size	1/8	M5 x 0.8
Mass (Basic)	95 g	110 g

Model

		Side ported		Bottom ported		Actuator part no.	Application
		2 port	3 port	2 port	3 port		
Mechanical operation	Basic	VM120-01-00	VM130-01-00	VM122-M5-00	VM132-M5-00	—	
		VM121-01-00	VM131-01-00	VM123-M5-00	VM133-M5-00		
	Roller lever	VM121-01-01	VM131-01-01	VM123-M5-01	VM133-M5-01	—	Polyacetal roller
		VM121-01-01S	VM131-01-01S	VM123-M5-01S	VM133-M5-01S	—	Hard steel roller
	One way roller lever	VM121-01-02	VM131-01-02	VM123-M5-02	VM133-M5-02	—	Polyacetal roller
		VM121-01-02S	VM131-01-02S	VM123-M5-02S	VM133-M5-02S	—	Hard steel roller
	Straight plunger	VM120-01-05	VM130-01-05	VM122-M5-05	VM132-M5-05	VM-05B	—
	Roller plunger	VM120-01-06	VM130-01-06	VM122-M5-06	VM132-M5-06	VM-06B	Polyacetal roller
		VM120-01-06S	VM130-01-06S	VM122-M5-06S	VM132-M5-06S	VM-06BS	Hard steel roller
	Cross roller plunger	VM120-01-07	VM130-01-07	VM122-M5-07	VM132-M5-07	VM-07B	Polyacetal roller
		VM120-01-07S	VM130-01-07S	VM122-M5-07S	VM132-M5-07S	VM-07BS	Hard steel roller
Manual operation	Toggle lever	VM120-01-08	VM130-01-08	VM122-M5-08	VM132-M5-08	VM-08B	
	Push button (Mushroom)	VM120-01-30R	VM130-01-30R	VM122-M5-30R	VM132-M5-30R	VM-30AR	Red
		VM120-01-30B	VM130-01-30B	VM122-M5-30B	VM132-M5-30B	VM-30AB	Black
		VM120-01-30G	VM130-01-30G	VM122-M5-30G	VM132-M5-30G	VM-30AG	Green
		VM120-01-30Y	VM130-01-30Y	VM122-M5-30Y	VM132-M5-30Y	VM-30AY	Yellow
	Push button (Extended)	VM120-01-32R	VM130-01-32R	VM122-M5-32R	VM132-M5-32R	VM-32AR	Red
		VM120-01-32B	VM130-01-32B	VM122-M5-32B	VM132-M5-32B	VM-32AB	Black
		VM120-01-32G	VM130-01-32G	VM122-M5-32G	VM132-M5-32G	VM-32AG	Green
		VM120-01-32Y	VM130-01-32Y	VM122-M5-32Y	VM132-M5-32Y	VM-32AY	Yellow
	Push button (Flush)	VM120-01-33	VM130-01-33	VM122-M5-33	VM132-M5-33	VM-33A	With a set of red, black, green, yellow
	Twist selector (2 position)	VM120-01-34R	VM130-01-34R	VM122-M5-34R	VM132-M5-34R	VM-34AR	Red
		VM120-01-34B	VM130-01-34B	VM122-M5-34B	VM132-M5-34B	VM-34AB	Black
		VM120-01-34G	VM130-01-34G	VM122-M5-34G	VM132-M5-34G	VM-34AG	Green
		VM120-01-34Y	VM130-01-34Y	VM122-M5-34Y	VM132-M5-34Y	VM-34AY	Yellow
	Key selector (2 position)	VM120-01-36	VM130-01-36	VM122-M5-36	VM132-M5-36	VM-36A	
	Twist selector (3 position)	VM131-01-35R	VM151-01-35R	VM133-M5-35R	VM153-M5-35R	—	Red
		VM131-01-35B	VM151-01-35B	VM133-M5-35B	VM153-M5-35B	—	Black
		VM131-01-35G	VM151-01-35G	VM133-M5-35G	VM153-M5-35G	—	Green
		VM131-01-35Y	VM151-01-35Y	VM133-M5-35Y	VM153-M5-35Y	—	Yellow
		(3 port)	(5 port)	(3 port)	(5 port)		

Note 1) Actuator replacement is available for all types except for roller lever, one way roller lever, and 3 position selector.
Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 to 1888. The other parts are not replaceable.
Note 3) The handle of the selector (2 position and 3 position) cannot be removed or replaced alone.

How to Order

VM1 [3] [1] – [01] – [01] [S] [ ] – [ ]

Made to Order
(Refer to pages 1882 to 1885 for details.)

X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Suffix for actuator

S	Hard steel roller	
R	Red	Color of push button selector
B	Black	
G	Green	
Y	Yellow	

Suffix for indicator light

Z	With miniature indicator light (Bottom piping type only)

Actuator type

00	Basic
01	Roller lever
02	One way roller lever
05	Straight plunger
06	Roller plunger
07	Cross roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)
35	Twist selector (3 position)

Port size

01	Rc 1/8
M5	M5 x 0.8 (Female thread)
N01	NPT 1/8
F01	G 1/8

Piping direction and the length of push rod

0	Long	Side ported
1	Short	
2	Long	Bottom ported
3	Short	

Number of ports

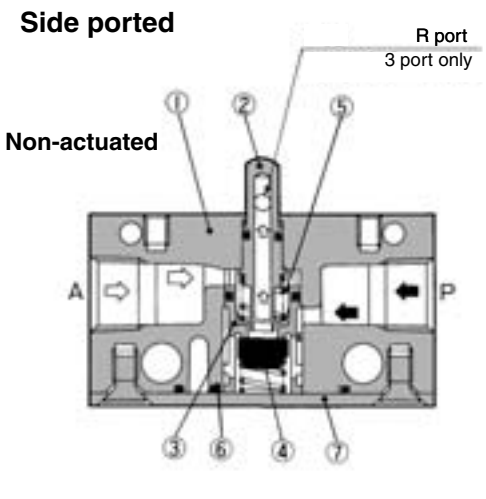
2	2 port
3	3 port

Actuator \ Height of rod push		Side ported Long	Side ported Short	Bottom ported Long	Bottom ported Short
		0	**1**	**2**	**3**
Basic	**00**	○	○	○	○
Roller lever	**01**	x	○	x	○
One way roller lever	**02**	x	○	x	○
Straight plunger	**05**	○	x	○	x
Roller plunger	**06**	○	x	○	x
Cross roller plunger	**07**	○	x	○	x
Toggle lever	**08**	○	x	○	x
Push button (Mushroom)	**30**	○	x	○	x
Push button (Extended)	**32**	○	x	○	x
Push button (Flush)	**33**	○	x	○	x
Twist selector (2 position)	**34**	○	x	○	x
Key selector (2 position)	**36**	○	x	○	x
Twist selector (3 position)	**35**	x	○	x	○

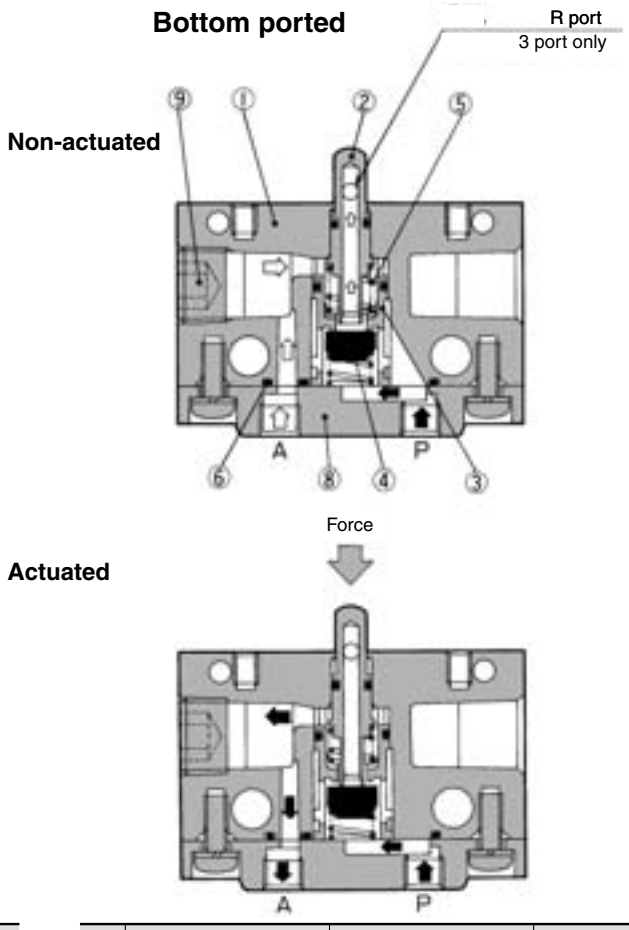
Combination possible: ○, Combination impossible: x

Construction

Side ported



Bottom ported



Component Parts

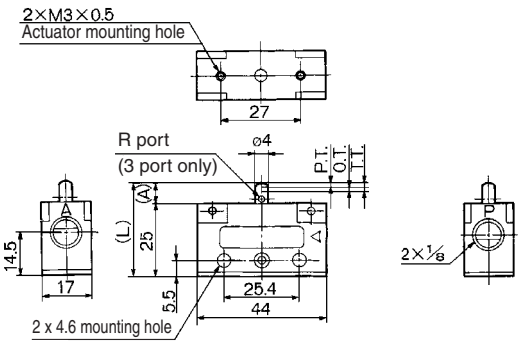
No.	Description	Material	Note
1	**Valve**	ZDC	Platinum silver
2	**Plunger**	POM	
3	**Valve sheet**	POM	
4	**Valve**	NBR	
5	**Spring**	Stainless steel	

No.	Description	Material	Note
6	**Gasket**	NBR	
7	**Cover**	Rolled steel	
8	**Sub-plate**	ZDC	Platinum silver
9	**Hexagon socket head plug**	Rolled steel	

Series VM100/Side Ported

Basic
VM120-01-00
VM130-01-00
VM121-01-00
VM131-01-00

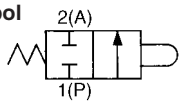




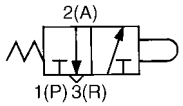
Model	L	A
VM120-01-00 **VM130-01-00**	32.5	7.5
VM121-01-00 **VM131-01-00**	28.5	3.5

JIS Symbol

2 port



3 port

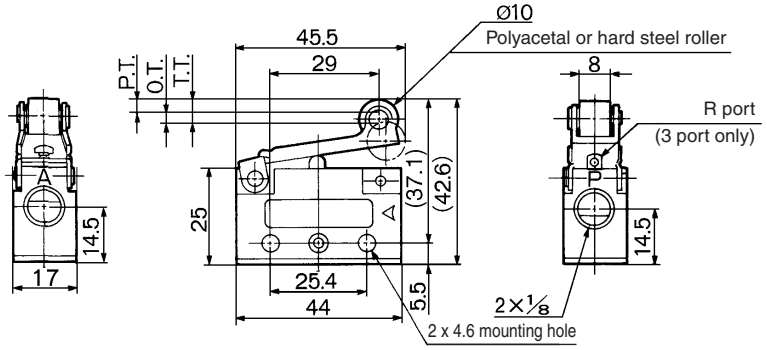


∗ 0.5 MPa supply

F.O.F. ∗	20 N
P.T.	1.5 mm
O.T.	1.5 mm
T.T.	3.0 mm

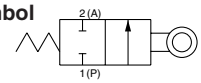
Roller lever
VM121-01-01
VM131-01-01
VM121-01-01S
VM131-01-01S



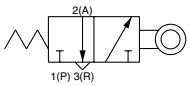


JIS Symbol

2 port



3 port

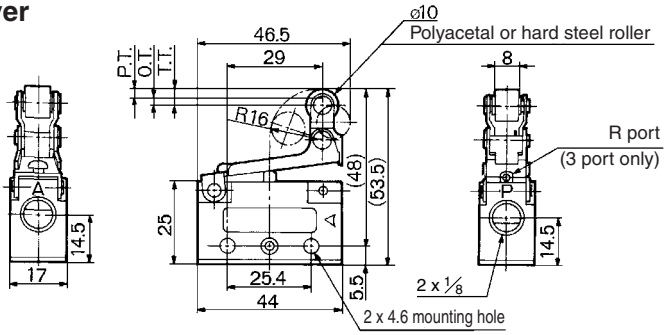


∗ 0.5 MPa supply

F.O.F. ∗	10 N
P.T.	3.2 mm
O.T.	2.3 mm
T.T.	5.5 mm

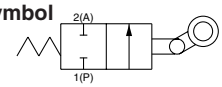
One way roller lever
VM121-01-02
VM131-01-02
VM121-01-02S
VM131-01-02S



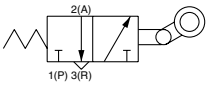


JIS Symbol

2 port



3 port

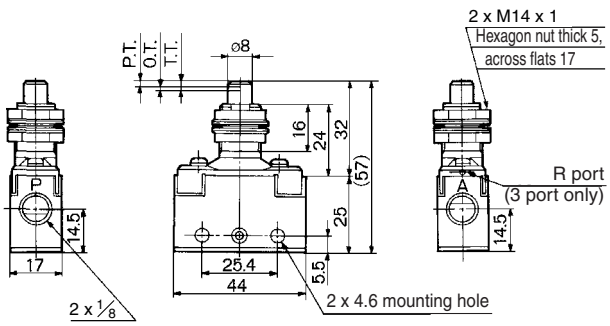


∗ 0.5 MPa supply

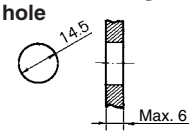
F.O.F. ∗	10 N
P.T.	3.2 mm
O.T.	2.3 mm
T.T.	5.5 mm

Straight plunger
VM120-01-05
VM130-01-05



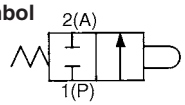


Panel mounting hole

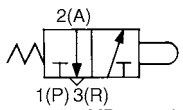


JIS Symbol

2 port



3 port

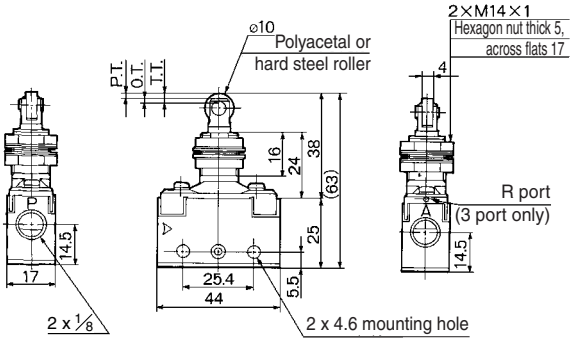


∗ 0.5 MPa supply

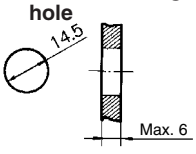
F.O.F. ∗	23 N
P.T.	2.0 mm
O.T.	1.5 mm
T.T.	3.5 mm

Roller plunger
VM120-01-06
VM130-01-06
VM120-01-06S
VM130-01-06S



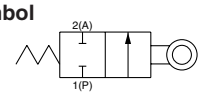


Panel mounting hole

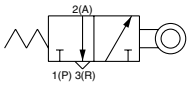


JIS Symbol

2 port



3 port



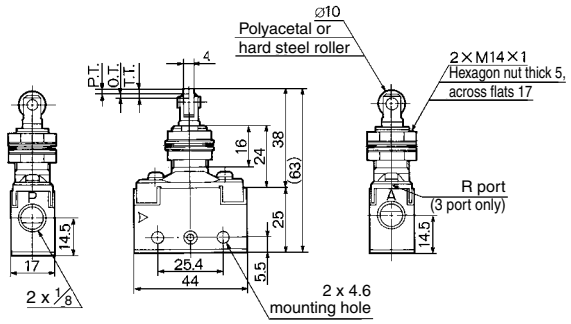
∗ 0.5 MPa supply

F.O.F. ∗	23 N
P.T.	2.0 mm
O.T.	1.5 mm
T.T.	3.5 mm

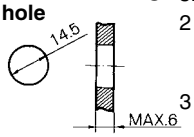
Series VM100/Side Ported

Cross roller plunger
VM120-01-07
VM130-01-07
VM120-01-07S
VM130-01-07S



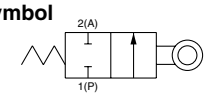


Panel mounting hole

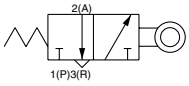


JIS Symbol

2 port



3 port

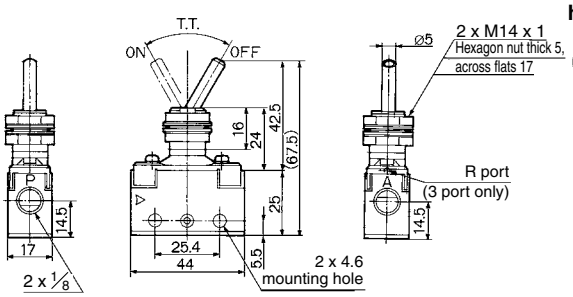


∗ 0.5 MPa supply

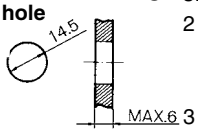
F.O.F. ∗	23 N
P.T.	2.0 mm
O.T.	1.5 mm
T.T.	3.5 mm

Toggle lever
VM120-01-08
VM130-01-08



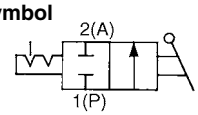


Panel mounting hole

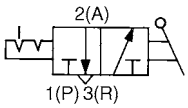


JIS Symbol

2 port



3 port

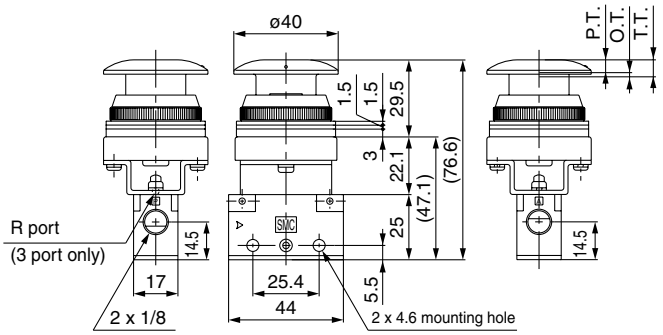


∗ 0.5 MPa supply

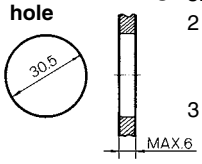
F.O.F. ∗	10 N
T.T.	60°

Push button (Mushroom) VM120-01-30R/B/G/Y VM130-01-30R/B/G/Y



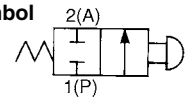


Panel mounting hole

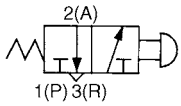


JIS Symbol

2 port



3 port

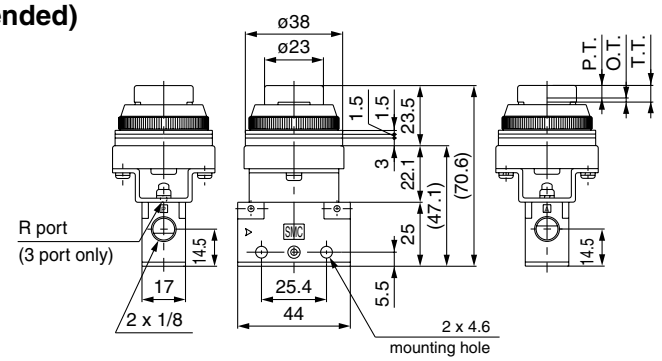


∗ 0.5 MPa supply

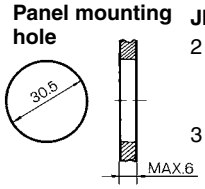
F.O.F. ∗	21 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

Push button (Extended)
VM120-01-32R/B/G/Y
VM130-01-32R/B/G/Y



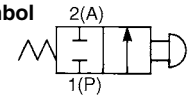


Panel mounting hole

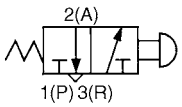


JIS Symbol

2 port



3 port

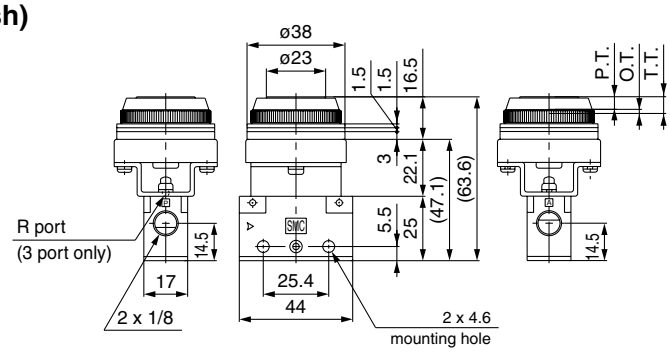


∗ 0.5 MPa supply

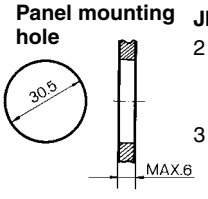
F.O.F. ∗	21 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

Push button (Flush)
VM120-01-33
VM130-01-33



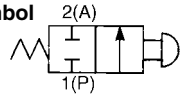


Panel mounting hole

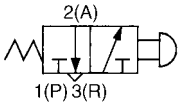


JIS Symbol

2 port



3 port



∗ 0.5 MPa supply

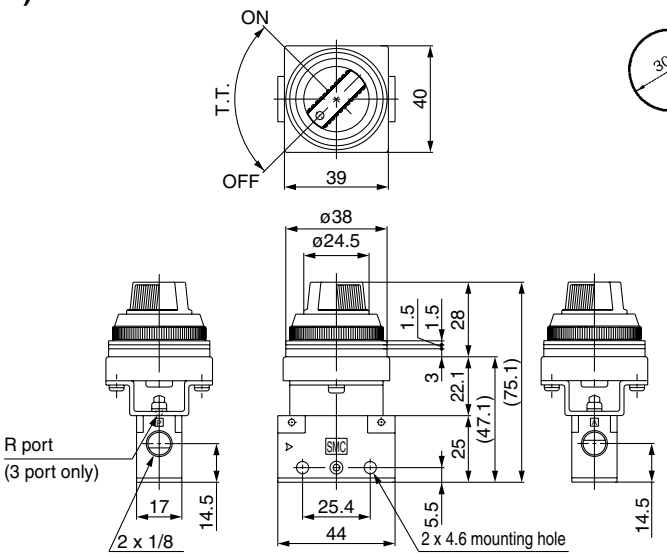
F.O.F. ∗	21 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

Series VM100/Side Ported

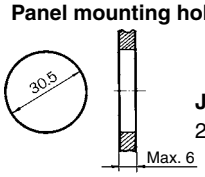
Twist selector (2 position)

VM120-01-34R/B/G/Y
VM130-01-34R/B/G/Y



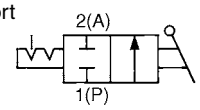


Panel mounting hole

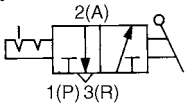


JIS Symbol

2 port



3 port



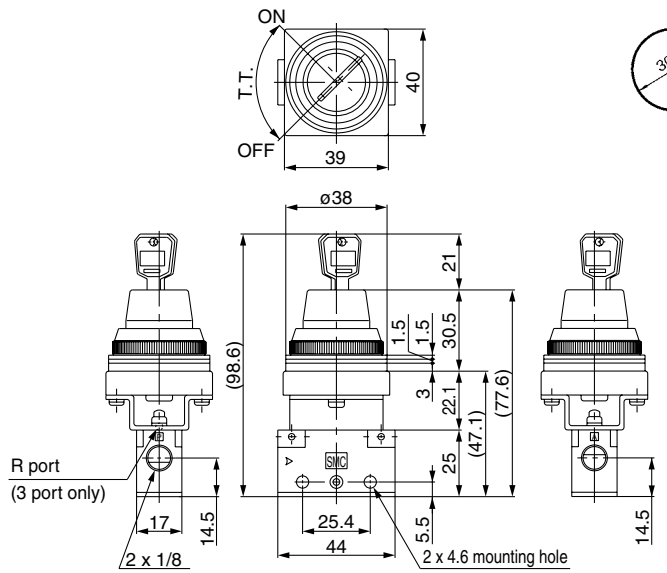
∗ 0.5 MPa supply

F.O.F. ∗	15 N
T.T.	90°

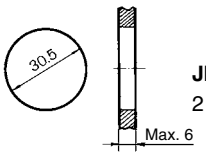
Key selector (2 position)

VM120-01-36
VM130-01-36



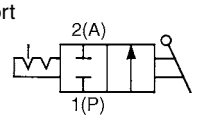


Panel mounting hole

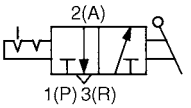


JIS Symbol

2 port



3 port



∗ 0.5 MPa supply

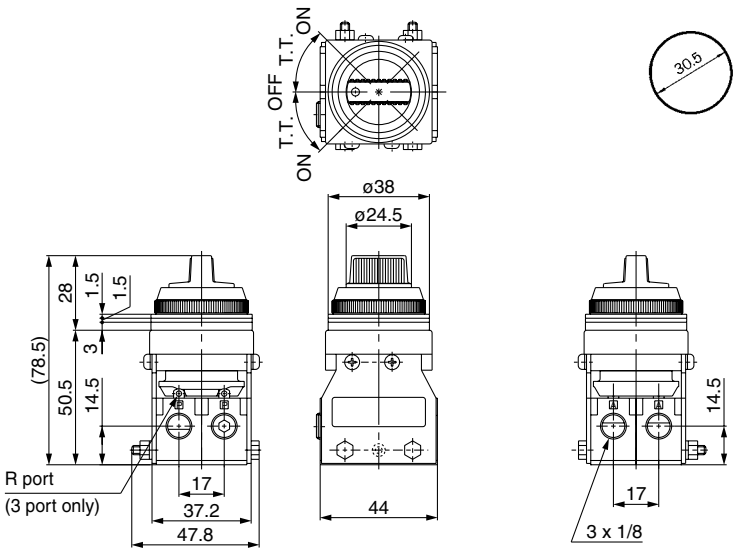
F.O.F. ∗	15 N
T.T.	90°

Key can be removed at the “on” and “off” positions.

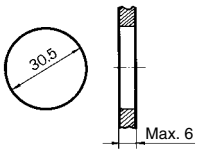
Twist selector (3 position)

VM131-01-35R/B/G/Y
VM151-01-35R/B/G/Y



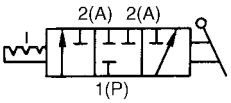


Panel mounting hole

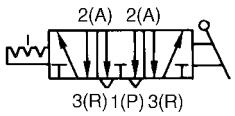


JIS Symbol

3 port



5 port



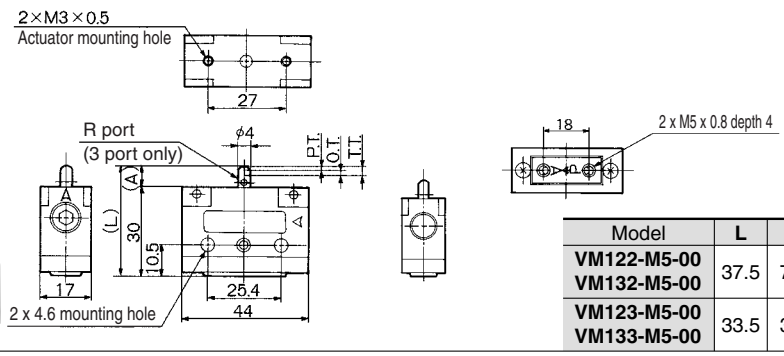
∗ 0.5 MPa supply

F.O.F. ∗	15 N
T.T.	45°

Series VM100/Bottom Ported

Basic
VM122-M5-00
VM132-M5-00
VM123-M5-00
VM133-M5-00

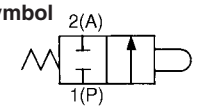




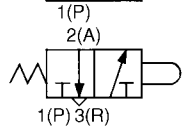
Model	L	A
VM122-M5-00 **VM132-M5-00**	37.5	7.5
VM123-M5-00 **VM133-M5-00**	33.5	3.5

JIS Symbol

2 port



3 port

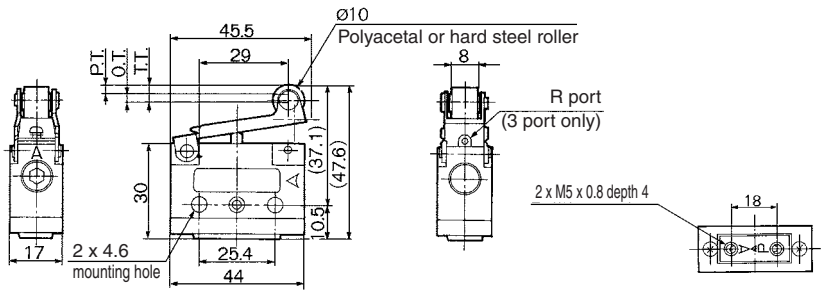


∗ 0.5 MPa supply

F.O.F ∗	20 N
P.T.	1.5 mm
O.T.	1.5 mm
T.T.	3.0 mm

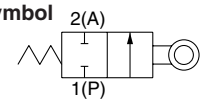
Roller lever
VM123-M5-01
VM133-M5-01
VM123-M5-01S
VM133-M5-01S



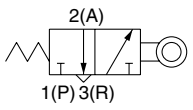


JIS Symbol

2 port



3 port

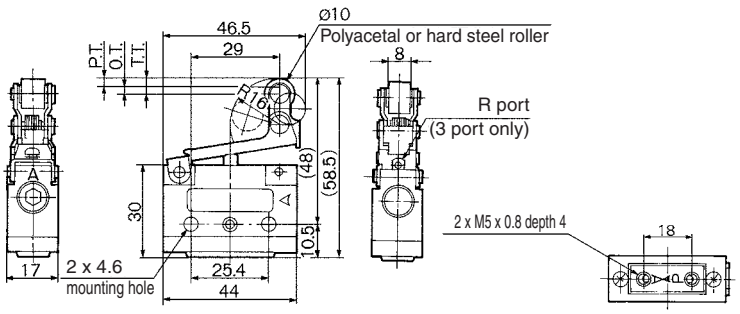


∗ 0.5 MPa supply

F.O.F. ∗	10 N
P.T.	3.2 mm
O.T.	2.3 mm
T.T.	5.5 mm

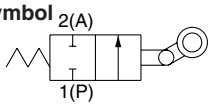
One way roller lever
VM123-M5-02
VM133-M5-02
VM123-M5-02S
VM133-M5-02S



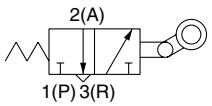


JIS Symbol

2 port



3 port

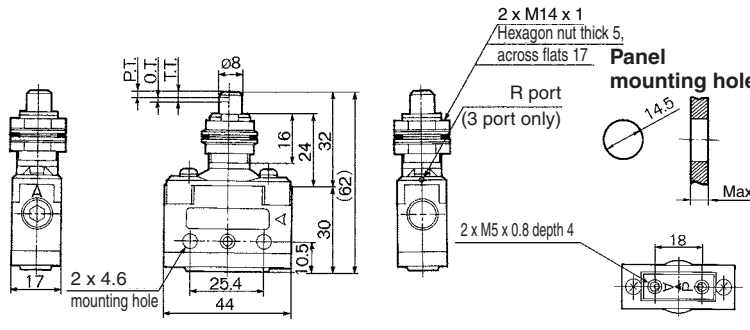


∗ 0.5 MPa supply

F.O.F. ∗	10 N
P.T.	3.2 mm
O.T.	2.3 mm
T.T.	5.5 mm

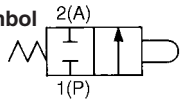
Straight plunger
VM122-M5-05
VM132-M5-05



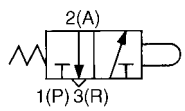


JIS Symbol

2 port



3 port

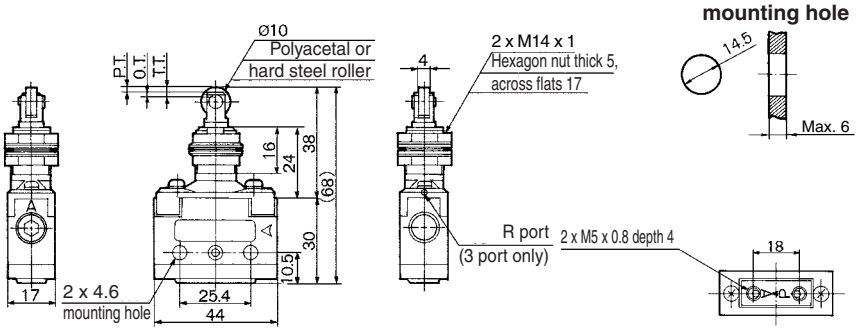


∗ 0.5 MPa supply

F.O.F. ∗	23 N
P.T.	2.0 mm
O.T.	1.5 mm
T.T.	3.5 mm

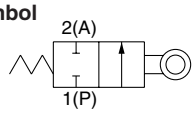
Roller plunger
VM122-M5-06
VM132-M5-06
VM122-M5-06S
VM132-M5-06S



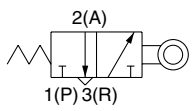


JIS Symbol

2 port



3 port



∗ 0.5 MPa supply

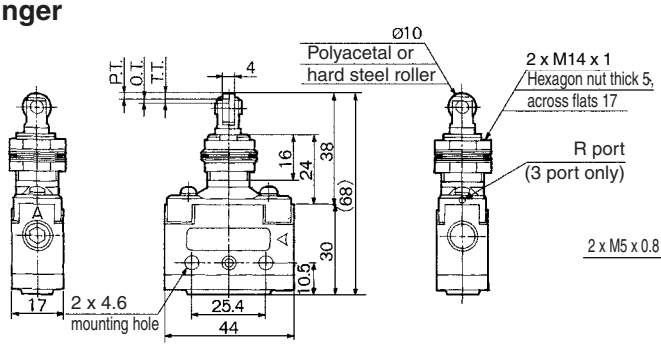
F.O.F. ∗	23 N
P.T.	2.0 mm
O.T.	1.5 mm
T.T.	3.5 mm

VM□
VMG
VR□
VH□

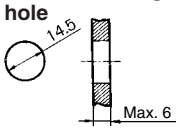
Series VM100/Bottom Ported

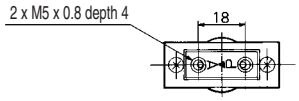
Cross roller plunger
VM122-M5-07
VM132-M5-07
VM122-M5-07S
VM132-M5-07S





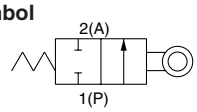
Panel mounting hole



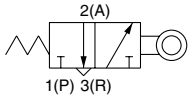


JIS Symbol

2 port



3 port

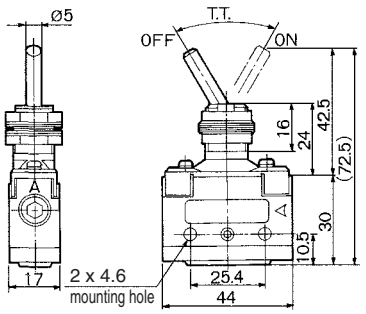


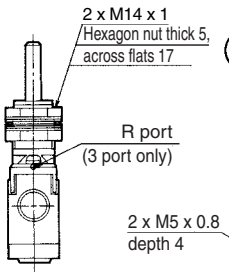
∗ 0.5 MPa supply

F.O.F. ∗	23 N
P.T.	2.0 mm
O.T.	1.5 mm
T.T.	3.5 mm

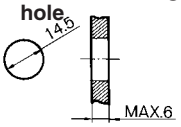
Toggle lever
VM122-M5-08
VM132-M5-08

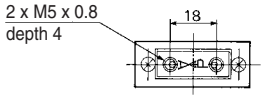






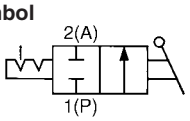
Panel mounting hole



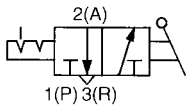


JIS Symbol

2 port



3 port

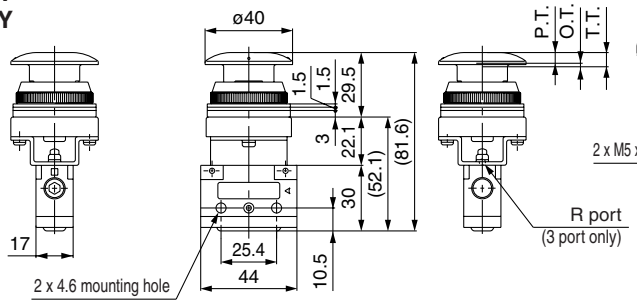


∗ 0.5 MPa supply

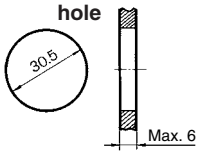
F.O.F. ∗	10 N
P.T.	60°

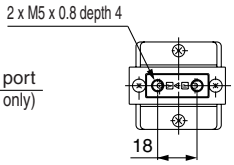
Push button (Mushroom)
VM122-M5-30R/B/G/Y
VM132-M5-30R/B/G/Y





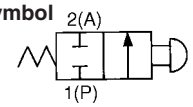
Panel mounting hole



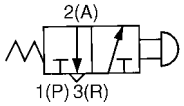


JIS Symbol

2 port



3 port

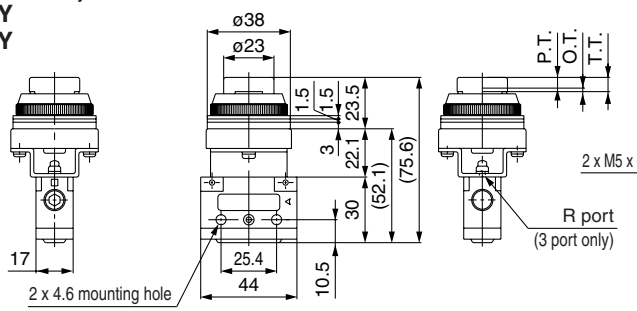


∗ 0.5 MPa supply

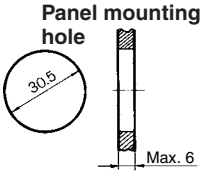
F.O.F. ∗	21 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

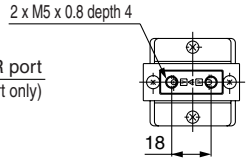
Push button (Extended)
VM122-M5-32R/B/G/Y
VM132-M5-32R/B/G/Y





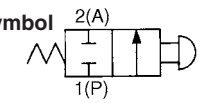
Panel mounting hole



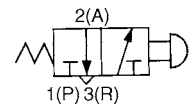


JIS Symbol

2 port



3 port

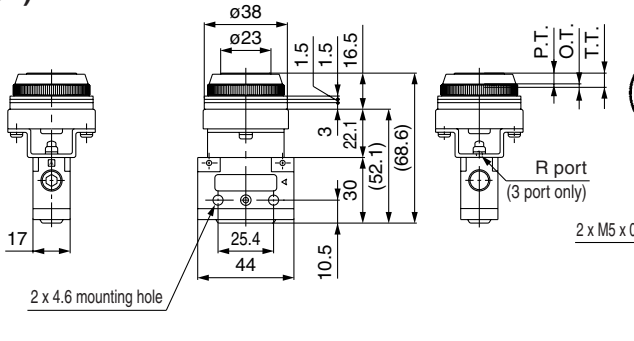


∗ 0.5 MPa supply

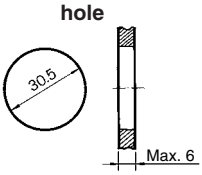
F.O.F. ∗	21 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

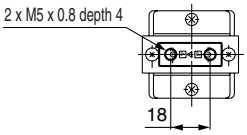
Push button (Flush)
VM122-M5-33
VM132-M5-33





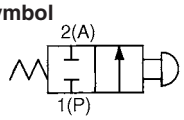
Panel mounting hole



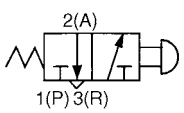


JIS Symbol

2 port



3 port



∗ 0.5 MPa supply

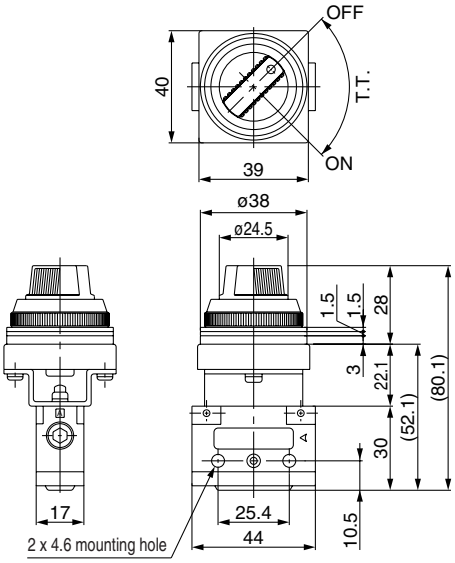
F.O.F. ∗	21 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

Series VM100/Bottom Ported

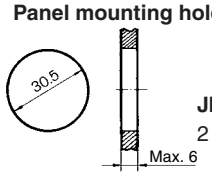
Twist selector (2 position)

VM122-M5-34R/B/G/Y
VM132-M5-34R/B/G/Y



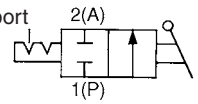


Panel mounting hole

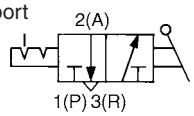


JIS Symbol

2 port



3 port



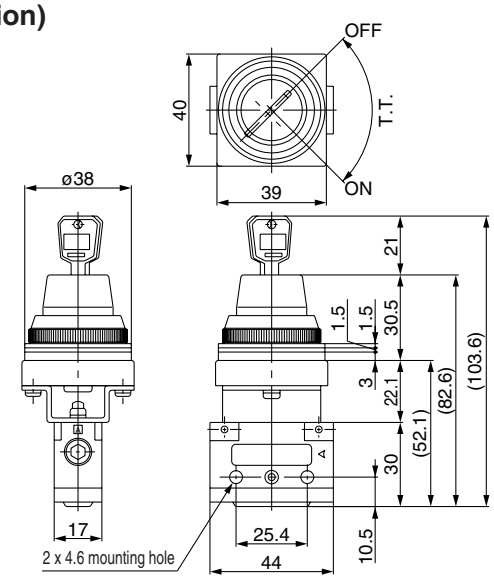
∗ 0.5 MPa supply

F.O.F. *	15 N
T.T.	90°

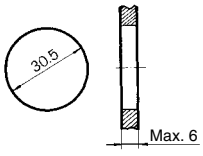
Key selector (2 position)

VM122-M5-36
VM132-M5-36



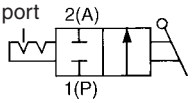


Panel mounting hole

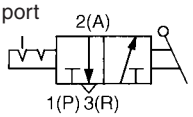


JIS Symbol

2 port



3 port



∗ 0.5 MPa supply

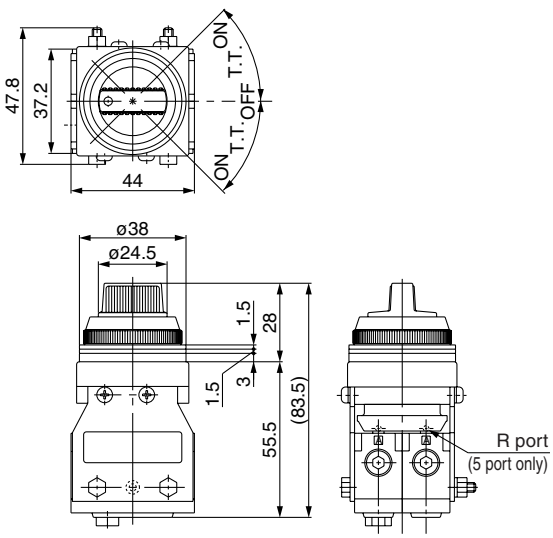
F.O.F. *	15 N
T.T.	90°

Key can be removed at the “on” and “off” positions.

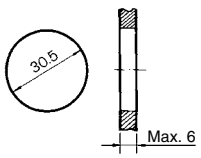
Twist selector (3 position)

VM133-M5-35R/B/G/Y
VM153-M5-35R/B/G/Y



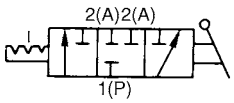


Panel mounting hole

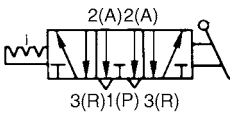


JIS Symbol

3 port



5 port



∗ 0.5 MPa supply

F.O.F. *	20 N
T.T.	45°

2/3 Port Mechanical Valve

Series VM200

Large flow capacity.

A variety of actuator types.



Specifications

Fluid	Air/Inert gas
Operating pressure	0 to 1.0 MPa
Ambient and fluid temperature	–5 to 60°C (No freezing)
Effective area	19 mm²
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Port size	1/4
Mass (Basic)	111g

Model

	Actuator \ No. of ports	2 port	3 port	Actuator part no.	Application
Mechanical operation	Basic	VM220-02-00	VM230-02-00	—	—
	Roller lever	VM220-02-01	VM230-02-01	VM-01A	Polyacetal roller
		VM220-02-01S	VM230-02-01S	VM-01AS	Hard steel roller
	One way roller lever	VM220-02-02	VM230-02-02	VM-02A	Polyacetal roller
		VM220-02-02S	VM230-02-02S	VM-02AS	Hard steel roller
	Straight plunger	VM220-02-05	VM230-02-05	VM-05A	—
	Roller plunger	VM220-02-06	VM230-02-06	VM-06A	Polyacetal roller
		VM220-02-06S	VM230-02-06S	VM-06AS	Hard steel roller
	Cross roller plunger	VM220-02-07	VM230-02-07	VM-07A	Polyacetal roller
		VM220-02-07S	VM230-02-07S	VM-07AS	Hard steel roller
Manual operation	Toggle lever	VM220-02-08	VM230-02-08	VM-08A	—
	Push button (Mushroom)	VM220-02-30R	VM230-02-30R	VM-30AR	Red
		VM220-02-30B	VM230-02-30B	VM-30AB	Black
		VM220-02-30G	VM230-02-30G	VM-30AG	Green
		VM220-02-30Y	VM230-02-30Y	VM-30AY	Yellow
	Push button (Extended)	VM220-02-32R	VM230-02-32R	VM-32AR	Red
		VM220-02-32B	VM230-02-32B	VM-32AB	Black
		VM220-02-32G	VM230-02-32G	VM-32AG	Green
		VM220-02-32Y	VM230-02-32Y	VM-32AY	Yellow
	Push button (Flush)	VM220-02-33	VM230-02-33	VM-33A	With a set of red, black, green, yellow
	Twist selector (2 position)	VM220-02-34R	VM230-02-34R	VM-34AR	Red
		VM220-02-34B	VM230-02-34B	VM-34AB	Black
		VM220-02-34G	VM230-02-34G	VM-34AG	Green
		VM220-02-34Y	VM230-02-34Y	VM-34AY	Yellow
	Key selector (2 position)	VM220-02-36	VM230-02-36	VM-36A	—
	Twist selector (3 position)	VM230-02-35R	VM250-02-35R	—	Red
		VM230-02-35B	VM250-02-35B	—	Black
		VM230-02-35G	VM250-02-35G	—	Green
		VM230-02-35Y	VM250-02-35Y	—	Yellow
		(3 port)	(5 port)	—	—
	Foot pedal	VM220-02-40	VM230-02-40	—	—

Note 1) Actuator replacement is available for all types except twist selector (3 position) and foot pedal.

Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 to 1888. The other parts are not replaceable.

Note 3) The handle of the selector (2 position and 3 position) cannot be removed or replaced alone.

How to Order

VM2 [3] 0 – [02] – [01] [S] – [ ]

Made to Order
(Refer to pages 1882 to 1885 for details.)

X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Suffix for actuator

S	Hard steel roller	
R	Red	Color of push button selector
B	Black	
G	Green	
Y	Yellow	

Actuator type

00	Basic
01	Roller lever
02	One way roller lever
05	Straight plunger
06	Roller plunger
07	Cross roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)
35	Twist selector (3 position)
40	Foot pedal

Port size

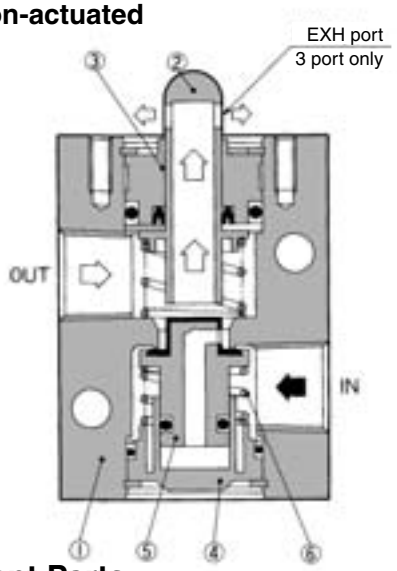
02	Rc 1/4
N02	NPT 1/4
F02	G 1/4

Number of ports

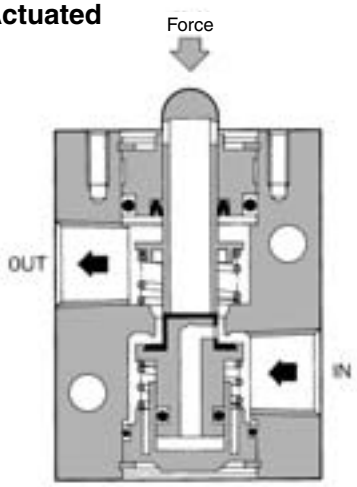
2	2 port
3	3 port

Construction

Non-actuated



Actuated



Component Parts

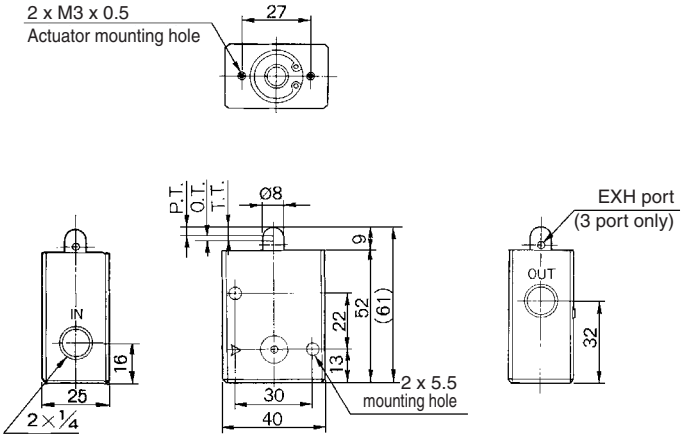
No.	Description	Material	Note
1	**Valve**	ADC	Platinum silver
2	**Plunger**	POM	
3	**Plunger retainer**	PBT	

No.	Description	Material	Note
4	**Cover**	POM	
5	**Valve**	Brass, NBR	
6	**Spring**	Steel	

Series VM200

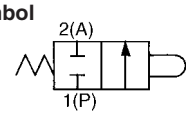
Basic
VM220-02-00
VM230-02-00



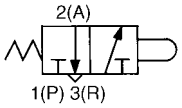


JIS Symbol

2 port



3 port

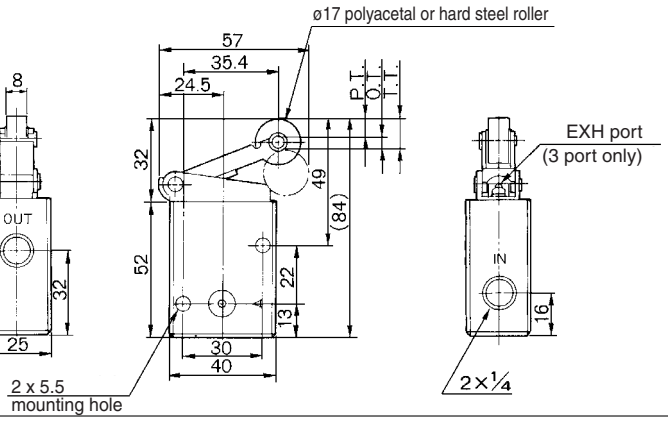


∗ 0.5 MPa supply

F.O.F. ∗	52 N
P.T.	3.0 mm
O.T.	2.0 mm
T.T.	5.0 mm

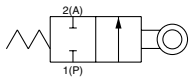
Roller lever
VM220-02-01
VM230-02-01
VM220-02-01S
VM230-02-01S



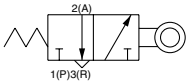


JIS Symbol

2 port



3 port

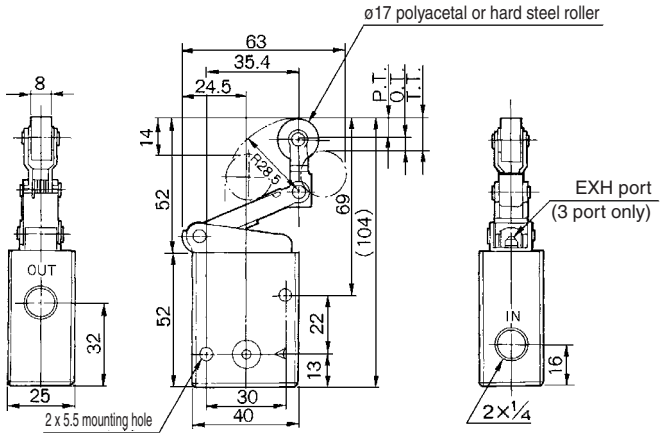


∗ 0.5 MPa supply

F.O.F. ∗	24 N
P.T.	6.5 mm
O.T.	4.5 mm
T.T.	11.0 mm

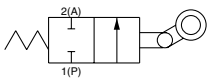
One way roller lever
VM220-02-02
VM230-02-02
VM220-02-02S
VM230-02-02S



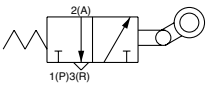


JIS Symbol

2 port



3 port

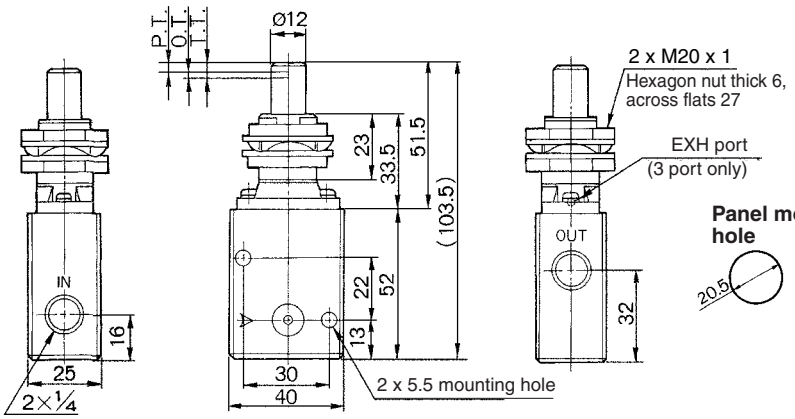


∗ 0.5 MPa supply

F.O.F. ∗	22 N
P.T.	7.0 mm
O.T.	5.0 mm
T.T.	12.0 mm

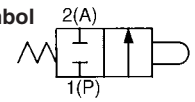
Straight plunger
VM220-02-05
VM230-02-05



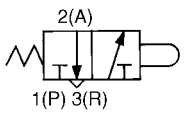


JIS Symbol

2 port



3 port



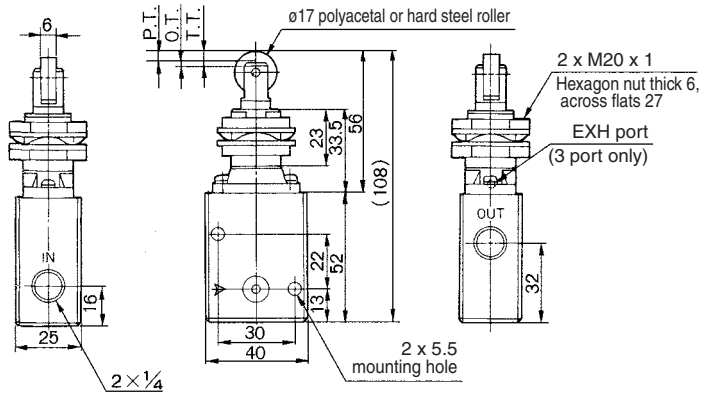
∗ 0.5 MPa supply

F.O.F. ∗	56 N
P.T.	3.5 mm
O.T.	2.0 mm
T.T.	5.5 mm

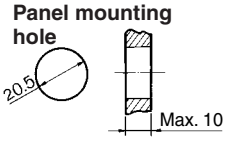
Series VM200

Roller plunger
VM220-02-06
VM230-02-06
VM220-02-06S
VM230-02-06S



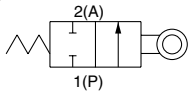


Panel mounting hole

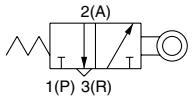


JIS Symbol

2 port



3 port

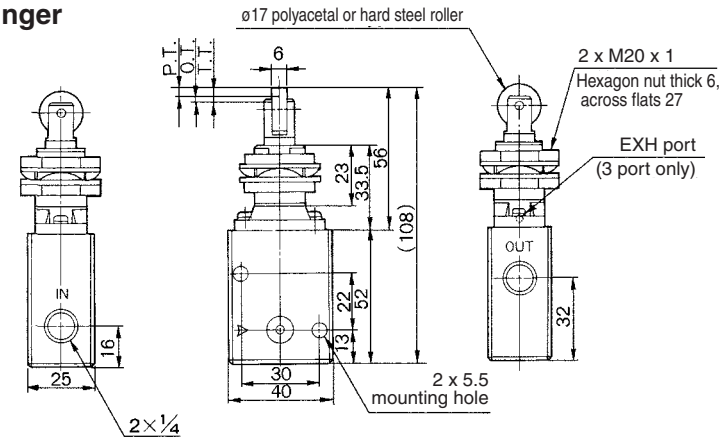


∗ 0.5 MPa supply

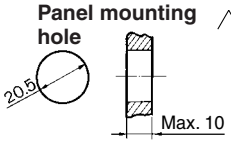
F.O.F. ∗	56 N
P.T.	3.5 mm
O.T.	2.0 mm
T.T.	5.5 mm

Cross roller plunger
VM220-02-07
VM230-02-07
VM220-02-07S
VM230-02-07S



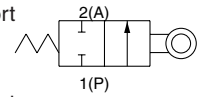


Panel mounting hole

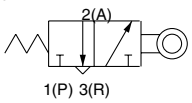


JIS Symbol

2 port



3 port

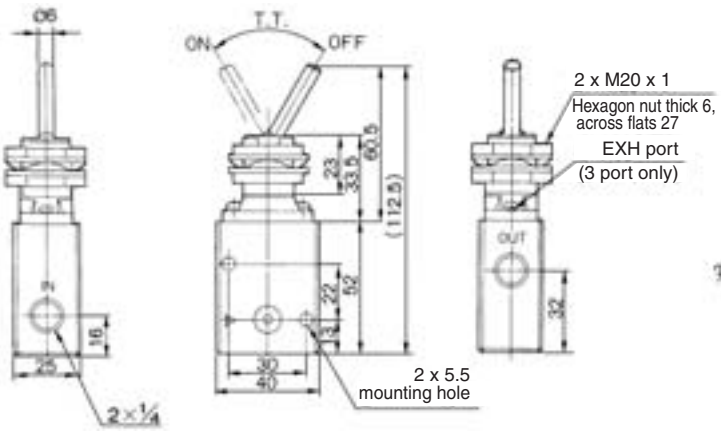


∗ 0.5 MPa supply

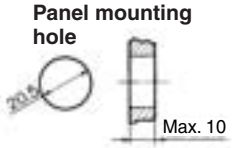
F.O.F. ∗	56 N
P.T.	3.5 mm
O.T.	2.0 mm
T.T.	5.5 mm

Toggle lever
VM220-02-08
VM230-02-08



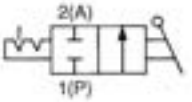


Panel mounting hole

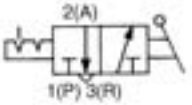


JIS Symbol

2 port



3 port

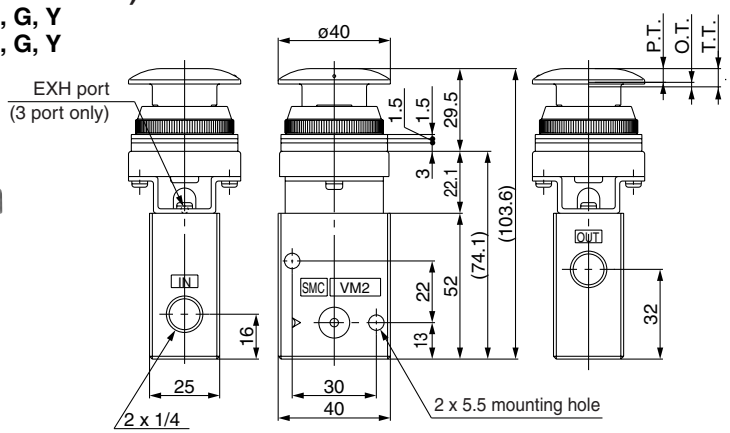


∗ 0.5 MPa supply

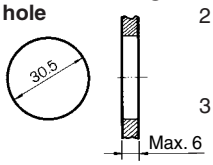
F.O.F. ∗	12 N
T.T.	60°

Push button (Mushroom)
VM220-02-30R, B, G, Y
VM230-02-30R, B, G, Y



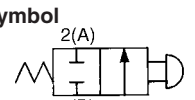


Panel mounting hole

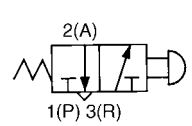


JIS Symbol

2 port



3 port



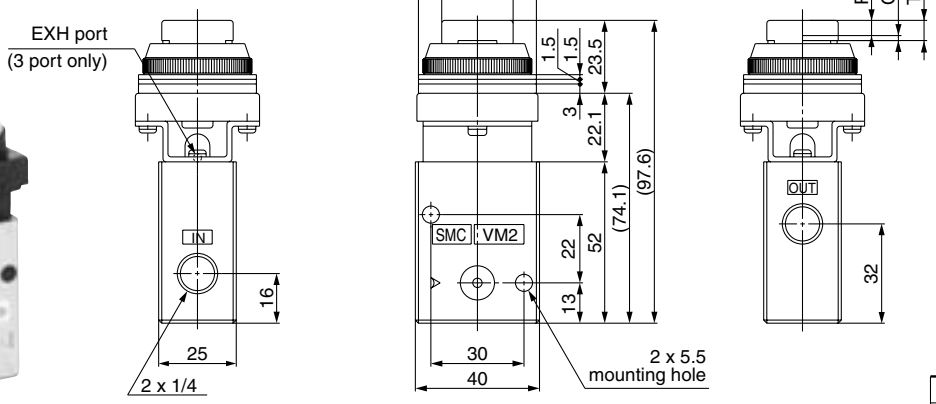
∗ 0.5 MPa supply

F.O.F. ∗	52 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

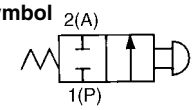
Series VM200

Push button (Extended)
VM220-02-32R/B/G/Y
VM230-02-32R/B/G/Y

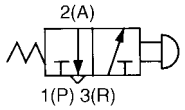




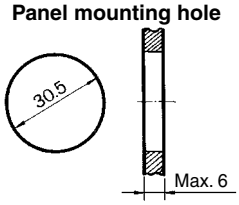
JIS Symbol
2 port



3 port



Panel mounting hole

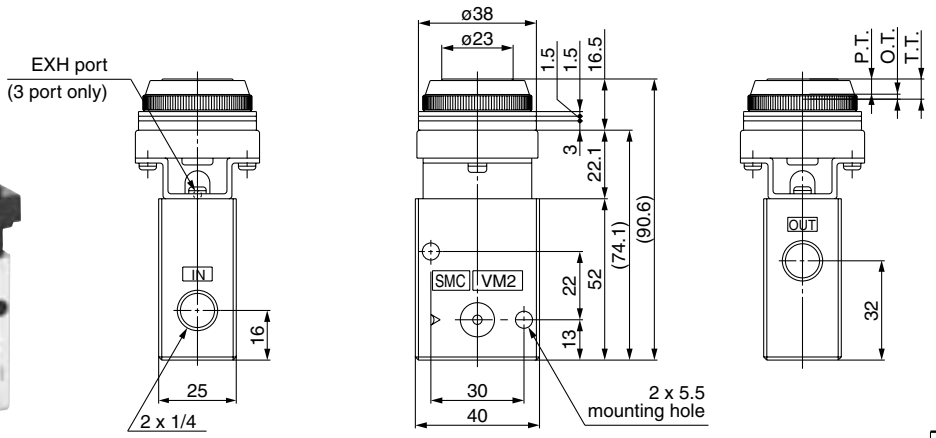


∗ 0.5 MPa supply

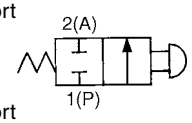
F.O.F. ∗	52 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

Push button (Flush)
VM220-02-33
VM230-02-33

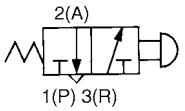




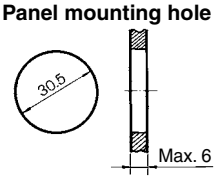
JIS Symbol
2 port



3 port



Panel mounting hole

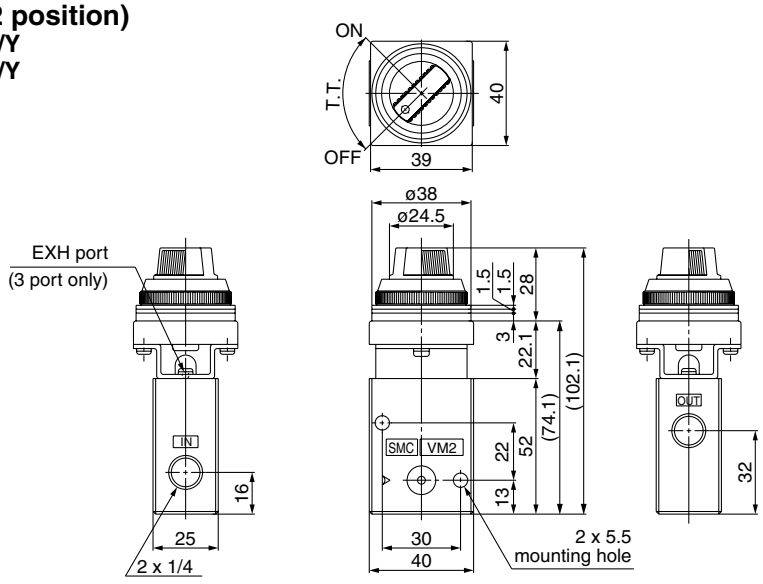


∗ 0.5 MPa supply

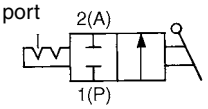
F.O.F. ∗	52 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

Twist selector (2 position)
VM220-02-34R/B/G/Y
VM230-02-34R/B/G/Y

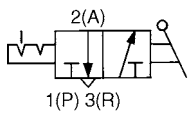




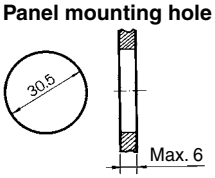
JIS Symbol
2 port



3 port



Panel mounting hole



∗ 0.5 MPa supply

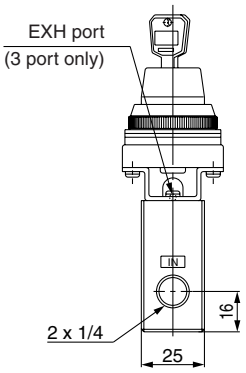
F.O.F. ∗	32 N
T.T.	90°

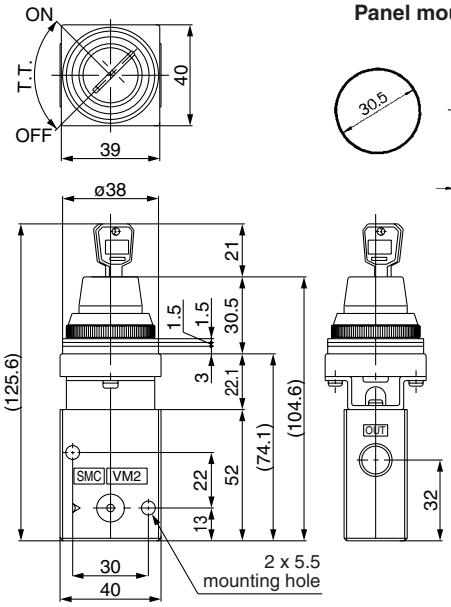
Series VM200

Key selector (2 position)

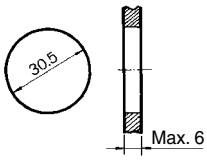
VM220-02-36
VM230-02-36





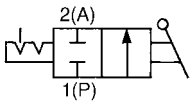


Panel mounting hole

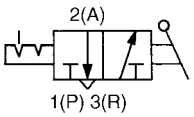


JIS Symbol

2 port



3 port



Key can be removed at the "on" and "off" positions.

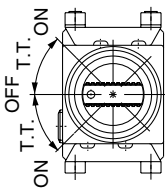
∗ 0.5 MPa supply

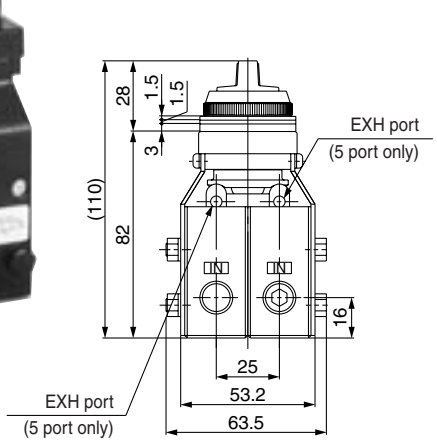
F.O.F. ∗	32 N
T.T.	90°

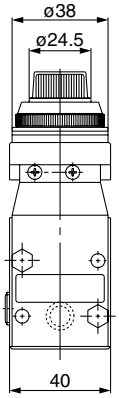
Twist selector (3 position)

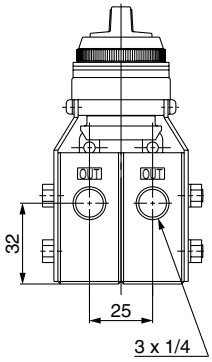
VM230-02-35R/B/G/Y
VM250-02-35R/B/G/Y



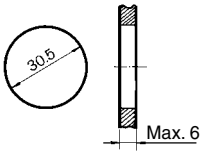






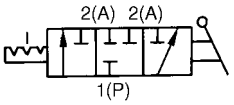


Panel mounting hole

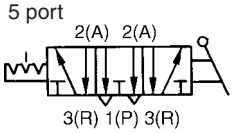


JIS Symbol

3 port



5 port



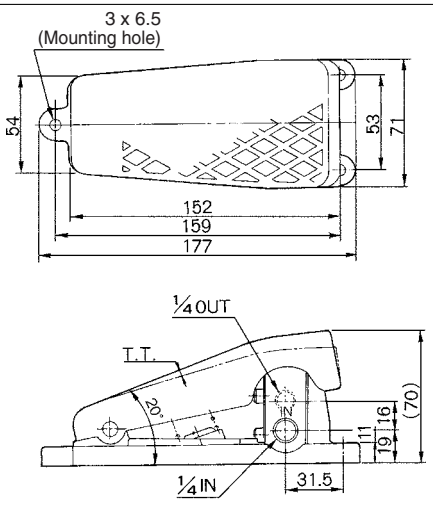
∗ 0.5 MPa supply

F.O.F. ∗	40 N
T.T.	45°

Foot pedal

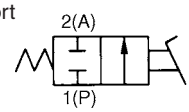
VM220-02-40
VM230-02-40



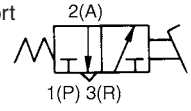


JIS Symbol

2 port



3 port



∗ 0.5 MPa supply

F.O.F. ∗	65 N
T.T.	1.2°

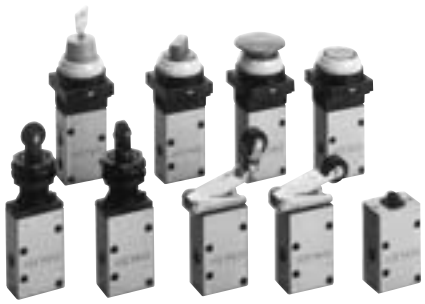
3 Port Mechanical Valve

Series VM400

Either N.C. or N.O. is available.

Piping possible to any port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.



Specifications

Fluid	Air/Inert gas
Operating pressure	–100 kPa to 1.0 MPa
Ambient and fluid temperature	–5 to 60°C (No freezing)
Effective area	7 mm^2
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated)
Port size	1/8
Mass (Basic)	110g

Model

	Actuator	Model	Actuator part no.	Application
Mechanical operation	Basic	VM430-01-00	—	—
	Roller lever	VM430-01-01	VM-01A	Polyacetal roller
		VM430-01-01S	VM-01AS	Hard steel roller
	One way roller lever	VM430-01-02	VM-02A	Polyacetal roller
		VM430-01-02S	VM-02AS	Hard steel roller
	Straight plunger	VM430-01-05	VM-05A	—
	Roller plunger	VM430-01-06	VM-06A	Polyacetal roller
		VM430-01-06S	VM-06AS	Hard steel roller
	Cross roller plunger	VM430-01-07	VM-07A	Polyacetal roller
		VM430-01-07S	VM-07AS	Hard steel roller
Manual operation	Toggle lever	VM430-01-08	VM-08A	—
	Push button (Mushroom)	VM430-01-30R	VM-30AR	Red
		VM430-01-30B	VM-30AB	Black
		VM430-01-30G	VM-30AG	Green
		VM430-01-30Y	VM-30AY	Yellow
	Push button (Extended)	VM430-01-32R	VM-32AR	Red
		VM430-01-32B	VM-32AB	Black
		VM430-01-32G	VM-32AG	Green
		VM430-01-32Y	VM-32AY	Yellow
	Push button (Flush)	VM430-01-33	VM-33A	With a set of red, black, green, yellow
	Twist selector (2 position)	VM430-01-34R	VM-34AR	Red
		VM430-01-34B	VM-34AB	Black
		VM430-01-34G	VM-34AG	Green
		VM430-01-34Y	VM-34AY	Yellow
	Key selector (2 position)	VM430-01-36	VM-36A	—

Note 1) Actuator replacement is available for all types.
Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 to 1888. The other parts are not replaceable.
Note 3) The handle of the selector (2 position) cannot be removed or replaced alone.

How to Order

VM4 3 0 – 01 – 01 S – ☐

Number of ports

3	3 port

Port size

01	Rc 1/8
N01	NPT 1/8
F01	G 1/8

Actuator type

00	Basic
01	Roller lever
02	One way roller lever
05	Straight plunger
06	Roller plunger
07	Cross roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)

Suffix for actuator

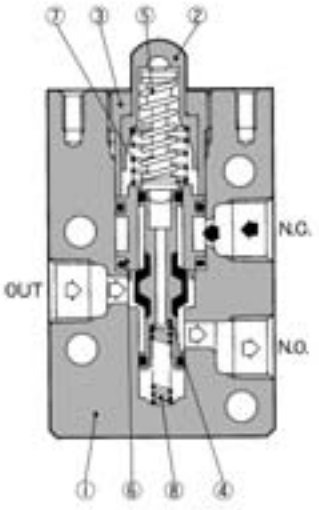
S	Hard steel roller	
R	Red	Color of push button selector
B	Black	
G	Green	
Y	Yellow	

Made to Order
(Refer to pages 1882 to 1885 for details.)

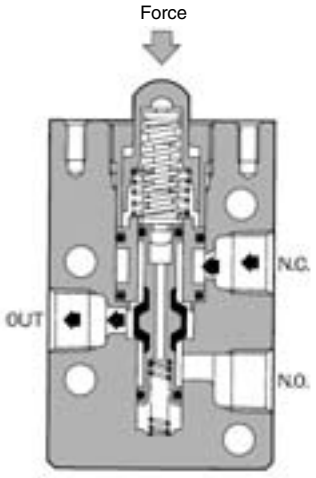
X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Construction

Non-actuated



Actuated



Component Parts

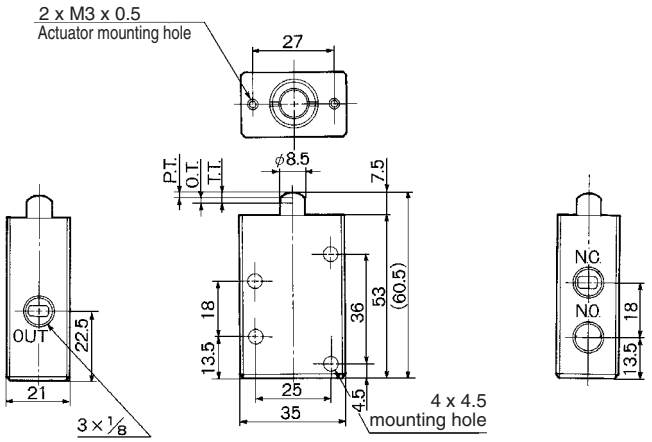
No.	Description	Material	Note
1	**Body**	ADC	Platinum silver
2	**Plunger**	POM	
3	**Upper lid**	Brass	Black zinc chromated
4	**Spool valve**	Aluminum alloy	Rubber lined

No.	Description	Material	Note
5	**Over travel spring**	Stainless steel	
6	**Retainer**	Brass	
7	**Spring**	Stainless steel	
8	**Spring**	Stainless steel	

Series VM400

Basic
VM430-01-00





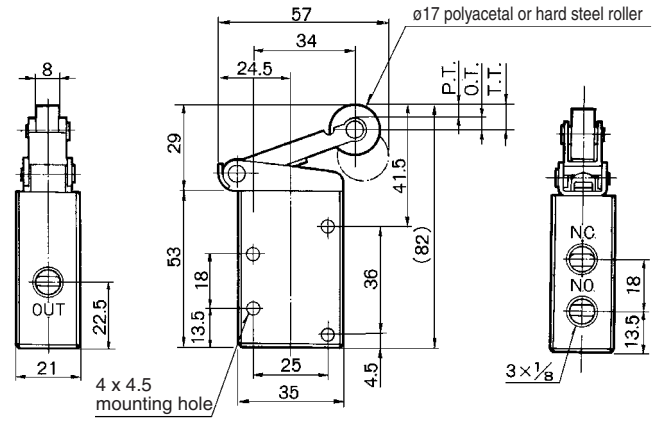
JIS Symbol



F.O.F.	26 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Roller lever
VM430-01-01
VM430-01-01S





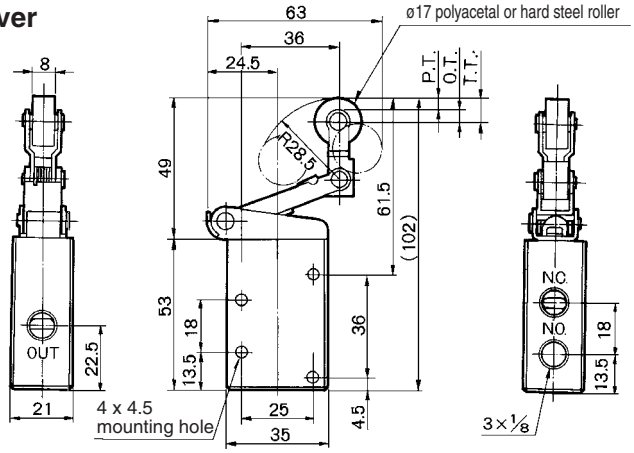
JIS Symbol



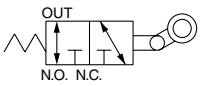
F.O.F.	12 N
P.T.	4.0 mm
O.T.	4.5 mm
T.T.	8.5 mm

One way roller lever
VM430-01-02
VM430-01-02S





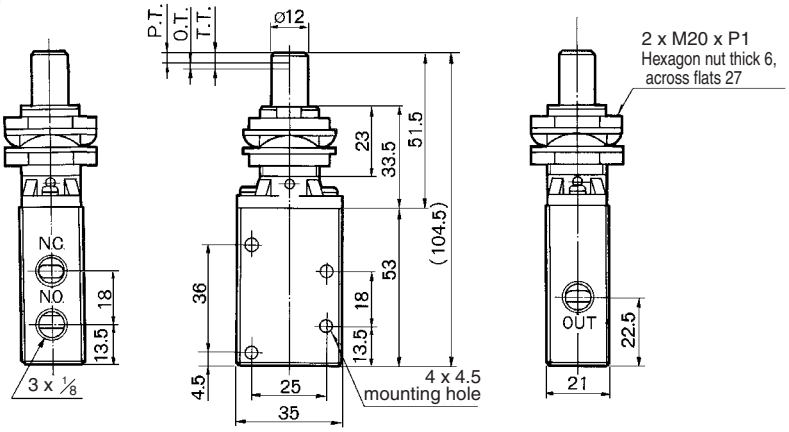
JIS Symbol



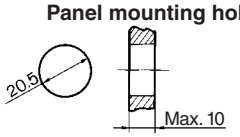
F.O.F.	11 N
P.T.	4.0 mm
O.T.	5.0 mm
T.T.	9.0 mm

Straight plunger
VM430-01-05

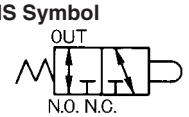




Panel mounting hole



JIS Symbol

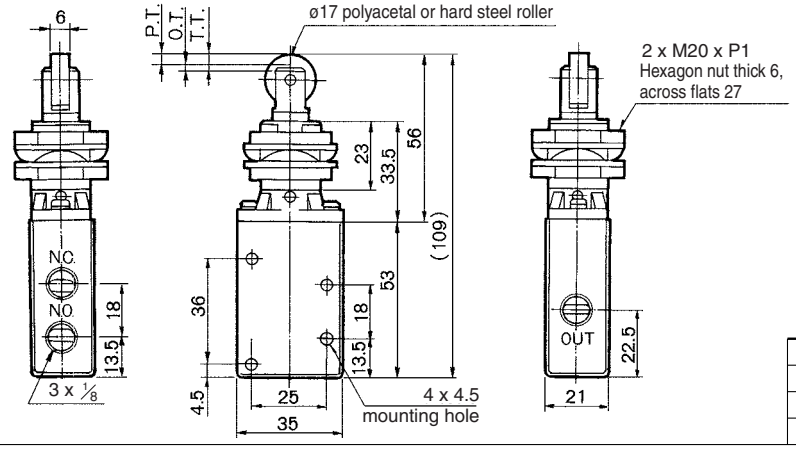


F.O.F.	30 N
P.T.	3.5 mm
O.T.	2.0 mm
T.T.	5.5 mm

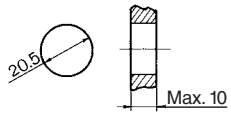
Series VM400

Roller plunger
VM430-01-06
VM430-01-06S

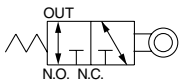




Panel mounting hole



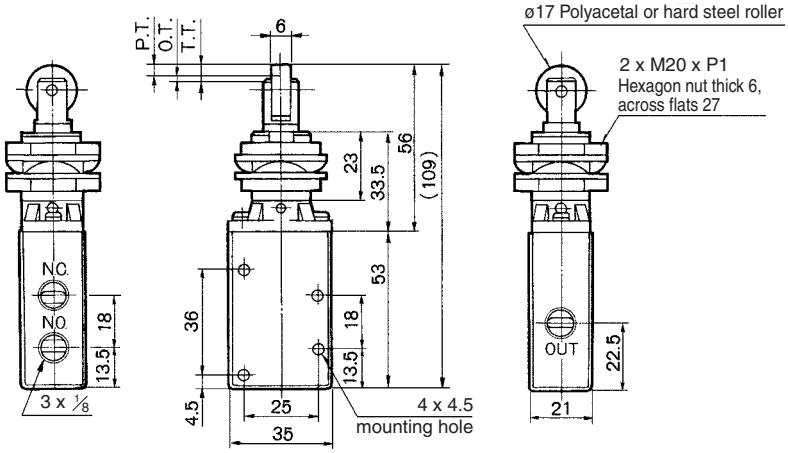
JIS Symbol



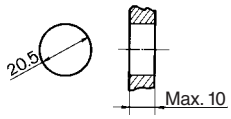
F.O.F.	30 N
P.T.	3.5 mm
O.T.	2.0 mm
T.T.	5.5 mm

Cross roller plunger
VM430-01-07
VM430-01-07S





Panel mounting hole



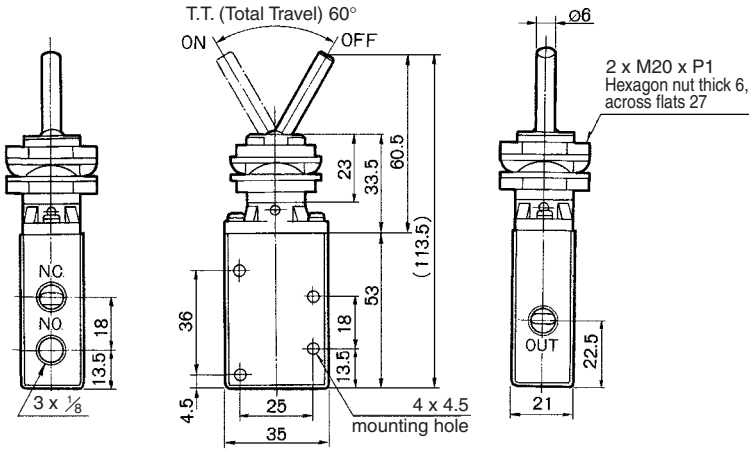
JIS Symbol



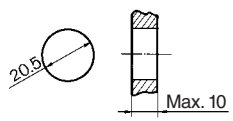
F.O.F.	30 N
P.T.	3.5 mm
O.T.	2.0 mm
T.T.	5.5 mm

Toggle lever
VM430-01-08





Panel mounting hole



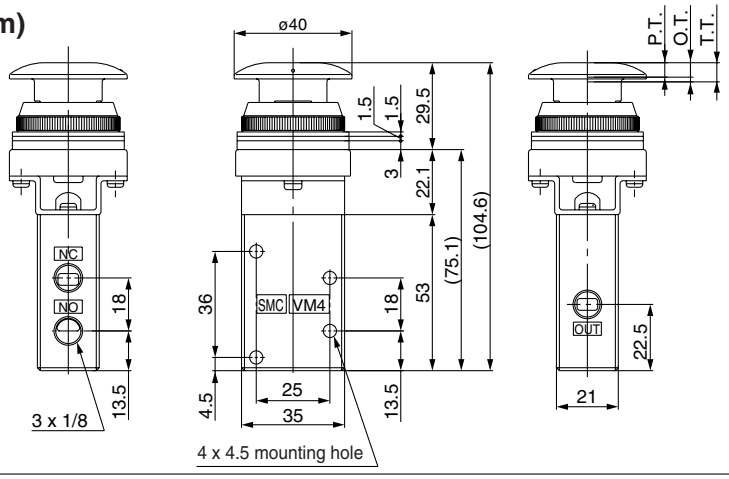
JIS Symbol



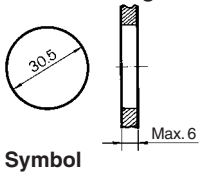
F.O.F.	7 N
T.T.	60°

Push button (Mushroom)
VM430-01-30R/B/G/Y





Panel mounting hole



JIS Symbol

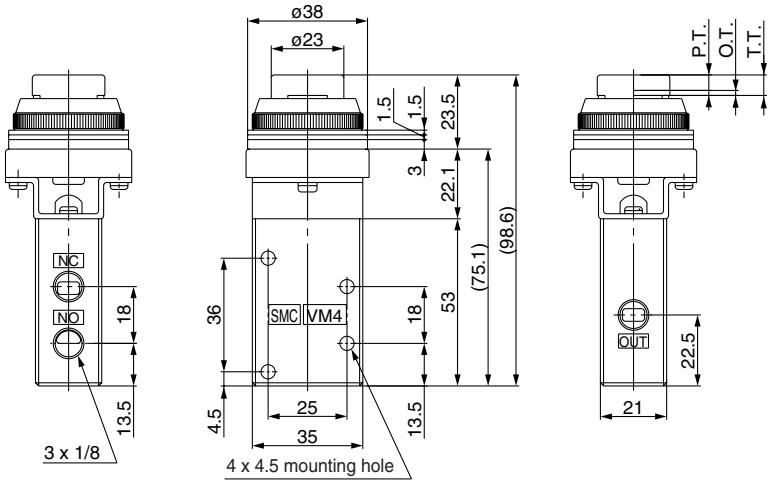


F.O.F.	26 N
P.T.	4.6 mm
O.T.	1.6 mm
T.T.	6.5 mm

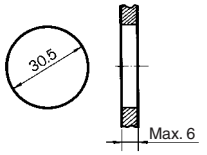
Series VM400

Push button (Extended)
VM430-01-32R/B/G/Y





Panel mounting hole



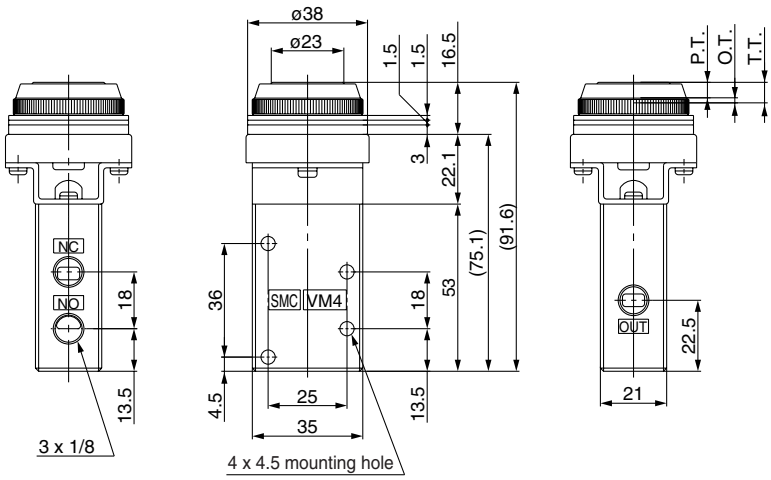
JIS Symbol



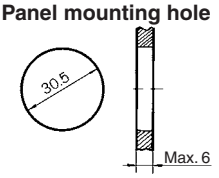
F.O.F.	26 N
P.T.	5.4 mm
O.T.	1.6 mm
T.T.	6.5 mm

Push button (Flush)
VM430-01-33





Panel mounting hole

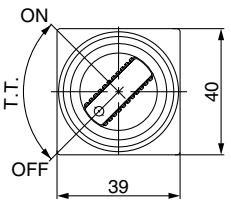


JIS Symbol

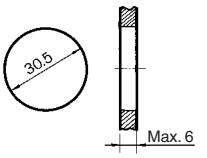


F.O.F.	26 N
P.T.	4.9 mm
O.T.	1.6 mm
T.T.	6.5 mm

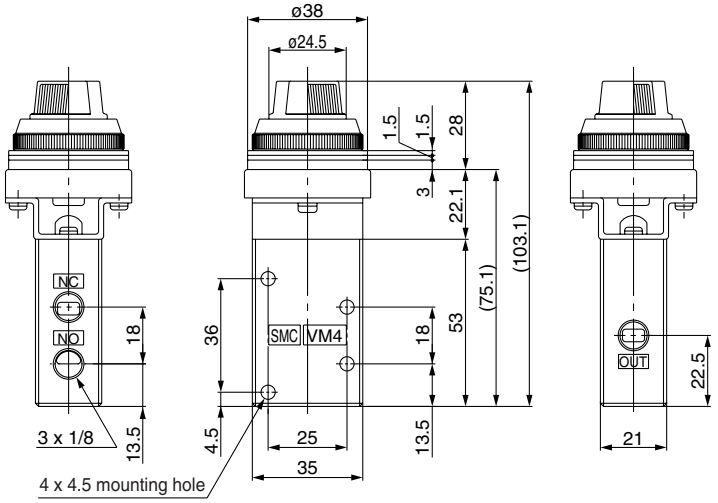
Twist selector (2 position)
VM430-01-34R/B/G/Y



Panel mounting hole







JIS Symbol

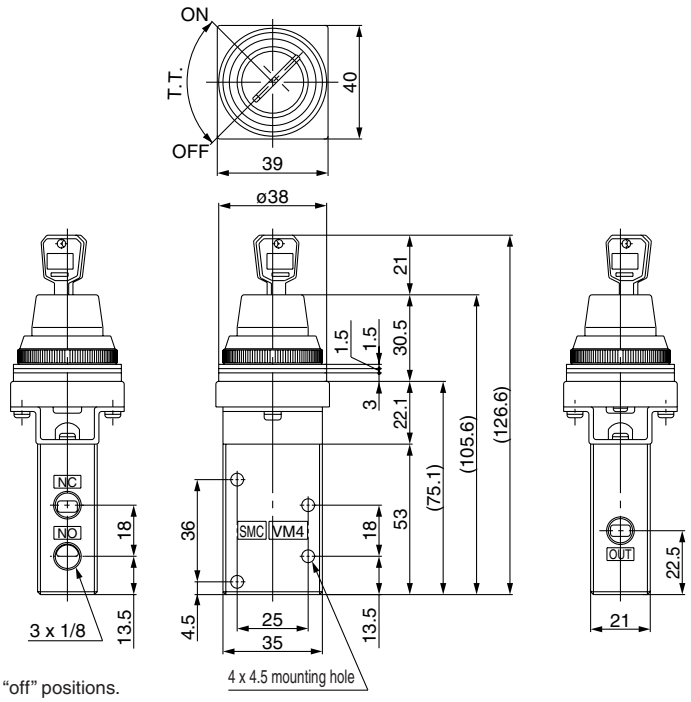


F.O.F.	20 N
T.T.	90°

Series VM400

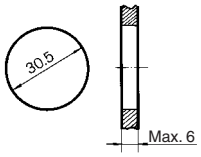
Key selector (2 position)
VM430-01-36





Key can be removed at the “on” and “off” positions.

Panel mounting hole



JIS Symbol



F.O.F.	20 N
T.T.	90°

3 Port Mechanical Valve: Heavy Duty Type

Series VM800

Sturdy construction.

Either N.C. or N.O. is available.

Piping possible to any port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

Many actuator positions and orientation options.



Specifications

Fluid	Air/Inert gas
Operating pressure	–100 kPa to 1.0 MPa
Ambient and fluid temperature	–5 to 60°C (No freezing)
Effective area	6 mm²
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Port size	1/8
Mass (Basic)	180 g

Model

Actuator	Model	Actuator part no.
Basic	VM830-01-00	—
Roller lever	VM830-01-01	VM-01F
Adjustable roller lever	VM830-01-13	VM-13F
Adjustable rod lever	VM830-01-14	VM-14F

● Actuator replacement is available.

How to Order

VM8 3 0 – 01 – 01

Number of ports

3	3 port

Port size

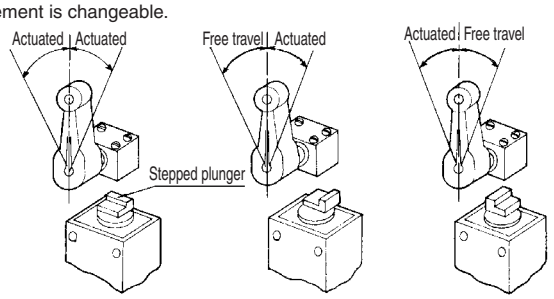
01	Rc 1/8
N01	NPT 1/8
F01	G 1/8

Actuator type

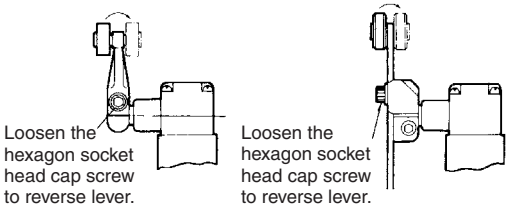
00	Basic
01	Roller lever
13	Adjustable roller lever
14	Adjustable rod lever

Application

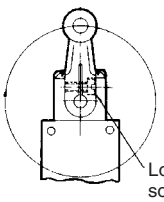
● Movement is changeable.



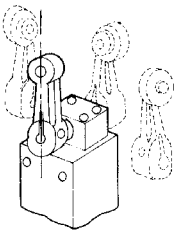
● Roller can be mounted to inside of lever.



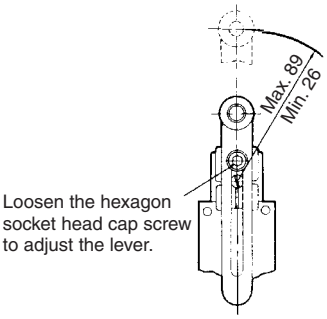
● Lever location can be changed.

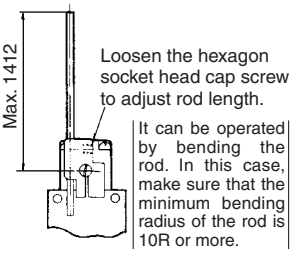


● Head direction can be changed.



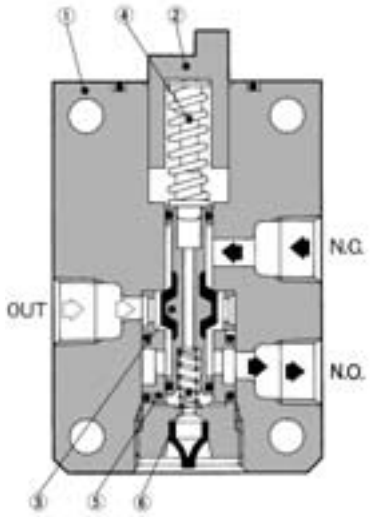
● Lever length adjustment.



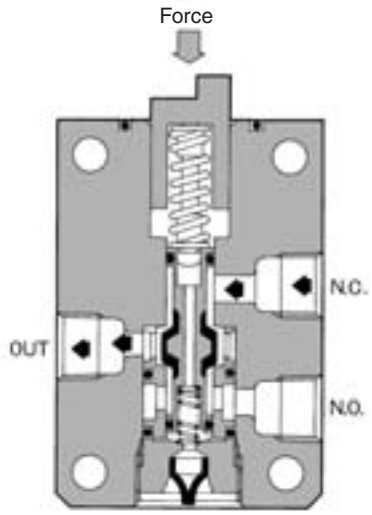


Construction

Non-actuated



Actuated



Component Parts

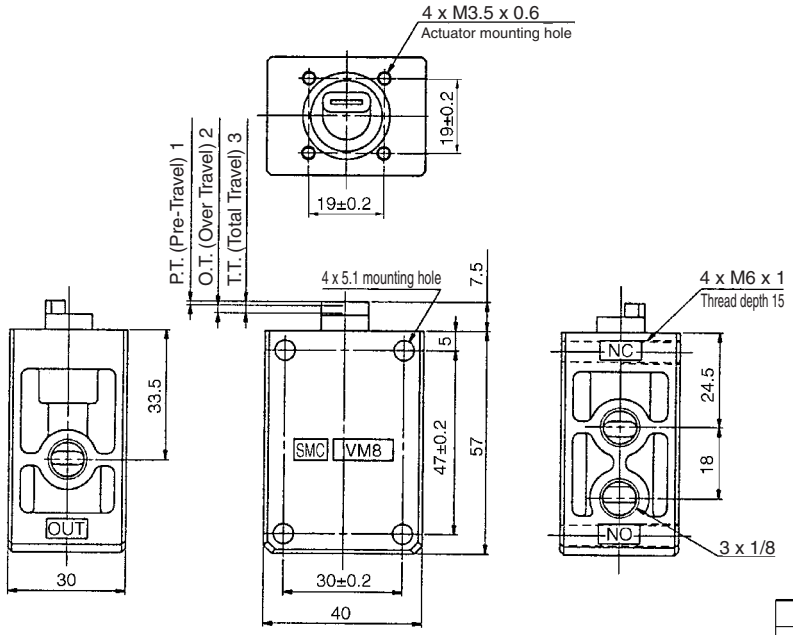
No.	Description	Material	Note
1	**Body**	ADC	Platinum silver
2	**Plunger**	POM	
3	**Spool valve**	Aluminum alloy, NBR	Rubber lined

No.	Description	Material	Note
4	**Over travel spring**	Stainless steel	
5	**Retainer**	Brass	
6	**Spring**	Steel	Zinc chromated

Series VM800

Basic／VM830-01-00





JIS Symbol

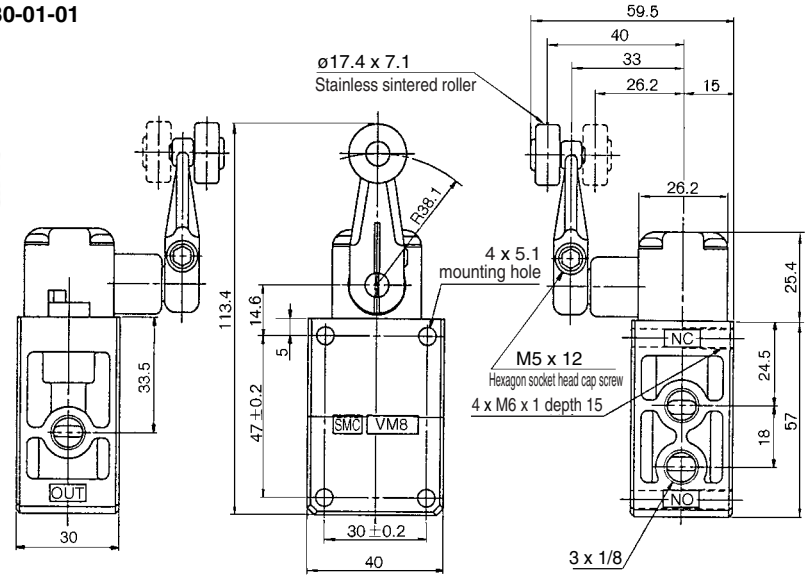


F.O.F.	23 N
P.T.	1.0 mm
O.T.	2.0 mm
T.T.	3.0 mm

Series VM800

Roller lever／VM830-01-01





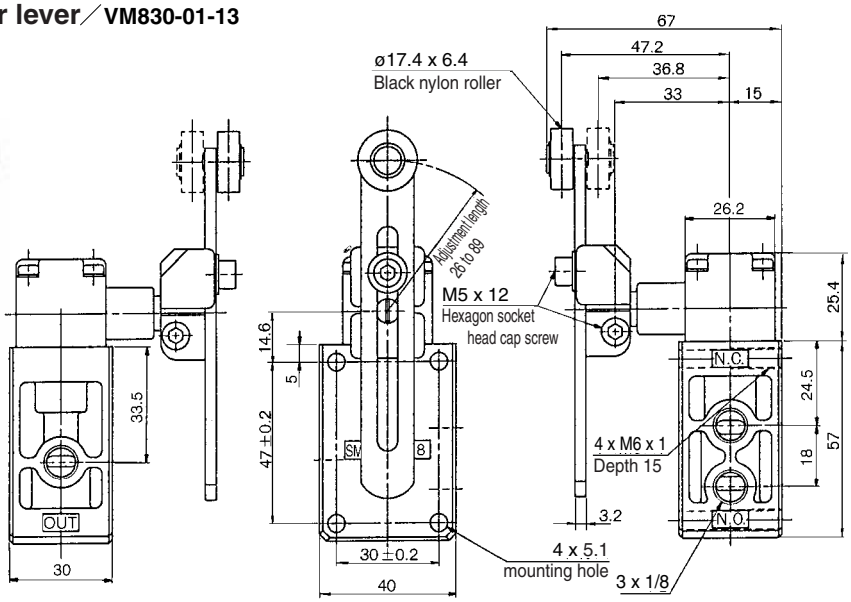
JIS Symbol



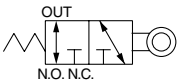
F.O.F.	20 N
P.T.	20°
O.T.	30°
T.T.	50°

Adjustable roller lever／VM830-01-13





JIS Symbol

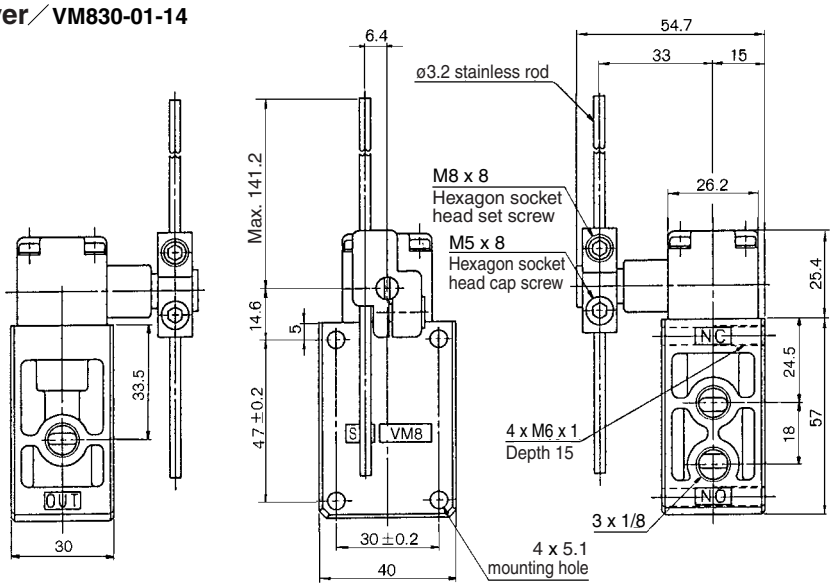


∗ At lever length 38.1 mm

F.O.F. ∗	20 N
P.T.	20°
O.T.	30°
T.T.	50°

Adjustable rod lever／VM830-01-14





JIS Symbol



∗ At lever length 141.2 mm

F.O.F. ∗	2.3 N
P.T.	20°
O.T.	30°
T.T.	50°

5 Port Mechanical Valve Metal Seal

Series VZM400

Compact design, large flow capacity 9.9 mm²

High cycle rate, long life/300 c.p.m. or less

Piping possible to any EXH port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

Pilot type is selectable. (Internal pilot and external pilot)

Foot bracket and manifold mounting possible.



Specifications

Fluid	Air/Inert gas
Operating pressure	0.15 to 1.0 MPa (1)
Ambient and fluid temperature	–5 to 60°C (No freezing)
Effective area	9.9 mm²
Maximum frequency (Mechanical operation type)	300 c.p.m. or less
Lubrication	Not required (Use turbine oil class 1 ISO VG32, if lubricated.)
Port size	Main valve/1⁄8
	Pilot valve (EXH)/M5 x 0.8
Option	Foot bracket (2)
Mass (Basic)	120 g

∗ Please contact SMC for manifold mounting style.
Note 1) External pilot type Main valve: 0 to 1.0 MPa
Pilot valve: 0.15 to 1.0 MPa
Note 2) The standard body can not be retrofitted with a foot bracket.

Model

	Actuator	Model	Actuator part no.	Application
Mechanical operation	Basic	VZM450-01-00	—	—
	Roller lever	VZM450-01-01	VM-01C	Polyacetal roller
		VZM450-01-01S	VM-01CS	Hard steel roller
	One way roller lever	VZM450-01-02	VM-02C	Polyacetal roller
		VZM450-01-02S	VM-02CS	Hard steel roller
	Straight plunger	VZM450-01-05	VM-05C	—
	Roller plunger	VZM450-01-06	VM-06C	Polyacetal roller
		VZM450-01-06S	VM-06CS	Hard steel roller
Manual operation	Toggle lever	VZM450-01-08	VM-08C	—
	Push button (Mushroom)	VZM450-01-30R	VM-30CR	Red
		VZM450-01-30B	VM-30CB	Black
		VZM450-01-30G	VM-30CG	Green
		VZM450-01-30Y	VM-30CY	Yellow
	Push button (Extended)	VZM450-01-32R	VM-32CR	Red
		VZM450-01-32B	VM-32CB	Black
		VZM450-01-32G	VM-32CG	Green
		VZM450-01-32Y	VM-32CY	Yellow
	Push button (Flush)	VZM450-01-33	VM-33C	With a set of red, black, green, yellow
	Twist selector (2 position)	VZM450-01-34R	VM-34CR	Red
		VZM450-01-34B	VM-34CB	Black
		VZM450-01-34G	VM-34CG	Green
		VZM450-01-34Y	VM-34CY	Yellow
	Key selector (2 position)	VZM450-01-36	VM-36C	—

Note 1) Actuator replacement is available for all types.
Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 and 1888. The other parts are not replaceable.
Note 3) The handle of the selector (2 position) cannot be removed or replaced alone.

How to Order

VZM45 [0] – [01] – [01] [S] – [ ] – [ ]

Made to Order
(Refer to pages 1882 to 1885 for details.)

X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Option

F	Foot bracket (Only internal pilot)

Suffix for actuator

S	Hard steel roller	
R	Red	Color of push botton selector
B	Black	
G	Green	
Y	Yellow	

Actuator type

00	Basic
01	Roller lever
02	One Way Roller Lever
05	Straight plunger
06	Roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)

Port size

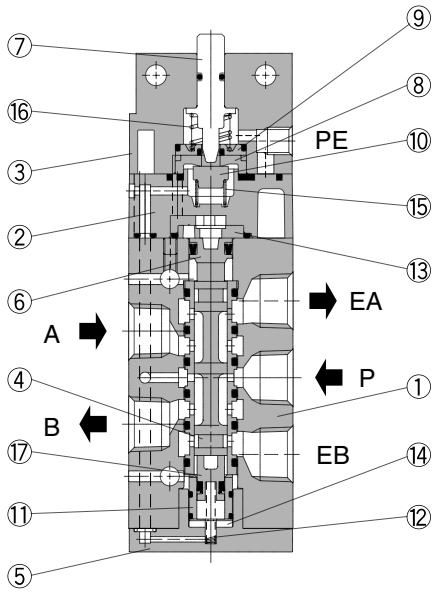
01	Rc 1/8
N01	NPT 1/8
F01	G 1/8

Body option

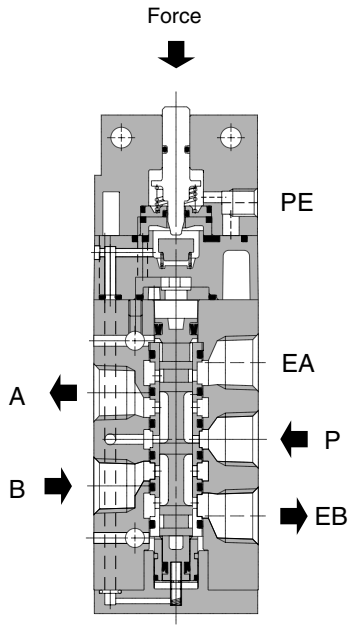
0	Internal pilot type
1	External pilot type

Construction

Non-actuated



Actuated



Component Parts

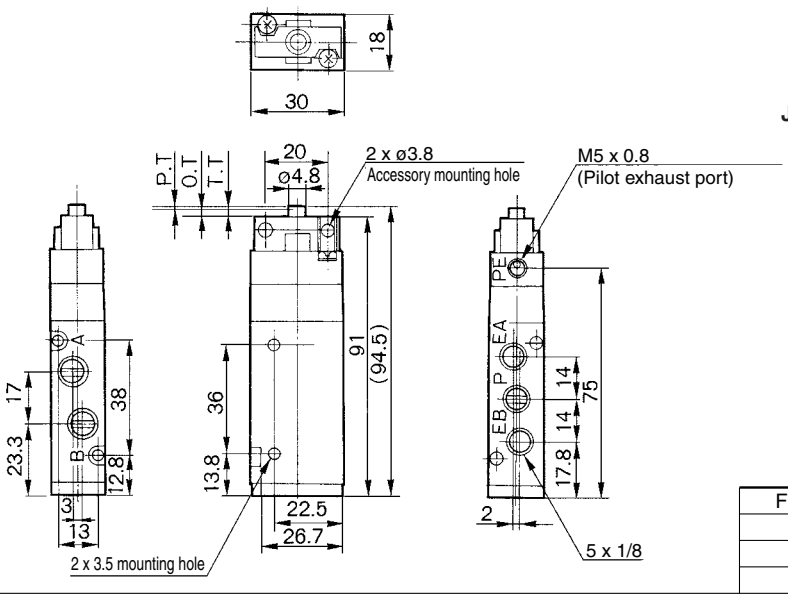
No.	Description	Material	Note
1	**Body**	ADC	Platinum silver
2	**Pilot body**	PBT	ZDC only for external pilot type
3	**Head cover**	ZDC	Black zinc chromated
4	**Spool/sleeve**	Stainless steel	
5	**End cover**	POM	
6	**Piston A**	POM	
7	**Plunger**	POM	
8	**Valve seat (A)**	POM	
9	**Valve seat (B)**	POM	

No.	Description	Material	Note
10	**Valve**	NBR	
11	**Piston guide B**	Aluminum alloy	
12	**Return spring**	Stainless steel	
13	**Cushion**	Rubber	
14	**Cushion**	Rubber	
15	**Valve spring**	Stainless steel	
16	**Return spring**	Stainless steel	
17	**Piston B**	POM	

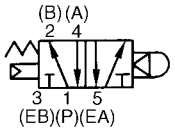
Series VZM400

Basic／VZM450-01-00





JIS Symbol

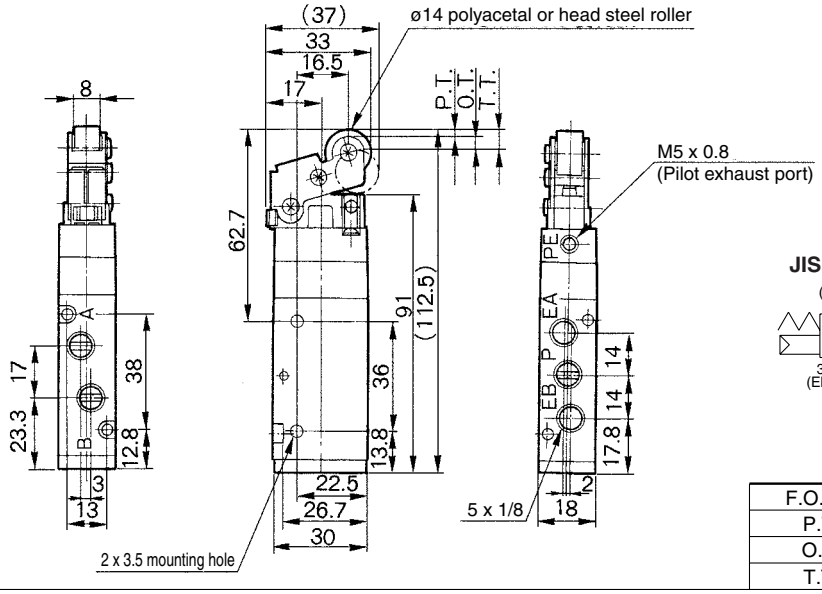


∗ 0.5 MPa supply

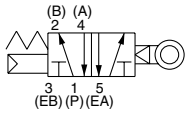
F.O.F. ∗	16 N
P.T.	1.0 mm
O.T.	2.0 mm
T.T.	3.0 mm

Roller lever／VZM450-01-01· VZM450-01-01S





JIS Symbol

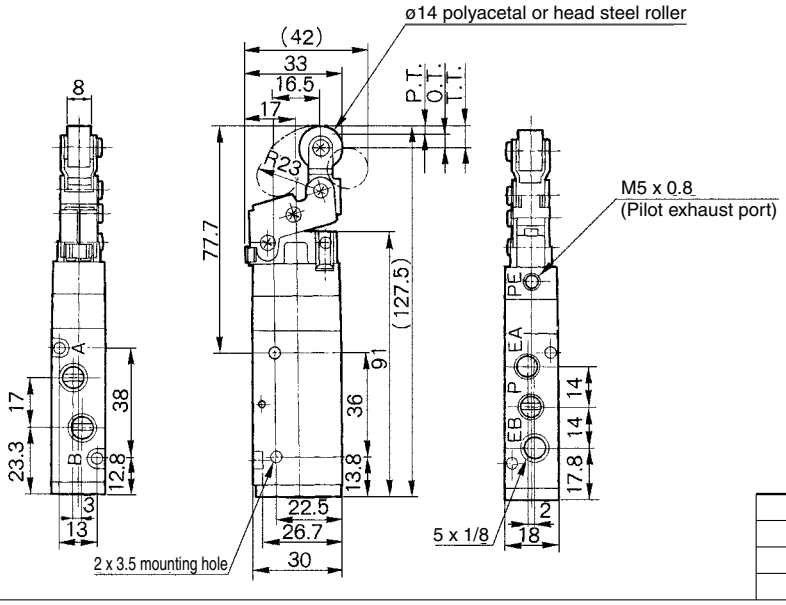


∗ 0.5 MPa supply

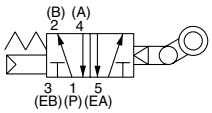
F.O.F. ∗	8 N
P.T.	2.2 mm
O.T.	4.0 mm
T.T.	6.2 mm

One way roller lever／VZM450-01-02·VZM450-01-02S





JIS Symbol



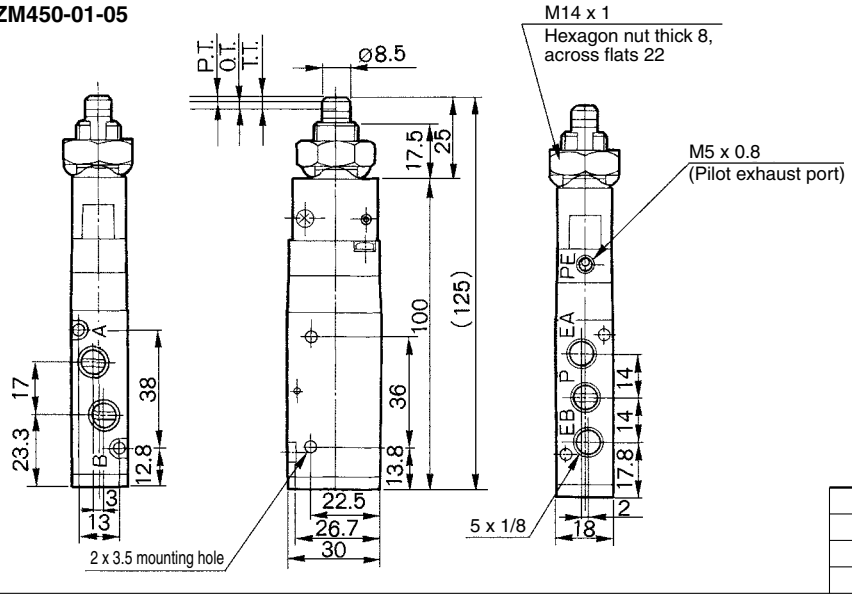
∗ 0.5 MPa supply

F.O.F. ∗	7 N
P.T.	2.4 mm
O.T.	4.6 mm
T.T.	7.0 mm

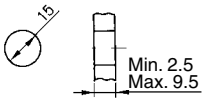
Series VZM400

Straight plunger / VZM450-01-05

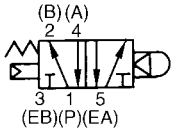




Panel mounting hole



JIS Symbol

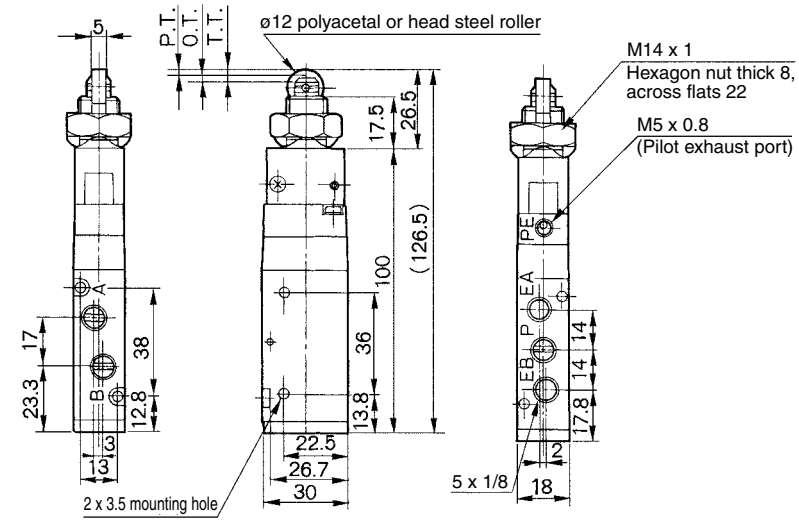


∗ 0.5 MPa supply

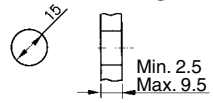
F.O.F. ∗	18 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Roller plunger / VZM450-01-06 · VZM450-01-06S

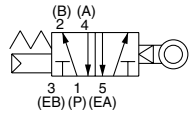




Panel mounting hole



JIS Symbol

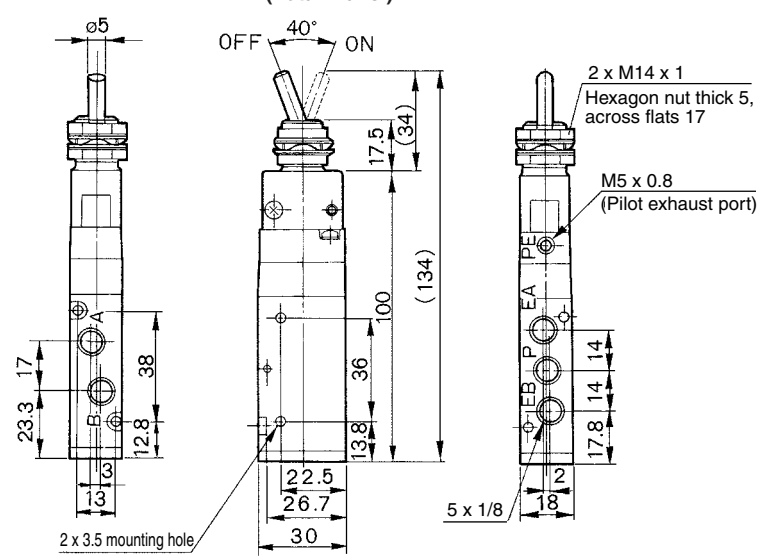


∗ 0.5 MPa supply

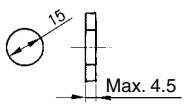
F.O.F. ∗	18 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Toggle lever / VZM450-01-08

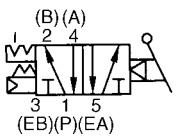




Panel mounting hole



JIS Symbol



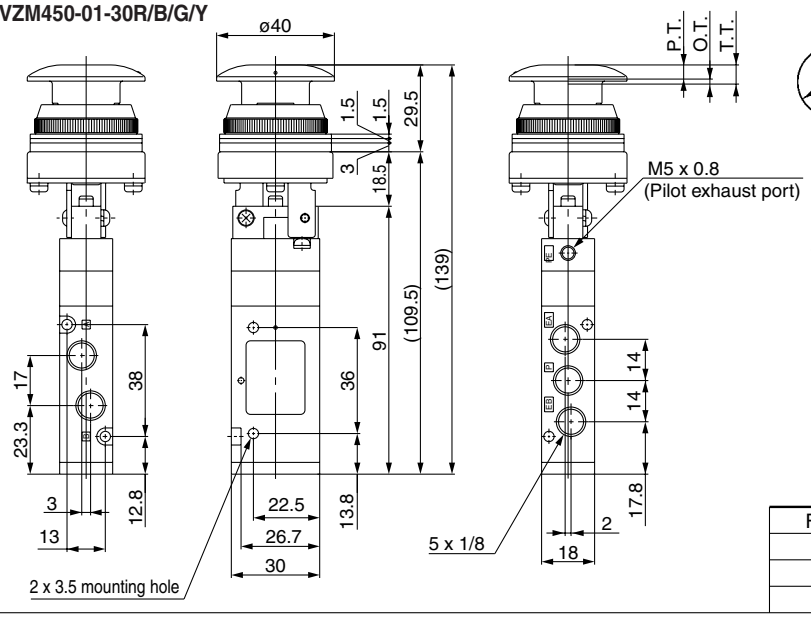
∗ 0.5 MPa supply

F.O.F. ∗	15 N
T.T.	40°

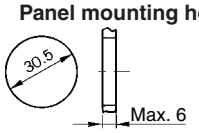
Series VZM400

Push button (Mushroom)／VZM450-01-30R/B/G/Y

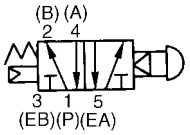




Panel mounting hole



JIS Symbol

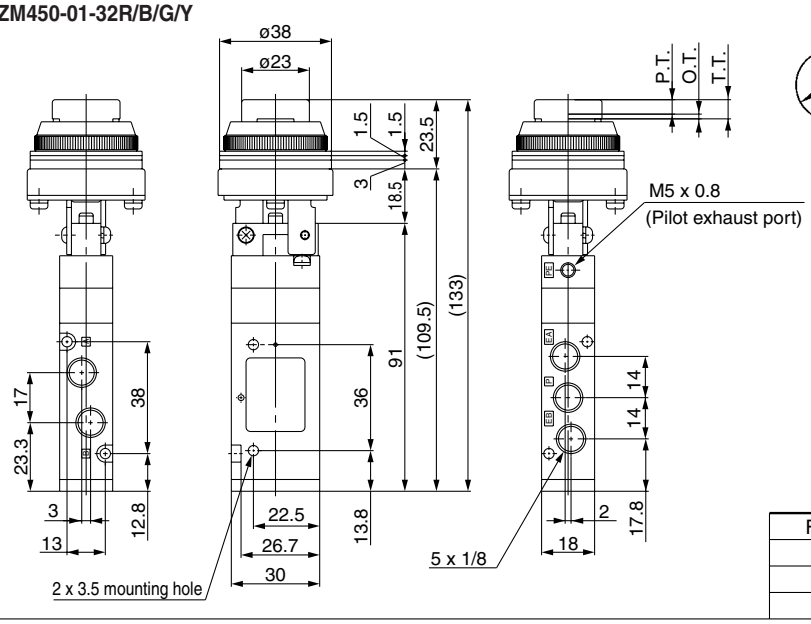


∗ 0.5 MPa supply

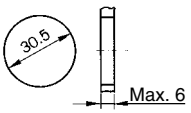
F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

Push button (Extended)／VZM450-01-32R/B/G/Y

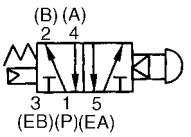




Panel mounting hole



JIS Symbol

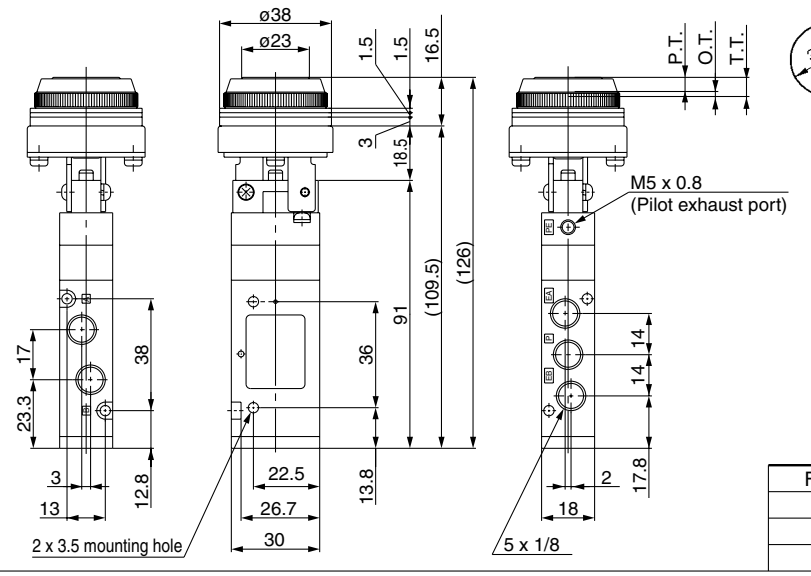


∗ 0.5 MPa supply

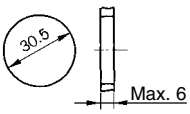
F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

Push button (Flush)／VZM450-01-33

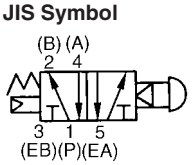




Panel mounting hole



JIS Symbol



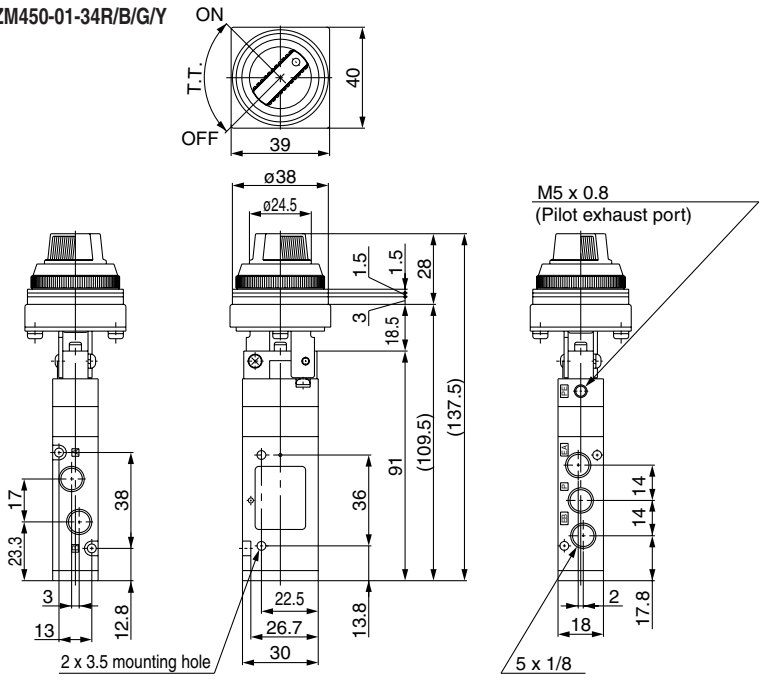
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

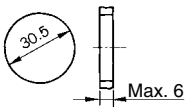
Series VZM400

Twist selector (2 position) / VZM450-01-34R/B/G/Y

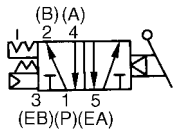




Panel mounting hole



JIS Symbol

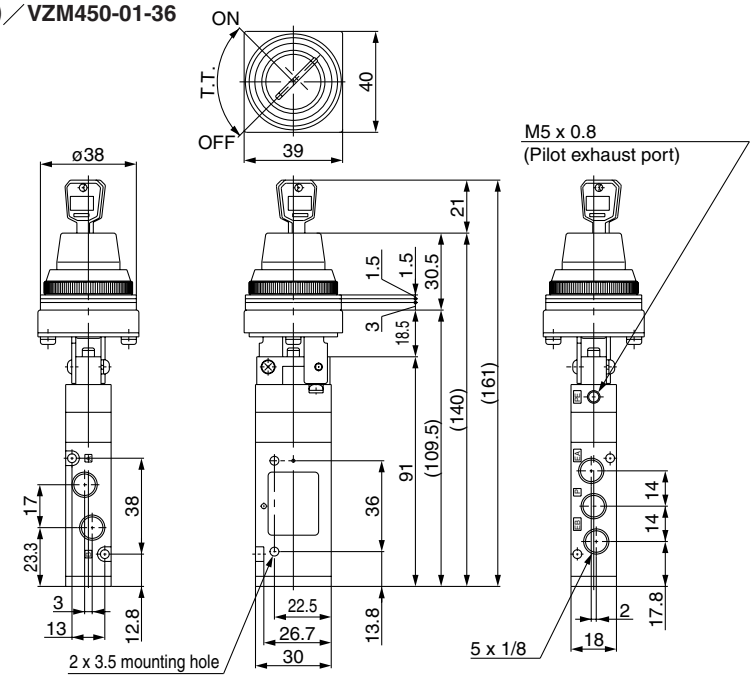


∗ 0.5 MPa supply

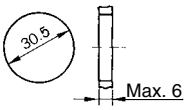
F.O.F. ∗	23 N
T.T.	90°

Key selector (2 position) / VZM450-01-36

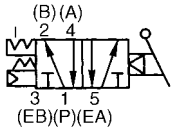




Panel mounting hole



JIS Symbol

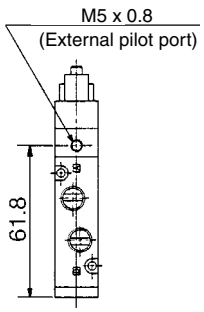


∗ 0.5 MPa supply

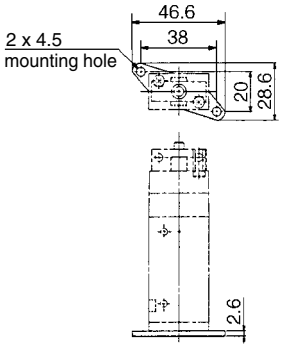
F.O.F. ∗	26 N
T.T.	90°

Key can be removed at the “on” and “off” positions.

External pilot type
VZM451 type



With foot bracket
VZM450-01-□□-F



5 Port Mechanical Valve
Series VZM500

Compact design, large flow capacity 10.8 mm²

High cycle rate, long life/300 c.p.m. or less

Piping possible to any EXH port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

Pilot type is selectable. (Internal pilot and external pilot)

Foot bracket and manifold mounting possible.



PAT.PEND.

Specifications

Fluid	Air/Inert gas
Operating pressure	0.15 to 0.7 MPa (1)
Ambient and fluid temperature	–5 to 60°C (No freezing)
Effective area	10.8 mm²
Maximum frequency (Mechanical operation type)	300 c.p.m. or less
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Port size	Main valve/1⁄8
	Pilot valve (EXH)/M5 x 0.8
Option	Foot bracket (2)
Mass (Basic)	110 g

∗ Please contact SMC for manifold mounting style.
Note 1) External pilot type Main valve: 0 to 0.7 MPa
Pilot valve: 0.15 to 0.7 MPa
Note 2) The standard body can not be retrofitted with a foot bracket.

Model

	Actuator	Model	Actuator part no.	Application
Mechanical operation	Basic	VZM550-01-00	—	—
	Roller lever	VZM550-01-01	VM-01C	Polyacetal roller
		VZM550-01-01S	VM-01CS	Hard steel roller
	One way roller lever	VZM550-01-02	VM-02C	Polyacetal roller
		VZM550-01-02S	VM-02CS	Hard steel roller
	Straight plunger	VZM550-01-05	VM-05C	—
	Roller plunger	VZM550-01-06	VM-06C	Polyacetal roller
		VZM550-01-06S	VM-06CS	Hard steel roller
Manual operation	Toggle lever	VZM550-01-08	VM-08C	—
	Push button (Mushroom)	VZM550-01-30R	VM-30CR	Red
		VZM550-01-30B	VM-30CB	Black
		VZM550-01-30G	VM-30CG	Green
		VZM550-01-30Y	VM-30CY	Yellow
	Push button (Extended)	VZM550-01-32R	VM-32CR	Red
		VZM550-01-32B	VM-32CB	Black
		VZM550-01-32G	VM-32CG	Green
		VZM550-01-32Y	VM-32CY	Yellow
	Push button (Flush)	VZM550-01-33	VM-33C	With a set of red, black, green, yellow
	Twist selector (2 position)	VZM550-01-34R	VM-34CR	Red
		VZM550-01-34B	VM-34CB	Black
		VZM550-01-34G	VM-34CG	Green
		VZM550-01-34Y	VM-34CY	Yellow
	Key selector (2 position)	VZM550-01-36	VM-36C	—
	Push-pull	VZM550-01-37	—	Black

Note 1) Actuator replacement is available for all types. (Except push-pull)
Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 and 1888. The other parts are not replaceable.
Note 3) The handle of the selector (2 position) cannot be removed or replaced alone.

How to Order

VZM55 0 – 01 – 01 S – □ – □□

Body option

0	Standard
1 *	External pilot type

* Except VZM550-01-37

Port size

01	Rc 1/8
N01	NPT 1/8
F01	G 1/8

Actuator type

00	Basic
01	Roller lever
02	One way roller lever
05	Straight plunger
06	Roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)
37	Push-pull

Suffix for actuator

S	Hard steel roller	
R	Red	Color of push button selector
B	Black	
G	Green	
Y	Yellow	

Option

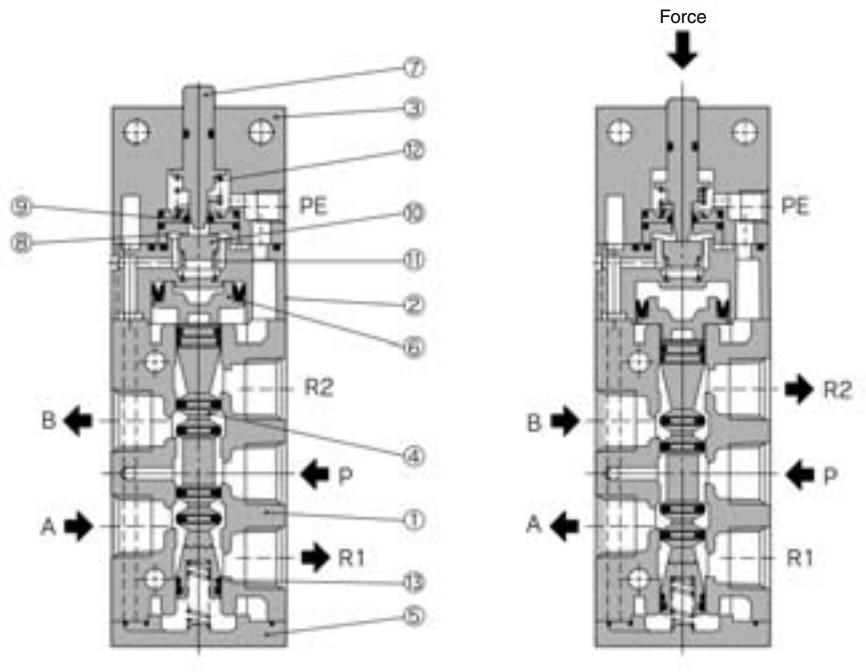
F	Foot bracket

Made to Order
(Refer to pages 1882 to 1885 for details.)

X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Construction

Non-actuated **Actuated**



Component Parts

No.	Description	Material	Note
1	**Body**	ADC	Platinum silver
2	**Pilot body**	PBT	ZDC only for external pilot type
3	**Head cover**	ZDC	Black zinc chromated
4	**Spool valve assembly**		
5	**End cover**	ZDC	Matt-black
6	**Piston**	POM	
7	**Plunger**	POM	

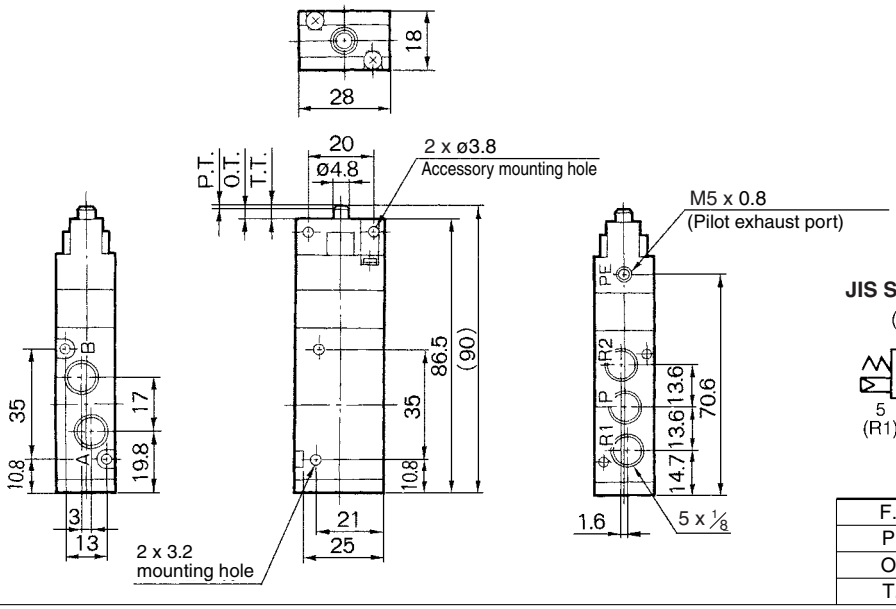
No.	Description	Material	Note
8	**Valve seat (A)**	POM	
9	**Valve seat (B)**	POM	
10	**Valve assembly**	NBR	
11	**Valve spring**	Stainless steel	
12	**Return spring**	Stainless steel	
13	**Spool spring**	Stainless steel	

Series VZM500

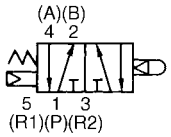
Basic

VZM550-01-00





JIS Symbol



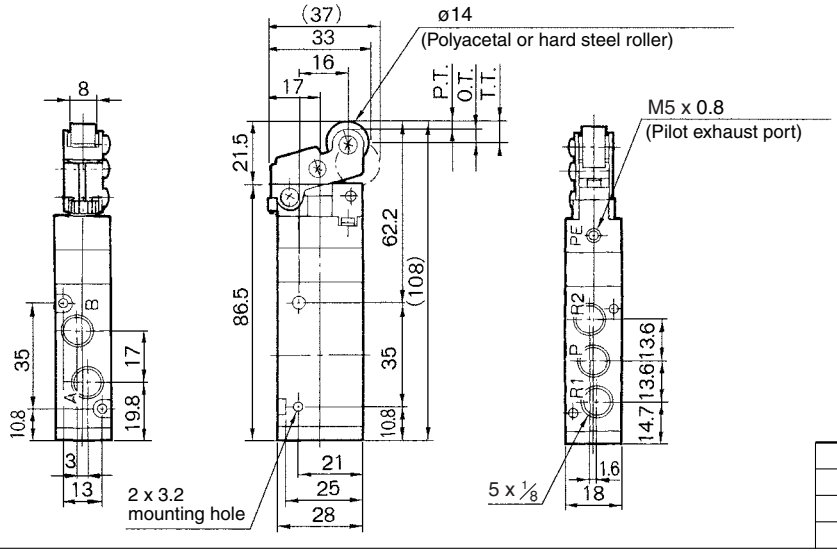
∗ 0.5 MPa supply

F.O.F. ∗	16 N
P.T.	1.0 mm
O.T.	2.0 mm
T.T.	3.0 mm

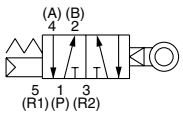
Roller lever

VZM550-01-01
VZM550-01-01S





JIS Symbol



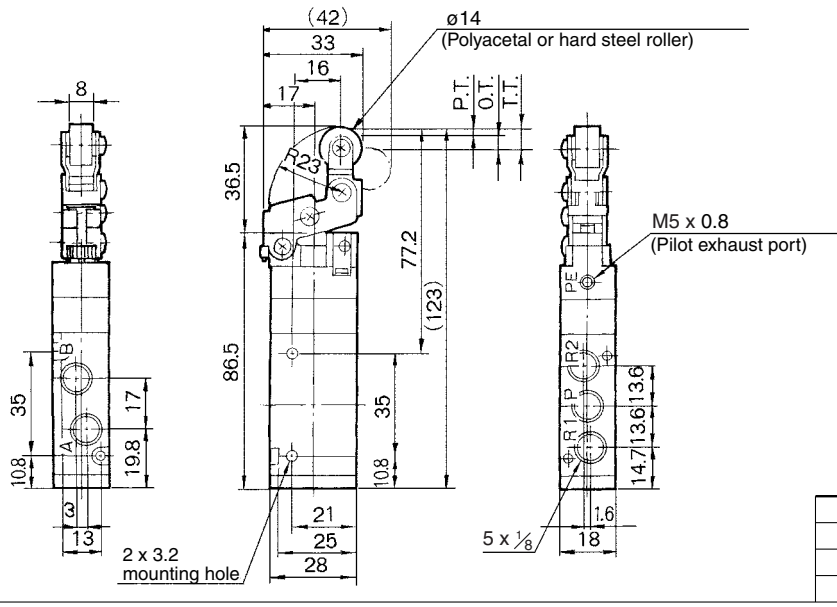
∗ 0.5 MPa supply

F.O.F. ∗	8 N
P.T.	2.2 mm
O.T.	4.0 mm
T.T.	6.2 mm

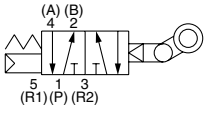
One way roller lever

VZM550-01-02
VZM550-01-02S





JIS Symbol



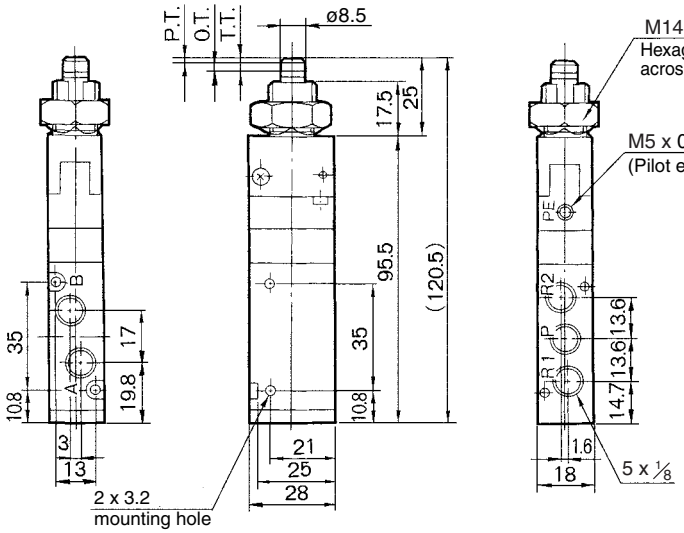
∗ 0.5 MPa supply

F.O.F. ∗	7 N
P.T.	2.4 mm
O.T.	4.6 mm
T.T.	7.0 mm

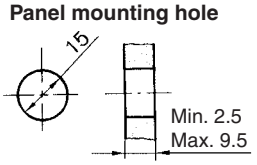
Series VZM500

Straight plunger
VZM550-01-05

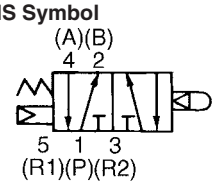




Panel mounting hole



JIS Symbol

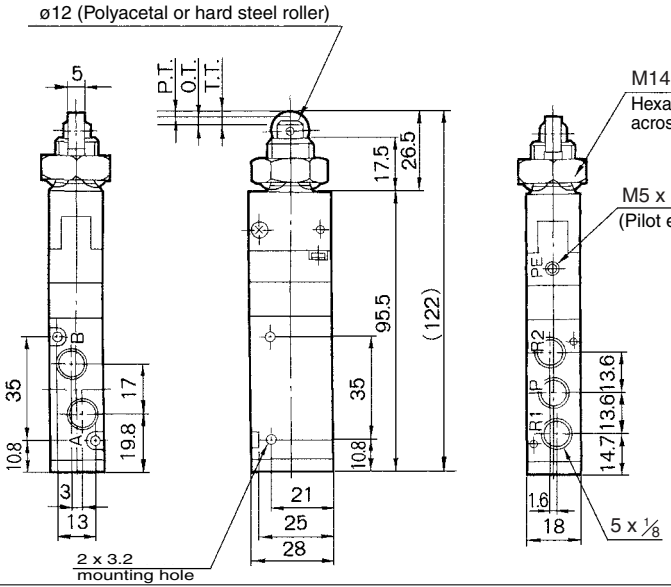


∗ 0.5 MPa supply

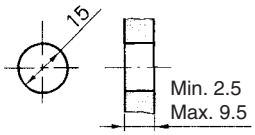
F.O.F. ∗	18 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Roller plunger
VZM550-01-06
VZM550-01-06S

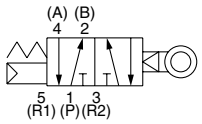




Panel mounting hole



JIS Symbol

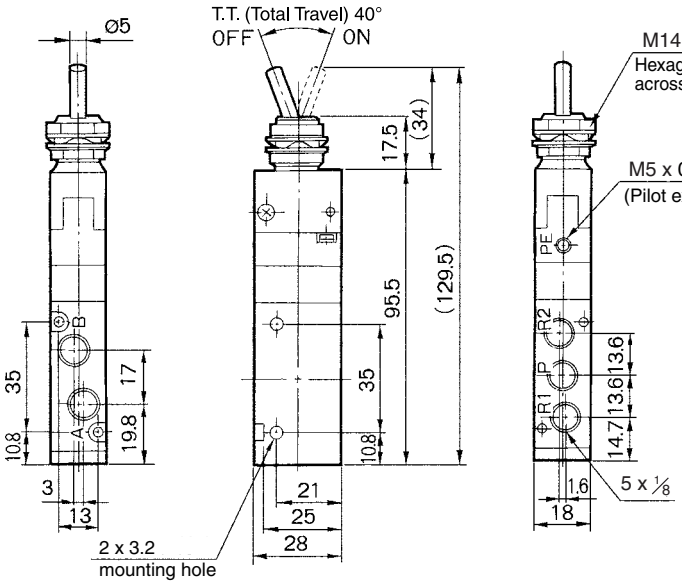


∗ 0.5 MPa supply

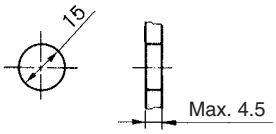
F.O.F. ∗	18 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Toggle lever
VZM550-01-08

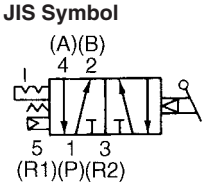




Panel mounting hole



JIS Symbol



∗ 0.5 MPa supply

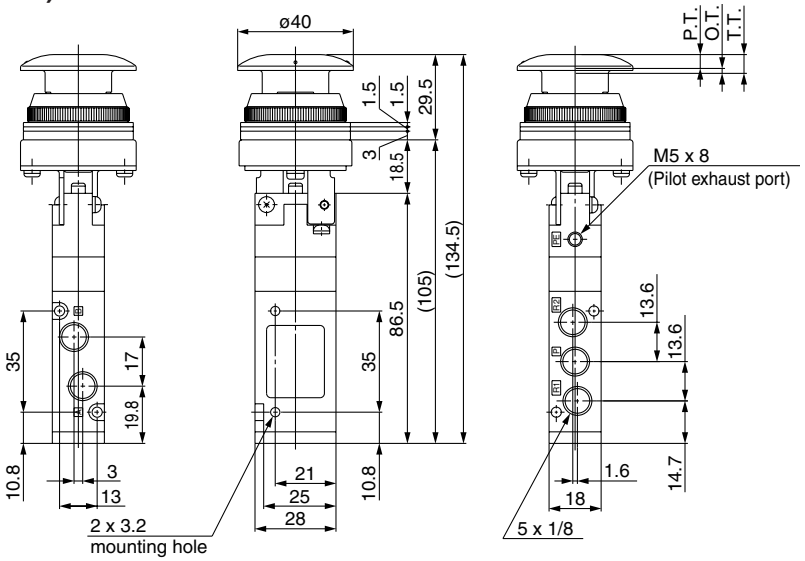
F.O.F. ∗	15 N
T.T.	40°

Series VZM500

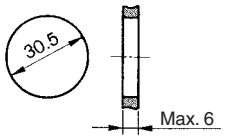
Push button (Mushroom)

VZM550-01-30R/B/G/Y

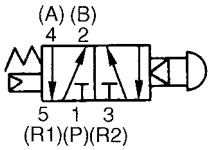




Panel mounting hole



JIS Symbol



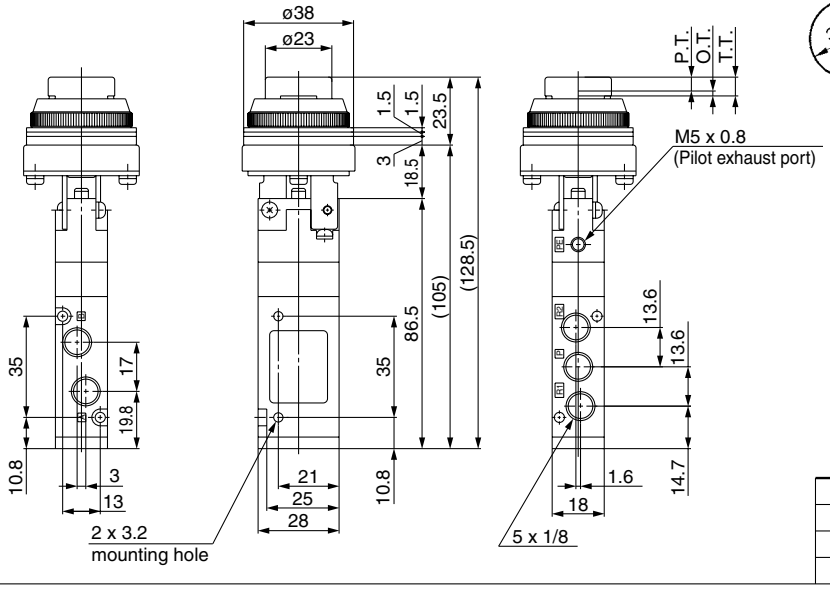
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

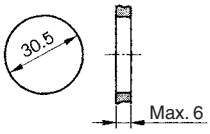
Push button (Extended)

VZM550-01-32R/B/G/Y

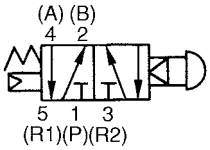




Panel mounting hole



JIS Symbol



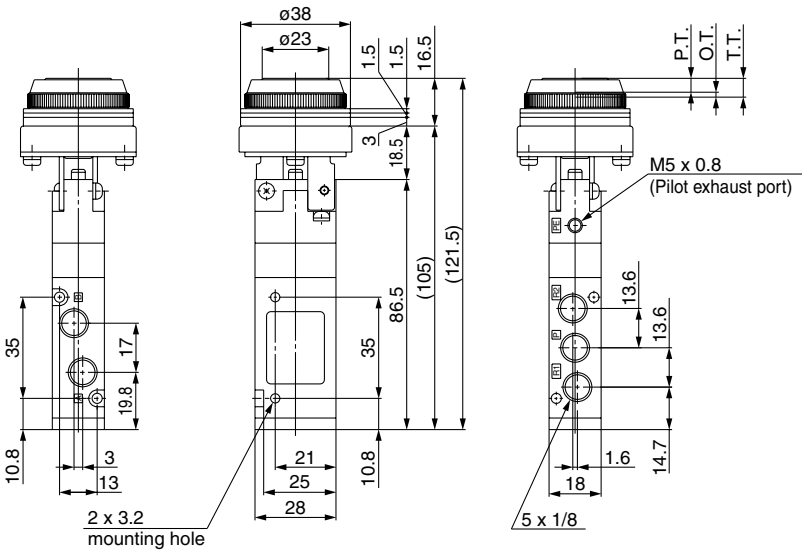
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

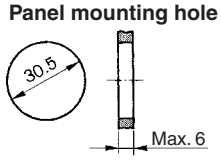
Push button (Flush)

VZM550-01-33

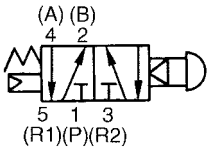




Panel mounting hole



JIS Symbol



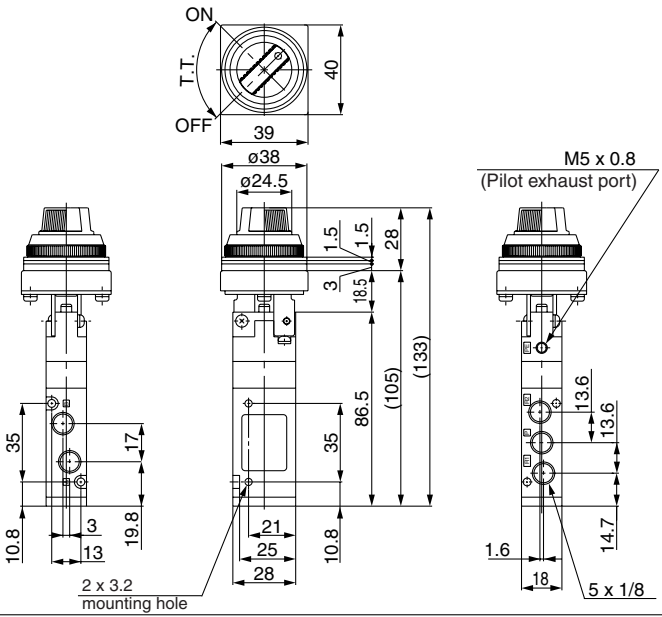
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

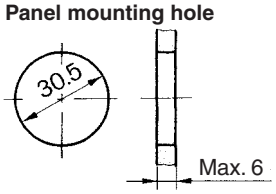
Series VZM500

Selector (2 position)
VZM550-01-34R/B/G/Y

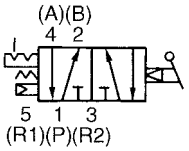




Panel mounting hole



JIS Symbol

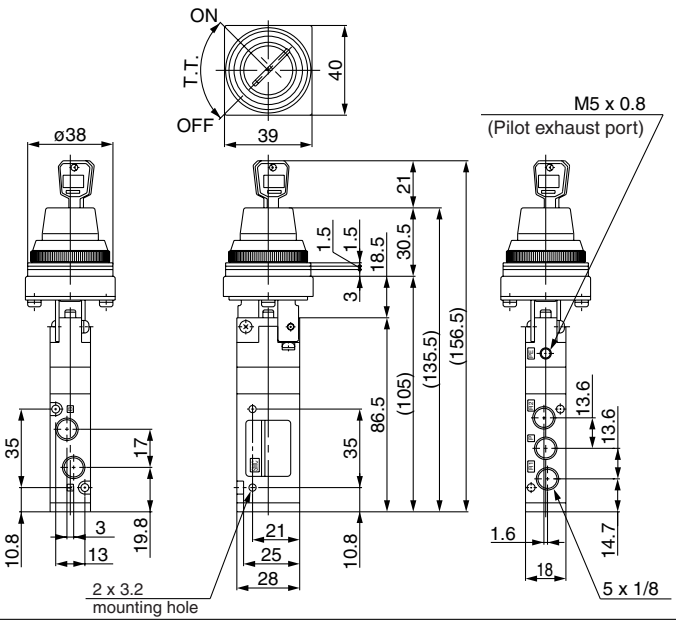


∗ 0.5 MPa supply

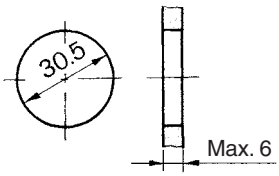
F.O.F. ∗	23 N
T.T.	90°

Key selector (2 position)
VZM550-01-36

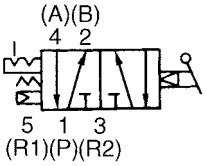




Panel mounting hole



JIS Symbol



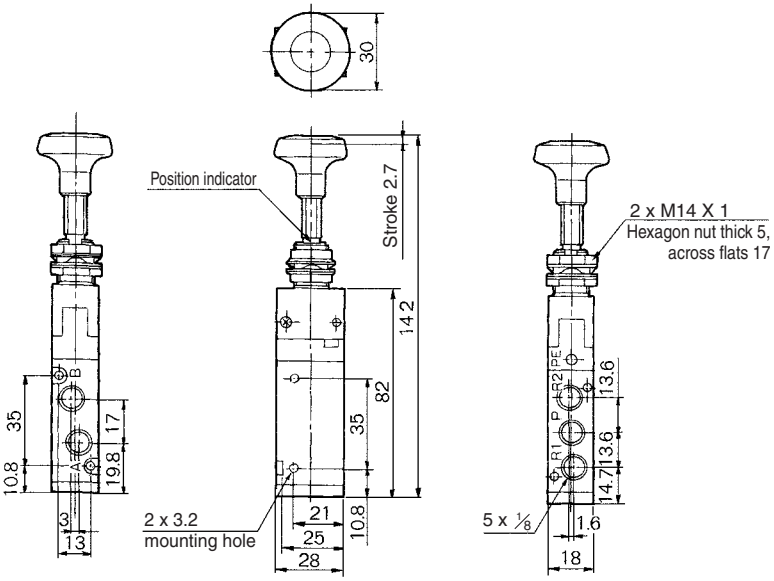
Key can be removed at the “on” and “off” positions.

∗ 0.5 MPa supply

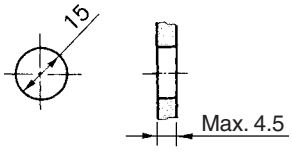
F.O.F. ∗	26 N
T.T.	90°

Push pull
VZM550-01-37

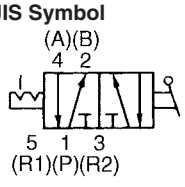




Panel mounting hole



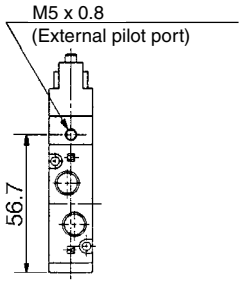
JIS Symbol



F.O.F.	20 N
T.T.	2.7 mm

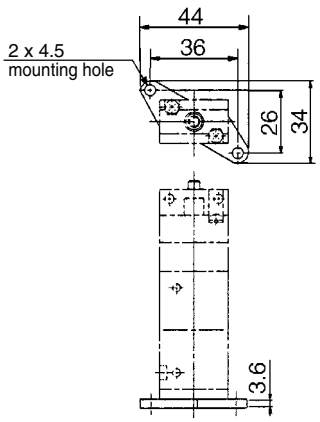
External pilot type

VZM551 type



With foot bracket

VZM55□-01-□□-F



5 Port Mechanical Valve Rubber Seal

Series VFM300

Compact design, large flow capacity 18 mm²

High cycle rate, long life/300 c.p.m. or less

Piping possible to any EXH port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

Pilot type is selectable. (Internal pilot and external pilot)

Foot bracket and manifold mounting possible.



Specifications

Fluid	Air/Inert gas
Operating pressure	0.15 to 0.9 MPa (1)
Ambient and fluid temperature	–5 to 60°C(No freezing)
Effective area	18 mm²
Maximum frequency (Mechanical operation type)	300 c.p.m. or less
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Port size	Main valve/SUP, CYL port 1/4, EXH port 1/8
	Pilot valve (EXH)/M5 x 0.8
Option	Foot bracket (2)
Mass (Basic)	190g

∗ Please contact SMC for manifold mounting style.
Note 1) External pilot type Main valve: 0 to 0.9 MPa
Pilot valve: 0.15 to 0.9 MPa
Note 2) The standard body can not be retrofitted with a foot bracket.

Model

	Actuator	Model	Actuator part no.	Application
Mechanical operation	Basic	VFM350-02-00	—	—
	Roller lever	VFM350-02-01	VM-01C	Polyacetal roller
		VFM350-02-01S	VM-01CS	Hard steel roller
	One way roller lever	VFM350-02-02	VM-02C	Polyacetal roller
		VFM350-02-02S	VM-02CS	Hard steel roller
	Straight plunger	VFM350-02-05	VM-05D	—
	Roller plunger	VFM350-02-06	VM-06D	Polyacetal roller
		VFM350-02-06S	VM-06DS	Hard steel roller
Manual operation	Toggle lever	VFM350-02-08	VM-08D	—
	Push button (Mushroom)	VFM350-02-30R	VM-30CR	Red
		VFM350-02-30B	VM-30CB	Black
		VFM350-02-30G	VM-30CG	Green
		VFM350-02-30Y	VM-30CY	Yellow
	Push button (Extended)	VFM350-02-32R	VM-32CR	Red
		VFM350-02-32B	VM-32CB	Black
		VFM350-02-32G	VM-32CG	Green
		VFM350-02-32Y	VM-32CY	Yellow
	Push button (Flush)	VFM350-02-33	VM-33C	With a set of red, black, green, yellow
	Twist selector (2 position)	VFM350-02-34R	VM-34CR	Red
		VFM350-02-34B	VM-34CB	Black
		VFM350-02-34G	VM-34CG	Green
		VFM350-02-34Y	VM-34CY	Yellow
	Key selector (2 position)	VFM350-02-36	VM-36C	—

Note 1) Actuator replacement is available for all types.
Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 and 1888. The other parts are not replaceable.
Note 3) The handle of the selector (2 position) cannot be removed or replaced alone.

How to Order

VFM35 [0] – [02] – [01] [S] – [ ] – [ ]

Made to Order
(Refer to pages 1882 to 1885 for details.)

X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Option

F	Foot bracket (Only internal pilot)

Suffix for actuator

S	Hard steel roller	
R	Red	Color of push button selector
B	Black	
G	Green	
Y	Yellow	

Actuator type

00	Basic
01	Roller lever
02	One way roller lever
05	Straight plunger
06	Roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)

Port size

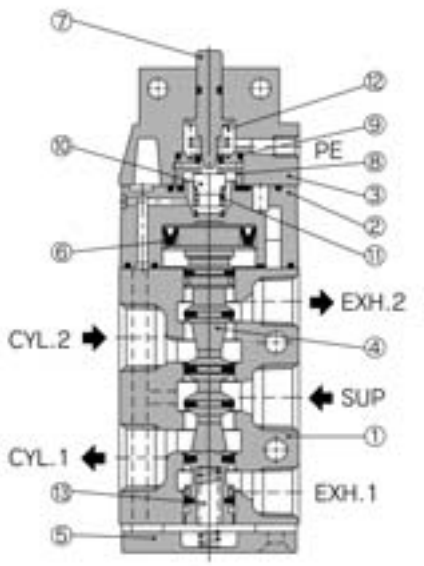
02	Rc 1/4
N02	NPT 1/4
F02	G 1/4

Body option

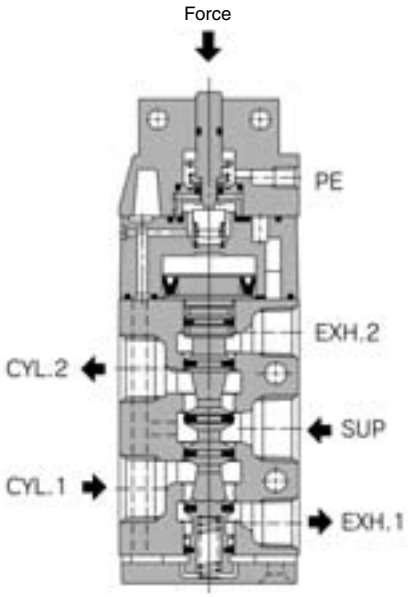
0	Internal pilot type
1	External pilot type

Construction

Non-actuated



Actuated



Component Parts

No.	Description	Material	Note
1	**Body**	ADC	Platinum silver
2	**Pilot body**	PBT	ZDC only for external pilot type
3	**Head cover**	ZDC	Black zinc chromated
4	**Spool valve assembly**		
5	**End cover**	ADC	Matt-black
6	**Piston**	POM	
7	**Plunger**	POM	

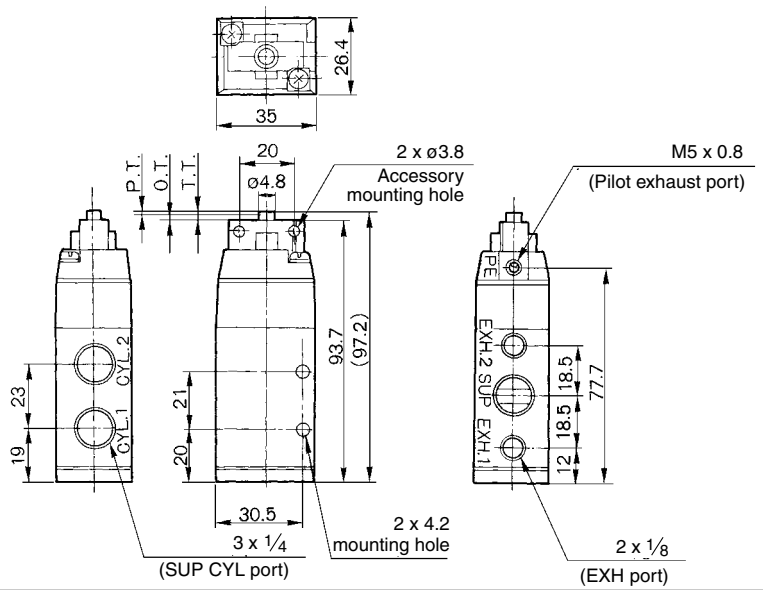
No.

	Description	Material	Note
8	**Valve seat (A)**	POM	
9	**Valve seat (B)**	POM	
10	**Valve**	NBR	
11	**Valve spring**	Stainless steel	
12	**Return spring**	Stainless steel	
13	**Spool spring**	Stainless steel	

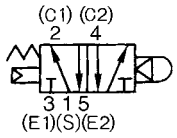
Series VFM300

Basic
VFM350-02-00





JIS Symbol

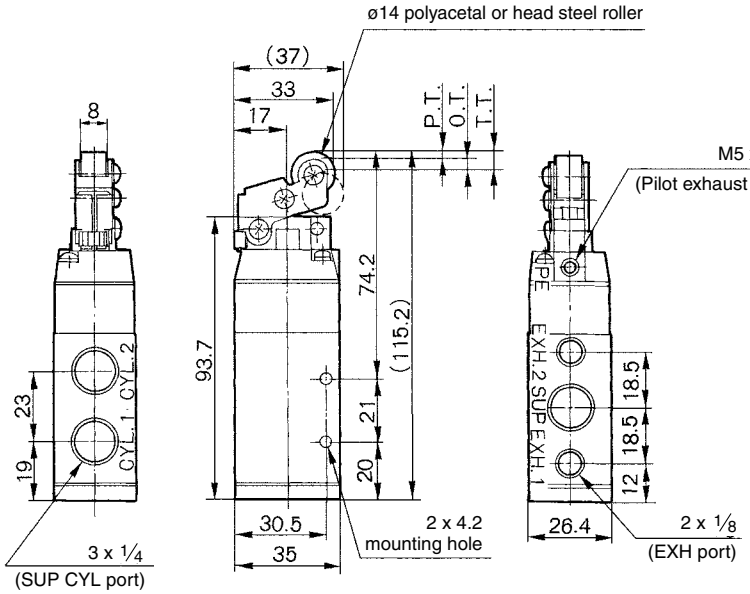


∗ 0.5 MPa supply

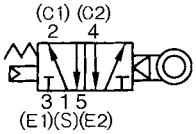
F.O.F. ∗	16 N
P.T.	1.0 mm
O.T.	2.0 mm
T.T.	3.0 mm

Roller lever
VFM350-02-01
VFM350-02-01S





JIS Symbol

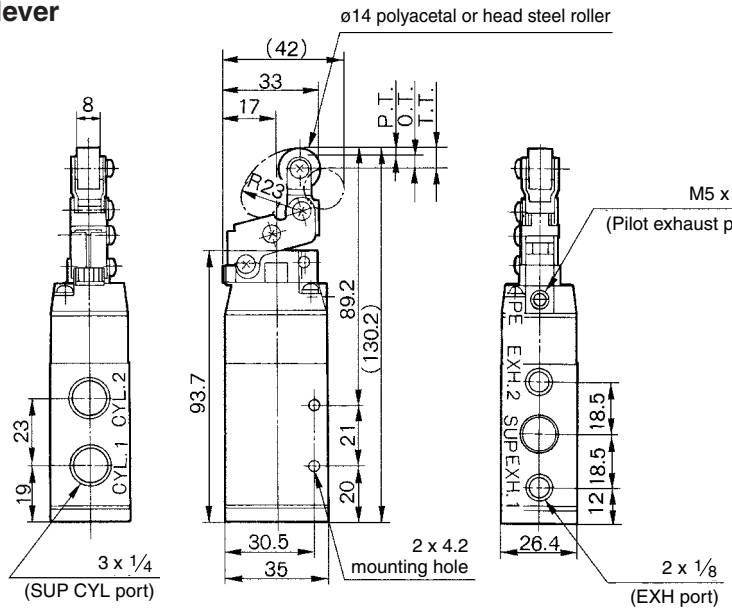


∗ 0.5 MPa supply

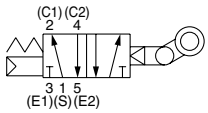
F.O.F. ∗	8 N
P.T.	2.2 mm
O.T.	4.0 mm
T.T.	6.2 mm

One way roller lever
VFM350-02-02
VFM350-02-02S





JIS Symbol



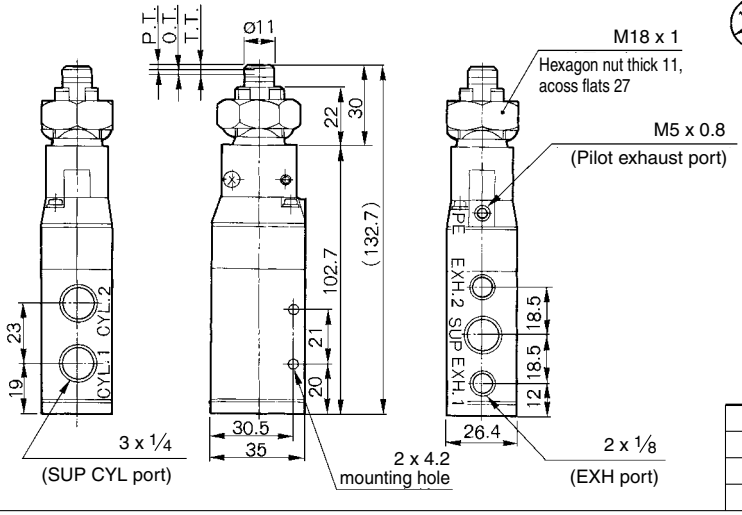
∗ 0.5 MPa supply

F.O.F. ∗	7 N
P.T.	2.4 mm
O.T.	4.6 mm
T.T.	7.0 mm

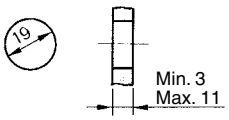
Series VFM300

Straight plunger
VFM350-02-05

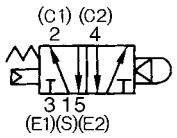




Panel mounting hole



JIS symbol

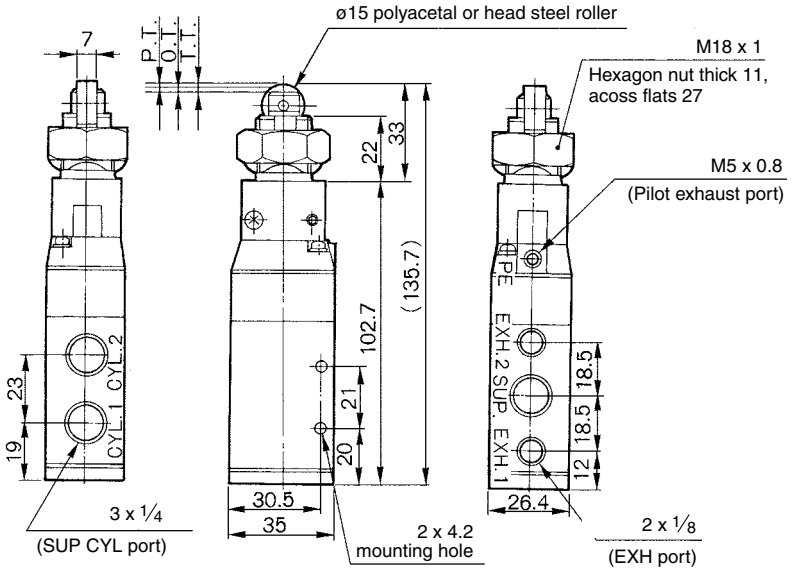


∗ 0.5 MPa supply

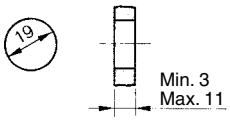
F.O.F. ∗	20 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Roller plunger
VFM350-02-06
VFM350-02-06S

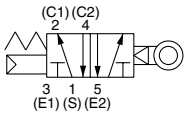




Panel mounting hole



JIS symbol

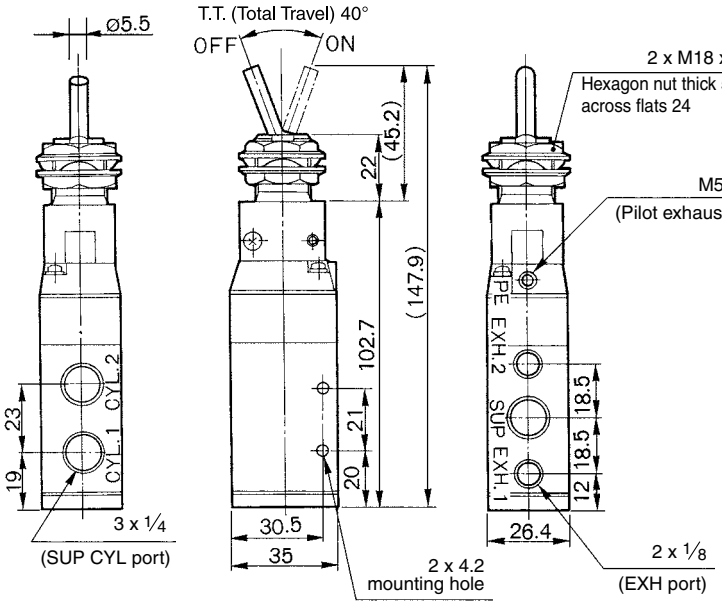


∗ 0.5 MPa supply

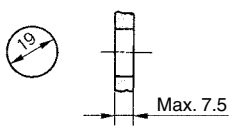
F.O.F. ∗	20 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Toggle lever
VFM350-02-08

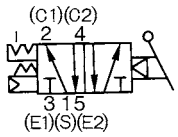




Panel mounting hole



JIS Symbol



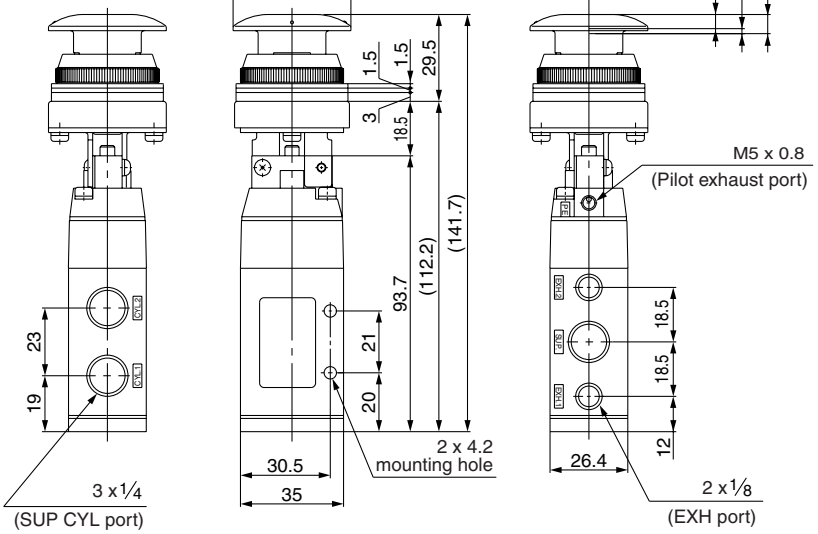
∗ 0.5 MPa supply

F.O.F. ∗	15 N
T.T.	40°

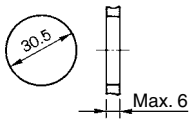
Series VFM300

Push button (Mushroom)
VFM350-02-30R/B/G/Y

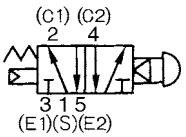




Panel mounting hole



JIS Symbol

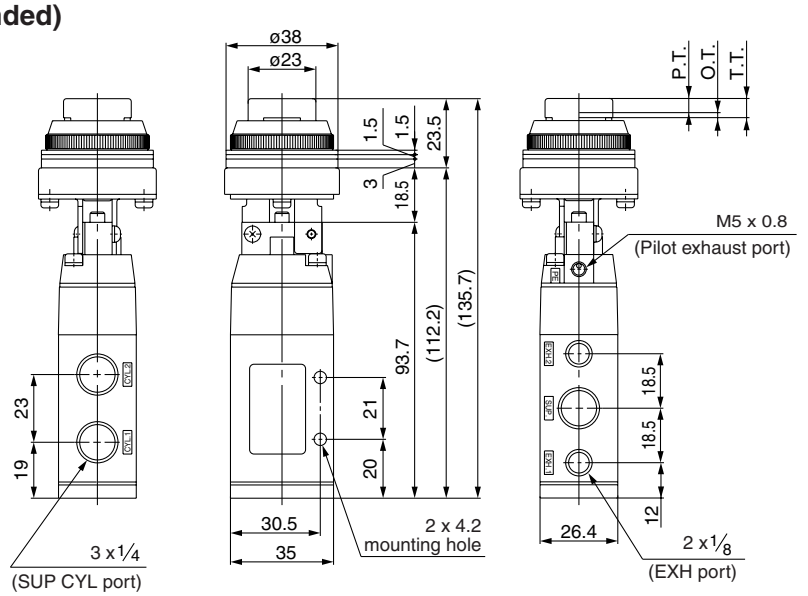


∗ 0.5 MPa supply

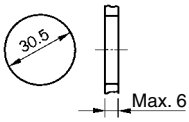
F.O.F. *	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

Push button (Extended)
VFM350-02-32R/B/G/Y

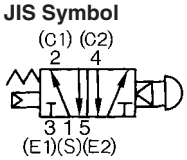




Panel mounting hole



JIS Symbol

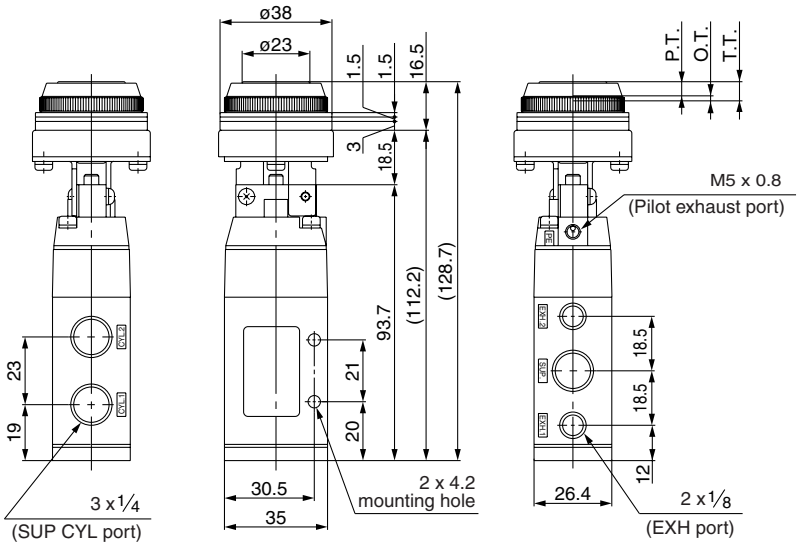


∗ 0.5 MPa supply

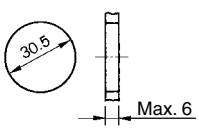
F.O.F. *	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

Push button (Flush)
VFM350-02-33

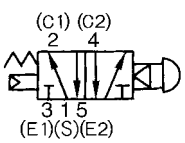




Panel mounting hole



JIS Symbol



∗ 0.5 MPa supply

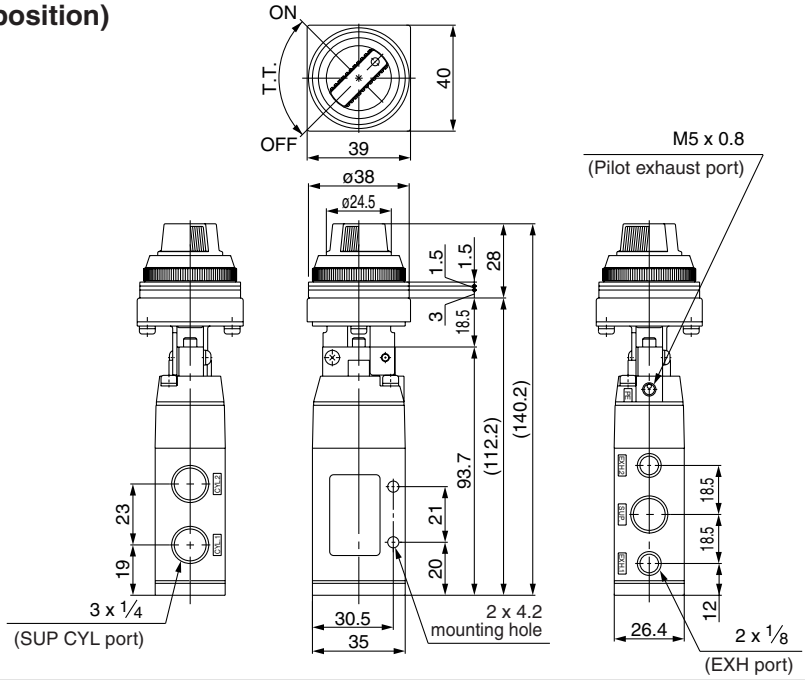
F.O.F. *	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

Series VFM300

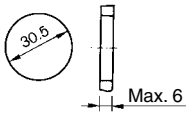
Twist selector (2 position)

VFM350-02-34R/B/G/Y

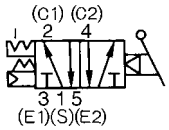




Panel mounting hole



JIS Symbol



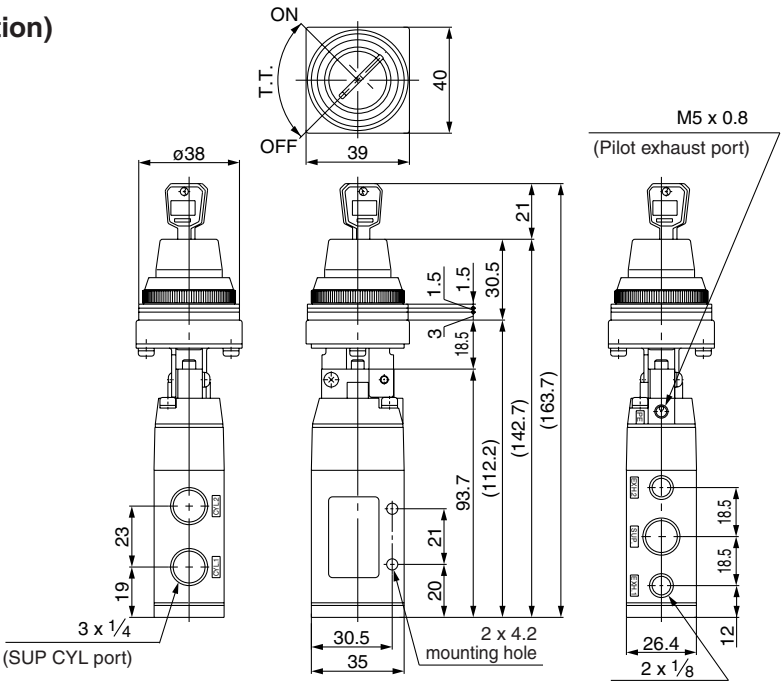
∗ 0.5 MPa supply

F.O.F. ∗	23 N
T.T.	90°

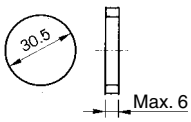
Key selector (2 position)

VFM350-02-36

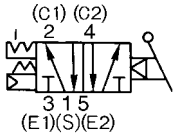




Panel mounting hole



JIS Symbol



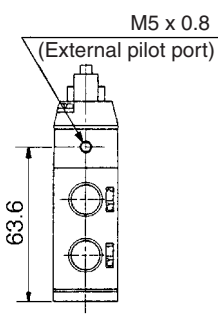
∗ 0.5 MPa supply

F.O.F. ∗	26 N
T.T.	90°

Key can be removed at the “on” and “off” positions.

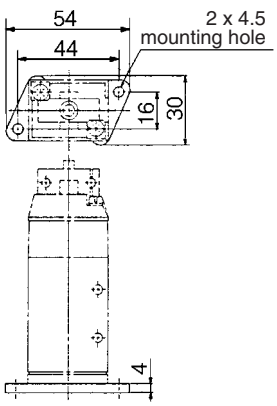
External pilot type

VFM351 type



With foot bracket

VFM350-02-□□-F



5 Port Mechanical Valve Metal Seal

Series VFM200

Compact design, large flow capacity 18 mm²

High cycle rate, long life/300 c.p.m. or less

Piping possible to any EXH port.

Proper countermeasures can be taken for applications in which the noise of the exhaust could cause problems to the surroundings.

Pilot type is selectable. (Internal pilot and external pilot)

Foot bracket and manifold mounting possible.



Specifications

Fluid	Air/Inert gas
Operating pressure	0.1 to 1.0 MPa (1)
Ambient and fluid temperature	–5 to 60°C(No freezing)
Effective area	18 mm²
Maximum frequency (Mechanical operation type)	300 c.p.m. or less
Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)
Port size	Main valve Rc 1/4
	Pilot valve (EXH)/M5 x 0.8
Option	Foot bracket (2)
Mass (Basic)	300g

∗ Please contact SMC for manifold mounting style.
Note 1) External pilot type Main valve: 0 to 1.0 MPa
Pilot valve: 0.1 to 1.0 MPa
Note 2) The standard body can not be retrofitted with a foot bracket.

Model

	Actuator	Model	Actuator part no.	Application
Mechanical operation	Basic	VFM250-02-00	—	—
	Roller lever	VFM250-02-01	VM-01C	Polyacetal roller
		VFM250-02-01S	VM-01CS	Hard steel roller
	One way roller lever	VFM250-02-02	VM-02C	Polyacetal roller
		VFM250-02-02S	VM-02CS	Hard steel roller
	Straight plunger	VFM250-02-05	VM-05D	—
	Roller plunger	VFM250-02-06	VM-06D	Polyacetal roller
		VFM250-02-06S	VM-06DS	Hard steel roller
Manual operation	Toggle lever	VFM250-02-08	VM-08D	—
	Push button (Mushroom)	VFM250-02-30R	VM-30CR	Red
		VFM250-02-30B	VM-30CB	Black
		VFM250-02-30G	VM-30CG	Green
		VFM250-02-30Y	VM-30CY	Yellow
	Push button (Extended)	VFM250-02-32R	VM-32CR	Red
		VFM250-02-32B	VM-32CB	Black
		VFM250-02-32G	VM-32CG	Green
		VFM250-02-32Y	VM-32CY	Yellow
	Push button (Flush)	VFM250-02-33	VM-33C	With a set of red, black, green, yellow
	Twist selector (2 position)	VFM250-02-34R	VM-34CR	Red
		VFM250-02-34B	VM-34CB	Black
		VFM250-02-34G	VM-34CG	Green
		VFM250-02-34Y	VM-34CY	Yellow
	Key selector (2 position)	VFM250-02-36	VM-36C	—

Note 1) Actuator replacement is available for all types.
Note 2) For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to pages 1887 and 1888. The other parts are not replaceable.
Note 3) The handle of the selector (2 position) cannot be removed or replaced alone.

How to Order

VFM25 [0] – [02] – [01] [S] – [ ] – [ ]

Made to Order
(Refer to pages 1882 to 1885 for details.)

X207	Alternate type, Mushroom push button
X219	Push-lock turn-reset type, Mushroom push button

Option

F	Foot bracket (Only internal pilot)

Suffix for actuator

S	Hard steel roller	
R	Red	Color of push button selector
B	Black	
G	Green	
Y	Yellow	

Actuator type

00	Basic
01	Roller lever
02	One way roller lever
05	Straight plunger
06	Roller plunger
08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)
34	Twist selector (2 position)
36	Key selector (2 position)

Port size

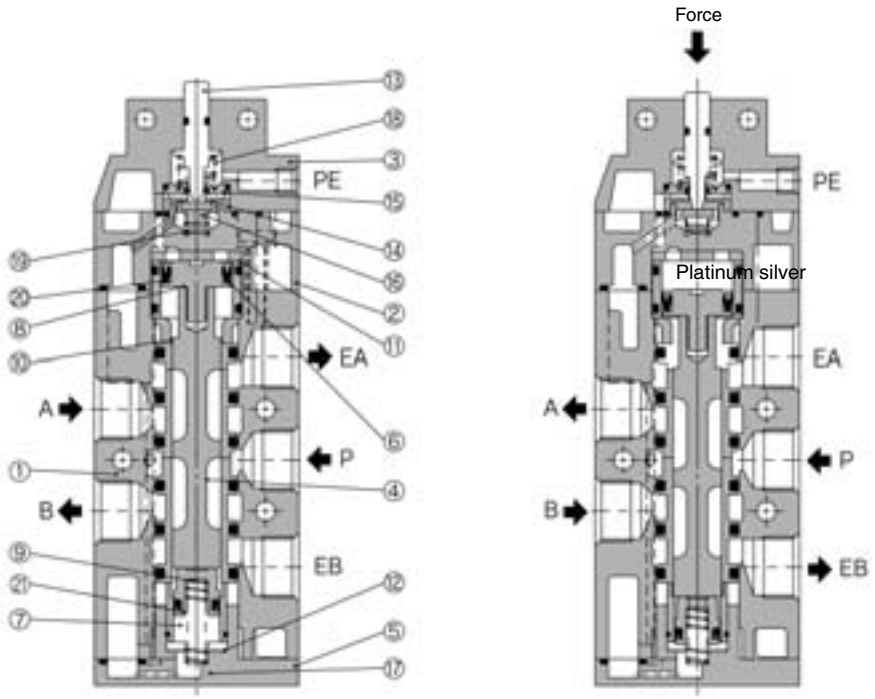
02	Rc 1/4

Body option

0	Internal pilot type
1	External pilot type

Construction

Non-actuated **Actuated**



Component Parts

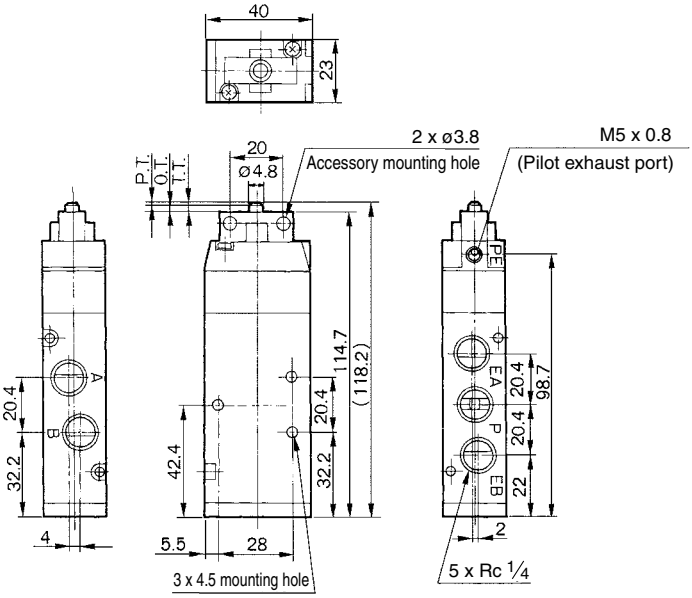
No.	Description	Material	Note
1	**Body**	ADC	Platinum silver
2	**Pilot body**	ZDC	Platinum silver
3	**Head cover**	ZDC	Black zinc chromated
4	**Spool/sleeve**	Stainless steel	
5	**End cover**	POM	
6	**Piston guide**	Brass	
7	**Piston guide for end cover**	Brass	
8	**Piston**	POM	
9	**Piston for end cover**	POM	
10	**Guide bushing**	POM	
11	**Cushion**	Urethane rubber	

No.	Description	Material	Note
12	**Cushion for end cover**	Urethane rubber	
13	**Plunger**	POM	
14	**Valve seat (A)**	POM	
15	**Valve seat (B)**	POM	
16	**Valve**	NBR	
17	**Return spring**	Stainless steel	
18	**Return spring**	Stainless steel	
19	**Valve spring**	Stainless steel	
20	**Mini Y packing**	NBR	
21	**Mini Y packing**	NBR	

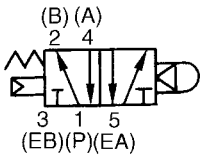
Series VFM200

Basic
VFM250-02-00





JIS Symbol

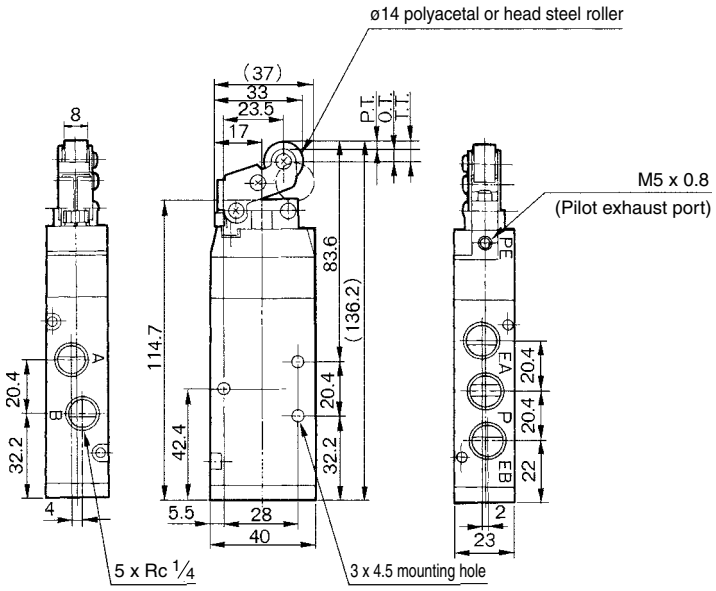


∗ 0.5 MPa supply

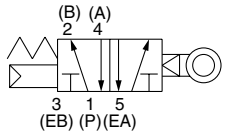
F.O.F. ∗	16 N
P.T.	1.0 mm
O.T.	2.0 mm
T.T.	3.0 mm

Roller lever
VFM250-02-01
VFM250-02-01S





JIS Symbol

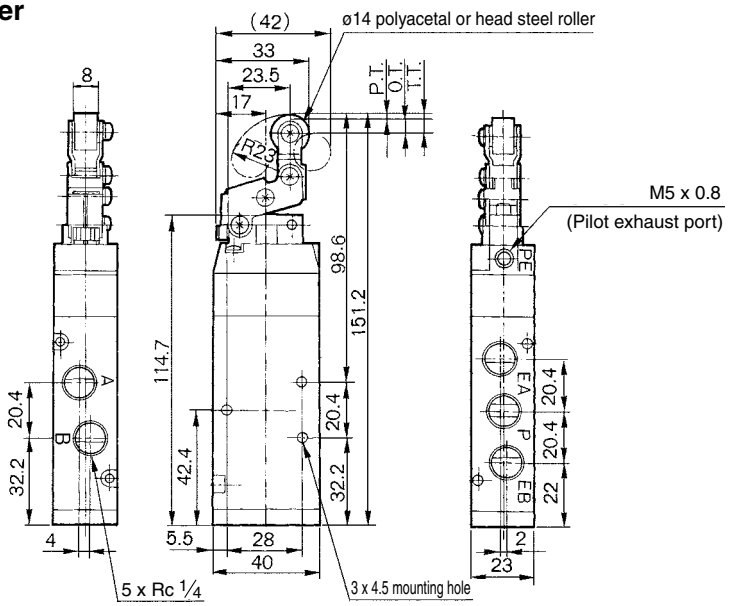


∗ 0.5 MPa supply

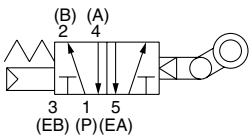
F.O.F. ∗	8 N
P.T.	2.2 mm
O.T.	4.0 mm
T.T.	6.2 mm

One way roller lever
VFM250-02-02
VFM250-02-02S





JIS Symbol



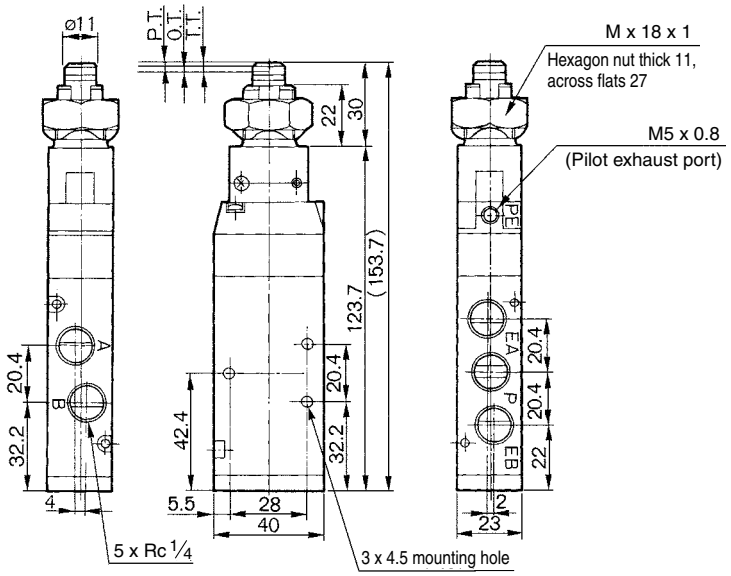
∗ 0.5 MPa supply

F.O.F. ∗	7 N
P.T.	2.4 mm
O.T.	4.6 mm
T.T.	7.0 mm

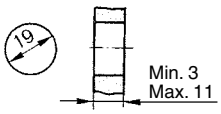
Series VFM200

Straight plunger
VFM250-02-05

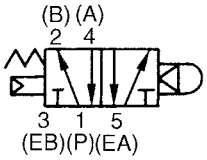




Panel mounting hole



JIS Symbol

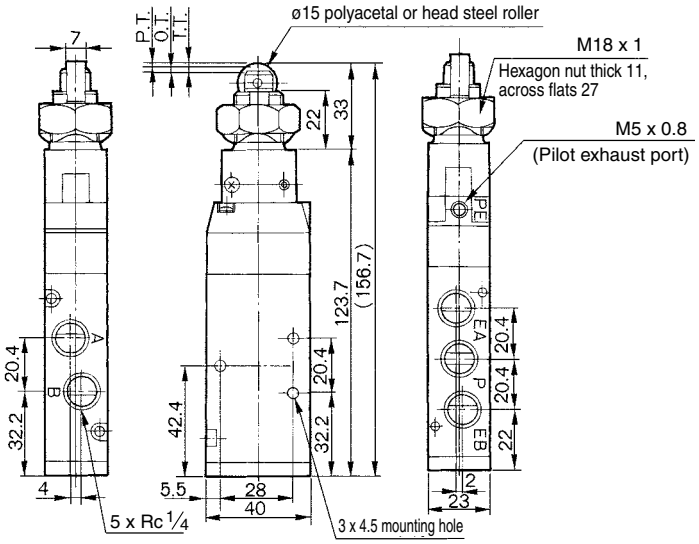


∗ 0.5 MPa supply

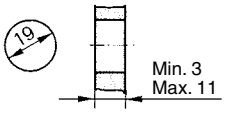
F.O.F. ∗	20 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Roller plunge
VFM250-02-06
VFM250-02-06S

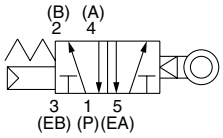




Panel mounting hole



JIS symbol

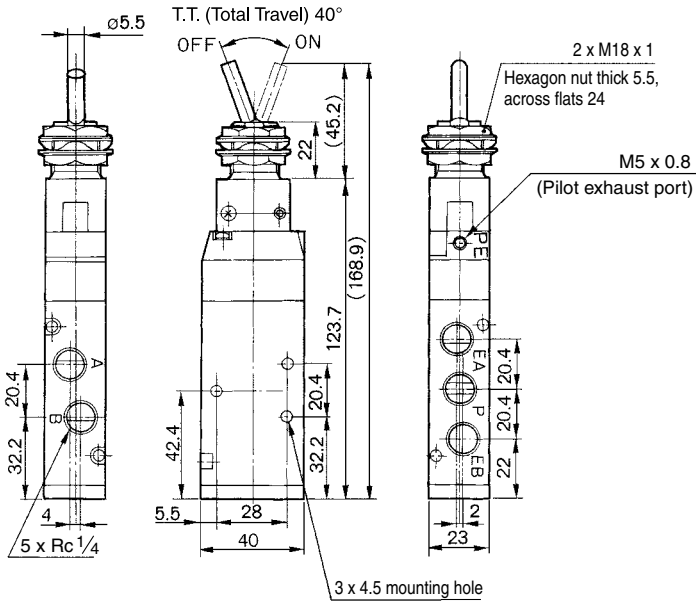


∗ 0.5 MPa supply

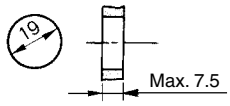
F.O.F. ∗	20 N
P.T.	1.5 mm
O.T.	2.0 mm
T.T.	3.5 mm

Toggle lever
VFM250-02-08

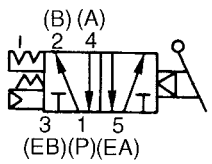




Panel mounting hole



JIS symbol



∗ 0.5 MPa supply

F.O.F. ∗	15 N
T.T.	40°

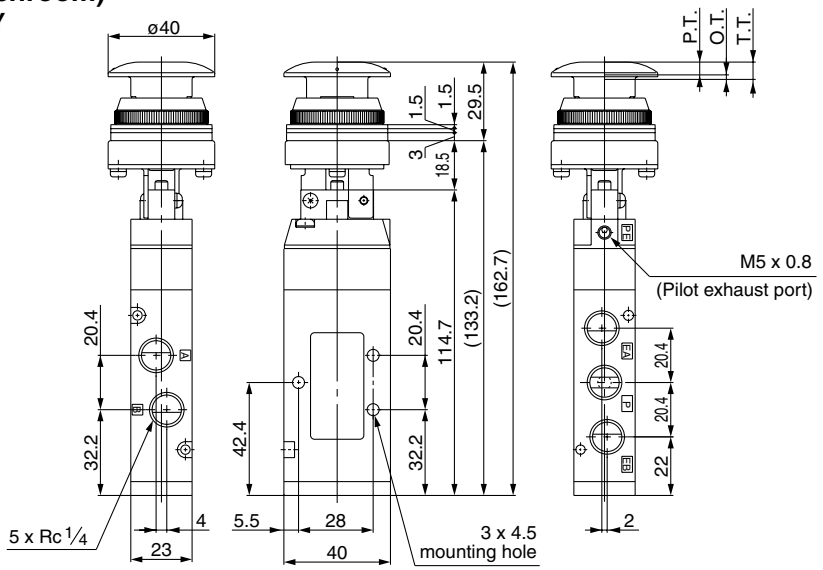
VM□
VMG
VR□
VH□

Series VFM200

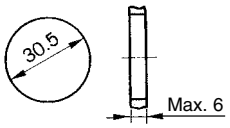
Push button (Mushroom)

VFM250-02-30R/B/G/Y

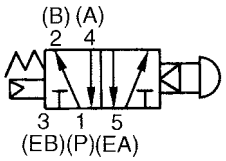




Panel mounting hole



JIS Symbol



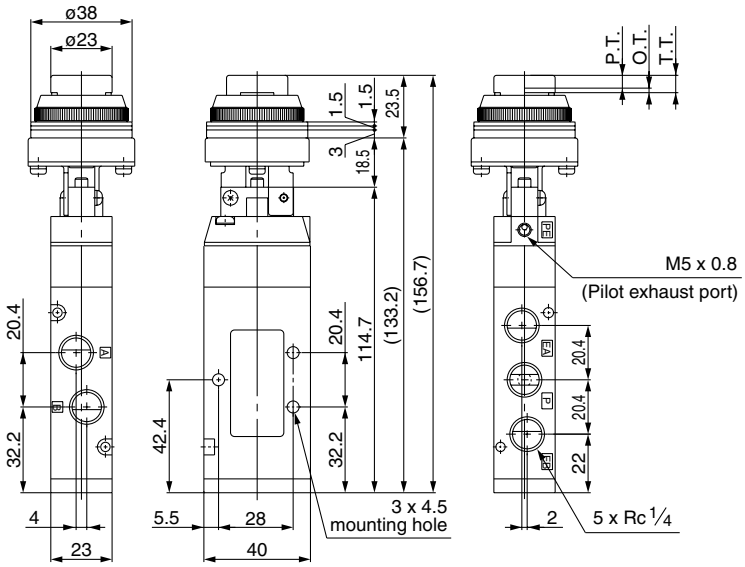
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

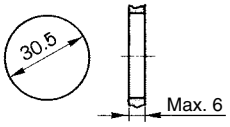
Push button (Extended)

VFM250-02-32R/B/G/Y

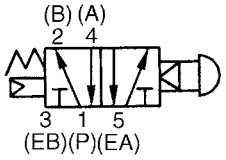




Panel mounting hole



JIS Symbol



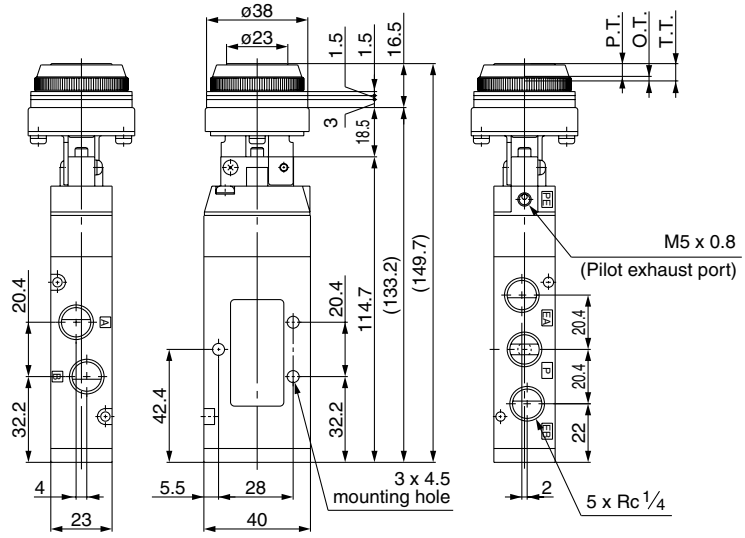
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

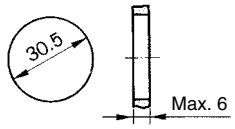
Push button (Flush)

VFM250-02-33

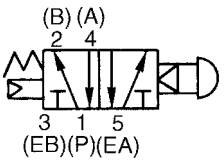




Panel mounting hole



JIS Symbol



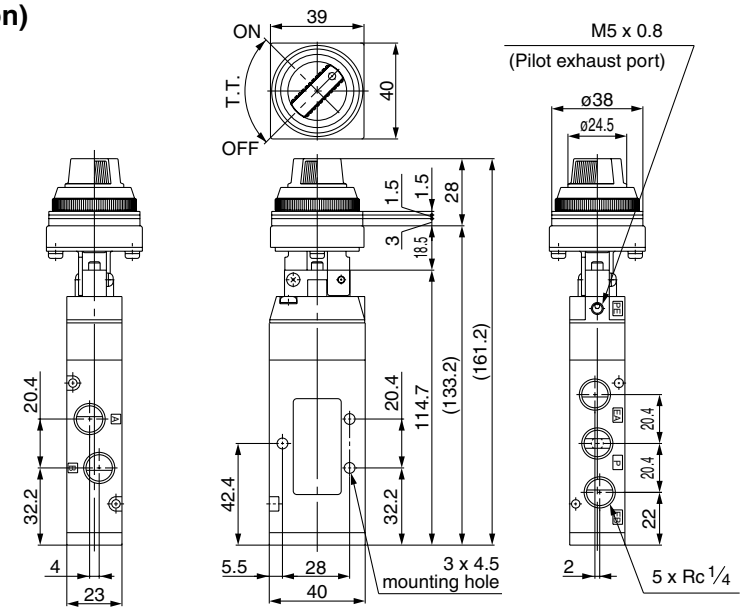
∗ 0.5 MPa supply

F.O.F. ∗	21 N
P.T.	4.8 mm
O.T.	1.7 mm
T.T.	6.5 mm

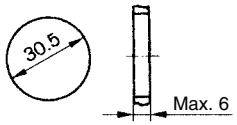
Series VFM200

Twist selector (2 position)
VFM250-02-34R/B/G/Y

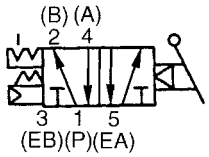




Panel mounting hole



JIS Symbol

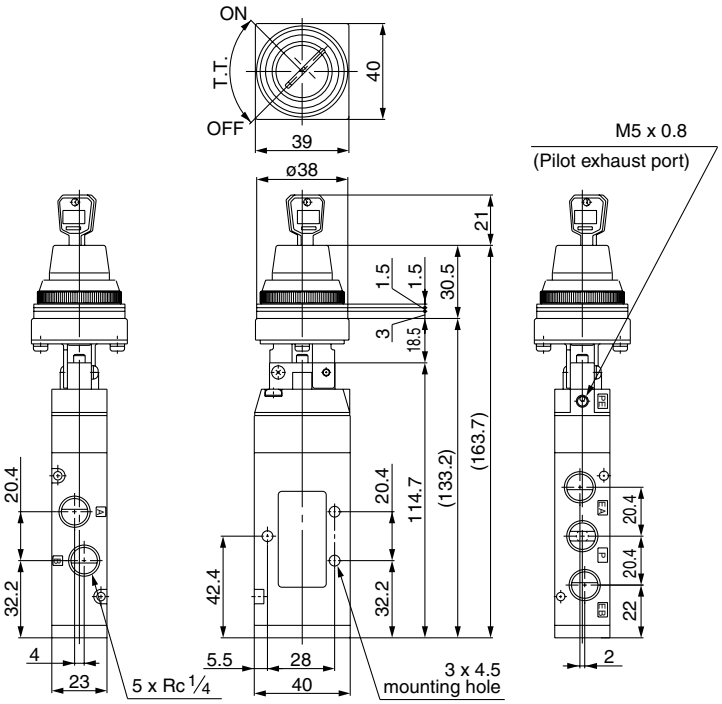


∗ 0.5 MPa supply

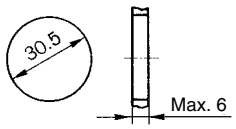
F.O.F. ∗	23 N
T.T.	90°

Key selector (2 position)
VFM250-02-36

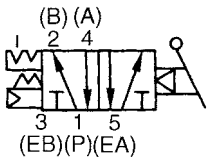




Panel mounting hole



JIS Symbol

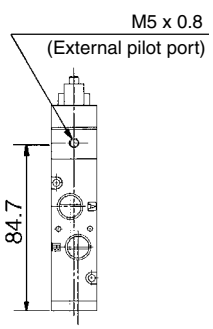


∗ 0.5 MPa supply

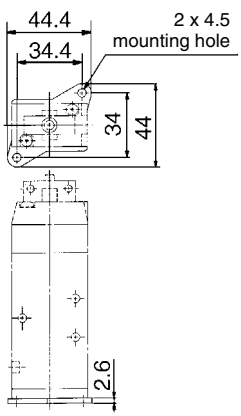
F.O.F. ∗	26 N
T.T.	90°

Key can be removed at the “on” and “off” positions.

External pilot type
VFM251 type



With foot bracket
VFM250-02-□□-F

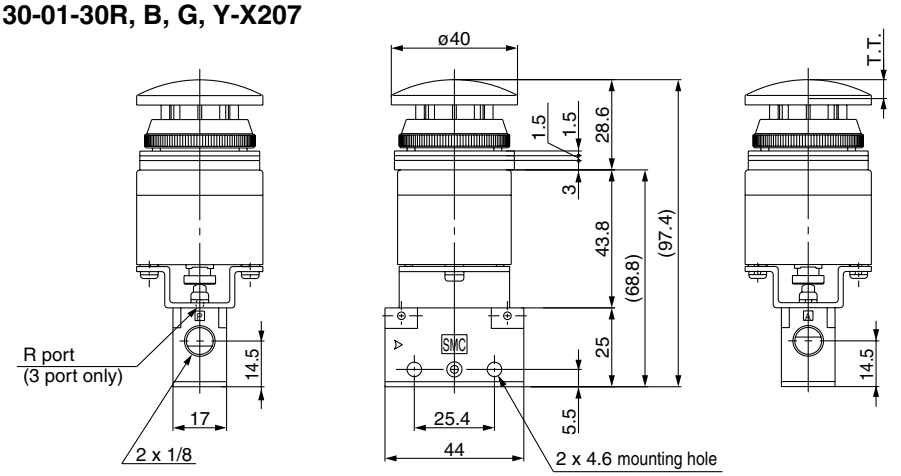


Made to Order 1

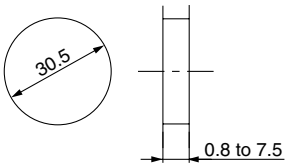
Please contact SMC for detailed specifications, dimensions and delivery.

Alternate type, Mushroom push button — X207

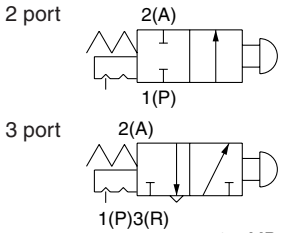
VM120-01-30R, B, G, Y-X207
VM130-01-30R, B, G, Y-X207



Panel mounting hole



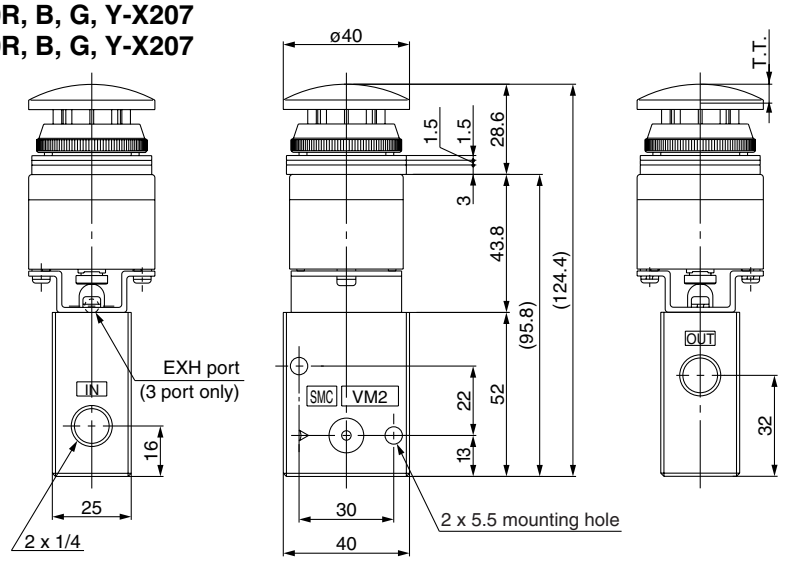
JIS Symbol



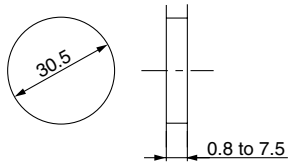
∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	6.7 mm

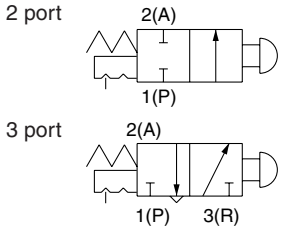
VM220-02-30R, B, G, Y-X207
VM230-02-30R, B, G, Y-X207



Panel mounting hole



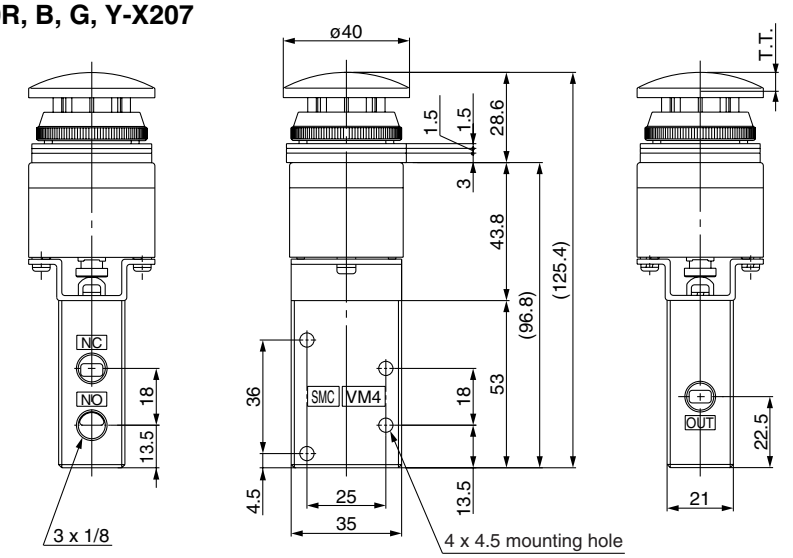
JIS Symbol



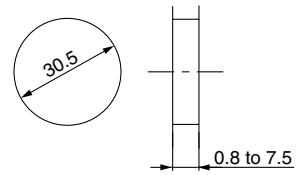
∗ 0.5 MPa supply

F.O.F. ∗	52 N
T.T.	6.7 mm

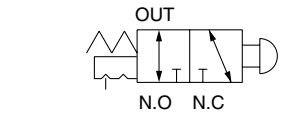
VM430-01-30R, B, G, Y-X207



Panel mounting hole



JIS Symbol



∗ 0.5 MPa supply

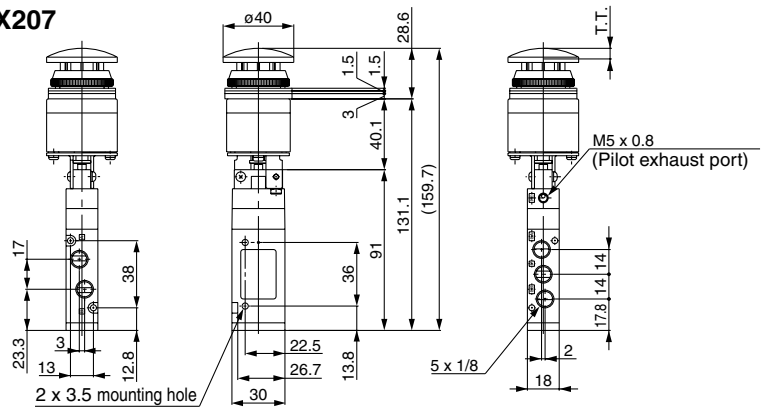
F.O.F. ∗	26 N
T.T.	6.7 mm

Made to Order 2

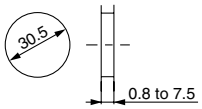
Please contact SMC for detailed specifications, dimensions and delivery.

Alternate type, Mushroom push button — X207

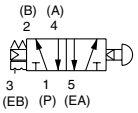
VZM450-01-30R, B, G, Y-X207



Panel mounting hole



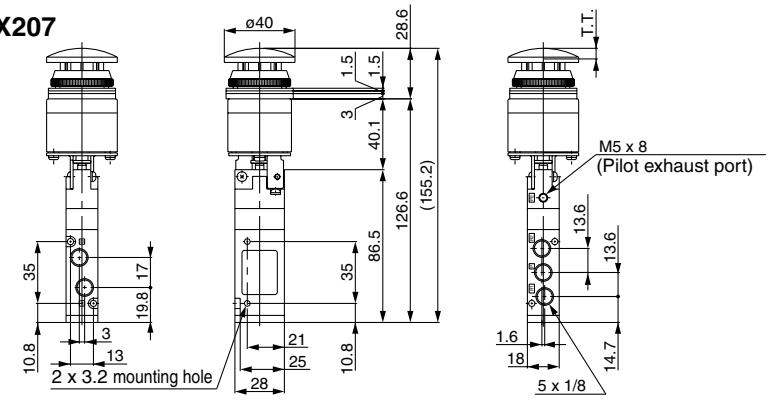
JIS Symbol



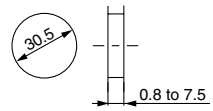
∗ 0.5 MPa supply

F.O.F. ∗	16 N
T.T.	6.7 mm

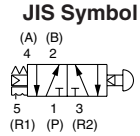
VZM550-01-30R, B, G, Y-X207



Panel mounting hole



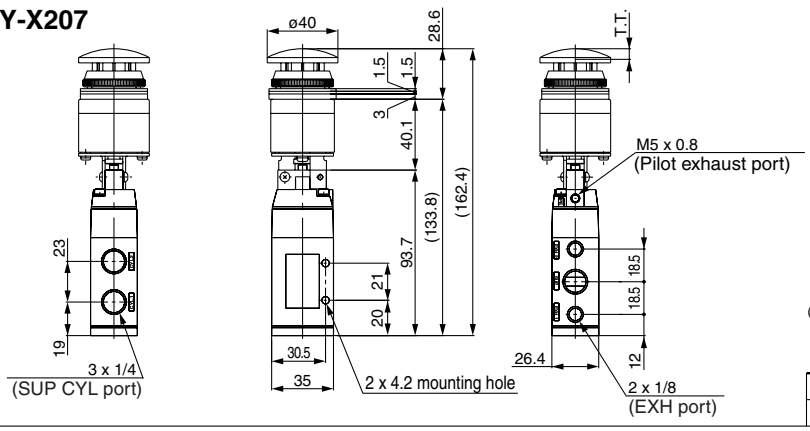
JIS Symbol



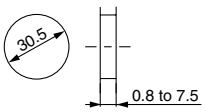
∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	6.7 mm

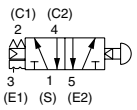
VFM350-02-30R, B, G, Y-X207



Panel mounting hole



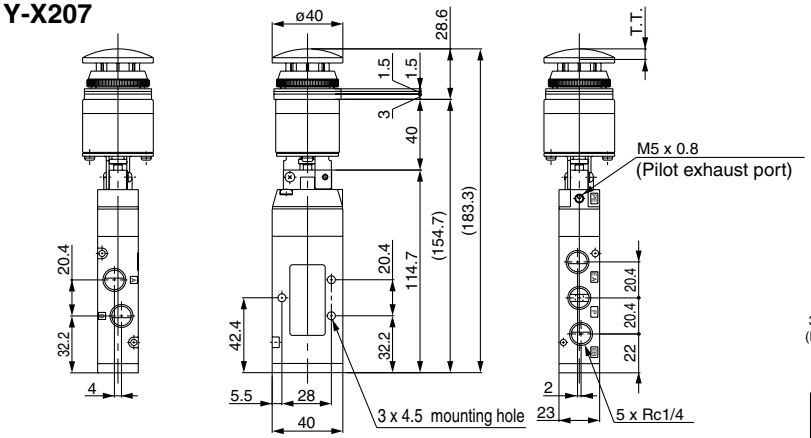
JIS Symbol



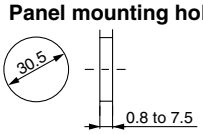
∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	6.7 mm

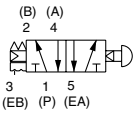
VFM250-02-30R, B, G, Y-X207



Panel mounting hole



JIS Symbol



∗ 0.5 MPa supply

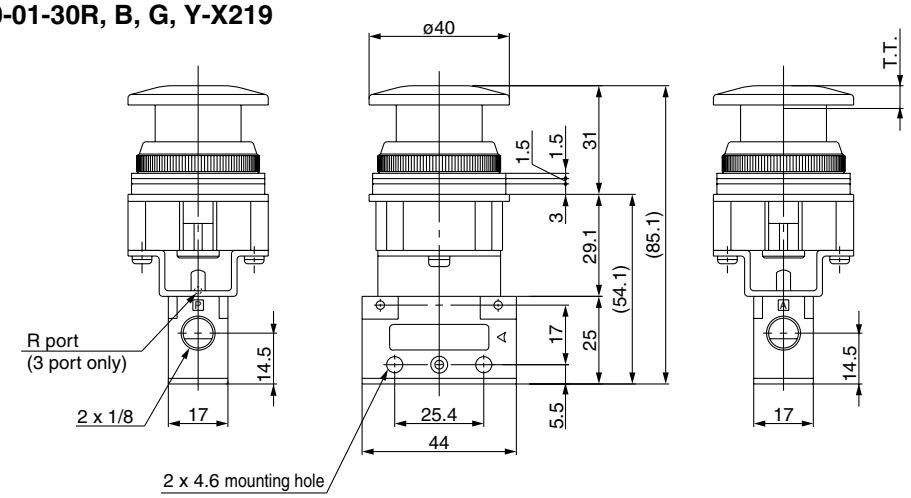
F.O.F. ∗	21 N
T.T.	6.7 mm

Made to Order 3

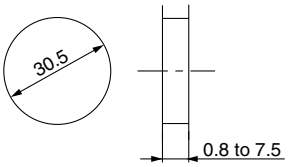
Please contact SMC for detailed specifications, dimensions and delivery.

Push-lock turn-reset type, Mushroom push button — X219

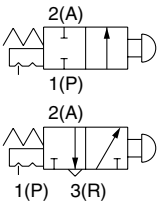
VM120-01-30R, B, G, Y-X219
VM130-01-30R, B, G, Y-X219



Panel mounting hole



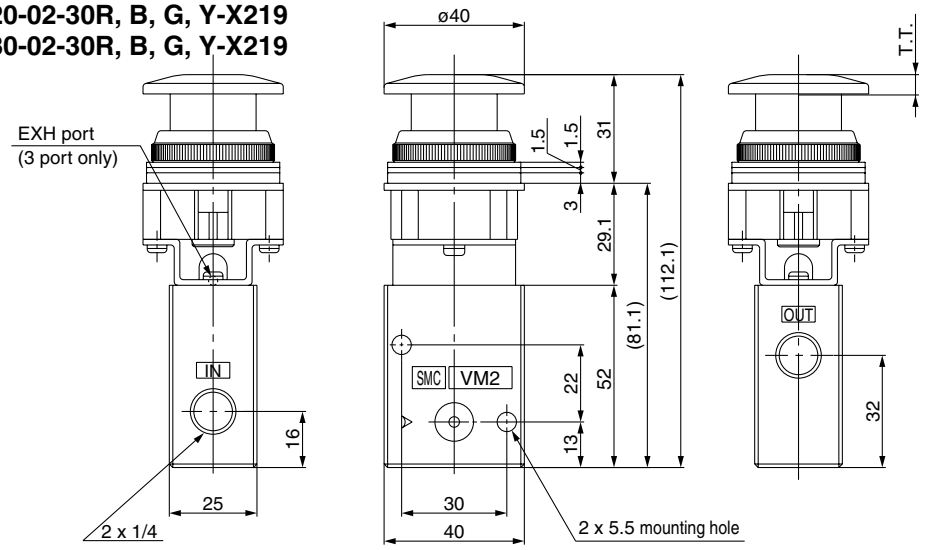
JIS Symbol



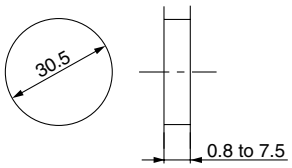
∗ 0.5 MPa supply

F.O.F. ∗	52 N
T.T.	5.8 mm

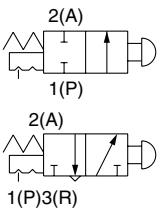
VM220-02-30R, B, G, Y-X219
VM230-02-30R, B, G, Y-X219



Panel mounting hole



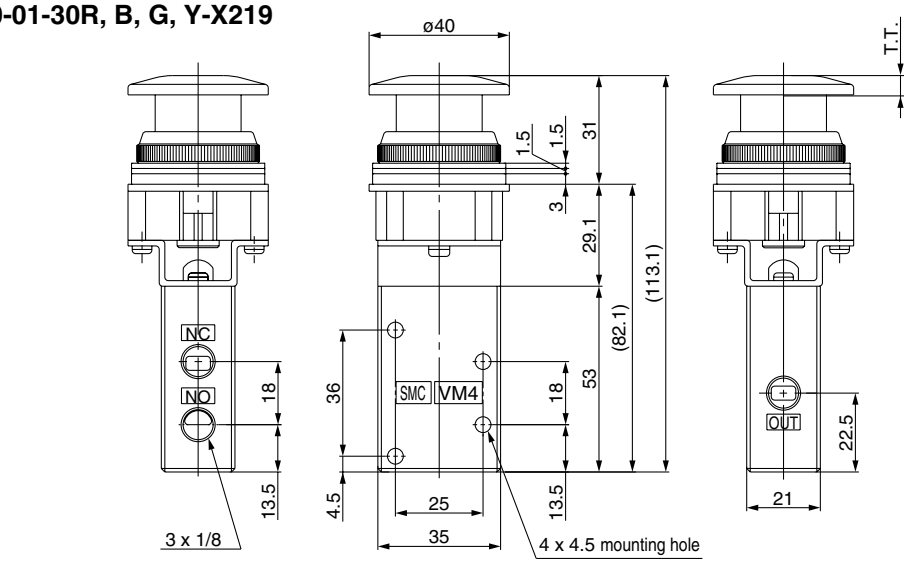
JIS Symbol



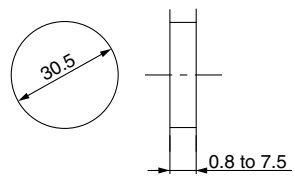
∗ 0.5 MPa supply

F.O.F. ∗	52 N
T.T.	5.8 mm

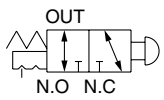
VM430-01-30R, B, G, Y-X219



Panel mounting hole



JIS Symbol



∗ 0.5 MPa supply

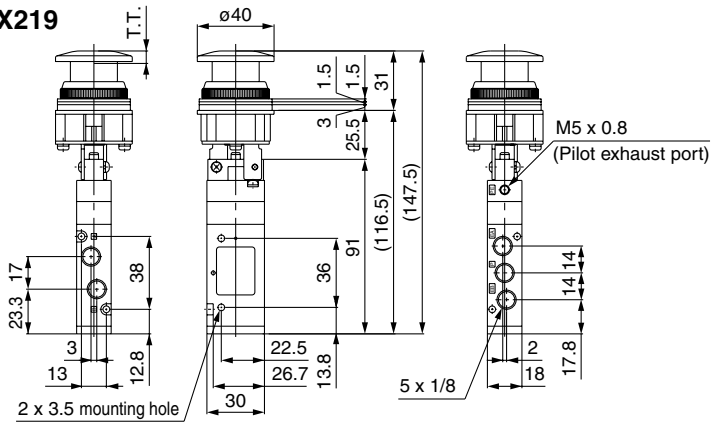
F.O.F. ∗	26 N
T.T.	5.8 mm

Made to Order 4

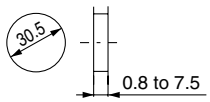
Please contact SMC for detailed specifications, dimensions and delivery.

Push-lock turn-reset type, Mushroom push button — X219

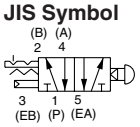
VZM450-01-30R, B, G, Y-X219



Panel mounting hole



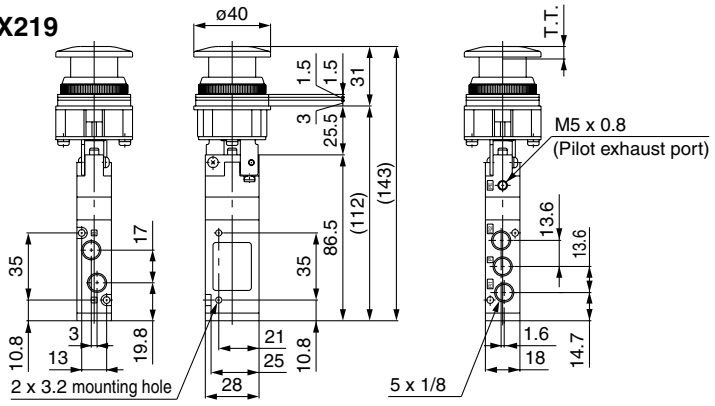
JIS Symbol



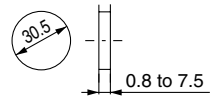
∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	5.8 mm

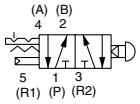
VZM550-01-30R, B, G, Y-X219



Panel mounting hole



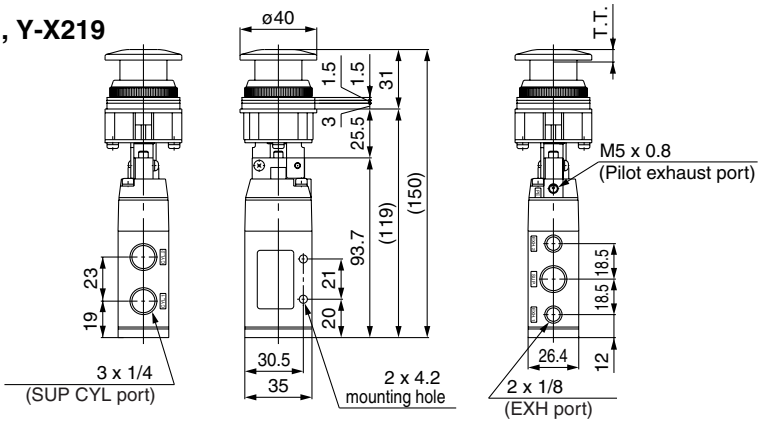
JIS Symbol



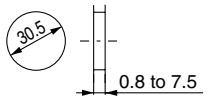
∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	5.8 mm

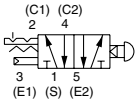
VFM350-02-30R, B, G, Y-X219



Panel mounting hole



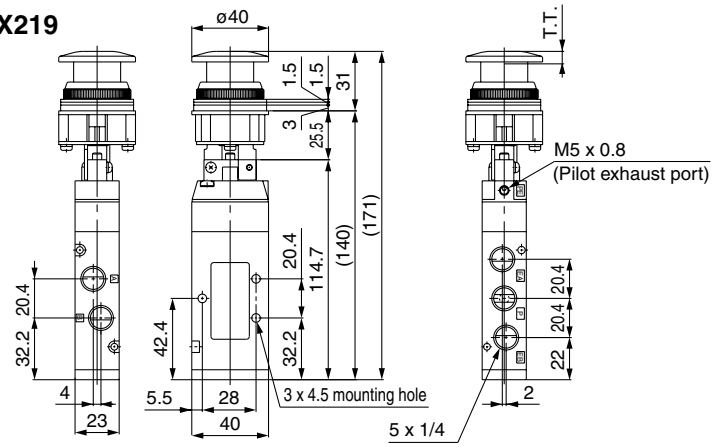
JIS Symbol



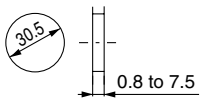
∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	5.8 mm

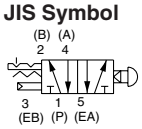
VFM250-02-30R, B, G, Y-X219



Panel mounting hole



JIS Symbol



∗ 0.5 MPa supply

F.O.F. ∗	21 N
T.T.	5.8 mm

Series VM
Specific Product Precautions 1

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Mounting

⚠Warning

1. Conditions for mechanical operation

Do not move the mechanical operation beyond the operating limit position, as this could damage the mechanical valve itself and lead to equipment malfunction.

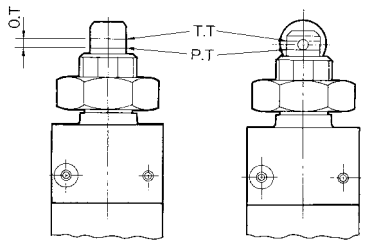
- **Actuator stroke**

Operate the mechanism within the stroke range that has been obtained through the formula given below. (Do not move beyond the operating limit position.)

Operating stroke: (P.T. + 0.5 x O.T.) to (P.T. + O.T. – 0.1)

Series	Actuator		Actuator stroke (mm)
VM1000	Basic	T.T. = 4.8 mm (T.T. = 2.5 mm)	3.7 to 4.7 (2.2 to 2.4)
	Roller lever		3.5 to 4.4
	One way roller lever		3.5 to 4.4
VM100	Basic		2.2 to 2.9
	Roller lever		4.3 to 5.3
	One way roller lever		4.3 to 5.3
	Straight plunger		2.7 to 3.4
	Roller plunger		2.7 to 3.4
	Cross roller plunger		2.7 to 3.4
VM200	Basic		4.0 to 4.9
	Roller lever		8.7 to 10.7
	One way roller lever		9.5 to 11.7
	Straight plunger		4.5 to 5.4
	Roller plunger		4.5 to 5.4
	Cross roller plunger		4.5 to 5.4
VM400	Basic		2.5 to 3.4
	Roller lever		6.2 to 8.2
	One way roller lever		6.5 to 8.7
	Straight plunger		4.5 to 5.4
	Roller plunger		4.5 to 5.4
	Cross roller plunger		4.5 to 5.4
VZM500 VZM400 VFM300 VFM200	Basic		2.0 to 2.9
	Roller lever		4.2 to 6.0
	One way roller lever		4.7 to 6.7
	Straight plunger		2.5 to 3.4
	Roller plunger		2.5 to 3.4

For straight and roller plunger types, there is a groove indicating P.T. and T.T. for stroke adjustment.



Pressure Source

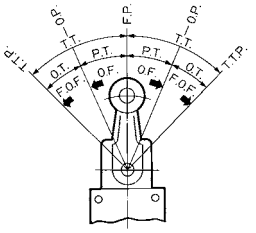
⚠Warning

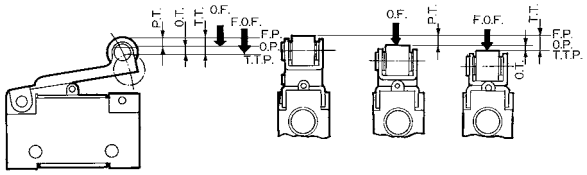
Operable fluid is either air or inert gas only. It cannot be used for corrosive gas and fluid.

⚠Caution

When using vacuum pressure for VM100, supply vacuum pressure to P port.

Definition of Symbol





F.P. (Free Position) ····· No external force applied.
O.P. (Operating Position) ····· Internal valve opening position.
T.T.P. (Total Travel Position)···· Includes over travel.
O.F. (Operating Force)····· Operating force required to initial valve opening position.
F.O.F. (Full Operating Force)·· Required force to total travel position.
P.T. (Pre-travel) ····· From free position to initial valve operating position.
O.T. (Over Travel)····· From initial valve operating position to total travel position.
T.T. (Total Travel)····· From free position to total travel position.

Caution

This product cannot be used for applications in which the pressure must be sealed because there will be a slight leakage. Please consult with SMC for this type of application.

Series VM
Specific Product Precautions 2

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Mounting

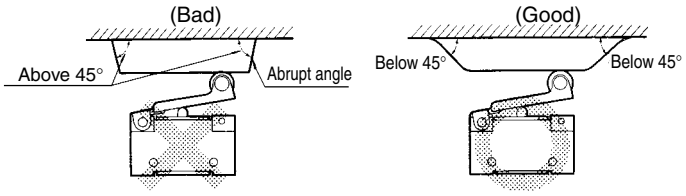
⚠Warning

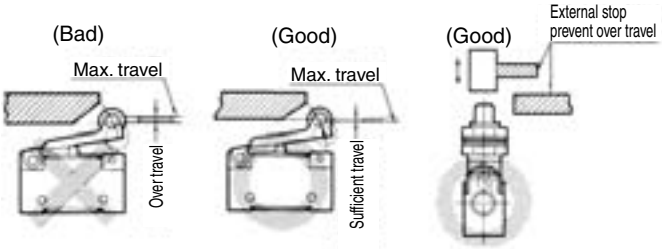
2. Conditions for mechanical operation

- **Cam and dog angle and maximum speed**
  Select the angle and the maximum speed of the operating cam and the dog of the mechanism from within the selection range given in the table below.
  If they are operated beyond the selection range, the cam and the dog could apply impact shocks to the actuator, leading to damage.

Series	Actuator	Angle limit switch actuator	Max. speed limit switch actuator (m/s)
VM1000	Roller lever	30°	0.7
		45°	0.3
	One way roller lever	30°	0.7
		45°	0.3
VM100 VM200 VM400	Roller lever	30°	0.7
		45°	0.3
	One way roller lever	30°	0.7
		45°	0.3
	Straight plunger	—	0.2
	Roller plunger	30°	0.3
	Cross roller plunger	30°	0.3
VZM500 VZM400 VFM300 VFM200	Roller lever	30°	1.5
		45°	0.7
	One way roller lever	30°	0.7
		45°	0.3
	Straight plunger	—	0.4
	Roller plunger	30°	0.7
VM800	Roller lever	30°	0.5
		45°	0.2
	Adjustable roller lever	30°	0.2
		45°	0.1
	Adjustable rod lever	—	0.2

Avoid abrupt angles on limit switch actuator.





Cam and Dog Material

Roller material	Plunger material	Plunger surface finish
Polyacetal	Steel	▽▽▽
Steel	Steel, Resin	▽▽

3. Never perform additional machining such as enlarging the body mounting holes.
As doing so could lead to abnormal conditions such as air leakage.

4. Operate all manual valves such as the push pin types, the selector types, and the flip toggle types with your finger.
If a hammer or other tools are used, or it is operated mechanically through the use of a cylinder or the like, damage could result.

Environments

⚠Caution

1. Do not operate it in an area in which fluids such as oil, coolant, or water splash on it or dust comes in contact with it.
Because it does not have a waterproof or dustproof construction, fluids or dust could enter the valve, leading to malfunction. Therefore, take measures such as providing a protective cover to prevent direct exposure.

Maintenance

⚠Warning

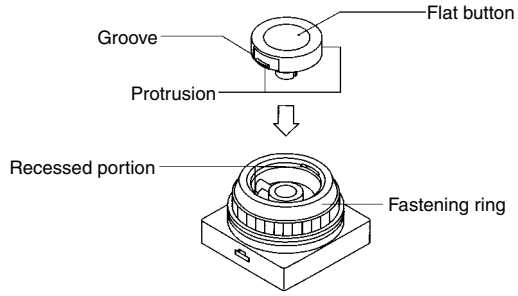
1. Perform inspections on a regular basis as necessary, such as at the beginning of an operation, to make sure that the mechanical valve operates properly.
Failure to observe this precaution could lead to unsafe operation, such as unintended operation or malfunction.

How to Change the Buttons

Replace the button in the following manner to change color of the button.

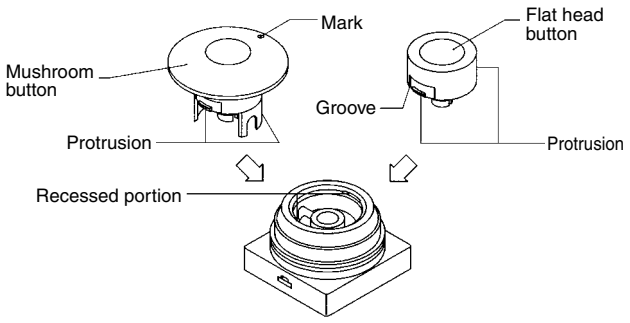
1. Push button (Flush type)

- Installation ···· Of the four colors, red, green, black, and yellow, select and align the protruding portion of the button with the recessed portion of the body and push in.
- Removal ···· Remove the fastening ring and insert the tip of a small flat screwdriver into the groove of the button to pry it up.



2. Push button (Mushroom and extended types)
At the time of shipment, only 1 button of the color that you specified is attached to the body.

	Mushroom type	Extended type
Mounting	Align the protruding portion of the button with the recessed portion of the body and push in. (Use the mark on the button as a reference to align the protruding part.)	Align the protruding portion of the button with the recessed portion of the body and push in.
Removal	Placing your finger under the collar of the button on the side of the mark, tilt it upward.	Remove the fastening ring and insert the tip of a small flat screwdriver into the groove of the button to pry it up.

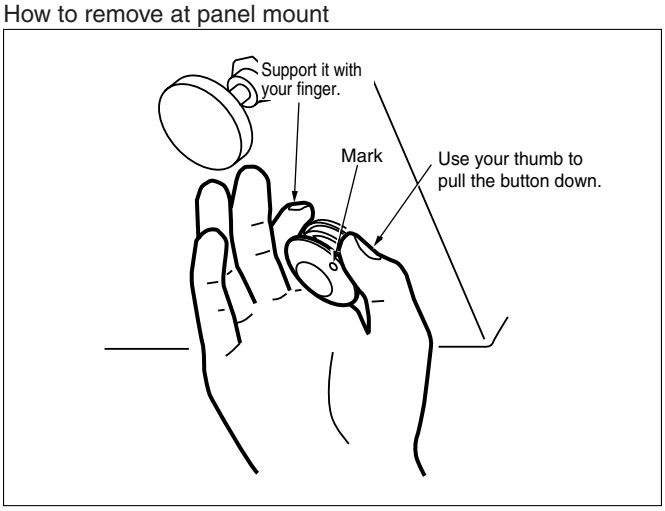


Series VM
Specific Product Precautions 3

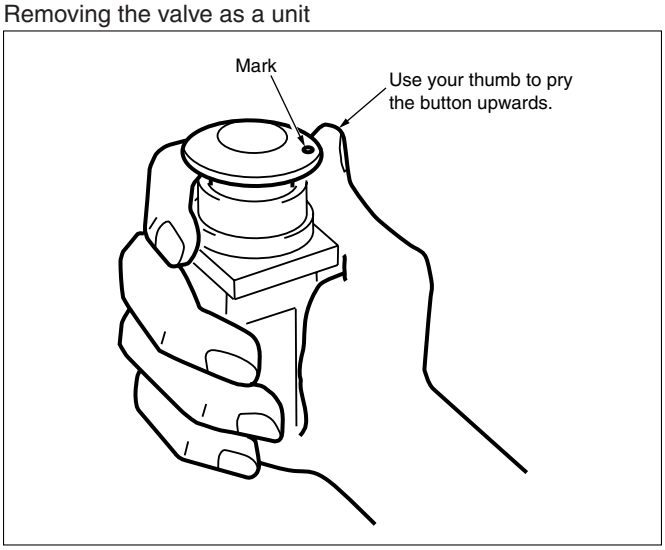
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

How to remove a mushroom button

How to remove at panel mount



Removing the valve as a unit



Replacement parts

1. Use the part numbers listed below to order individual mushroom head or flat head buttons.

Color	Mushroom button	Extended button
Red	3402186R	3402187R
Black	3402186B	3402187B
Green	3402186G	3402187G
Yellow	3402186Y	3402187Y

Color	Push button (Flush)
Red	3402188R
Black	3402188B
Green	3402188G
Yellow	3402188Y

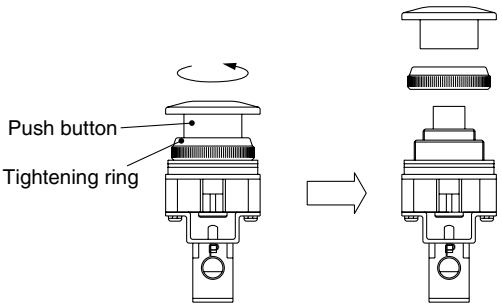
2. To order single fastening ring, use the part number below.
Fastening ring: 3402184

3. To order a single push button for series VM1000 and a single cover use the part number below.

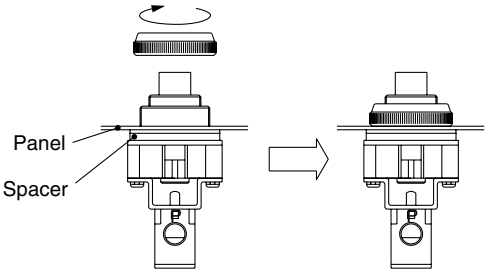
Color	Push button	Cover for push button
Red	3410701-R	3410703 (White only)
Black	3410701-B	
Green	3410701-G	

Series VM-X219, VZM-X219, VFM-X219 How to Mount Panel

[Task 1] Removal of the push button and tightening ring
Remove them from the body turning them counterclockwise in the order of the push button and tightening ring.

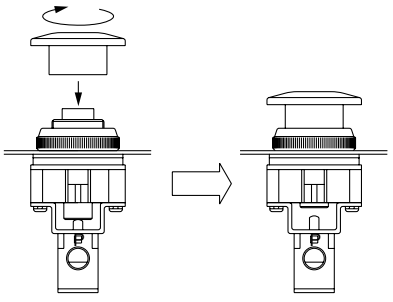


[Task 2] Mounting the valve to the panel
Insert the valve to the panel and fix it with a tightening ring. Remove three spacers attached to the valve depending on the panel thickness.



[Task 3] Mouting the push botton
Tighten the push button clockwise by hand and further tighten it until load is applied.

Note) When the push button is not tightened enough, the valve may not output correctly after operating the push button. In other cases, the valve outputs temporally, but when it is in the holding state, the valve may stop outputting. In this situation, please tighten the push button again.



5 Port Air Operated Valve
Series SYA3000/5000/7000

How to Order

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SYA3000
01	1/8	SYA5000
02	1/4	SYA7000

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SYA3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SYA5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SYA7000
C10	One-touch fitting for ø10	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SYA3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SYA5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SYA7000
N11	One-touch fitting for ø3/8"	

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

Bracket

Nil	Without bracket
F1	With foot bracket (2 position single only)
F2	With side bracket

Series

3	SYA3000
5	SYA5000
7	SYA7000

Body ported **SYA** **5** **1** **20** – **C6** [ ] – [ ]

Base mounted **SYA** **5** **1** **40** – [ ] [ ]

Series

3	SYA3000
5	SYA5000

P, R port thread type

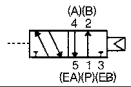
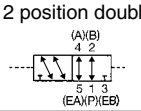
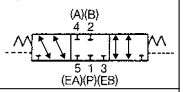
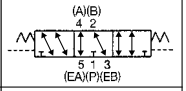
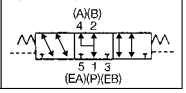
Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	Port size	Applicable series
Nil	Without sub-plate	
01	1/8 With sub-plate	SYA3000
02	1/4 With sub-plate	SYA5000

Base mounted **SYA** **7** **1** **40** – [ ] [ ]

Type of actuation

1	2 position single 
2	2 position double 
3	3 position closed center 
4	3 position exhaust center 
5	3 position pressure center 

P, R port thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	Port size
Nil	Without sub-plate
00	Without sub-plate (Pilot port: expect for Rc)
02	1/4 With sub-plate
03	3/8 With sub-plate

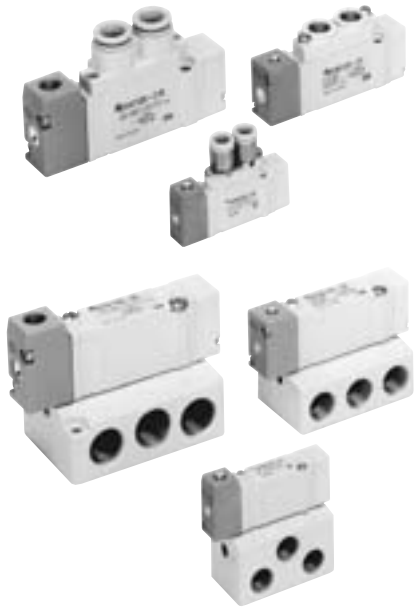
Specifications

Fluid		Air
Operating pressure range MPa	2 position single	0.15 to 0.7
	2 position double	–100 kPa to 0.7
	3 position	–100 kPa to 0.7
Pilot pressure range Note 1) MPa	2 position single	(0.7 x P + 0.1) to 0.7 P: Operating pressure range
	2 position double	0.1 to 0.7
	3 position	0.2 to 0.7
Ambient and fluid temperature (°C)		–10 to 60 (No freezing.)
Manual override (Manual operation)		Non-locking push type
Lubrication		Not required
Mounting orientation		Unrestricted
Impact/Vibration resistance (m/s^2) Note 2)		150/30

Note 1) In case of single type, be certain that pressure within operating pressure range be supplied to supply port, because return pressure is introduced from supply port {1(P)} for activation.

Note 2) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, when pilot signal is ON and OFF. (Value in the initial state)

Vibration resistance: No malfunction occurred in one sweep test between 45 and 2000 Hz. Test was performed to axis and right angle directions of the main valve and armature when pilot signal is ON and OFF. (Value in the initial state)



⚠ Caution

Be sure to read before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

How to Order Manifold Base

Same manifolds as series SY (Non plug-in style) are prepared.
(For 20, 41, 42 and 45 Types)

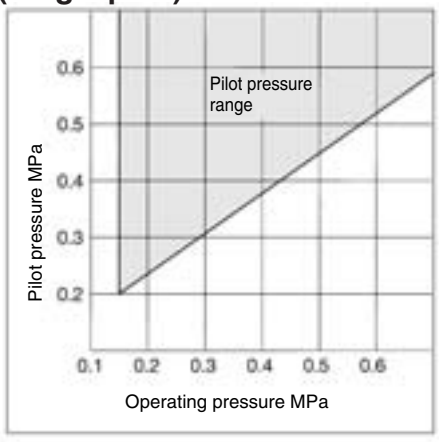
SS5YA$^{3}_{5}$$^{}_{7}$– Fill the same as SS5Y$^{3}_{5}$$^{}_{7}$.

∗ Specify the part numbers for valves and options together beneath the manifold base part number.
<Example>

SS5YA5-42-03-02 1 set (Type 42, 3 station manifold base part no.)
∗ SYA5140 1 set (Single air operated valve part no.)
∗ SYA5240 1 set (Double air operated valve part no.)
∗ SY5000-26-2A 1 set (Blanking plate assembly part no.)
└→The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Note) When single body ported air operated valves are ordered, manifold mounting screws and gaskets are not included. Order them separately if necessary.
(For details, refer to page 173.)

Pilot Pressure Range (Single pilot)



Flow Characteristics/Weight

Model/Series SYA3□20 (Body ported)

Valve model	Type of actuation		Pilot port size	Port size		Flow characteristics						Mass (g)
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			
				P, EA, EB	A, B	C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv	
SYA3□20-M5	2 position	Single	M5 x 0.8	M5 x 0.8	M5 x 0.8	0.61	0.44	0.16	0.64	0.45	0.18	35
		Double										37
	3 position	Closed center				0.48	0.46	0.13	0.47	0.43	0.13	39
		Exhaust center				0.47	0.42	0.13	0.47 [0.44]	0.41 [0.37]	0.13 [0.12]	
		Pressure center				0.50 [0.41]	0.48 [0.35]	0.15 [0.11]	0.47	0.43	0.13	
SYA3□20-C4	2 position	Single			C4 (One-touch fitting for ø4)	0.72	0.29	0.18	0.64	0.34	0.17	44
		Double										46
	3 position	Closed center				0.59	0.28	0.15	0.59	0.30	0.15	48
		Exhaust center				0.63	0.35	0.16	0.42 [0.41]	0.34 [0.37]	0.11 [0.11]	
		Pressure center				0.76 [0.46]	0.42 [0.34]	0.21 [0.12]	0.59	0.29	0.15	
SYA3□20-C6	2 position	Single			C6 (One-touch fitting for ø6)	0.76	0.30	0.19	0.65	0.39	0.17	40
		Double										42
	3 position	Closed center				0.76	0.55	0.24	0.60	0.33	0.16	44
		Exhaust center				0.65	0.32	0.16	0.64 [0.42]	0.31 [0.36]	0.17 [0.11]	
		Pressure center				0.77 [0.49]	0.34 [0.43]	0.21 [0.15]	0.61	0.34	0.16	

Note) [ ]: denotes normal position.

Model/Series SYA3□40 (Base mounted)

Valve model	Type of actuation		Pilot port size	Port size	Flow characteristics Note 1)						Mass Note 2) (g)
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			
					C (dm³/ (s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv	
SYA3□40-01□	2 position	Single	M5 x 0.8	1/8	1.0	0.30	0.24	1.1	0.30	0.26	69 (34)
		Double									71 (36)
	3 position	Closed center			0.77	0.28	0.18	0.85	0.30	0.19	73 (38)
		Exhaust center			0.73	0.31	0.18	1.1 [0.55]	0.26 [0.52]	0.24 [0.16]	
		Pressure center			1.2 [0.51]	0.24 [0.45]	0.29 [0.14]	0.89	0.47	0.24	

Note 1) [ ]: denotes normal position.
Note 2) ( ): Without sub-plate.

Flow Characteristics/Weight

Model/Series SYA5□20 (Body ported)

Valve model	Type of actuation		Pilot port size	Port size		Flow characteristics						Mass (g)
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			
				P, EA, EB	A, B	C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
SYA5□20-01□	2 position	Single	M5 x 0.8	1/8	Rc 1/8	1.9	0.35	0.49	2.4	0.39	0.61	58
		Double										64
	3 position	Closed center				1.7	0.43	0.45	1.8	0.35	0.46	69
		Exhaust center				1.5	0.44	0.41	2.5 [1.5]	0.32 [0.43]	0.59 [0.40]	
		Pressure center				2.2 [0.91]	0.46 [0.58]	0.61 [0.28]	1.8	0.38	0.46	
SYA5□20-C4	2 position	Single			C4 (One-touch fitting for ø4)	0.75	0.43	0.20	0.85	0.64	0.30	82
		Double										87
	3 position	Closed center				0.74	0.40	0.19	0.84	0.57	0.28	93
		Exhaust center				0.75	0.36	0.19	0.84 [0.84]	0.64 [0.53]	0.30 [0.27]	
		Pressure center				0.78 [0.71]	0.44 [0.37]	0.21 [0.18]	0.84	0.57	0.27	
SYA5□20-C6	2 position	Single			C6 (One-touch fitting for ø6)	1.5	0.33	0.33	2.0	0.37	0.52	76
		Double										82
	3 position	Closed center				1.3	0.31	0.33	1.6	0.32	0.39	87
		Exhaust center				1.3	0.33	0.33	1.8 [1.4]	0.35 [0.37]	0.44 [0.35]	
		Pressure center				1.7 [0.80]	0.31 [0.47]	0.42 [0.23]	1.7	0.33	0.44	
SYA5□20-C8	2 position	Single			C8 (One-touch fitting for ø8)	1.9	0.21	0.45	2.3	0.29	0.57	68
		Double										74
	3 position	Closed center				1.6	0.29	0.39	1.7	0.38	0.46	79
		Exhaust center				1.4	0.38	0.39	2.0 [1.5]	0.37 [0.40]	0.52 [0.43]	
		Pressure center				2.2 [1.6]	0.32 [0.44]	0.56 [0.44]	1.8	0.41	0.50	

Note) [ ]: denotes normal position.

Model/Series SYA5□40 (Base mounted)

Valve model	Type of actuation		Pilot port size	Port size	Flow characteristics Note 1)						Mass Note 2) (g)
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
SYA5□40-02□	2 position	Single	M5 x 0.8	1/4	2.4	0.41	0.64	2.8	0.29	0.66	105 (42)
		Double									110 (47)
	3 position	Closed center			1.8	0.47	0.50	1.8	0.40	0.47	115 (52)
		Exhaust center			1.4	0.55	0.44	3.0 [1.2]	0.33 [0.48]	0.72 [0.37]	
		Pressure center			3.3 [0.84]	0.36 [0.60]	0.85 [0.28]	1.8	0.40	0.48	

Note 1) [ ]: denotes the normal position.
Note 2) ( ): denotes without sub-plate.

Model/Series SYA7□20 (Body ported)

Valve model	Type of actuation		Pilot port size	Port size		Flow characteristics						Mass (g)
						1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			
				P, EA, EB	A, B	C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
SYA7□20-02□	2 position	Single	1/8	P port: 1/4 EA, EB port: 1/8	1/4	4.1	0.23	0.93	3.3	0.33	0.81	132
		Double										177
	3 position	Closed center				2.9	0.31	0.70	2.4	0.38	0.63	186
		Exhaust center				2.5	0.39	0.65	3.4 [2.1]	0.35 [0.38]	0.82 [0.54]	
		Pressure center				4.3 [2.4]	0.23 [0.32]	0.97 [0.61]	2.2	0.39	0.58	
SYA7□20-C8	2 position	Single			C8 (One-touch fitting for ø8)	3.2	0.26	0.77	3.2	0.37	0.82	138
		Double										183
	3 position	Closed center				2.6	0.24	0.63	2.4	0.31	0.62	192
		Exhaust center				2.4	0.25	0.57	2.6 [1.9]	0.42 [0.46]	0.70 [0.56]	
		Pressure center				3.3 [2.4]	0.28 [0.22]	0.78 [0.57]	2.2	0.34	0.60	
SYA7□20-C10	2 position	Single			C10 (One-touch fitting for ø10)	3.8	0.26	0.86	3.2	0.34	0.82	135
		Double										180
	3 position	Closed center				2.8	0.27	0.67	2.4	0.21	0.59	189
		Exhaust center				2.5	0.25	0.59	2.7 [2.0]	0.38 [0.38]	0.70 [0.56]	
		Pressure center				3.8 [2.4]	0.25 [0.31]	0.89 [0.61]	2.3	0.38	0.61	

Note) [ ]: denotes normal position.

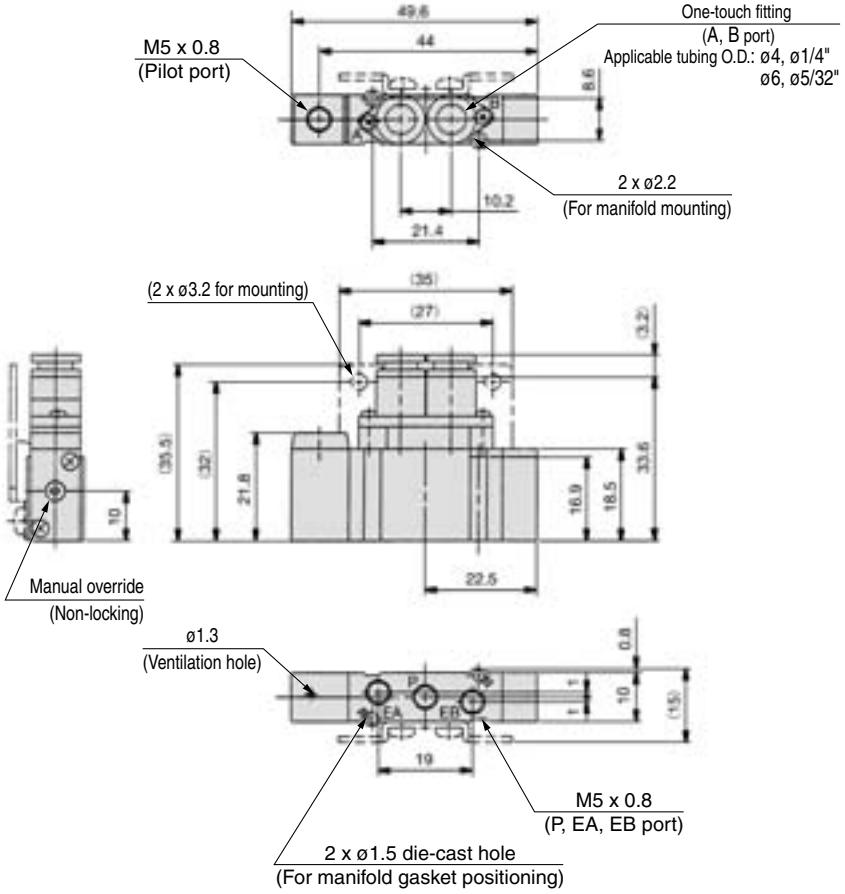
Model/Series SYA7□40 (Base mounted)

Valve model	Type of actuation		Pilot port size	Port size	Flow characteristics Note 1)						Mass Note 2) (g)
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
SYA7□40-02□	2 position	Single	1/8	1/4	4.1	0.41	1.1	4.1	0.29	1.0	240 (111)
		Double									286 (157)
	3 position	Closed center			3.0	0.43	0.80	2.6	0.41	0.72	294 (165)
		Exhaust center			2.6	0.42	0.71	4.7 [1.7]	0.35 [0.48]	1.1 [0.49]	
		Pressure center			5.3 [2.3]	0.39 [0.49]	1.3 [0.65]	2.2	0.49	0.63	
SYA7□40-03	2 position	Single	1/8	3/8	4.9	0.29	1.2	4.5	0.27	1.1	240 (111)
		Double									286 (157)
	3 position	Closed center			3.0	0.40	0.80	2.6	0.45	0.73	294 (165)
		Exhaust center			2.6	0.42	0.71	4.8 [1.7]	0.35 [0.48]	1.1 [0.49]	
		Pressure center			5.3 [2.3]	0.31 [0.51]	1.3 [0.64]	2.3	0.45	0.66	

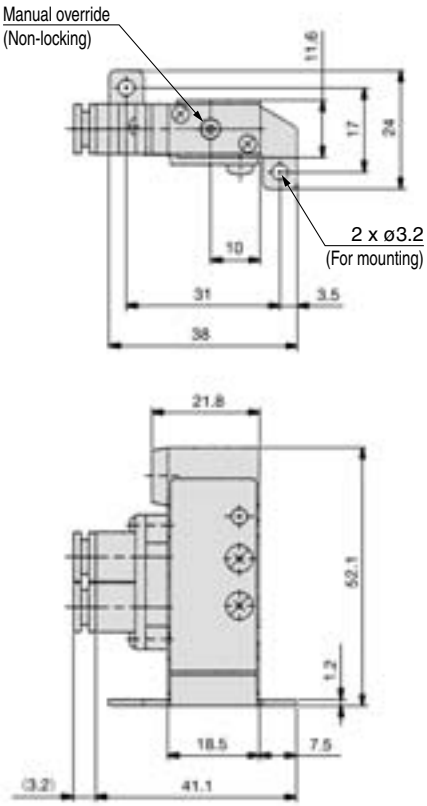
Note 1) [ ]: denotes the normal position.
Note 2) ( ): denotes without sub-plate.

Dimensions/Series SYA3000: Body Ported

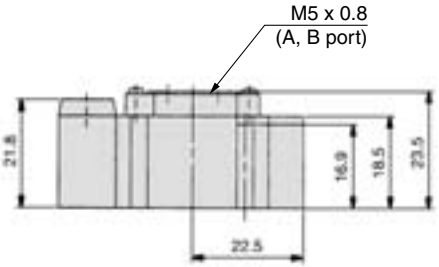
2 position single
SYA3120-$^{C4, N3}_{C6, N7}$(-F2)



Foot bracket
SYA3120-$^{C4, N3}_{C6, N7}$-F1



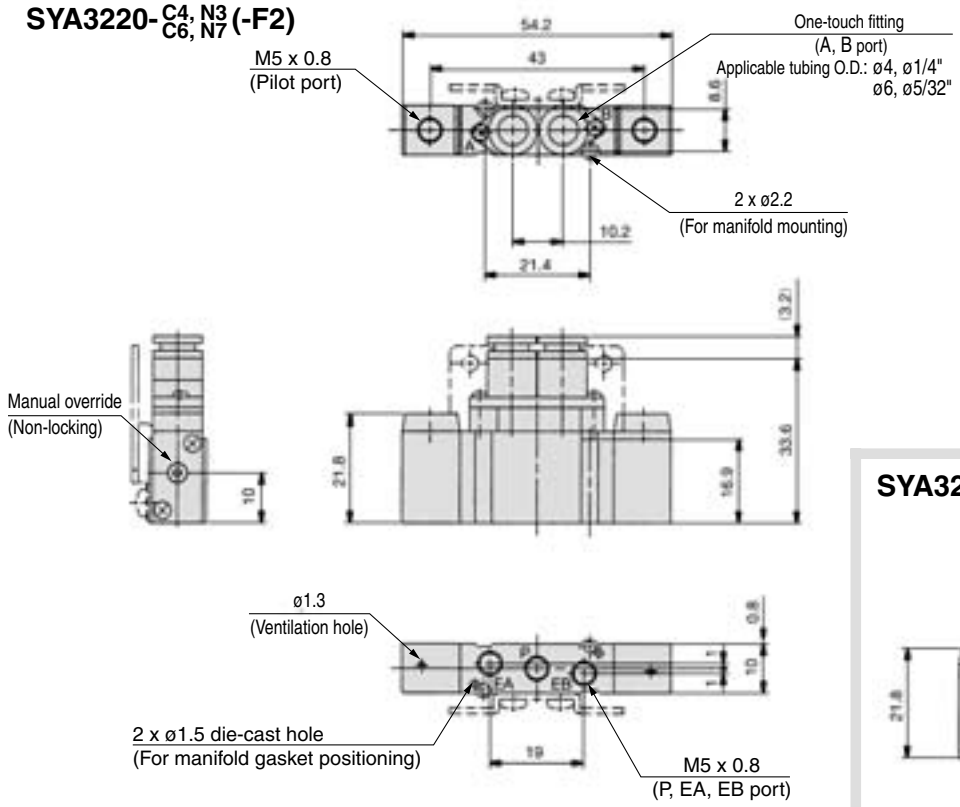
SYA3120-M5



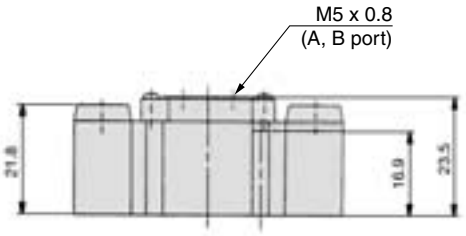
Dimensions/Series SYA3000: Body Ported

2 position double

SYA3220-$^{C4, N3}_{C6, N7}$(-F2)

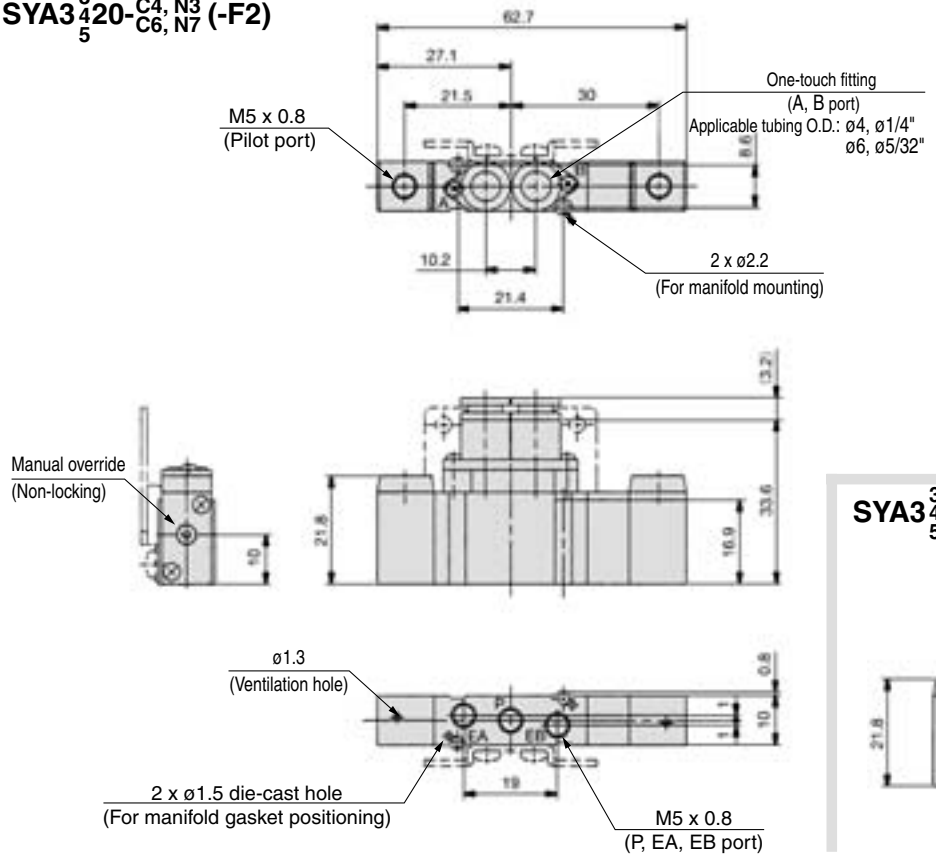


SYA3220-M5

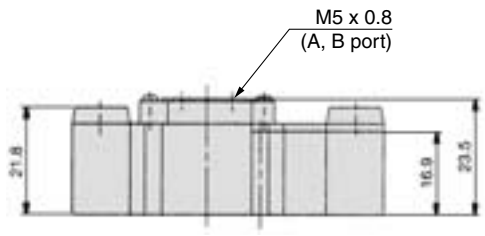


3 position closed center / exhaust center / pressure center

SYA3$^{3}_{4}_{5}$20-$^{C4, N3}_{C6, N7}$(-F2)

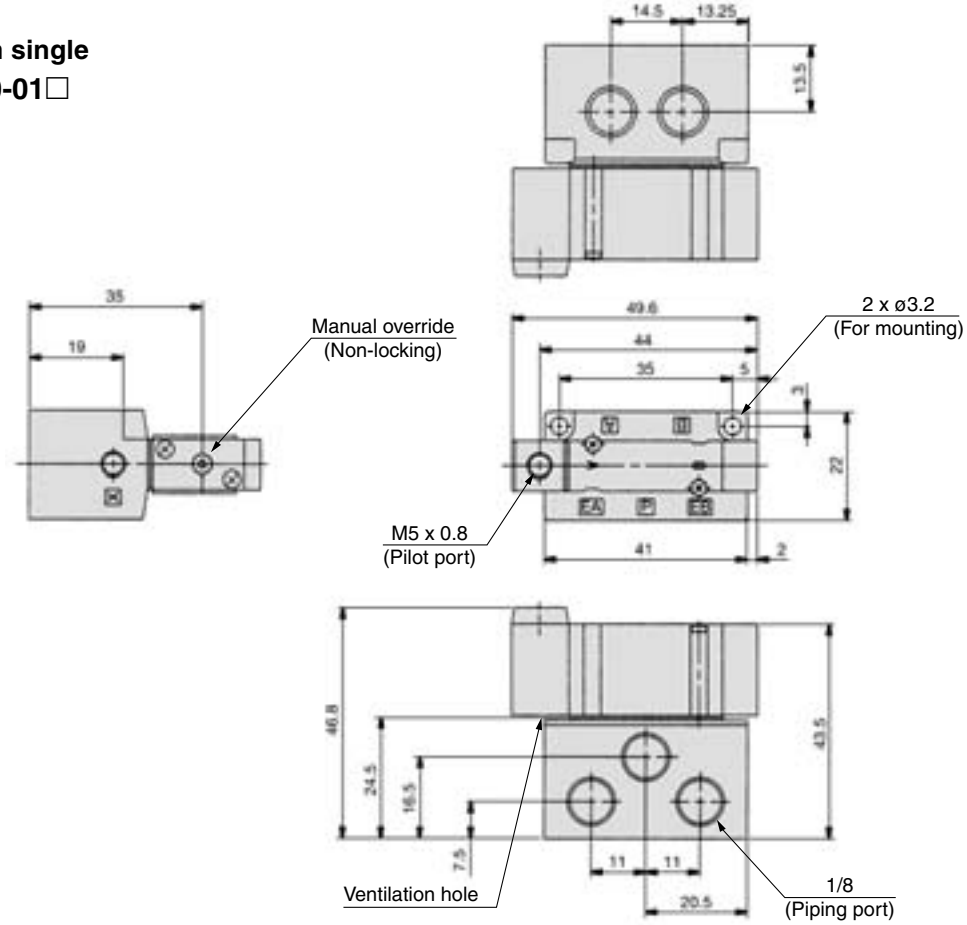


SYA3$^{3}_{4}_{5}$20-M5

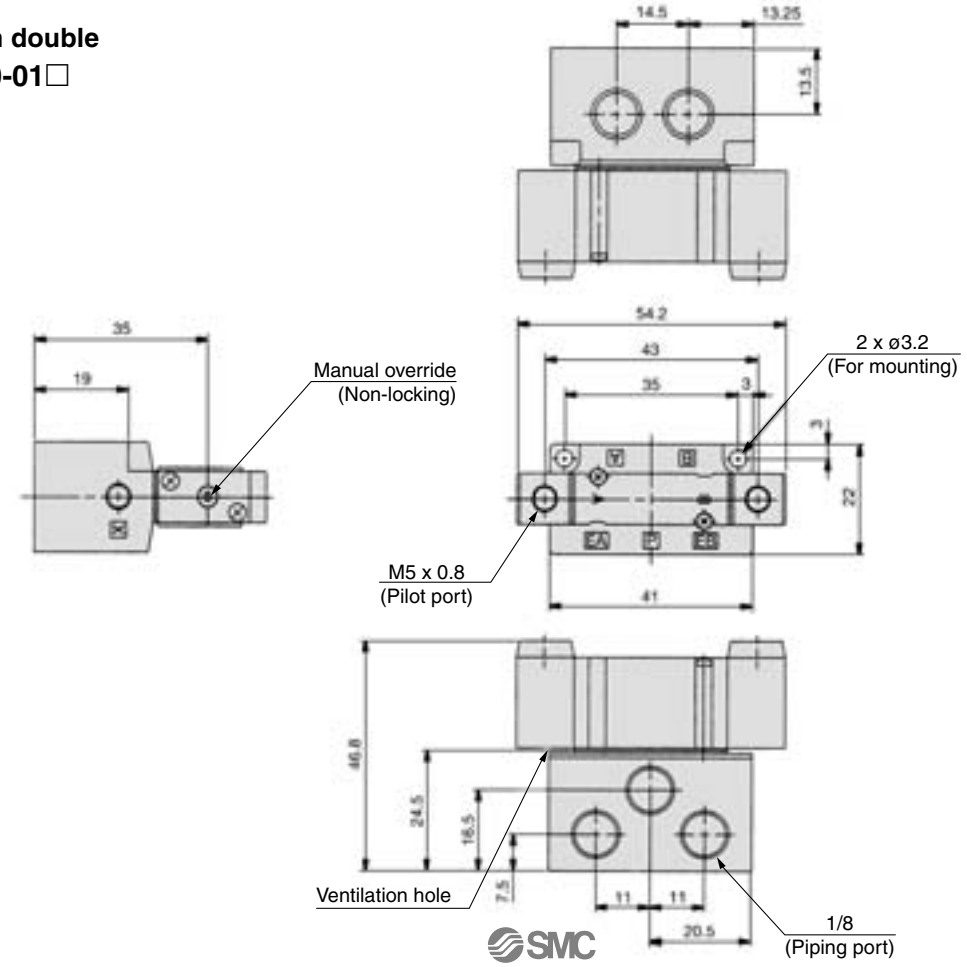


Dimensions/Series SYA3000: Base Mounted

2 position single
SYA3140-01□



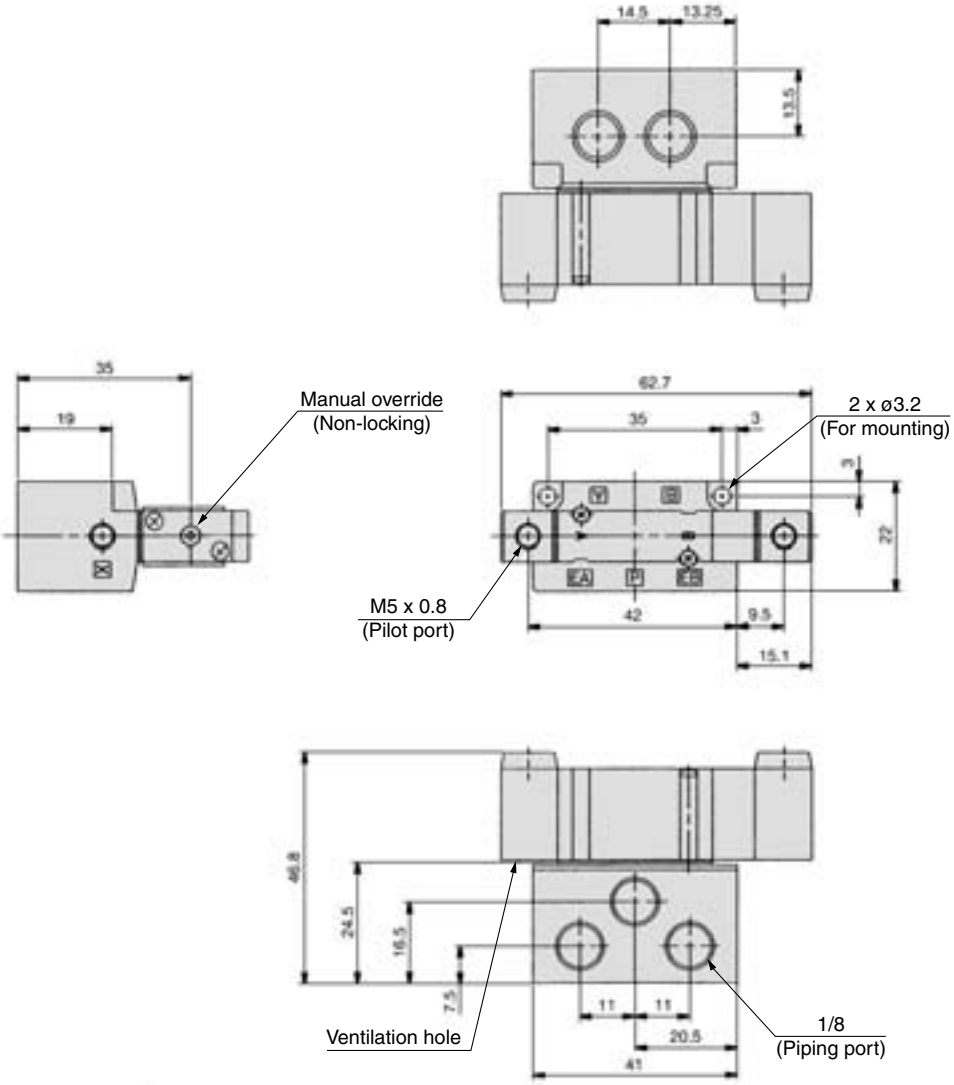
2 position double
SYA3240-01□



Dimensions/Series SYA3000: Base Mounted

3 position closed center / exhaust center / pressure center

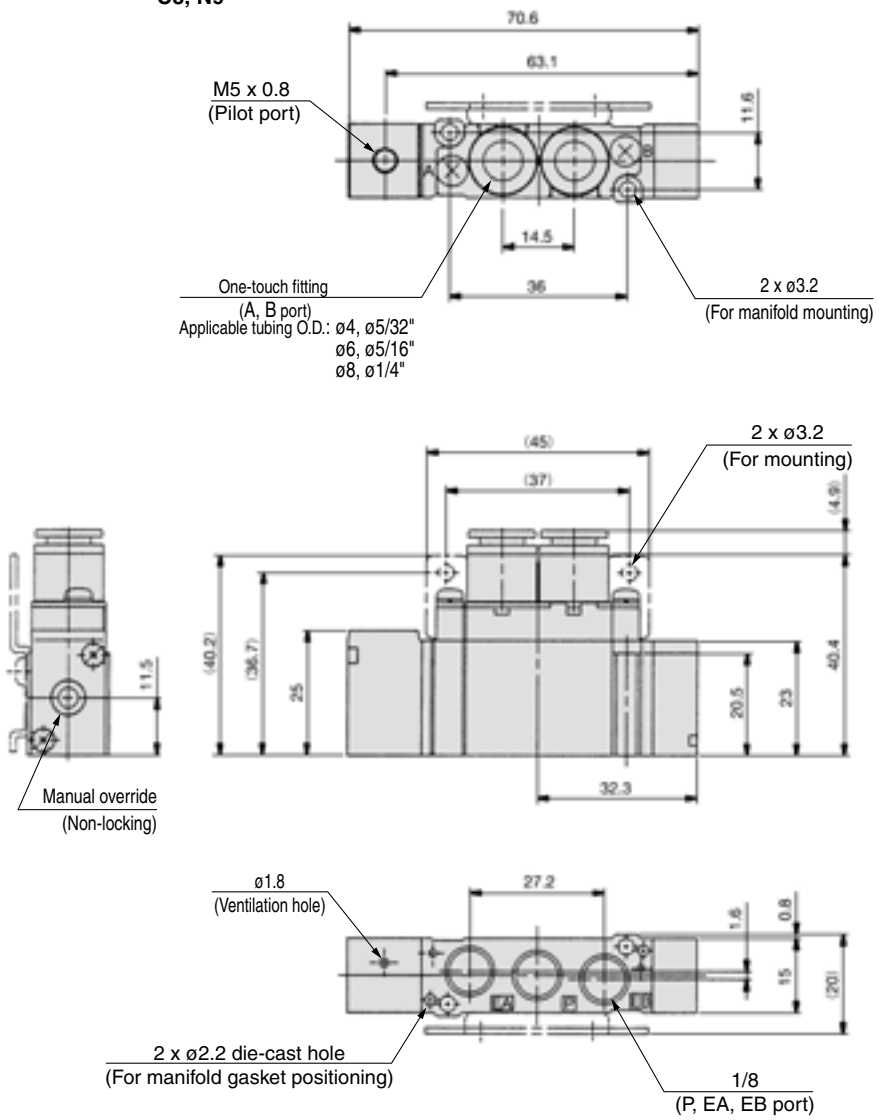
SYA3$^{3}_{4}_{5}$40-01□



Dimensions/Series SYA5000: Body Ported

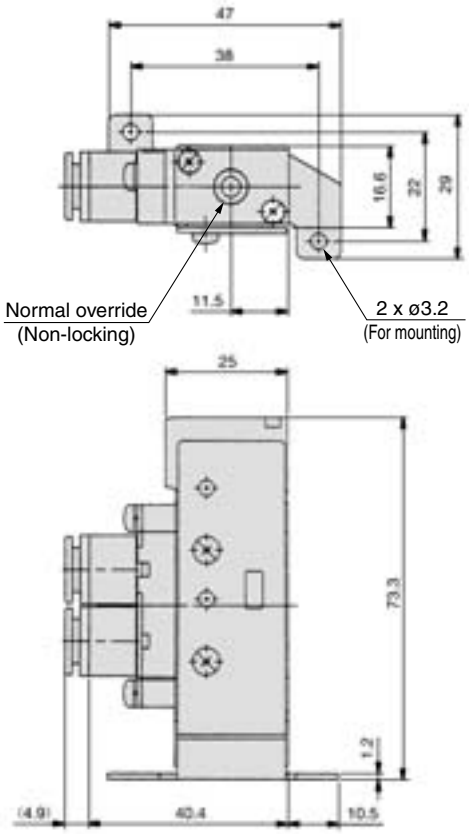
2 position single

SYA5120-C4, N3 C6, N7 C8, N9 □(-F2)

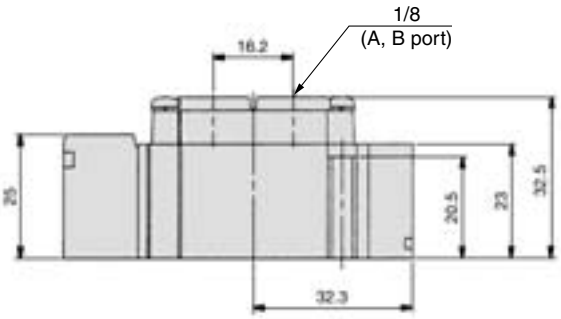


Foot bracket

SYA5120-C4, N3 C6, N7 C8, N9 □-F1



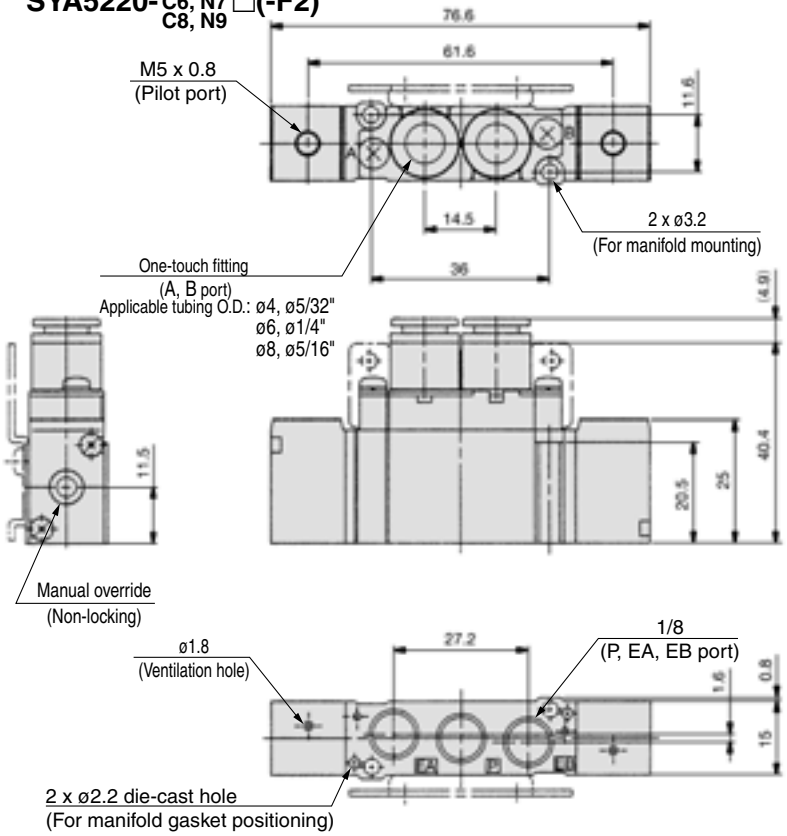
SYA5120-01□



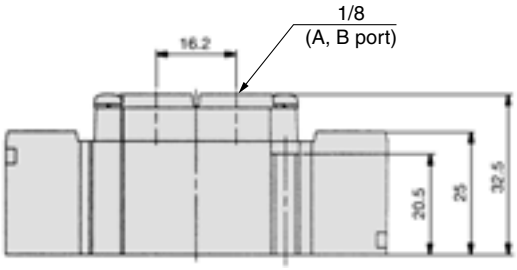
Dimensions/Series SYA5000: Body Ported

2 position double

SYA5220- C4, N3 / C6, N7 / C8, N9 **□(-F2)**

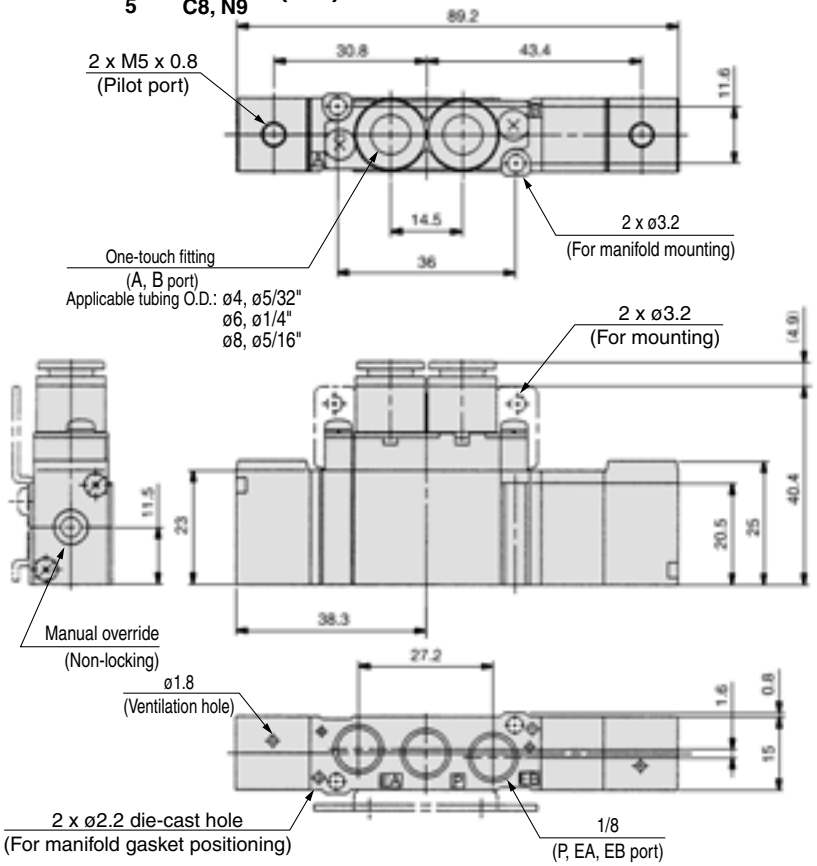


SYA5220-01□

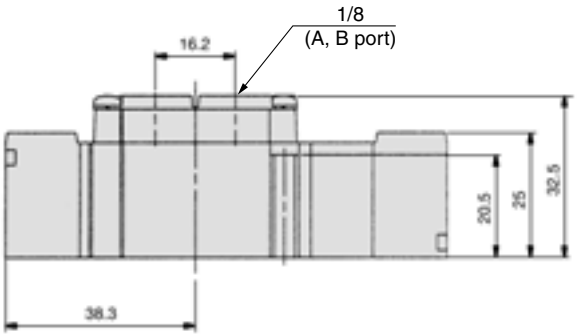


3 position closed center / exhaust center / pressure center

SYA5 3 4 5 **20-** C4, N3 / C6, N7 / C8, N9 **□(-F2)**

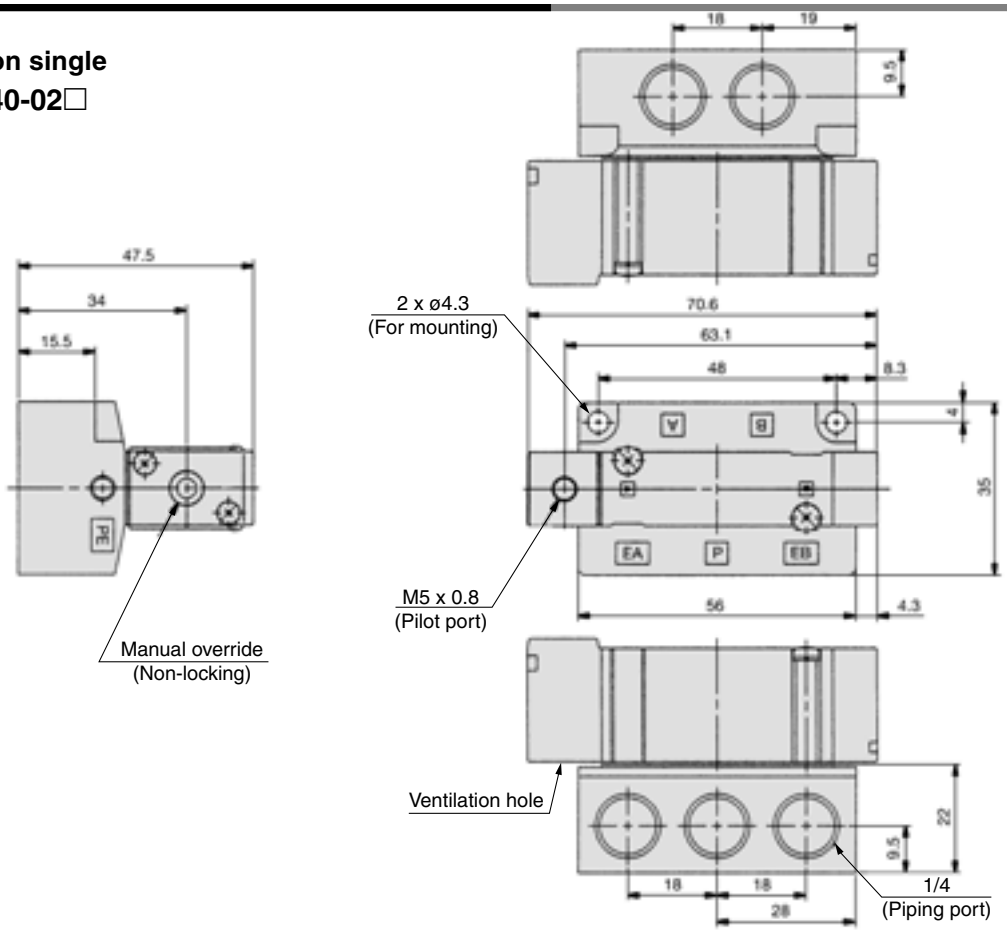


SYA5 3 4 5 **20-01□**

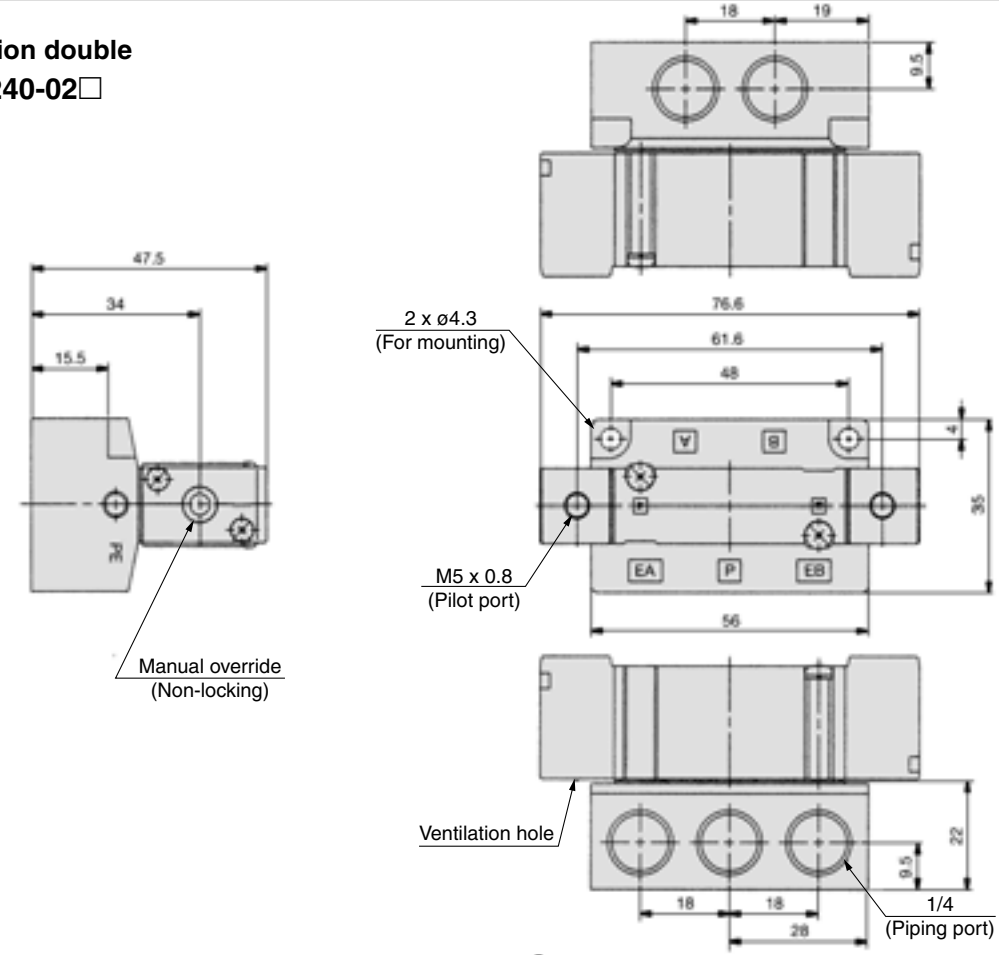


Dimensions/Series SYA5000: Base Mounted

2 position single
SYA5140-02□



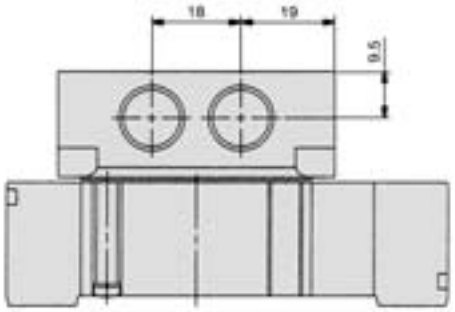
2 position double
SYA5240-02□

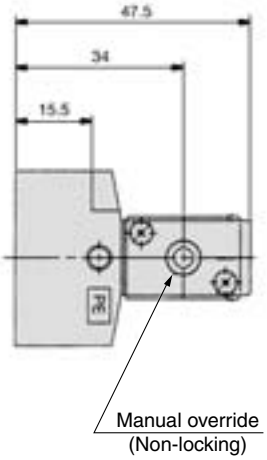


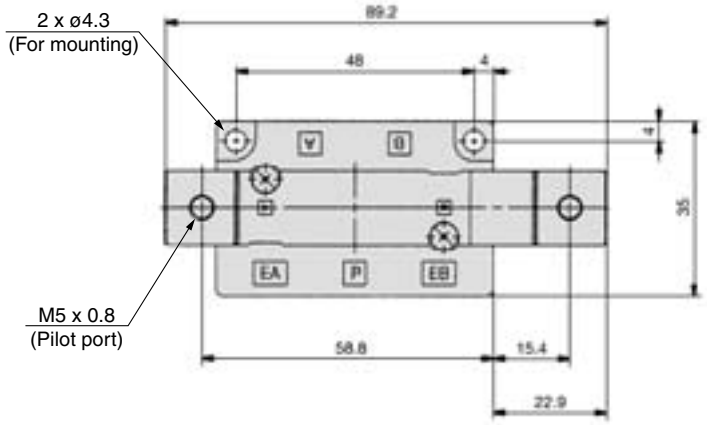
Dimensions/Series SYA5000: Base Mounted

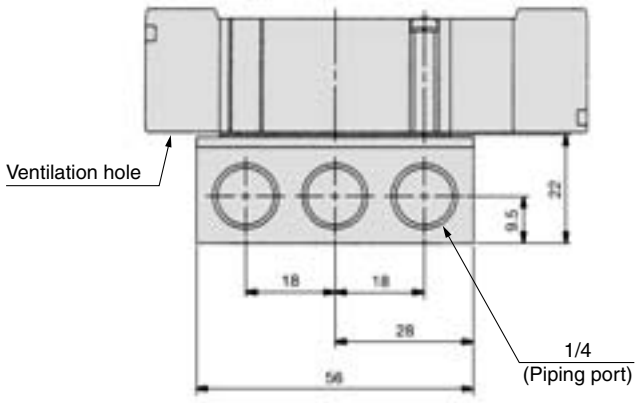
3 position closed center / exhaust center / pressure center

SYA5$^{3}_{4}_{5}$40-02□



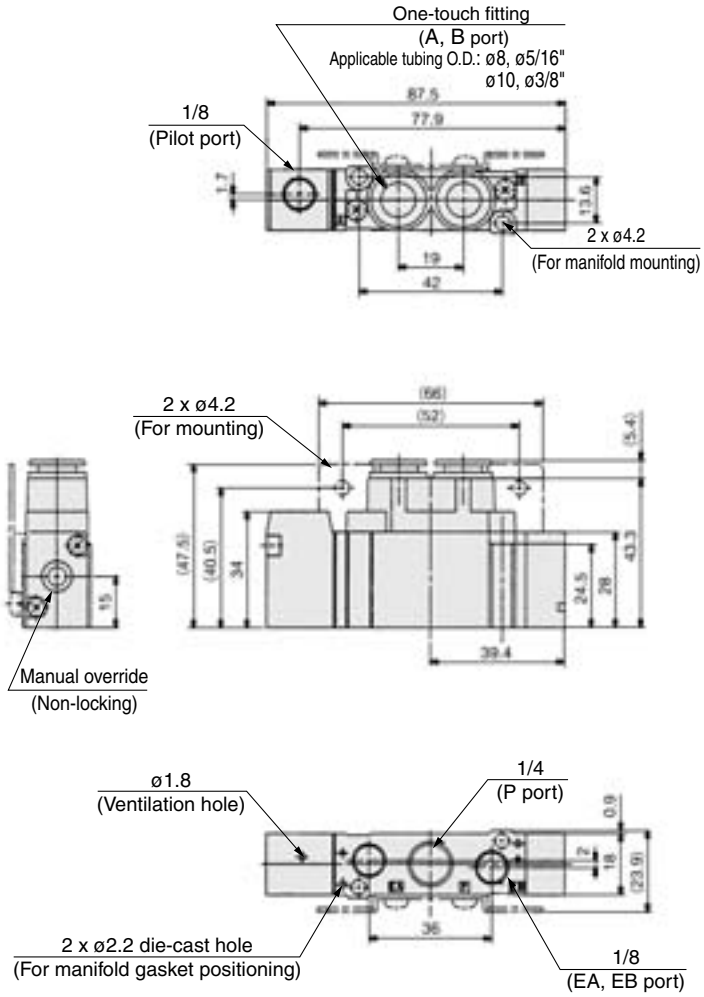




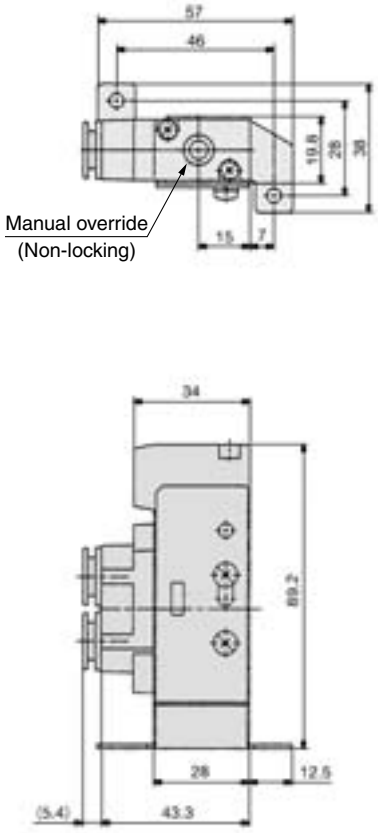


Dimensions/Series SYA7000: Body Ported

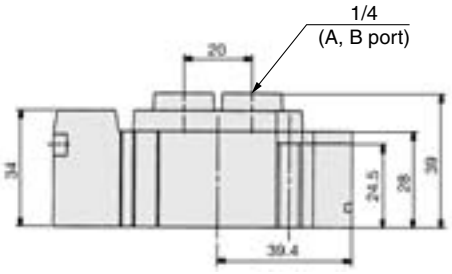
2 position single
SYA7120-$^{C8, N9}_{C10, N11}$□(-F2)



Foot bracket
SYA7120-$^{C8, N9}_{C10, N11}$□-F1



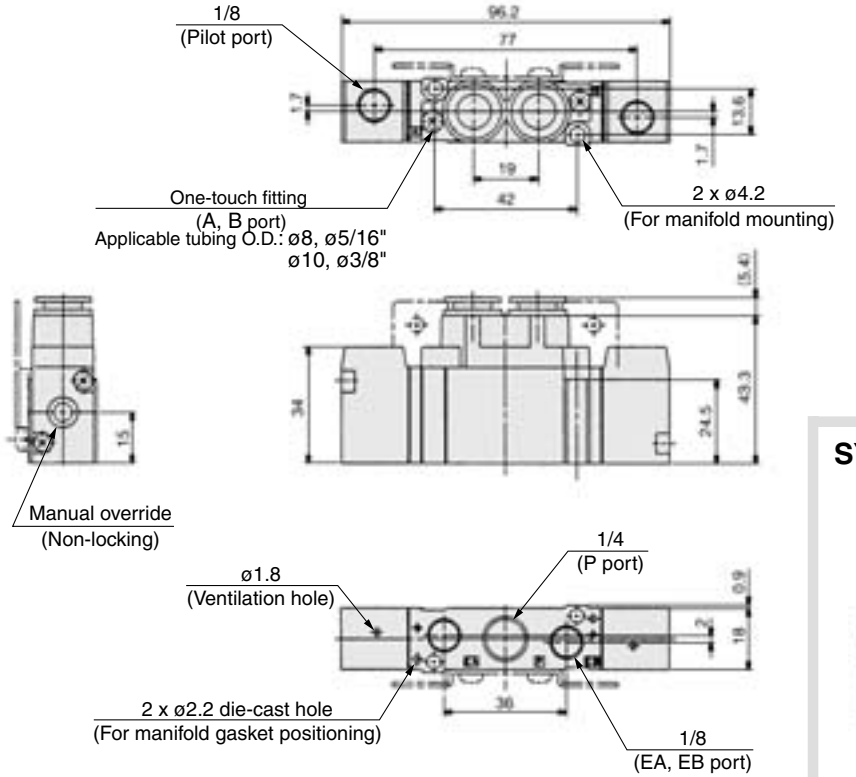
SYA7120-02□



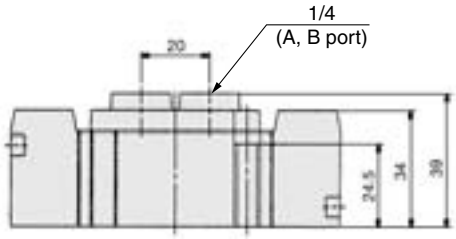
Dimensions/Series SYA7000: Body Ported

2 position double

SYA7220- $^{C8, N9}_{C10, N11}$ □

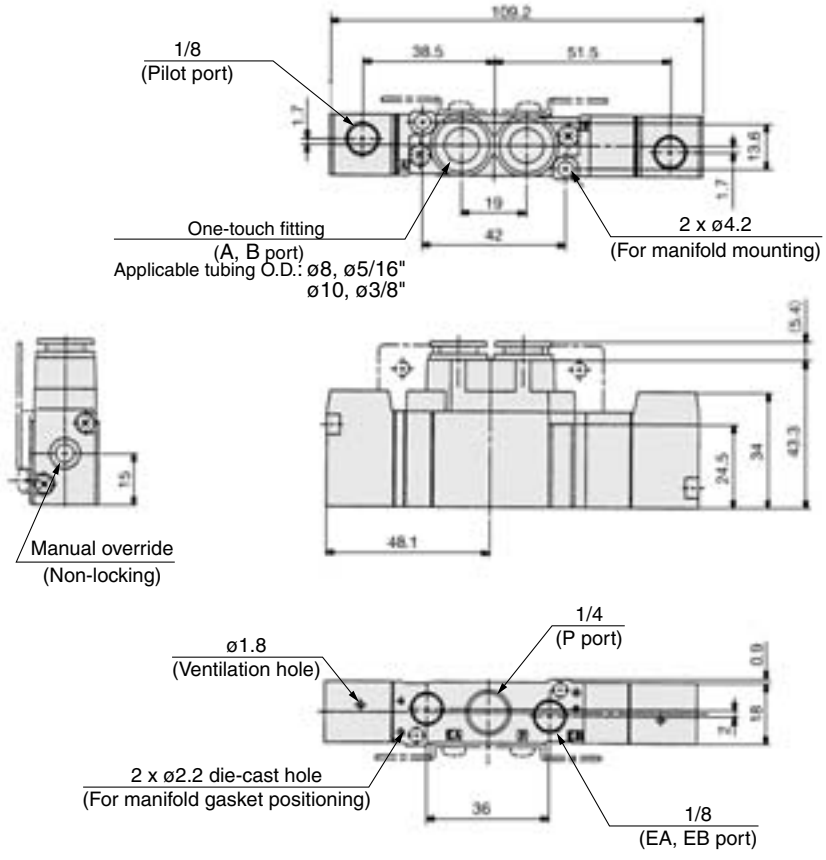


SYA7220-02

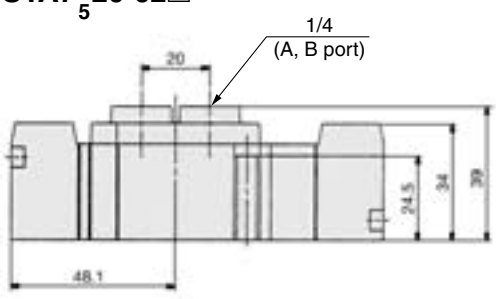


3 position closed center / exhaust center / pressure center

SYA7 $^{3}_{4}_{5}$**20-** $^{C8, N9}_{C10, N11}$□

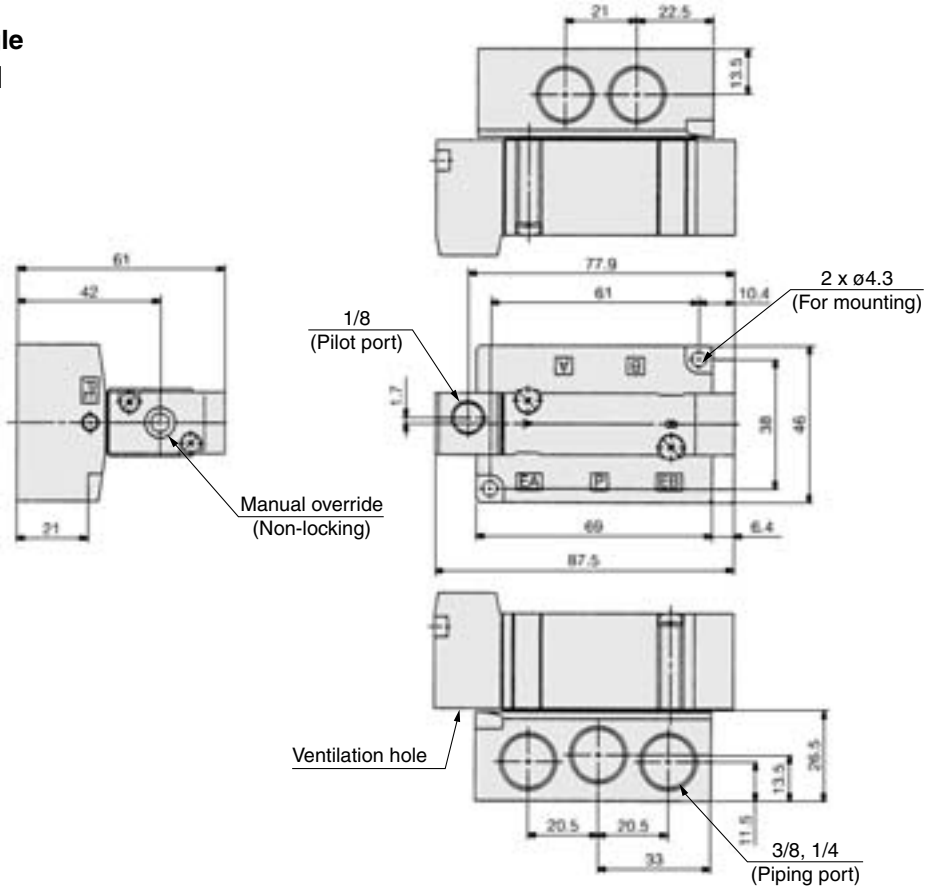


SYA7 $^{3}_{4}_{5}$**20-02**□

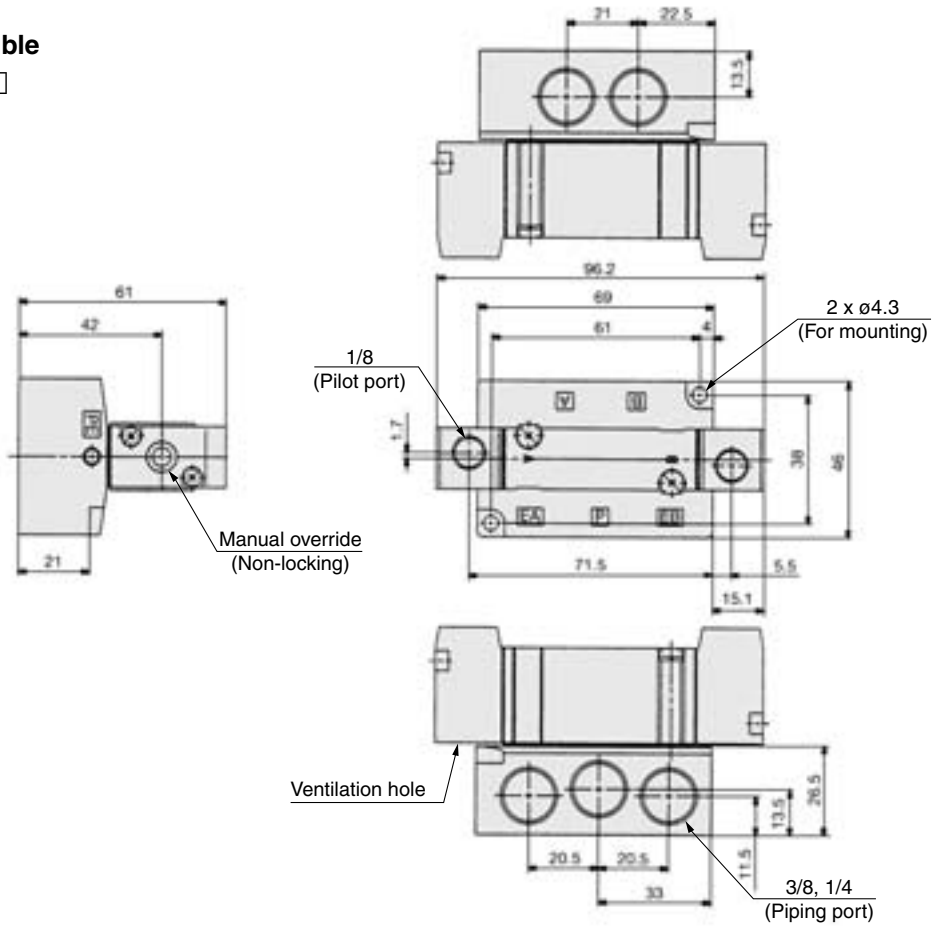


Dimensions/Series SYA7000: Base Mounted

2 position single
SYA7140-$\frac{02}{03}$□



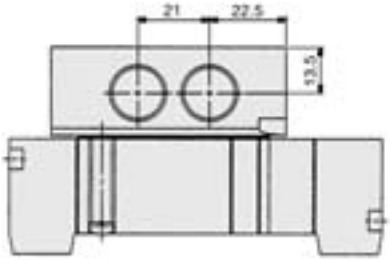
2 position double
SYA7240-$\frac{02}{03}$□

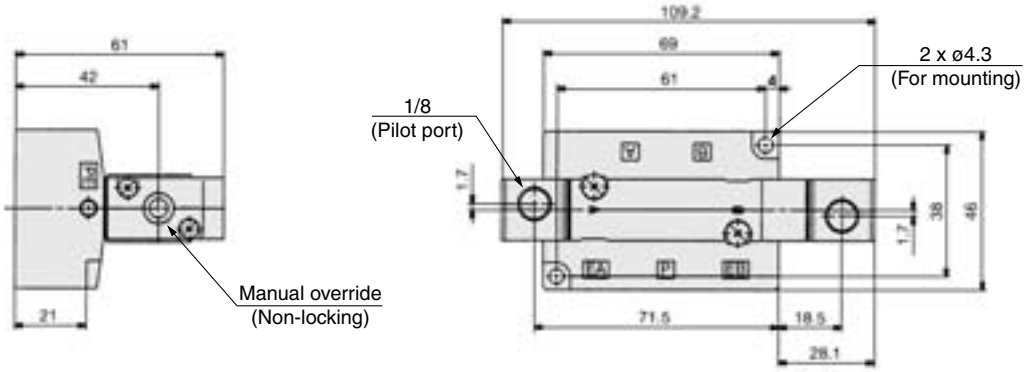


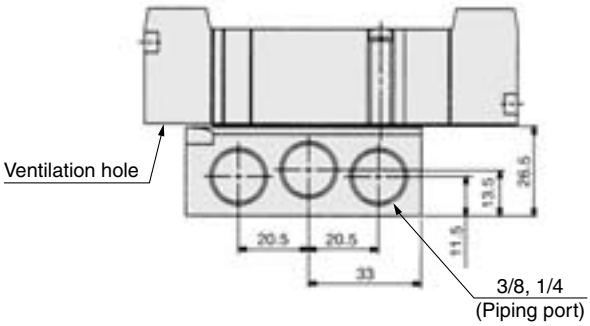
Dimensions/Series SYA7000: Base Mounted

3 position closed center / exhaust center / pressure center

SYA7$^{3}_{4}$40-$^{02}_{03}$□

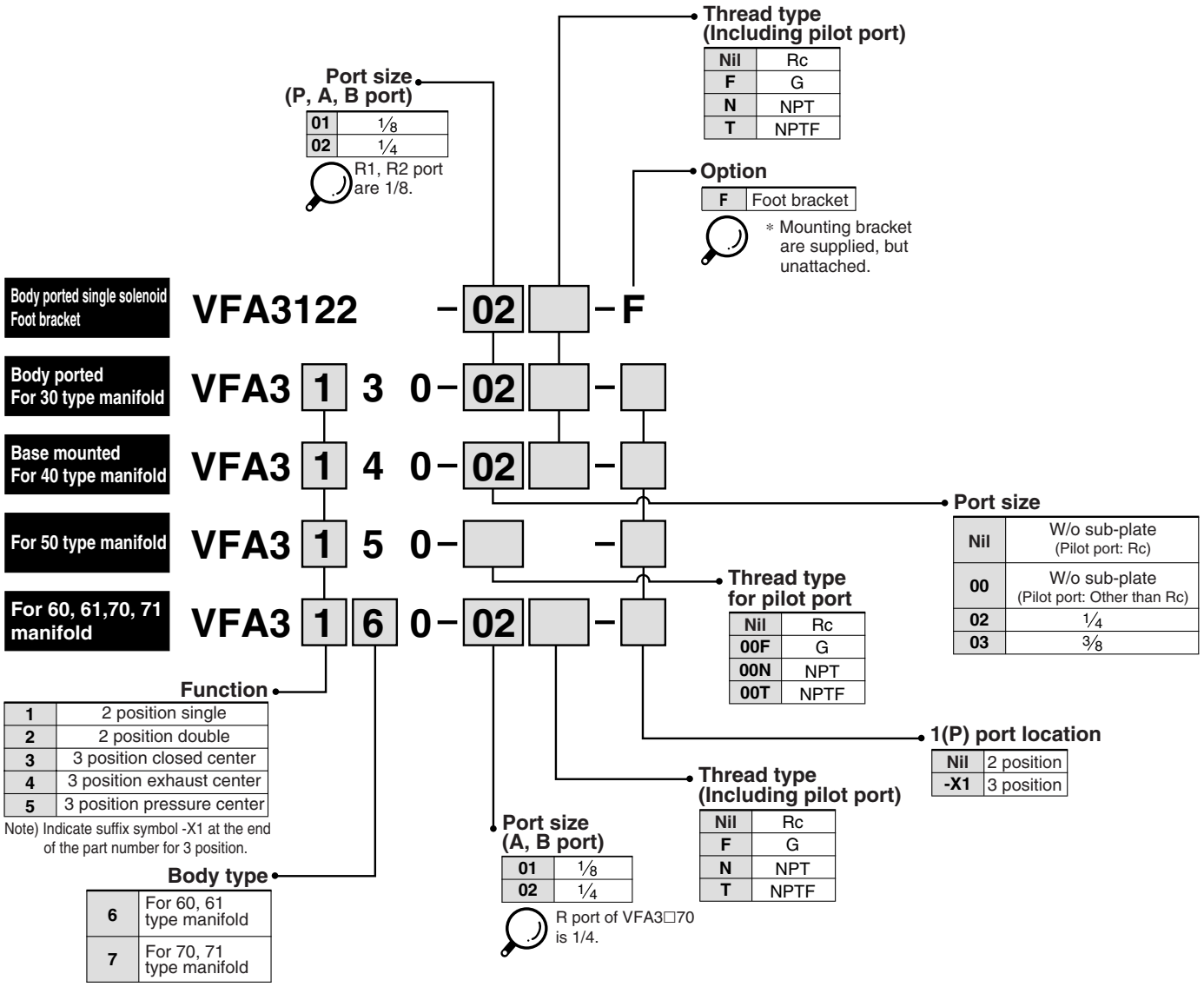






5 Port Air Operated Valve
Series VFA3000

How to Order

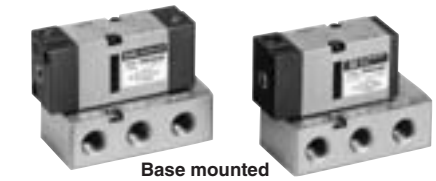


How to Order Manifold Base

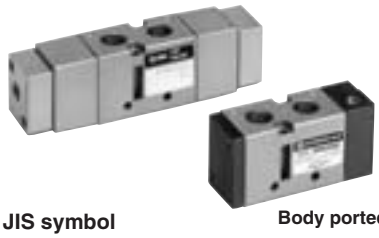
Use the same manifold bases as the VF3000.

VV5FA3 – Specify the same manifold part number as VV5F3.

* To order valves and blanking plate assembly mounted onto the manifold, list valves and blanking plate assembly with manifold base part number.
  <Example> **VV5FA3-40-052-02**·····1 pc.
  *VFA3140·····2 pcs.
  *VFA3240·····2 pcs.
  *DXT031-38-1A·····1 pc.
  ↳ To order valves and options mounted onto the manifold at the factory, list the valve/option with an asterisk (*) in front of each part number.



Base mounted



Body ported

Specifications

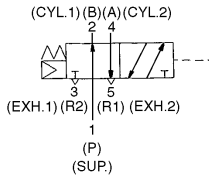
Fluid		Air
Operating pressure range (MPa)	**2 position single**	0.15 to 0.9
	2 position double	0.1 to 0.9
	3 position	0.15 to 0.9
Pilot pressure range (MPa)	**2 position single**	(0.4 x P + 0.1) to 0.9, P: Operating pressure
	2 position double	0.1 to 0.9
	3 position	0.15 to 0.9
Ambient and fluid temperature (°C)		–10 to 60 (No freezing. Refer to page 5.)
Lubrication		Not required
Mounting orientation		Free
Impact/Vibration resistance (m/s²) Note)		300/50

Note) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal is ON and OFF. (Valve in the initial stage)

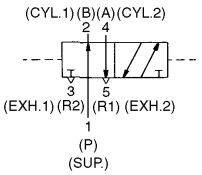
Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

JIS symbol

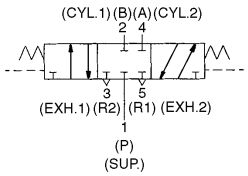
2 position single



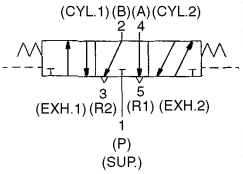
2 position double



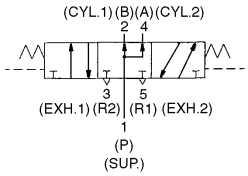
3 position closed center



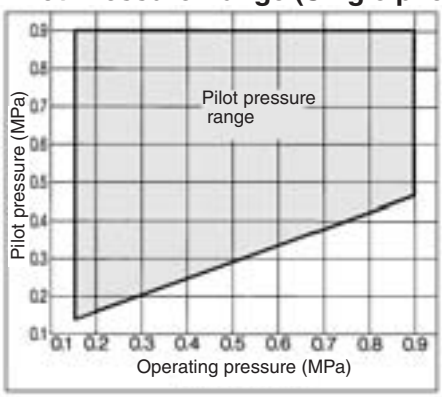
3 position exhaust center



3 position pressure center



Pilot Pressure Range (Single pilot)



⚠ Cautions

Be sure to read this before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

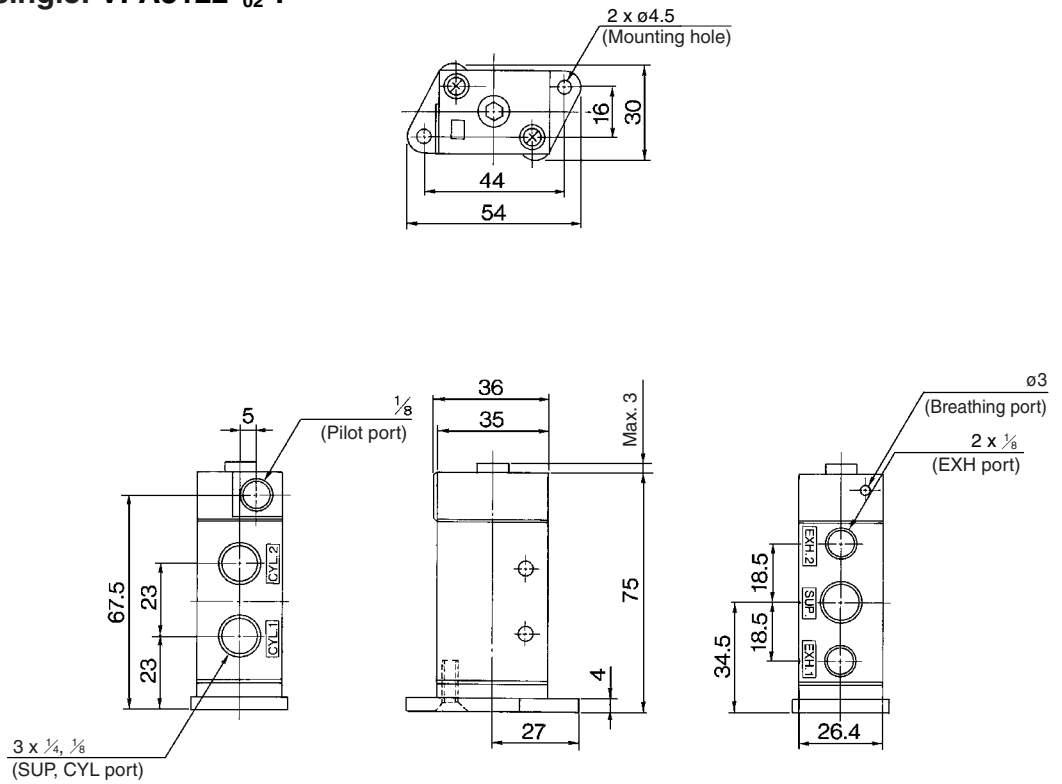
Flow Characteristics/Mass

Valve model		Function	Port size	Flow characteristics 1→4/2(P→A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics 4/2→5/3(A/B→EA/EB) C [dm³/(s·bar)]	b	Cv	Pilot port size	Mass (kg)
Body ported	**VFA3122-01-F**	2 position single	1/8	3.0	0.38	0.78	2.8	0.30	0.67	1/8	0.18
	VFA3$^{1}_{2}$30-01	2 position single		3.0	0.38	0.78	2.8	0.30	0.67		0.15
		2 position double		3.0	0.38	0.78	2.8	0.30	0.67		0.17
	VFA34$^{3}_{5}$□30-01-X1	3 position closed center		2.4	0.31	0.64	1.8	0.37	0.46		0.32
		3 position exhaust center		2.6	0.37	0.70	3.0{2.5}	0.32{0.28}	0.76{0.62}		0.32
		3 position pressure center		3.0{1.4}	0.42{0.44}	0.83{0.39}	2.4	0.27	0.59		0.32
	VFA3122-02-F	2 position single	1/4	4.0	0.36	1.0	3.1	0.32	0.75		0.18
	VFA3$^{1}_{2}$30-02	2 position single		4.0	0.36	1.0	3.1	0.32	0.75		0.15
		2 position double		4.0	0.36	1.0	3.1	0.32	0.75		0.17
	VFA34$^{3}_{5}$30-02-X1	3 position closed center		2.4	0.45	0.68	1.9	0.37	0.47		0.32
		3 position exhaust center		3.0	0.42	0.82	3.1{2.7}	0.36{0.29}	0.79{0.66}		0.32
		3 position pressure center		5.5{1.4}	0.37{0.50}	1.4{0.40}	2.6	0.32	0.64		0.32
Base mounted (2)	**VFA3$^{1}_{2}$40-02**	2 position single	1/4	2.8	0.14	0.64	2.5	0.18	0.57		0.31
		2 position double		2.8	0.14	0.64	2.5	0.18	0.57		0.33
	VFA34$^{3}_{5}$40-02-X1	3 position closed center		2.1	0.22	0.49	1.6	0.26	0.41		0.48
		3 position exhaust center		2.3	0.21	0.53	2.8{2.1}	0.23{0.26}	0.66{0.50}		0.48
		3 position pressure center		2.9{1.1}	0.16{0.45}	0.67{0.32}	2.1	0.23	0.49		0.48
	VFA3$^{1}_{2}$40-03	2 position single	3/8	3.1	0.24	0.76	2.6	0.23	0.62		0.31
		2 position double		3.1	0.24	0.76	2.6	0.23	0.62		0.33
	VFA34$^{3}_{5}$40-03-X1	3 position closed center		2.2	0.33	0.57	1.6	0.34	0.40		0.48
		3 position exhaust center		2.6	0.27	0.61	2.8{2.3}	0.30{0.28}	0.68{0.55}		0.48
		3 position pressure center		3.4{1.3}	0.29{0.48}	0.80{0.38}	2.2	0.31	0.52		0.48

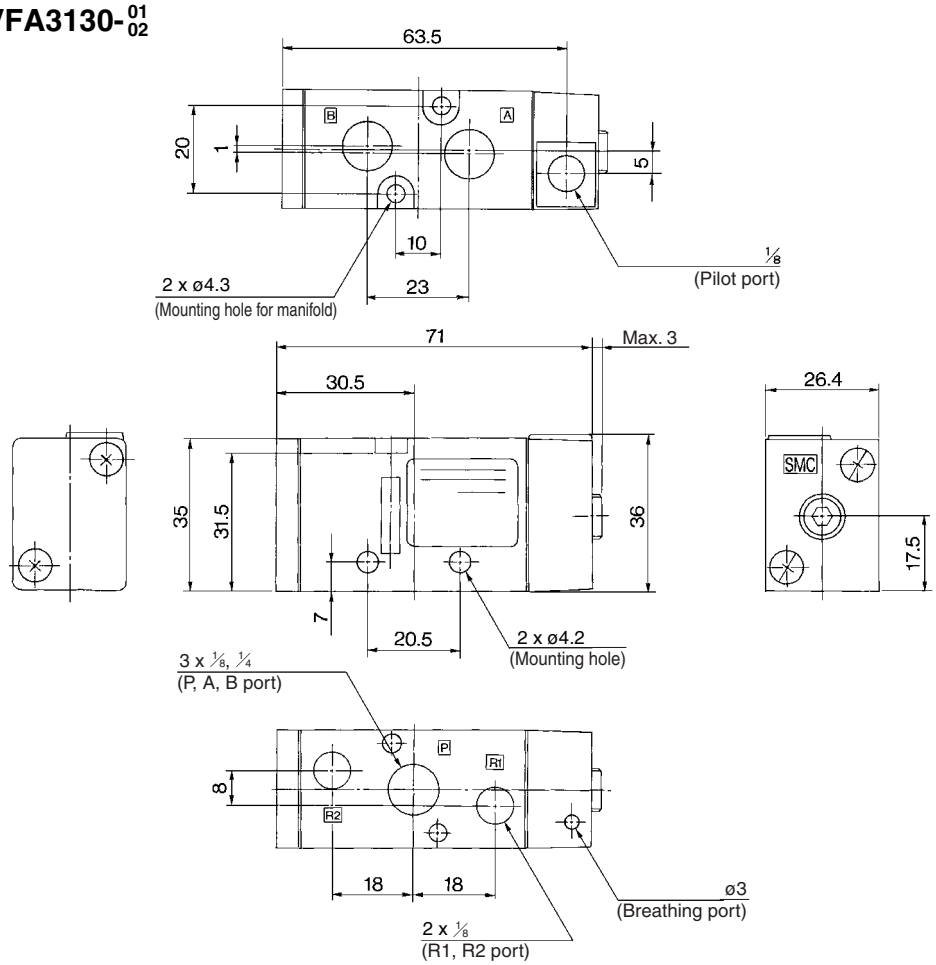
Note 1) Port size of the exhaust ports on body ported type are all 1/8.
Note 2) With sub-plate
Note 3) { }: Normal position

Dimensions: Body Ported

2 position single: VFA3122-$^{01}_{02}$-F

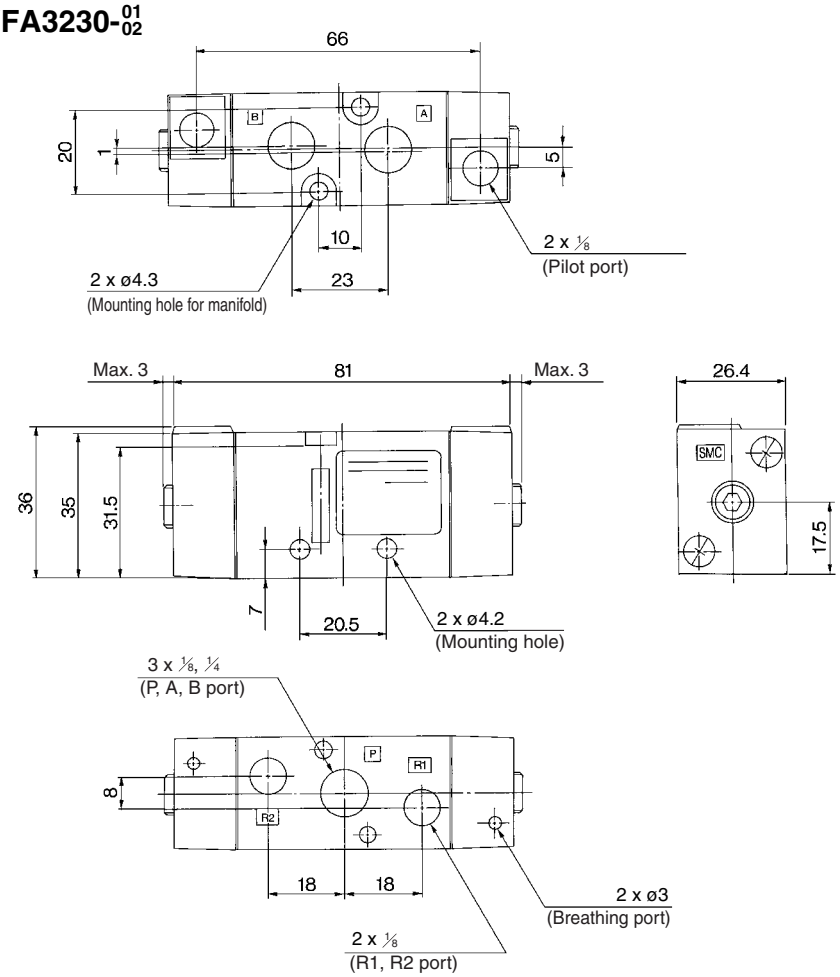


2 position single: VFA3130-$^{01}_{02}$

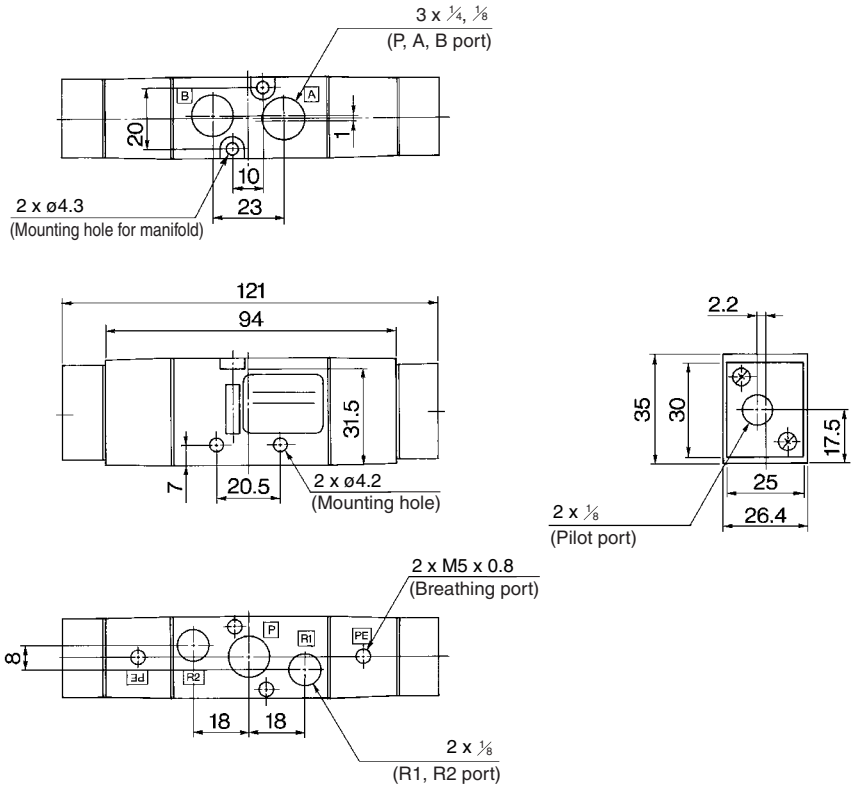


Dimensions: Body Ported

2 position double: VFA3230-$^{01}_{02}$

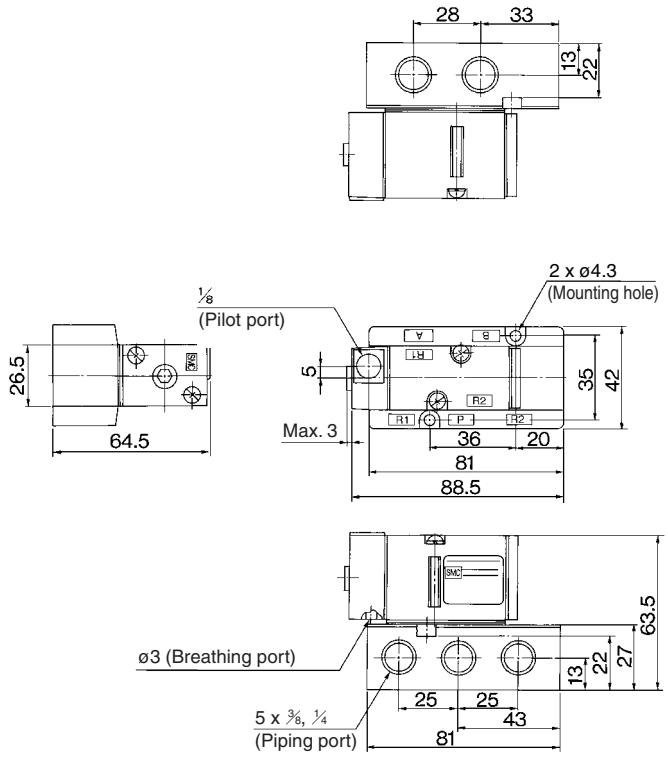


3 position closed center/exhaust center/pressure center: VFA3$^{3}_{4}_{5}$30-$^{01}_{02}$-X1

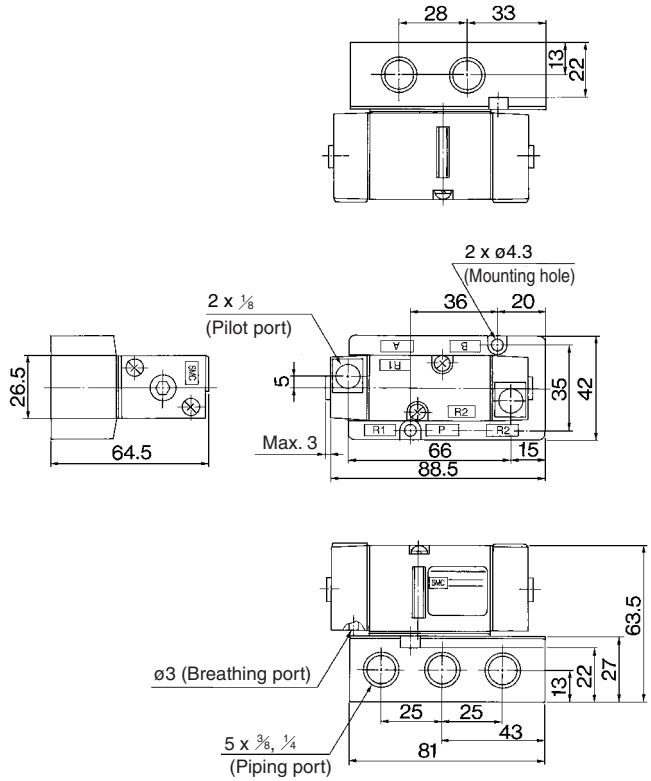


Dimensions: Base Mounted

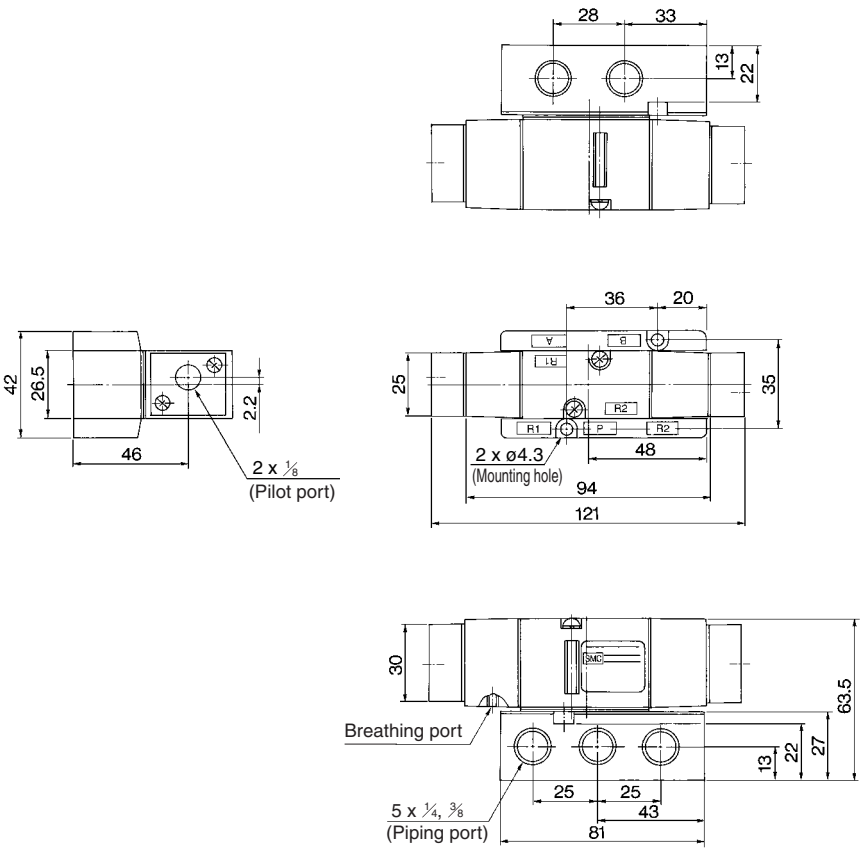
2 position single: VFA3140-$^{02}_{03}$



2 position double: VFA3240-$^{02}_{03}$

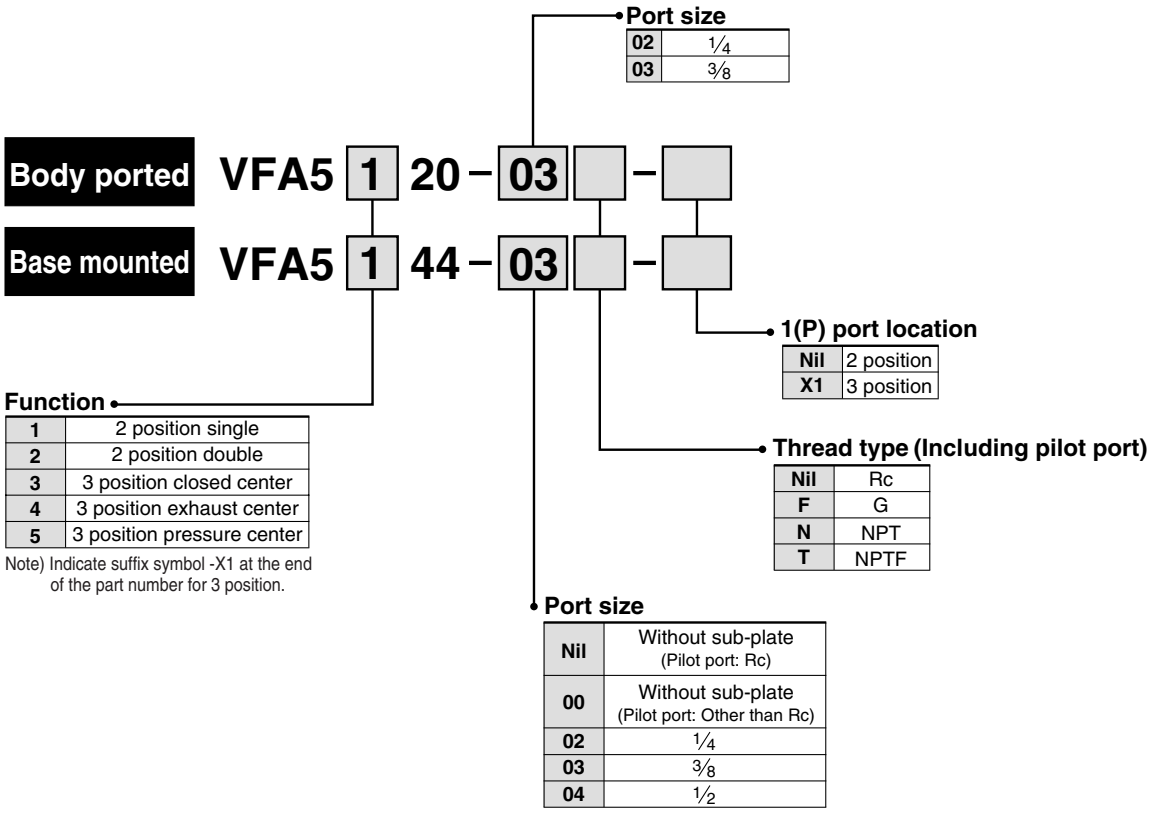


3 position closed center/exhaust center/pressure center: VFA3$^{3}_{4}_{5}$40-$^{02}_{03}$-X1



5 Port Air Operated Valve
Series VFA5000

How to Order



Note) Indicate suffix symbol -X1 at the end of the part number for 3 position.

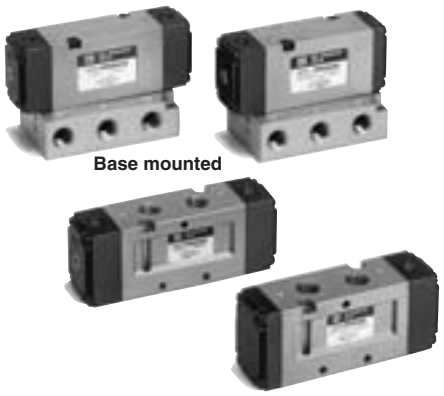
How to Order Manifold Base

Use the same manifold bases as the VF5000.

VV5FA5 – Specify the same manifold part number as VV5F5.

∗ To order valves and blanking plate assembly mounted onto the manifold, list valves and blanking plate assembly with manifold base part number.

<Example> **VV5FA5-20-051**····· 1 pc.
∗VFA5120-03····· 2 pcs.
∗VFA5220-03····· 2 pcs.
∗DXT156-19-1A····· 1 pc.
└▶To order valves and options mounted onto the manifold at the factory, list the valve/option with an asterisk (∗) in front of each part number.



Base mounted

Body ported

Specifications

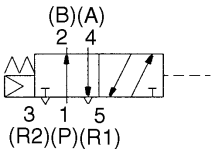
Fluid		Air
Operating pressure range (MPa)	2 position single	0.15 to 0.9
	2 position double	0.1 to 0.9
	3 position	0.15 to 0.9
Pilot pressure range (MPa)	2 position single	(0.4 x P + 0.1) to 0.9, P: Operating pressure
	2 position double	0.1 to 0.9
	3 position	0.15 to 0.9
Ambient and fluid temperature (°C)		–10 to 60 (No freezing. Refer to page 5.)
Lubrication		Not required
Mounting orientation		Free
Impact/Vibration resistance (m/s²) Note)		300/50

Note) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve, each one time when pilot signal is ON and OFF. (Valve in the initial stage)

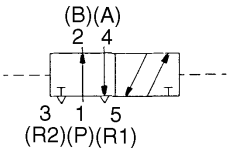
Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Value in the initial stage)

JIS symbol

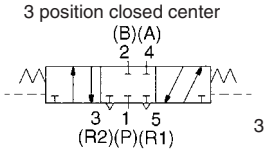
2 position single



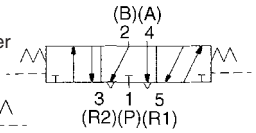
2 position double



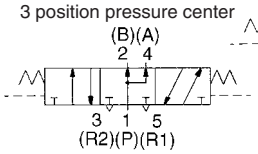
3 position closed center



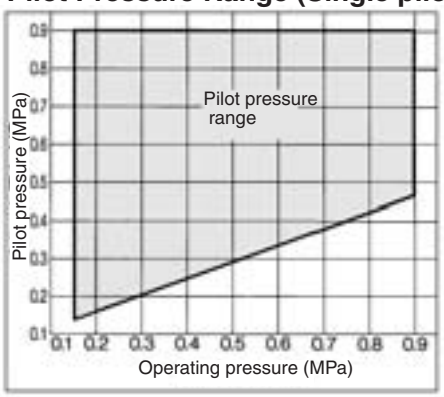
3 position exhaust center



3 position pressure center



Pilot Pressure Range (Single pilot)



⚠Cautions

Be sure to read this before handling. Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

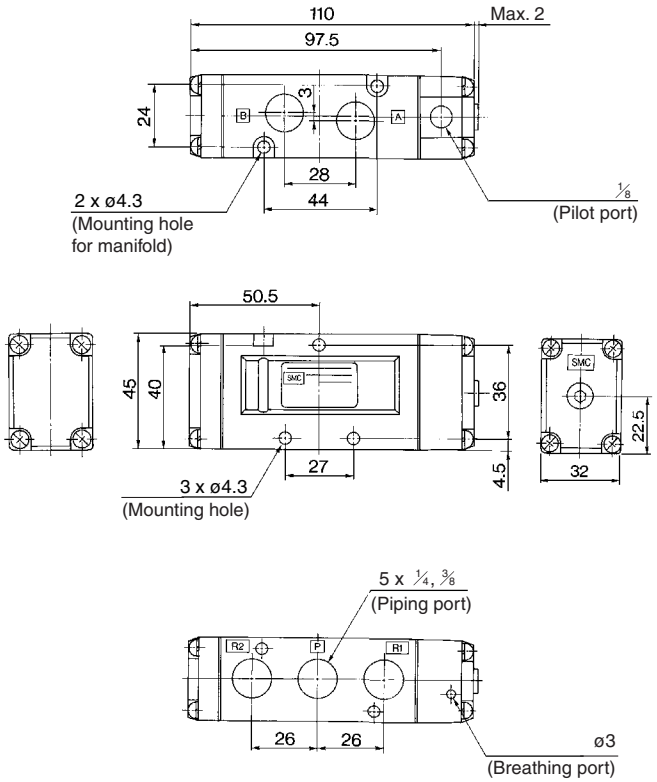
Flow Characteristics/Mass

Valve model		Function	Port size	Flow characteristics 1→4/2(P→A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics 4/2→5/3(A/B→EA/EB) C [dm³/(s·bar)]	b	Cv	Pilot port size	Mass (kg)
Body ported	VFA5$^{1}_{2}$20-02	2 position single	1/4	7.1	0.46	1.9	7.7	0.51	2.2	1/8	0.33
		2 position double		7.1	0.46	1.9	7.7	0.51	2.2		0.34
	VFA54$^{3}_{5}$□20-02-X1	3 position closed center		6.7	0.46	1.8	6.6	0.41	1.8		0.43
		3 position exhaust center		7.1	0.42	1.9	8.0{7.4}	0.45{0.47}	2.2{2.1}		0.43
		3 position pressure center		6.8{2.7}	0.51{0.50}	2.0{0.78}	5.7	0.37	1.4		0.43
	VFA5$^{1}_{2}$20-03	2 position single	3/8	8.8	0.44	2.4	10	0.49	2.9		0.33
		2 position double		8.8	0.44	2.4	10	0.49	2.9		0.34
	VFA54$^{3}_{5}$20-03-X1	3 position closed center		7.5	0.43	2.0	7.5	0.38	1.9		0.43
		3 position exhaust center		8.3	0.40	2.2	10{8.7}	0.48{0.46}	3.0{2.4}		0.43
		3 position pressure center		9.2{3.0}	0.50{0.49}	2.6{0.85}	6.1	0.35	1.6		0.43
Base mounted (1)	VFA5$^{1}_{2}$44-02	2 position single	1/4	7.3	0.49	2.1	7.3	0.50	2.0		0.51
		2 position double		7.3	0.49	2.1	7.3	0.50	2.0		0.52
	VFA54$^{3}_{5}$44-02-X1	3 position closed center		6.6	0.35	1.7	6.3	0.31	1.6		0.66
		3 position exhaust center		7.4	0.33	1.9	8.1{7.4}	0.35{0.34}	2.1{1.9}		0.66
		3 position pressure center		8.0{2.9}	0.35{0.48}	2.1{0.85}	5.6	0.31	1.5		0.66
	VFA5$^{1}_{2}$44-03	2 position single	3/8	8.4	0.34	2.2	8.9	0.29	2.3		0.51
		2 position double		8.4	0.34	2.2	8.9	0.29	2.3		0.52
	VFA54$^{3}_{5}$44-03-X1	3 position closed center		7.3	0.34	2.0	7.1	0.28	1.8		0.66
		3 position exhaust center		8.1	0.27	2.0	14{8.3}	0.26{0.31}	3.4{2.2}		0.66
		3 position pressure center		8.1{2.5}	0.33{0.48}	2.0{0.74}	5.7	0.31	1.4		0.66
	VFA5$^{1}_{2}$44-04	2 position single	1/2	9.4	0.43	2.7	12	0.32	3.0		0.56
		2 position double		9.4	0.43	2.7	12	0.32	3.0		0.57
	VFA54$^{3}_{5}$44-04-X1	3 position closed center		7.1	0.41	2.1	7.4	0.32	2.0		0.71
		3 position exhaust center		8.6	0.39	2.4	13{8.9}	0.21{0.40}	3.1{2.5}		0.71
		3 position pressure center		11{2.6}	0.18{0.47}	2.6{0.78}	6.1	0.35	1.6		0.71

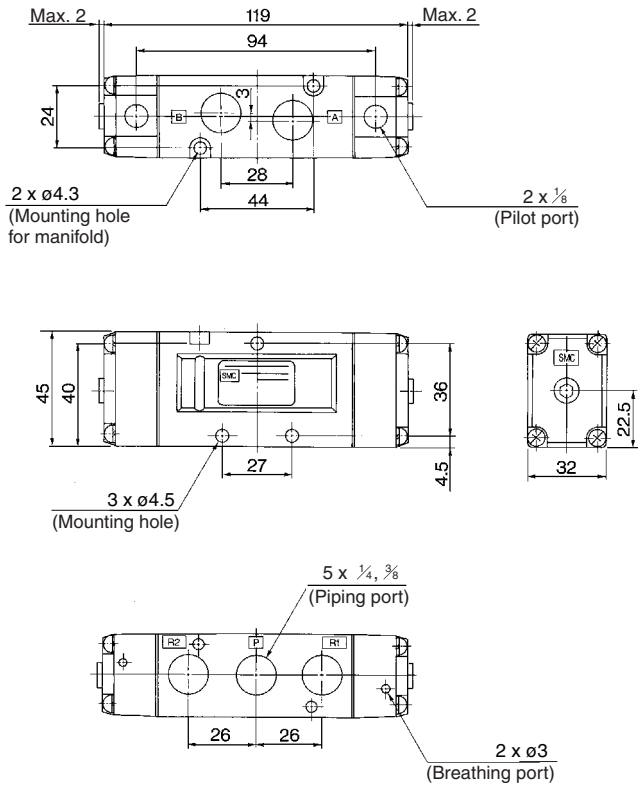
Note 1) With sub-plate
Note 2) { }: Normal position

Dimensions: Body Ported

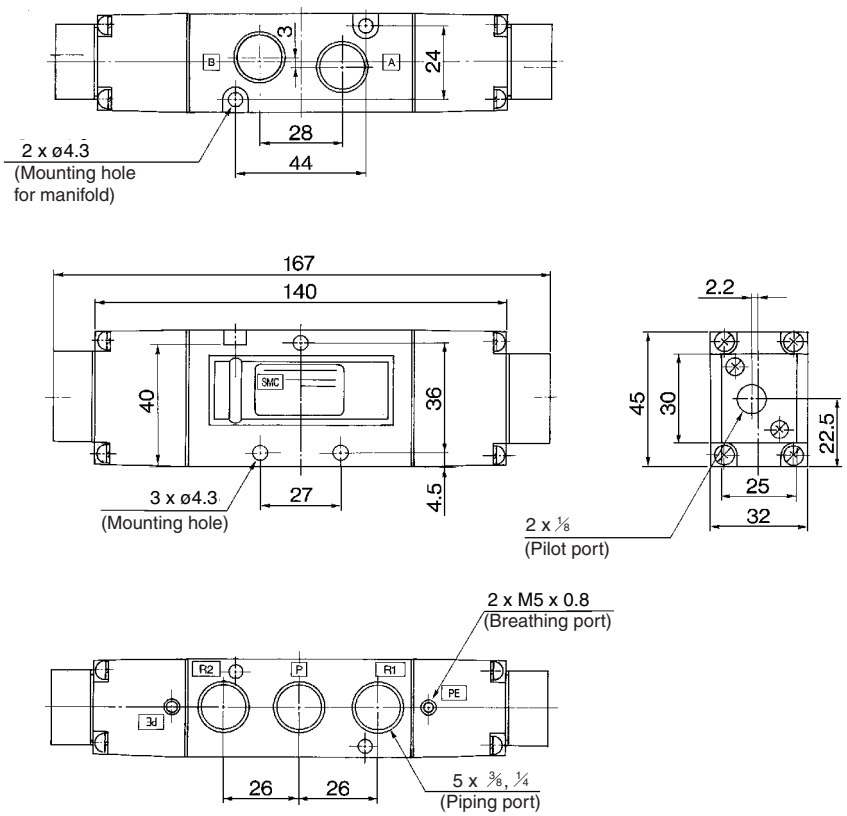
2 position single: VFA5120-$^{02}_{03}$



2 position double: VFA5220-$^{02}_{03}$

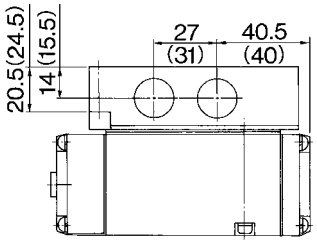


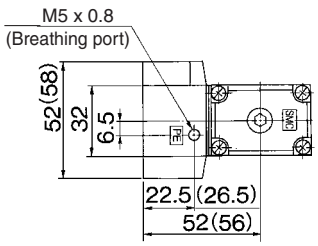
3 position closed center/exhaust center/pressure center: VFA5$^{3}_{4}_{5}$20-$^{02}_{03}$-X1

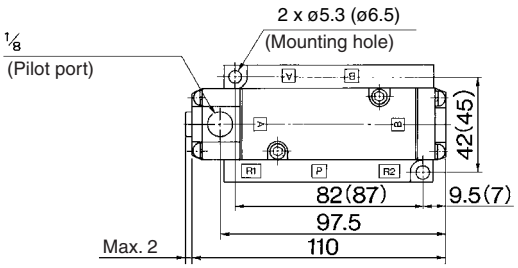


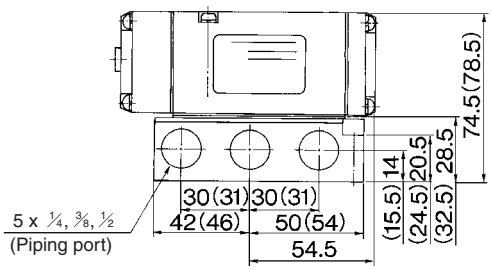
Dimensions: Base Mounted

2 position single: VFA5144-$^{02}_{03}_{04}$



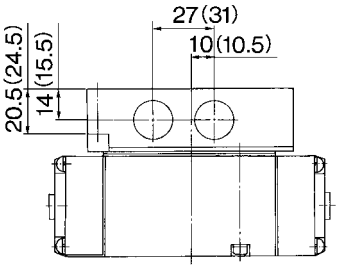


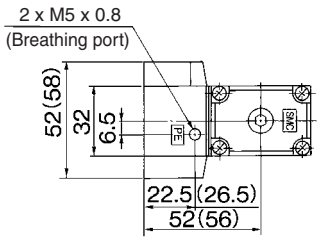


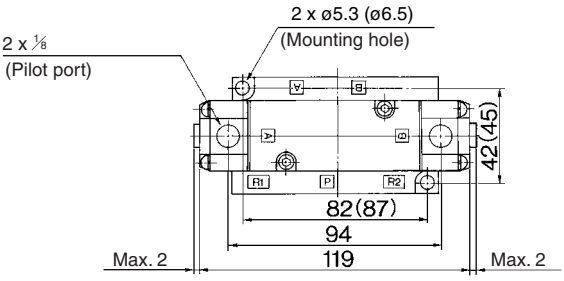


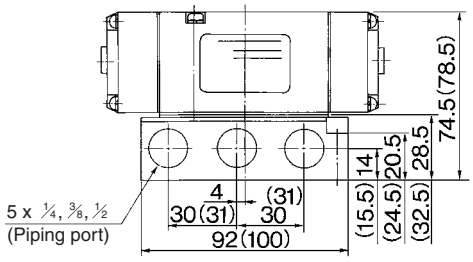
( ): Value for Rc 1/2

2 position double: VFA5244-$^{02}_{03}_{04}$





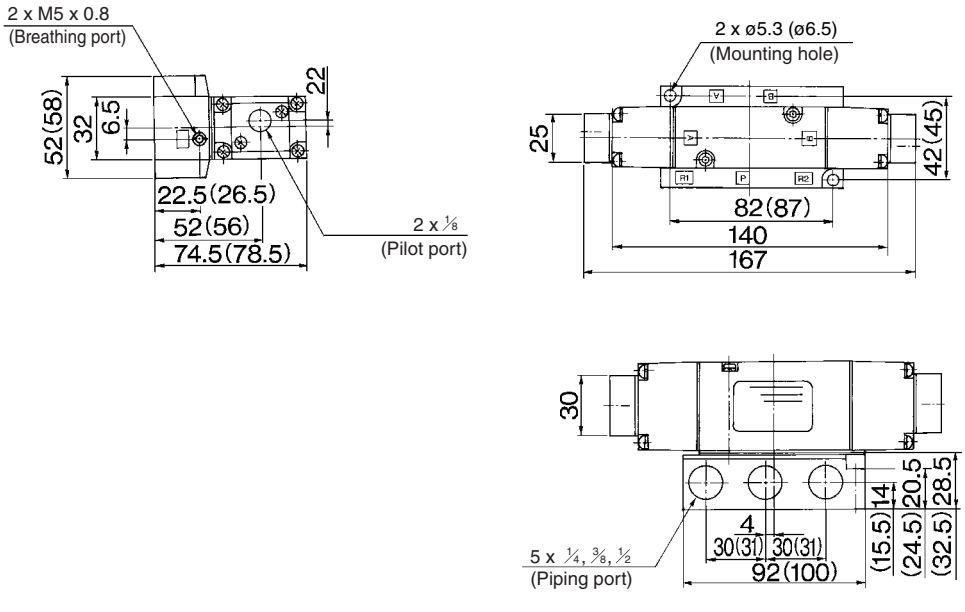




( ): Value for Rc 1/2

Dimensions: Base Mounted

3 position closed center/exhaust center/pressure center: VFA5$^{3}_{4}_{5}$44-$^{02}_{03}_{04}$-X1



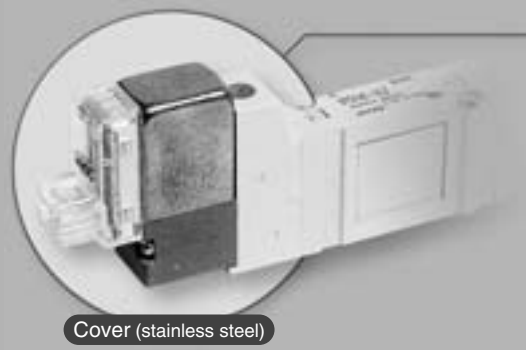
( ): Value for Rc 1/2

5 Port Solenoid Valve

Series SY3000/5000/7000/9000

Rubber Seal





Improved pilot valve

Pilot valve cover is stronger using stainless steel.
Mounting thread is also reinforced from size M1.7 to M2.

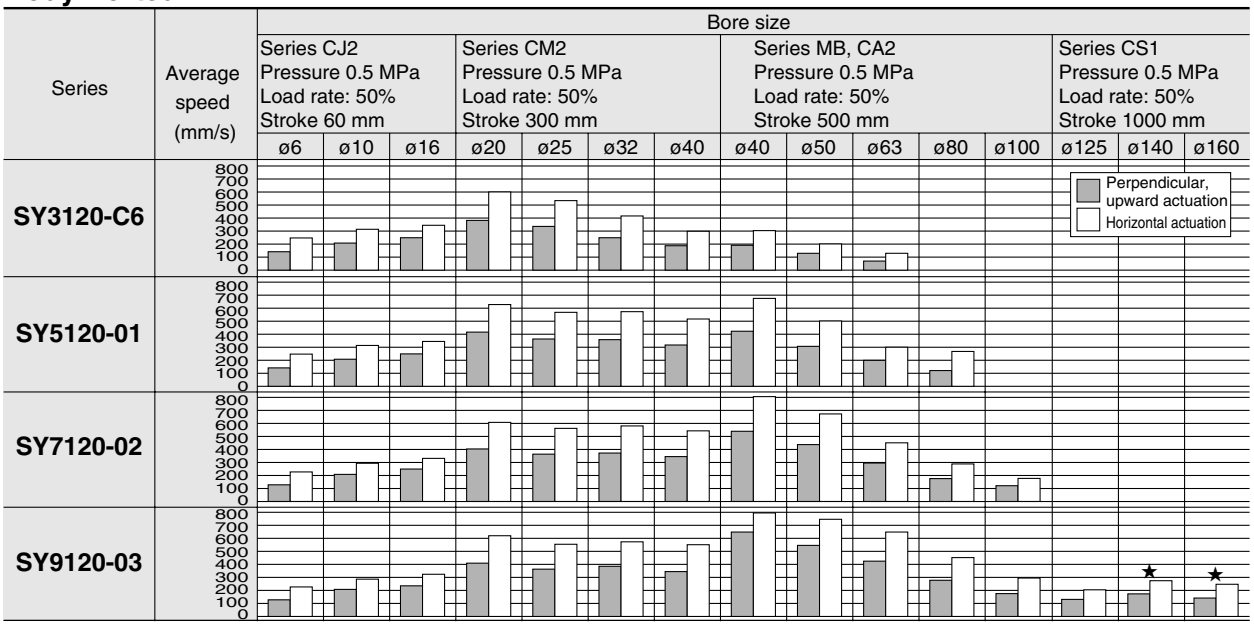
• Flow Characteristics

Series	Flow characteristics		
	C [dm³/(s·bar)]	b	Cv
SY3000	1.1	0.28	0.29
SY5000	2.8	0.37	0.90
SY7000	4.5	0.28	1.4
SY9000	10	0.29	2.5

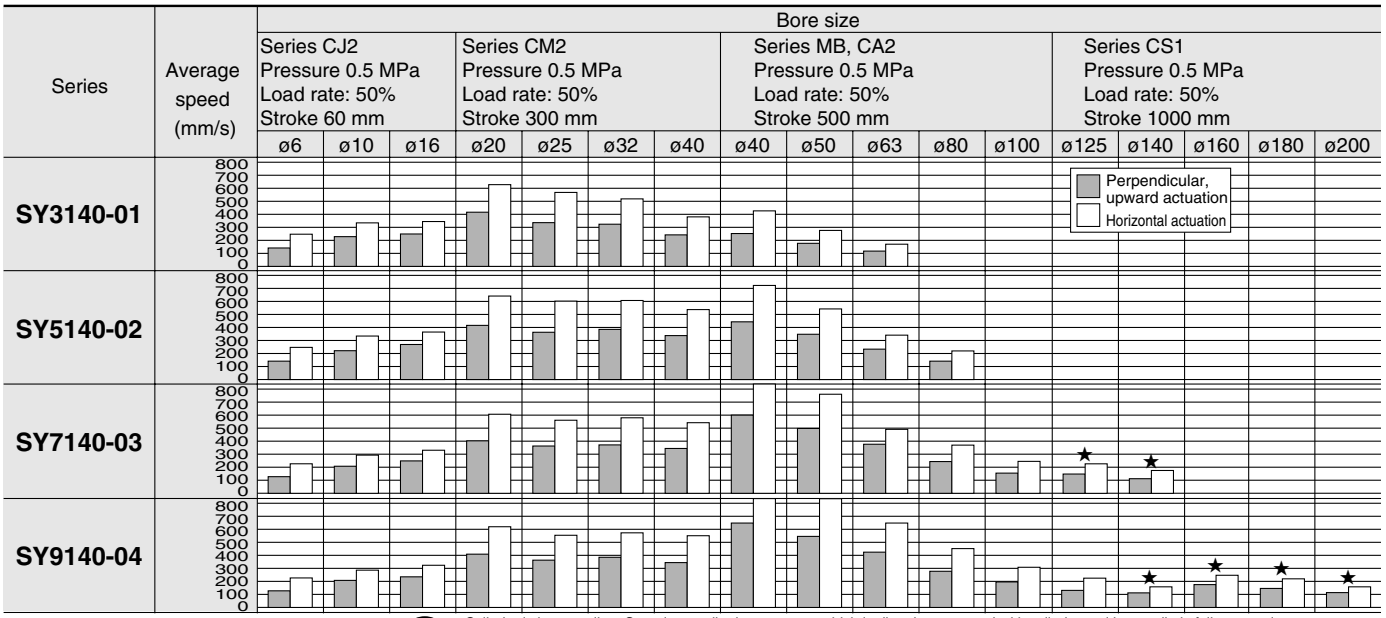
Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Body Ported



Base Mounted



∗ Cylinder is in extending. Speed controller is meter-out, which is directly connected with cylinder and its needle is fully opened.
∗ Average speed of cylinder is obtained by dividing the full stroke time by the stroke.
∗ Load factor: ((Load weight x 9.8) /Theoretical force) x 100%
∗ The histograms with ★ marked are the case when piping is done by using steel.

Conditions

Body ported		Series CJ2	Series CM2	Series MB, CA2	Series CS1
SY3120-C6	Tubing bore x Length	T0604 x 1 m			–
	Speed controller	AS2051F-06			–
	Silencer	AN120-M5			–
SY5120-01	Tubing bore x Length	T0604 x 1 m	T0806 x 1 m		–
	Speed controller	AS3001F-06	AS3001F-08		–
	Silencer	AN101-01			–
SY7120-02	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m		–
	Speed controller	AS3001F-06	AS4001F-10		–
	Silencer	AN110-01			–
SY9120-03	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	
	Speed controller	AS3001F-06	AS4001F-10	AS4001F-12	
	Silencer	AN200-02			AN202-02

Conditions [When using SGP (steel pipe)]

Body ported		Series CS1
SY9120-03	Tubing bore x Length	SGP10A x 1 m
	Speed controller	AS420-03
	Silencer	AN200-02

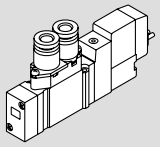
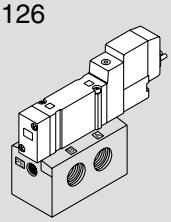
Conditions

Base mounted		Series CJ2	Series CM2	Series MB, CA2	Series CS1
SY3140-01	Tubing bore x Length	T0604 x 1 m			–
	Speed controller	AS3001F-06			–
	Silencer	AN110-01			–
SY5140-02	Tubing bore x Length	T0604 x 1 m	T0806 x 1 m		–
	Speed controller	AS3001F-06	AS3001F-08		–
	Silencer	AN101-01			–
SY7140-03	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	–
	Speed controller	AS3001F-06	AS4001F-10		–
	Silencer	AN200-02			–
SY9140-04	Tubing bore x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	
	Speed controller	AS3001F-06	AS4001F-10	AS4001F-12	
	Silencer	AN200-02			

Conditions [When using SGP (steel pipe)]

Base mounted		Series CS1
SY7140-03	Tubing bore x Length	SGP10A x 1 m
	Speed controller	AS420-03
	Silencer	AN300-03
SY9140-04	Tubing bore x Length	SGP15A x 1 m
	Speed controller	AS420-04
	Silencer	AN400-04

Valve Variations

	Series		Sonic conductance C [dm³/(s·bar)] {4/2→5/3 (A/B→EA/EB)}	Actuation					Voltage		Electrical entry						Note 1)
				2 position		3 position			DC	AC							
				Single	Double	Closed center	Exhaust center	Pressure center	24 V 12 V 6 V 5 V 3 V	100 V 50/60 Hz 110 V 50/60 Hz 200 V 50/60 Hz 220 V 50/60 Hz	Grommet	L plug connector	M plug connector	Note 4) DIN terminal	M8 connector	Light/surge voltage suppressor
Body ported	P.108 	**SY3□20**	0.65	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY5□20	2.4	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY7□20	3.3	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY9□20	8.6	●	●	●	●	●	●	●	●	●	●	●	●	●
Base mounted	P.126 	**SY3□40**	1.1	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY5□40	2.8	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY7□40	4.5	●	●	●	●	●	●	●	●	●	●	●	●	●
		SY9□40	10	●	●	●	●	●	●	●	●	●	●	●	●	●

	Series	Manual override			Bracket	P, EA, EB port size					A, B port size														Valve option						
		Non-locking push type	Push-turn locking slotted type	Push-turn locking lever type		M5	1/8	1/4	3/8	1/2	M5	1/8	1/4	3/8	1/2	One-touch fitting									Exhaust throttle	Oil resistant, Other than designated turbine oil	Vacuum specifications	Low pressure specifications	Dual pressure	Note 3) Enclosure IP65	Interface regulator
																C4	C6	C8	C10	C12	N3	N7	N9	N11							
Body ported	**SY3□20**	●	●	●	●	●	—	—	—	—	●	—	—	—	—	●	●	—	—	—	●	●	—	—	●	▲	▲ External Pilot (Note 2)	▲ External Pilot (Note 2)	▲ External Pilot (Note 2)	● DIN terminal M8 connector	—
	SY5□20	●	●	●	●	—	●	—	—	—	—	●	—	—	—	●	●	●	—	—	●	●	●	—							
	SY7□20	●	●	●	●	—	● (EA, EB)	● (P)	—	—	—	—	●	—	—	—	—	●	●	—	—	—	●	●							
	SY9□20	●	●	●	—	—	—	●	—	—	—	—	●	●	—	—	—	●	●	●	—	—	●	●							
Base mounted	**SY3□40**	●	●	●	—	—	●	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—	—	● Sub-plate	▲	● External pilot	● External pilot	● External pilot	● DIN terminal M8 connector	●
	SY5□40	●	●	●	—	—	—	●	—	—	—	—	●	—	—	—	—	—	—	—	—	—	—	—							●
	SY7□40	●	●	●	—	—	—	●	●	—	—	—	●	●	—	—	—	—	—	—	—	—	—	—							●
	SY9□40	●	●	●	—	—	—	—	●	●	—	—	—	●	●	—	—	—	—	—	—	—	—	—							—

● Standard ● Option ▲ Made to order (Refer to page "Made to Order".)

Note 1) All AC voltage models have built-in surge voltage suppressor.

Note 2) Body ported external pilot style (made to order) is not available for DIN terminal.

Note 3) Only available for DIN terminal and M8 connector.

Note 4) SY3000 does not have a DIN terminal which can be connected to a manifold.

Manifold Variations

	Manifold Variations		Valve Series	Wiring										
				Connection								Common specifications	
			5 port	Individual wiring	Flat ribbon cable (26 pins)	Flat ribbon cable (20 pins) connector box	Plug-in type D-sub connector (25 pins)	Plug-in type flat ribbon cable (26, 20, 10 pins)	Plug-in type terminal block (9, 18 pins)	PC wiring	Serial transmission unit	Positive common	Negative common
Body ported	**Bar stock type** **Individual wiring** ■ Direct piping to the main unit of a valve. Combination of different fittings is possible.	Type 20 P. 144	SY3□20	●	—	—	—	—	—	—	—	—	—
			SY5□20										
			SY7□20										
	Bar stock type **Flat ribbon cable** ■ A 26 pins MIL connector permits One-touch wiring of external cables in a bundle.	Type 20P P. 154	SY3□20	—	●	—	—	—	—	—	—	● In common	
			SY5□20										
			SY7□20										
	Stacking type **Individual wiring** ■ Manifold stations can be increased or decreased.	Type 23 P. 150	SY9□20	●	—	—	—	—	—	—	—	—	—
	Stacking type **Flat ribbon cable** ■ Manifold stations can be increased or decreased.	Type 23P P. 160	SY9□20	—	●	—	—	—	—	—	—	● In common	
	Bar stock type **EX510 gateway system** ■ Can be used with a serial transmission system.	Type 20SA P. 164	SY3□20	—	—	—	—	—	—	—	●	—	—
			SY5□20										
			SY7□20										
	Stacking type **EX510 gateway system** ■ Can be used with a serial transmission system.	Type 23SA P. 170	SY9□20	—	—	—	—	—	—	—	●	—	—
	Cassette type **Individual wiring** ■ Size and weight reduced by eliminating the manifold base	Type 60 P. 178	SY3□60	●	—	—	—	—	—	—	—	—	—
			SY5□60	●	—	—	—	—	—	—	—	—	—
			SY7□60	●	—	—	—	—	—	—	—	—	—

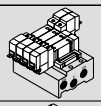
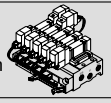
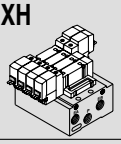
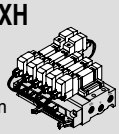
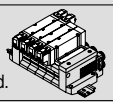
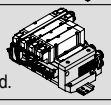
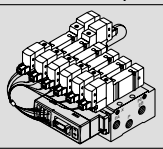
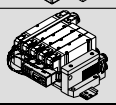
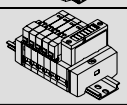
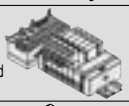
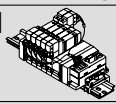
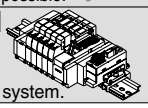
● Standard ● Option ▲ Made to order (Refer to page “Made to Order”.)

Manifold Variations

Manifold option									A, B port size											Valve option											
Blanking plate	Individual SUP spacer	Individual EXH spacer	SUP block disk	EXH block disk	Label for block disk	Silencer for One-touch fitting	Built-in silencer	Connector	M5	1/8	1/4	3/8	One-touch fitting							Mixed mounting SY3000 SY5000	Oil resistant (Other than designated turbine oil)	Vacuum specifications	Low pressure specifications	Different pressure	Dual pressure	Exhaust throttle	Bundle wiring	Mixed fitting sizes	IP65 enclosure	Interface regulator
													C4	C6	C8	C10	C12	N3	N7	N9	N11										
○	○	○	—	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	▲	—	—	○ Individual SUP interface	—	○ Individual EXH interface	—	—	Note) ● Note) ● Note) ●	—
									—	●	—	—	●	●	●	—	—	●	●	●	—										
									—	—	●	—	—	—	●	●	—	—	—	●	●										
○	○	○	—	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	▲	—	—	○ Individual SUP interface	—	○ Individual EXH interface	●	—	—	—
									—	●	—	—	●	●	●	—	—	●	●	●	—										
									—	—	●	—	—	—	●	●	—	—	—	●	●										
○	○	○	○	○	○	—	—	—	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	○ Individual SUP block disk	● External pilot	○ Individual EXH	—	—	Note) ●	—
○	○	○	○	○	○	—	—	—	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	○ Individual SUP block disk	● External pilot	○ Individual EXH	●	—	—	—
○	○	○	—	—	—	—	—	○	●	—	—	—	●	●	—	—	—	●	●	—	—	—	—	○ Individual SUP interface	—	○ Individual EXH interface	● ● ●	—	—	—
									—	●	—	—	●	●	●	—	—	●	●	●	—										
									—	—	●	—	—	—	●	●	—	—	—	●	●										
○	○	○	—	—	—	—	—	○	—	—	●	●	—	—	●	●	●	—	—	●	●	—	▲	● External pilot	● External pilot	○ Individual SUP block disk	● External pilot	○ Individual EXH	●	—	—	—
○	—	—	○	○	○	○	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	—	▲	● External pilot	● External pilot	○ Individual SUP block disk	● Individual SUP block disk	—	—	—	Note) ●	—
○	—	—	○	○	○	○	—	—	—	●	—	—	●	●	●	—	—	●	●	●	—	—	▲	● External pilot	● External pilot	○ Individual SUP block disk	○ Individual SUP block disk	—	—	—	Note) ●	—
○	—	—	○	○	○	○	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	▲	● External pilot	● External pilot	○ Individual SUP block disk	○ Individual SUP block disk	—	—	—	Note) ●	—

Note) When using DIN terminal or M8 connector. SY3000 does not have a DIN terminal which can be connected to a manifold.

Manifold Variations

	Manifold Variations		Valve Series	Wiring: Connection: Individual wiring	Flat ribbon cable (26 pins)	Flat ribbon cable (20 pins) connector box	Plug-in type D-sub connector (25 pins)	Plug-in type flat ribbon cable (26, 20, 10 pins)	Plug-in type terminal block (9, 18 pins)	PC wiring	Serial transmission unit	Common specifications: Positive common	Negative common
			5 port										
Base mounted	**Compact bar stock type** **Individual wiring** ■ The base mounting facilitates maintenance after valves are changed.		Type 41 P. 198	SY3□40 SY5□40	●	—	—	—	—	—	—	—	—	—
	Compact bar stock type **Flat ribbon cable** ■ A 26 pins MIL connector permits one-touch wiring of external cables in a bundle.		Type 41P P. 214	SY3□40 SY5□40	—	●	—	—	—	—	—	—	● In common	
	Bar stock type/Common external EXH **Individual wiring** ■ The base mounting facilitates maintenance after valves are changed. ■ Vacuum/low pressure combination system is possible.		Type 42 P. 198	SY3□40 SY5□40 SY7□40	●	—	—	—	—	—	—	—	—	—
	Bar stock type/Common external EXH **Flat ribbon cable** ■ A 26 pins MIL connector permits one-touch wiring of external cables in a bundle. ■ Vacuum/low pressure combination system is possible.		Type 42P P. 214	SY3□40 SY5□40 SY7□40	—	●	—	—	—	—	—	—	● In common	
	Stacking type **Individual wiring** ■ Manifold stations can be increased or decreased.		Type 43 P. 208	SY9□40	●	—	—	—	—	—	—	—	—	—
	Stacking type **Flat ribbon cable** ■ Manifold stations can be increased or decreased.		Type 43P P. 222	SY9□40	—	●	—	—	—	—	—	—	● In common	
	Bar stock type **EX510 gateway system** ■ Can be used with a serial transmission system.		Type 42SA P. 228	SY3□40 SY5□40 SY7□40	—	—	—	—	—	—	—	●	—	—
	Stacking type **EX510 gateway system** ■ Can be used with a serial transmission system.		Type 43SA P. 233	SY9□40	—	—	—	—	—	—	—	●	—	—
	Stacking type/DIN rail mounted **Individual wiring** ■ Stations can be increased on the DIN rail. Integral mounting of other electric parts is possible, too.		Type 45 P. 244	SY3□40 SY5□40	●	—	—	—	—	—	—	—	—	—
	Stacking type/DIN rail mounted **Connector box** ■ Stations can be increased or decreased on the DIN rail. The provided connector box permits one-touch connection of electric cables.		Type 45-A/NA P. 256	SY3□40 SY5□40	—	—	●	—	—	—	●	—	●	●
	Stacking type/DIN rail mounted **EX510 gateway system** ■ Can be used with a serial transmission system.		Type 45S6A P. 264	SY3□40 SY5□40	—	—	—	—	—	—	—	●	—	—
	Stacking type/DIN rail mounted **Plug-in** ■ Stations can be increased or decreased on the DIN rail. ■ A variety of centralized wiring methods are possible.		Type 45□ P. 272	SY3□40 SY5□40	—	—	—	●	●	●	●	●	●	●
	Stacking type/DIN rail mounted **Plug-in** **EX510 gateway system** ■ Can be used with a serial transmission system.		Type 45S6B P. 312	SY3□40 SY5□40	—	—	—	—	—	—	—	●	—	—

● Standard ● Option ▲ Made to order (Refer to page "Made to Order".)

Manifold Variations

Manifold option									A, B port size											Valve option										
Blanking plate	Individual SUP spacer	Individual EXH spacer	SUP block disk	EXH block disk	Label for block disk	Silencer for One-touch fitting	Built-in silencer	Connector	M5	1/8	1/4	3/8	One-touch fitting							Mixed mounting SY3000 SY5000	Oil resistant (Other than designated turbine oil)	Vacuum specifications	Low pressure specifications	Different pressure	Dual pressure	Exhaust throttle	Bundle wiring	Mixed fitting sizes	IP65 enclosure	Interface regulator
													C4	C6	C8	C10	C12	N3	N7	N9	N11									
●	●	●	—	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	▲	—	—	Individual SUP interface	—	—	—	—	● Note) ● Note)	●
									—	●	—	—	—	●	●	—	—	—	●	●	—									
●	●	●	—	—	—	—	—	—	●	—	—	—	●	●	—	—	—	●	●	—	—	▲	—	—	Individual SUP interface	—	—	●	—	—	●
									—	●	—	—	●	●	—	—	—	●	●	—	—									
●	●	●	—	—	—	—	—	—	—	●	—	—	●	●	—	—	—	●	●	—	—	▲	● External pilot	● External pilot	Individual SUP interface	● External pilot	—	—	—	● Note) ● Note) ● Note)	●
									—	—	●	—	—	●	●	—	—	—	●	●	—									
									—	—	●	—	—	●	●	—	—	—	●	—	—									
●	●	●	—	—	—	—	—	—	—	●	—	—	●	●	—	—	—	●	●	—	—	▲	● External pilot	● External pilot	Individual SUP interface	● External pilot	—	●	—	—	●
									—	—	●	—	—	●	●	—	—	—	●	●	—									
									—	—	●	—	—	●	●	—	—	—	●	—	—									
●	●	●	●	●	●	●	●	—	—	—	●	●	—	—	●	●	●	—	—	●	●	—	● External pilot	● External pilot	Individual SUP block disk	● External pilot	Individual EXH	—	●	● Note)	—
●	●	●	●	●	●	●	●	—	—	—	●	●	—	—	●	●	●	—	—	●	●	—	● External pilot	● External pilot	Individual SUP block disk	● External pilot	Individual EXH	●	●	—	
●	●	●	—	—	—	—	—	●	—	●	—	—	●	●	—	—	—	●	●	—	—	▲	● External pilot	● External pilot	Individual SUP	● External pilot	—	—	—	—	●
									—	—	●	—	—	●	●	—	—	—	●	●	—									
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Note) When using DIN terminal or M8 connector. SY3000 does not have a DIN terminal which can be connected to a manifold.

5 Port Solenoid Valve
Body Ported/Single Unit
Series SY3000/5000/7000/9000

CE

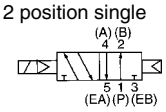
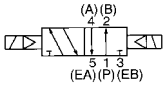
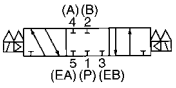
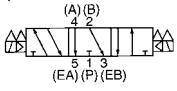
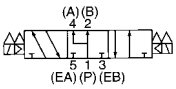
How to Order

SY [5] [1] **20** [ ] – [5] [L] [ ] [ ] – [01] [ ] – [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

1	2 position single 
2	2 position double 
3	3 position closed center 
4	3 position exhaust center 
5	3 position pressure center 

Coil specifications

Nil	Standard
T	With power saving circuit (24, 12 VDC only)

∗ Power saving circuit is not available in the case of D, DO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗For type W□, DC voltage is only available.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC			24, 12 VDC/100, 110, 200, 220 VAC
Grommet	L plug connector	M plug connector	DIN terminal
G: Lead wire length 300 mm	**L:** With lead wire (Length 300 mm)	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire	**D, Y:** With connector
H: Lead wire length 600 mm	**LN:** Without lead wire **LO:** Without connector	**MO:** Without connector	**DO, YO:** Without connector

24, 12, 6, 5, 3 VDC
M8 connector
WO: Without connector cable
W□: With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ For DIN terminal of SY3000 series, refer to page 337.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000
02	1/4	SY9000
03	3/8	

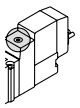
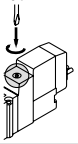
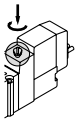
One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	
C8	One-touch fitting for ø8	SY9000
C10	One-touch fitting for ø10	
C12	One-touch fitting for ø12	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/4"	
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/4"	
N9	One-touch fitting for ø 5/16"	
N9	One-touch fitting for ø 5/16"	SY7000
N11	One-touch fitting for ø 3/8"	
N9	One-touch fitting for ø 5/16"	SY9000
N11	One-touch fitting for ø 3/8"	

Manual override

Nil: Non-locking push type	D: Push-turn locking slotted type	E: Push-turn locking lever type
		

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

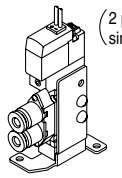
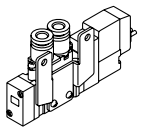
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Bracket

Nil: Without bracket
F1: With foot bracket (2 position single only)

F2: With side bracket


∗ SY9000 has no bracket.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

Made to Order

Nil	—
X20	Body ported external pilot (Refer to page 332.)
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 173.)

SMC



Made to Order
Made to Order
(For details, refer to pages 324 to 332.)

Specifications

Series		SY3000	SY5000	SY7000	SY9000
Fluid		Air			
Internal pilot Operating pressure range (MPa)	**2 position single**	0.15 to 0.7			
	2 position double	0.1 to 0.7			
	3 position	0.2 to 0.7			
Ambient and fluid temperature (°C)		–10 to 50 (No freezing.)			
Max. operating frequency (Hz)	**2 position single, double**	10	5	5	5
	3 position	3	3	3	3
Manual override (Manual operation)		Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type			
Pilot exhaust method		Common exhaust type for main and pilot valve			
Lubrication		Not required			
Mounting orientation		Unrestricted			
Impact/Vibration resistance (m/s²) Note)		150/30			
Enclosure		Dust proof (∗ DIN terminal and M8 connector: IP65)			

∗ Based on IEC60529
Note) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Solenoid Specifications

Electrical entry			Grommet (G), (H) L plug connector (L) M plug connector (M)	DIN terminal (D), (Y) M8 connector (W)
			G, H, L, M, W	D, Y
Coil rated voltage (V)	**DC**		24, 12, 6, 5, 3	24, 12
	AC 50/60 Hz		100, 110, 200, 220	
Allowable voltage fluctuation			±10% of rated voltage ∗	
Power consumption (W)	**DC**	**Standard**	0.35 (With indicator light: 0.4 DIN terminal with indicator light: 0.45)	
		With power saving circuit	0.1 (With indicator light only)	
Apparent power (VA) ∗	**AC**	**100 V**	0.78 (With indicator light: 0.81)	0.78 (With indicator light: 0.87)
		110 V [115 V]	0.86 (With indicator light: 0.89) [0.94 (With indicator light: 0.97)]	0.86 (With indicator light: 0.97) [0.94 (With indicator light: 1.07)]
		200 V	1.18 (With indicator light: 1.22)	1.15 (With indicator light: 1.30)
		220 V [230 V]	1.30 (With indicator light: 1.34) [1.42 (With indicator light: 1.46)]	1.27 (With indicator light: 1.46) [1.39 (With indicator light: 1.60)]
Surge voltage suppressor			Diode (Varistor is for DIN terminal and Non-polar type.)	
Indicator light			LED (AC of DIN connector is neon light.)	

∗ In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.
∗ For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.
∗ S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.
S and Z type: 24 VDC: –7% to +10%
12 VDC: –4% to +10%
T type: 24 VDC: –8% to +10%
12 VDC: –6% to +10%

Response Time

Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

SY3000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	12 or less	15 or less	12 or less
2 position double	10 or less	13 or less	10 or less
3 position	15 or less	20 or less	16 or less

SY5000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	19 or less	26 or less	19 or less
2 position double	18 or less	22 or less	18 or less
3 position	32 or less	38 or less	32 or less

SY7000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	31 or less	38 or less	33 or less
2 position double	27 or less	30 or less	28 or less
3 position	50 or less	56 or less	50 or less

SY9000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	35 or less	41 or less	35 or less
2 position double	35 or less	41 or less	35 or less
3 position	62 or less	64 or less	62 or less

Flow Characteristics/Mass

Series SY3000

Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	1→4/2 (P→A/B) C (dm³/(s·bar))	1→4/2 (P→A/B) b	1→4/2 (P→A/B) Cv	4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	4/2→5/3 (A/B→EA/EB) b	4/2→5/3 (A/B→EA/EB) Cv	Mass (g) Grommet	Mass (g) L/M plug connector	Mass (g) W M8 connector
SY3□20-□-M5	2 position	Single	M5 x 0.8	M5 x 0.8	0.61	0.44	0.16	0.64	0.45	0.18	51	53	57
		Double									68	74	82
	3 position	Closed center			0.48	0.46	0.13	0.47	0.43	0.13	71	76	84
		Exhaust center			0.47	0.42	0.13	0.47 (0.44)	0.41 (0.37)	0.13 (0.12)			
		Pressure center			0.50 (0.41)	0.48 (0.35)	0.15 (0.11)	0.47	0.43	0.13			
SY3□20-□-C4	2 position	Single		C4 One-touch fitting for ø4	0.72	0.29	0.18	0.64	0.34	0.17	60	63	67
		Double									78	83	91
	3 position	Closed center			0.59	0.28	0.15	0.59	0.30	0.15	81	86	94
		Exhaust center			0.63	0.35	0.16	0.42 (0.41)	0.34 (0.37)	0.11 (0.11)			
		Pressure center			0.76 (0.46)	0.42 (0.34)	0.21 (0.12)	0.59	0.29	0.15			
SY3□20-□-C6	2 position	Single		C6 One-touch fitting for ø6	0.76	0.30	0.19	0.65	0.39	0.17	56	59	63
		Double									74	79	87
	3 position	Closed center			0.76	0.55	0.24	0.60	0.33	0.16	77	82	90
		Exhaust center			0.65	0.32	0.16	0.64 (0.42)	0.31 (0.36)	0.17 (0.11)			
		Pressure center			0.77 (0.49)	0.34 (0.43)	0.21 (0.15)	0.61	0.34	0.16			

Note) [ ]: denotes normal position.

Series SY7000

Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	1→4/2 (P→A/B) C (dm³/(s·bar))	1→4/2 (P→A/B) b	1→4/2 (P→A/B) Cv	4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	4/2→5/3 (A/B→EA/EB) b	4/2→5/3 (A/B→EA/EB) Cv	Mass (g) Grommet	Mass (g) L/M plug connector	Mass (g) DIN terminal	Mass (g) W M8 connector
SY7□20-□-02	2 position	Single	1 (P) Port 1/4, 5, 3 (EA, EB) port 1/8	1/4	4.1	0.23	0.93	3.3	0.33	0.81	101	104	125	108
		Double									120	125	167	133
	3 position	Closed center			2.9	0.31	0.70	2.4	0.38	0.63	128	133	175	141
		Exhaust center			2.5	0.39	0.65	3.4 (2.1)	0.35 (0.38)	0.82 (0.54)				
		Pressure center			4.3 (2.4)	0.23 (0.32)	0.97 (0.61)	2.2	0.39	0.58				
SY7□20-□-C8	2 position	Single		C8 One-touch fitting for ø8	3.2	0.26	0.77	3.2	0.37	0.82	107	110	131	114
		Double									126	132	174	140
	3 position	Closed center			2.6	0.24	0.63	2.4	0.31	0.62	134	140	182	148
		Exhaust center			2.4	0.25	0.57	2.6 (1.9)	0.42 (0.46)	0.70 (0.56)				
		Pressure center			3.3 (2.4)	0.28 (0.22)	0.78 (0.57)	2.2	0.34	0.60				
SY7□20-□-C10	2 position	Single		C10 One-touch fitting for ø10	3.8	0.26	0.86	3.2	0.34	0.82	103	105	126	109
		Double									122	127	169	135
	3 position	Closed center			2.8	0.27	0.67	2.4	0.21	0.59	130	135	177	143
		Exhaust center			2.5	0.25	0.59	2.7 (2.0)	0.38 (0.38)	0.70 (0.56)				
		Pressure center			3.8 (2.4)	0.25 (0.31)	0.89 (0.61)	2.3	0.38	0.61				

Note) [ ]: denotes normal position.

Series SY5000

Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	1→4/2 (P→A/B) C (dm³/(s·bar))	1→4/2 (P→A/B) b	1→4/2 (P→A/B) Cv	4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	4/2→5/3 (A/B→EA/EB) b	4/2→5/3 (A/B→EA/EB) Cv	Mass (g) Grommet	Mass (g) L/M plug connector	Mass (g) DIN terminal	Mass (g) W M8 connector
SY5□20-□-01	2 position	Single	1/8	1/8	1.9	0.35	0.49	2.4	0.39	0.61	70	72	93	76
		Double									88	93	135	101
	3 position	Closed center			1.7	0.43	0.45	1.8	0.35	0.46	93	98	140	106
		Exhaust center			1.5	0.44	0.41	2.5 (1.5)	0.32 (0.43)	0.59 (0.40)				
		Pressure center			2.2 (0.91)	0.46 (0.58)	0.61 (0.28)	1.8	0.38	0.46				
SY5□20-□-C4	2 position	Single		C4 One-touch fitting for ø4	0.75	0.43	0.20	0.85	0.64	0.30	94	96	117	100
		Double									111	117	159	125
	3 position	Closed center			0.74	0.40	0.19	0.84	0.57	0.28	117	122	164	130
		Exhaust center			0.75	0.36	0.19	0.84 (0.84)	0.64 (0.53)	0.30 (0.27)				
		Pressure center			0.78 (0.71)	0.44 (0.37)	0.21 (0.18)	0.84	0.57	0.27				
SY5□20-□-C6	2 position	Single		C6 One-touch fitting for ø6	1.5	0.33	0.33	2.0	0.37	0.52	88	91	112	95
		Double									106	111	153	119
	3 position	Closed center			1.3	0.31	0.33	1.6	0.32	0.39	111	116	158	124
		Exhaust center			1.3	0.33	0.33	1.8 (1.4)	0.35 (0.37)	0.44 (0.35)				
		Pressure center			1.7 (0.80)	0.31 (0.47)	0.42 (0.23)	1.7	0.33	0.44				
SY5□20-□-C8	2 position	Single		C8 One-touch fitting for ø8	1.9	0.21	0.45	2.3	0.29	0.57	80	82	103	86
		Double									98	103	145	111
	3 position	Closed center			1.6	0.29	0.39	1.7	0.38	0.46	103	108	150	116
		Exhaust center			1.4	0.38	0.39	2.0 (1.5)	0.37 (0.41)	0.52 (0.43)				
		Pressure center			2.2 (1.6)	0.32 (0.44)	0.56 (0.44)	1.8	0.41	0.50				

Note) [ ]: denotes normal position.

Series SY9000

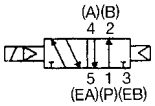
Valve model	Type of actuation		Port size 1, 5, 3 (P, EA, EB)	Port size 4, 2 (A, B)	1→4/2 (P→A/B) C (dm³/(s·bar))	1→4/2 (P→A/B) b	1→4/2 (P→A/B) Cv	4/2→5/3 (A/B→EA/EB) C (dm³/(s·bar))	4/2→5/3 (A/B→EA/EB) b	4/2→5/3 (A/B→EA/EB) Cv	Mass (g) Grommet	Mass (g) L/M plug connector	Mass (g) DIN terminal	Mass (g) W M8 connector
SY9□20-□-02	2 position	Single		1/4	7.0	0.33	1.7	7.6	0.35	2.0	241	244	265	248
		Double									260	266	308	274
	3 position	Closed center			6.7	0.37	1.7	6.4	0.34	1.6	284	290	332	298
		Exhaust center			6.4	0.36	1.6	8.3 (4.1)	0.41 (0.27)	2.2 (0.91)				
		Pressure center			8.0 (3.2)	0.27 (0.34)	1.8 (0.76)	6.5	0.22	1.4				
SY9□20-□-03	2 position	Single		3/8	8.0	0.29	1.9	8.0	0.33	2.0	236	239	260	243
		Double									255	261	303	269
	3 position	Closed center			7.9	0.33	1.9	6.6	0.27	1.6	279	285	327	293
		Exhaust center			8.0	0.33	1.9	8.7 (8.3)	0.34 (0.40)	2.2 (2.3)				
		Pressure center			8.9 (3.3)	0.34 (0.40)	2.2 (0.82)	6.5	0.25	1.5				
SY9□20-□-C8	2 position	Single		C8 One-touch fitting for ø8	4.3	0.28	0.96	7.1	0.32	1.7	293	296	317	300
		Double									312	318	360	326
	3 position	Closed center			4.3	0.31	0.99	6.1	0.28	1.4	336	342	384	350
		Exhaust center			4.3	0.3	0.99	7.4 (3.8)	0.36 (0.29)	1.9 (0.86)				
		Pressure center			4.4 (3.2)	0.35 (0.26)	1.0 (0.71)	2.1	0.41	0.53				
SY9□20-□-C10	2 position	Single		C10 One-touch fitting for ø10	6.1	0.28	1.4	7.9	0.33	1.9	279	282	303	286
		Double									298	304	346	312
	3 position	Closed center			5.9	0.30	1.4	6.5	0.26	1.5	322	328	370	336
		Exhaust center			5.8	0.25	1.3	8.4 (4.1)	0.33 (0.27)	2.0 (0.93)				
		Pressure center			6.3 (3.2)	0.29 (0.29)	1.5 (0.72)	6.4	0.25	1.5				
SY9□20-□-C12	2 position	Single		C12 One-touch fitting for ø12	7.0	0.25	1.6	8.6	0.41	2.2	265	268	289	272
		Double									284	290	332	298
	3 position	Closed center			6.9	0.24	1.6	7.0	0.33	1.7	308	314	356	322
		Exhaust center			6.6	0.23	1.4	9.4 (4.5)	0.48 (0.32)	2.6 (1.0)				
		Pressure center			7.4 (3.2)	0.25 (0.34)	1.7 (0.74)	6.6	0.23	1.5				

Note) [ ]: denotes normal position.

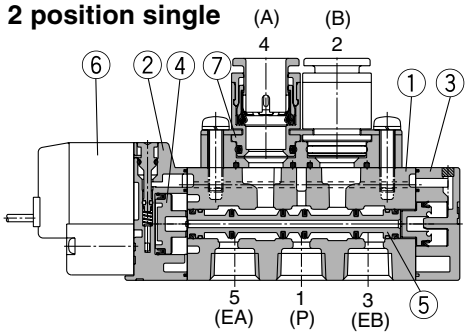
Construction

Series SY

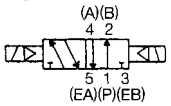
JIS Symbol
2 position single



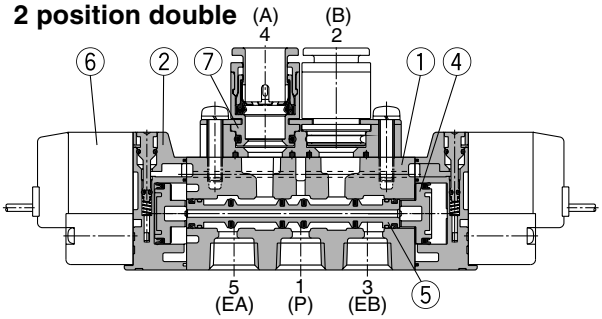
2 position single



JIS Symbol
2 position double

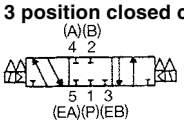


2 position double

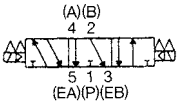


3 position closed center / exhaust center / pressure center

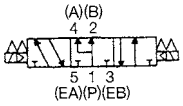
JIS Symbol
3 position closed center

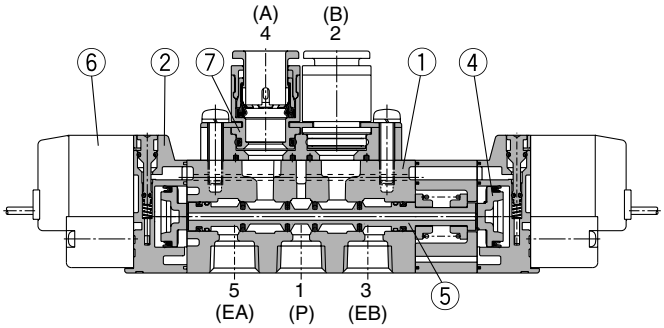


3 position exhaust center



3 position pressure center





(This figure shows a closed center type.)

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted (SY3000: Zinc die-casted)	White
2	**Adapter plate**	Resin	White (SY9000: Gray)
3	**End plate**	Resin	White
4	**Piston**	Resin	–
5	**Spool valve assembly**	Aluminum, H-NBR	–

Replacement Parts

No.	Description	Part no.
6	**Pilot valve assembly**	Refer to "How to Order Pilot Valve Assembly" on page 112.
7	**M5 port block assembly**	Refer to "How to Order Port Block Assembly" on page 113.

Bracket Assembly No.

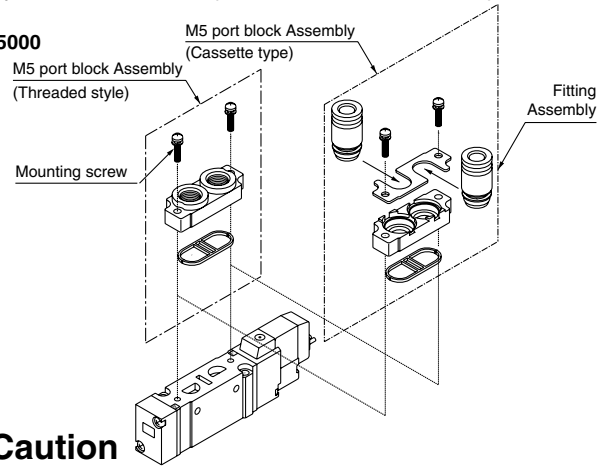
Description	Part no.
Bracket (For F1)	SX$^{3}_{5}_{7}$000-16-2A (with mounting screw)
Bracket (For F2)	SX$^{3}_{5}_{7}$000-16-1A (with mounting screw)

∗ SY9000 has no bracket.

How to Change Port Block Assembly

If using body port type, both A and B port sizes can be changed by replacing the port block assembly mounted on the body. When changing this block assembly, the correct screw torque must be achieved to avoid possible air leakage.

For SY5000



⚠ Caution

Mounting screw tightening torques

SY3000 (M2): 0.12 N·m
SY$^{5}_{7}$000 (M3): 0.6 N·m
SY9000 (M4): 1.4 N·m

∗ Refer to "How to Order Port Block Assembly" on page 113 for part no.

How to Order Pilot Valve Assembly

V111 □ – 5 G □

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, DO or W□ type.

Rated voltage

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC
1	100 VAC 50/60Hz
2	200 VAC 50/60Hz
3	110 VAC 50/60Hz [115 VAC 50/60Hz]
4	220 VAC 50/60Hz [230 VAC 50/60Hz]

∗ For type W□, DC voltage is only available.
∗ CE-compliant: For DC only.

Electrical entry

G	Grommet, 300 mm lead wire	
H	Grommet, 600 mm lead wire	
L	L plug connector	With lead wire
LN		Without lead wire
LO		Without connector
M	M plug connector	With lead wire
MN		Without lead wire
MO		Without connector
WO	M8 connector	Without connector cable
W□		With connector cable Note 1)

∗ For connector cable of M8 connector, refer to page 339.
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

■ DIN terminal type

V115 – 5 D □

Rated voltage

5	24 VDC
6	12 VDC
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz [115 VAC 50/60 Hz]
4	220 VAC 50/60 Hz [230 VAC 50/60 Hz]

∗ DC specifications of type D and DO is only available with 12 and 24 VDC.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

D	DIN terminal (Type D)	With connector
DO		Without connector
Y	DIN terminal (Type Y)	With connector
YO		Without connector

Note) Do not replace V111 (G, H, L, M) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

Note) Since V111 and V115 are CE-compliant as standard, the suffix "-Q" is not necessary.

How to Order Port Block Assembly

SY □ 000 − 6A − □ □

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000
02	1/4	SY9000
03	3/8	

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	
C8	One-touch fitting for ø8	SY9000
C10	One-touch fitting for ø10	
C12	One-touch fitting for ø12	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/4"	
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/4"	
N9	One-touch fitting for ø 5/16"	
N9	One-touch fitting for ø 5/16"	SY7000
N11	One-touch fitting for ø 3/8"	
N9	One-touch fitting for ø 5/16"	SY9000
N11	One-touch fitting for ø 3/8"	

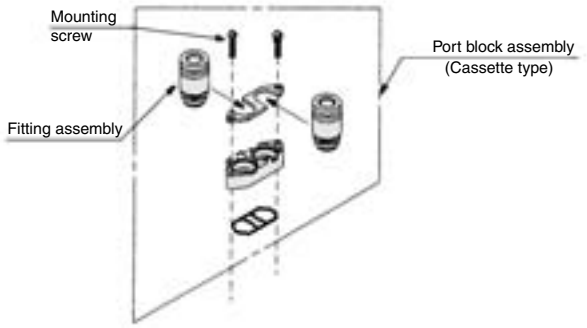
∗ Only replacement of the fittings assembly is possible.

Metric size

SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY5000	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8
SY7000	One-touch fitting for ø8	VVQ2000-51A-C8
	One-touch fitting for ø10	VVQ2000-51A-C10
SY9000	One-touch fitting for ø8	VVQ4000-50B-C8
	One-touch fitting for ø10	VVQ4000-50B-C10
	One-touch fitting for ø12	VVQ4000-50B-C12

Inch size

SY3000	One-touch fitting for ø 5/32"	VVQ1000-50A-N3
	One-touch fitting for ø 1/4"	VVQ1000-50A-N7
SY5000	One-touch fitting for ø 5/32"	VVQ1000-51A-N3
	One-touch fitting for ø 1/4"	VVQ1000-51A-N7
	One-touch fitting for ø 5/16"	VVQ1000-51A-N9
SY7000	One-touch fitting for ø 5/16"	VVQ2000-51A-N9
	One-touch fitting for ø 3/8"	VVQ2000-51A-N11
SY9000	One-touch fitting for ø 5/16"	VVQ4000-50B-N9
	One-touch fitting for ø 3/8"	VVQ4000-50B-N11

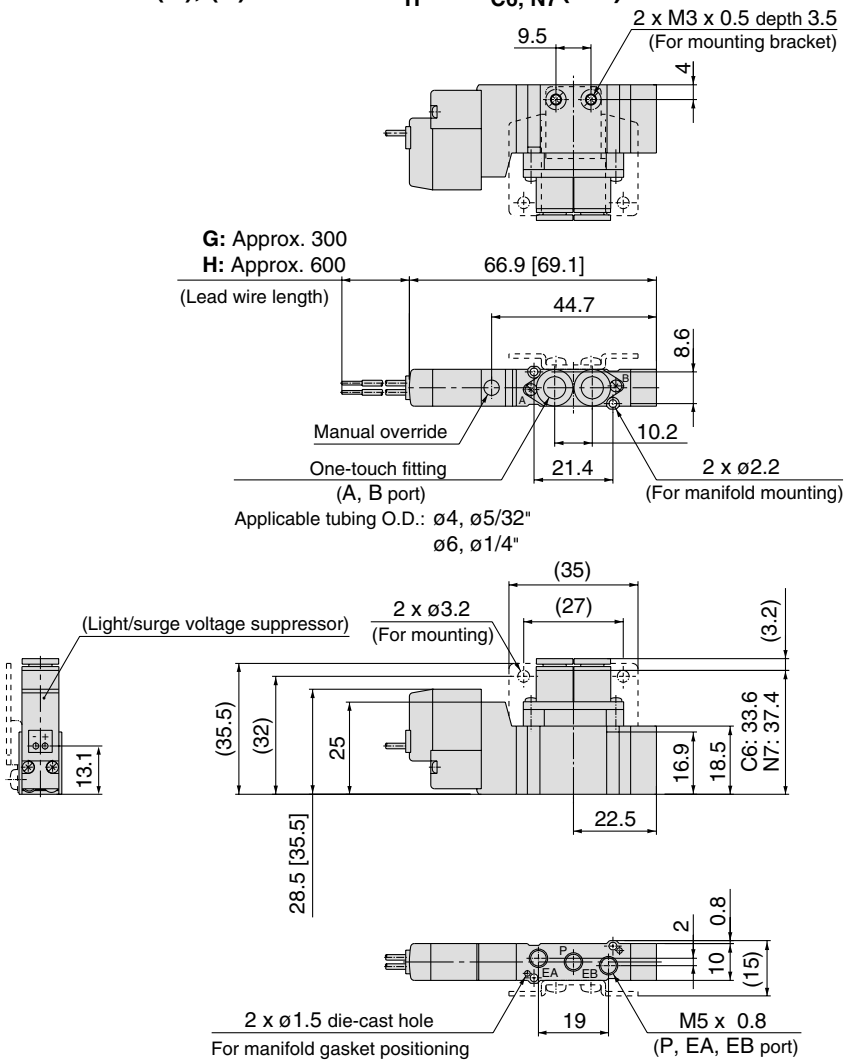


Dimensions: Series SY3000

[ ]: AC

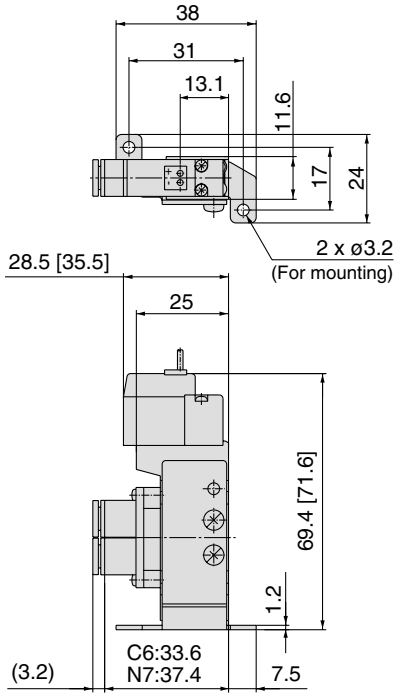
2 position single

Grommet (G), (H): SY3120-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$(-F2)

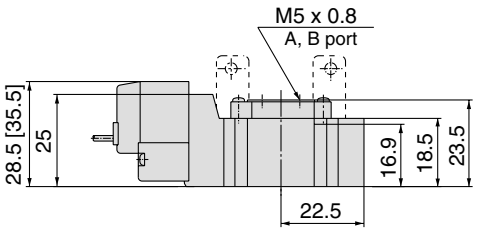


Foot bracket

SY3120-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$-F1

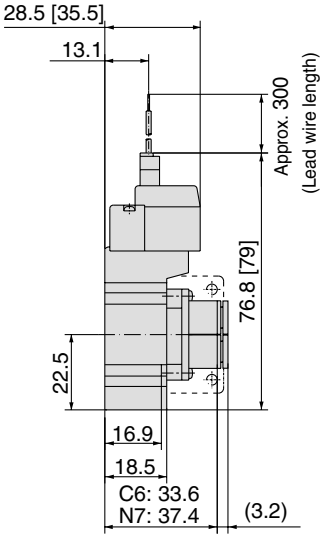


SY3120-□$^{G}_{H}$□□-M5(-F2)



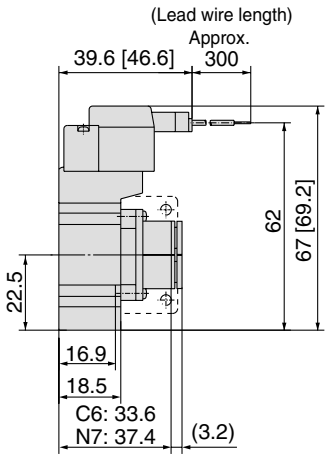
L plug connector (L):

SY3120-□L□□-$^{C4, N3}_{C6, N7}$(-F$^{1}_{2}$)



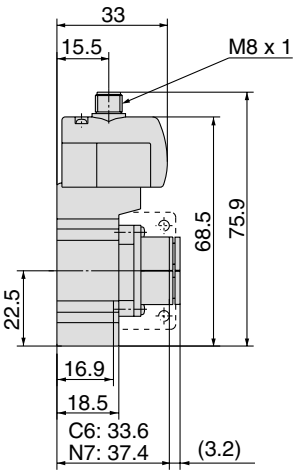
M plug connector (M):

SY3120-□M□□-$^{C4, N3}_{C6, N7}$(-F$^{1}_{2}$)



M8 connector (WO):

SY3120-□WO□□-$^{C4, N3}_{C6, N7}$(-F$^{1}_{2}$)

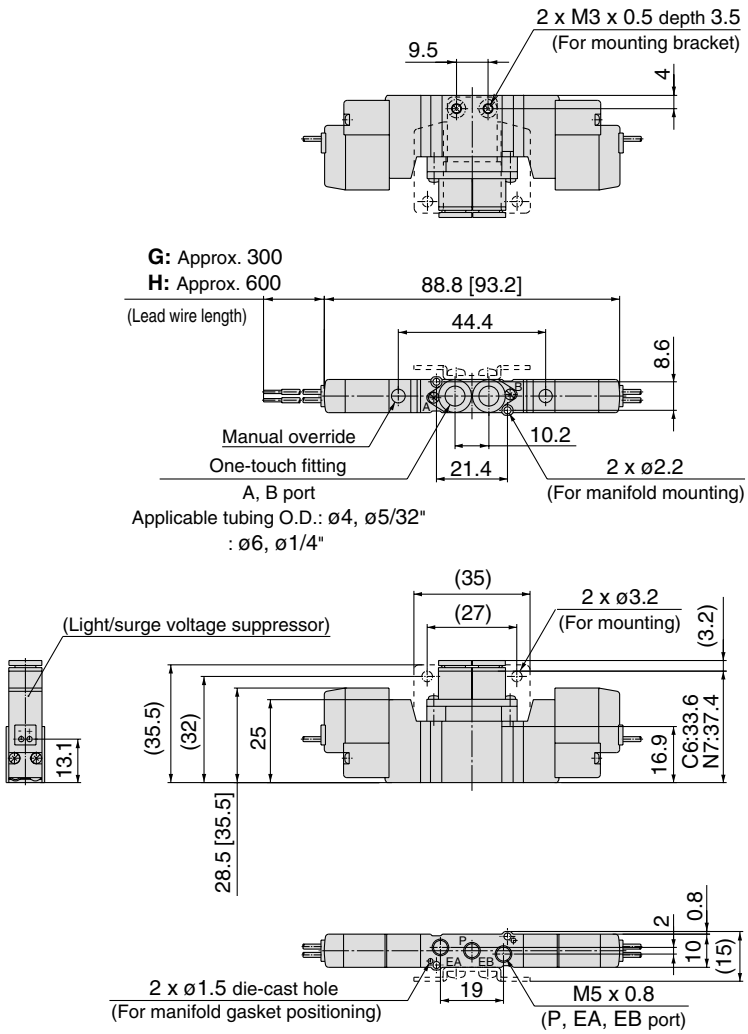


Note) Refer to page 340 for dimensions of connector types.

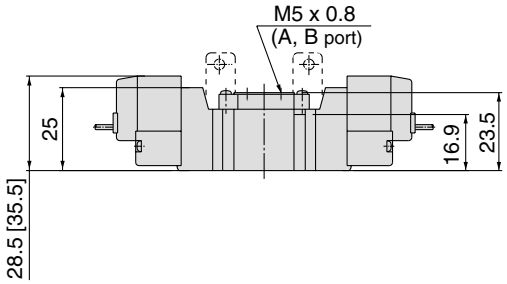
Dimensions: Series SY3000

[ ]: AC

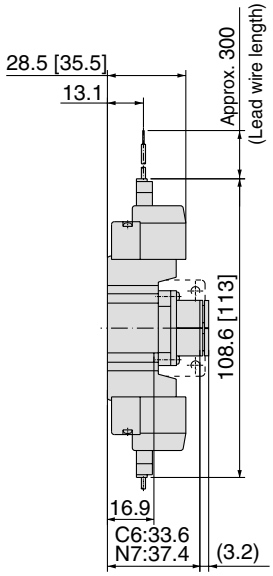
2 position double
Grommet (G), (H): SY3220-□ G/H □□-C4, N3 / C6, N7 (-F2)



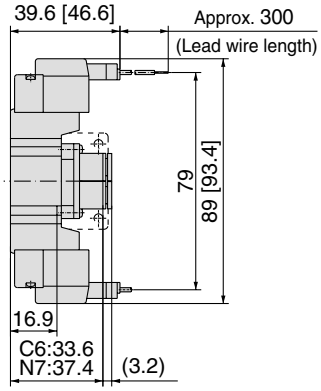
SY3220-□ G/H □□-M5(-F2)



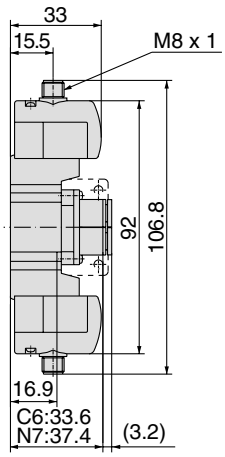
L plug connector (L):
SY3220-□L□□- C4, N3 / C6, N7 (-F2)



M plug connector (M):
SY3220-□M□□- C4, N3 / C6, N7 (-F2)



M8 connector (WO):
SY3220-WO□□- C4, N3 / C6, N7 (-F 1 2)

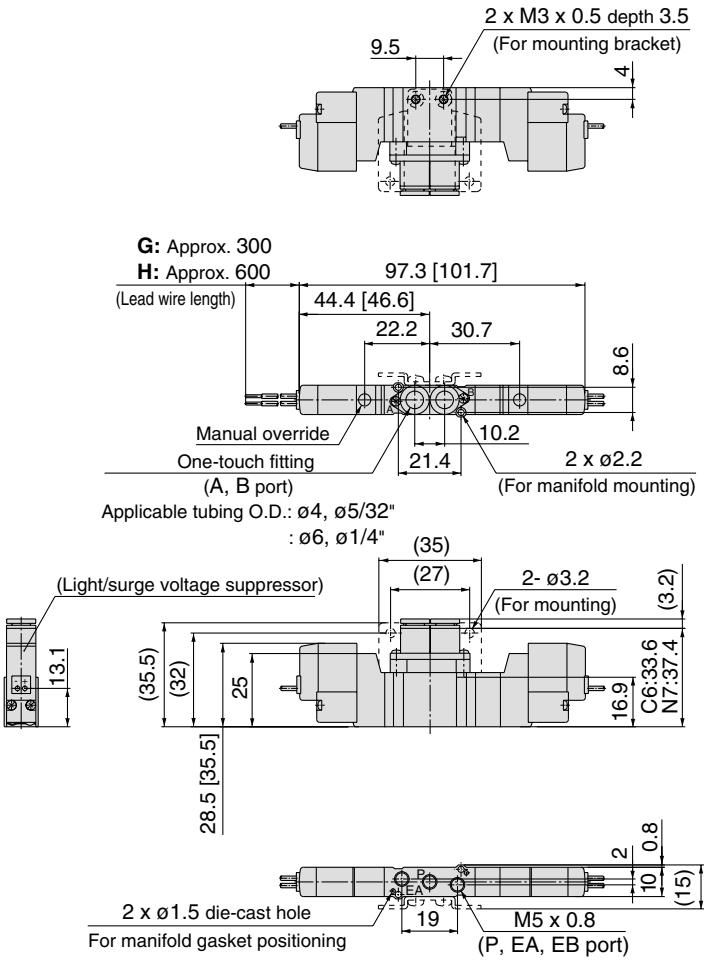


Note) Refer to page 340 for dimensions of connector types.

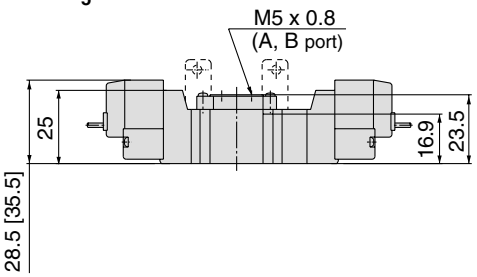
Dimensions: Series SY3000

[ ]: AC

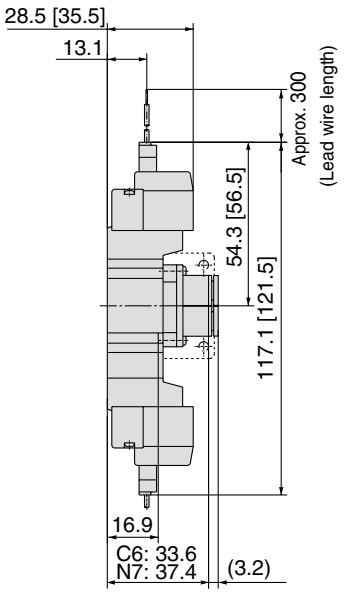
3 position closed center / exhaust center / pressure center
Grommet (G), (H): SY3$^{3}_{5}$20-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$(-F2)



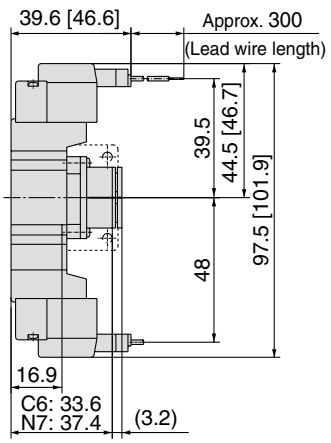
SY3$^{3}_{5}$20-□$^{G}_{H}$□□-M5(-F2)



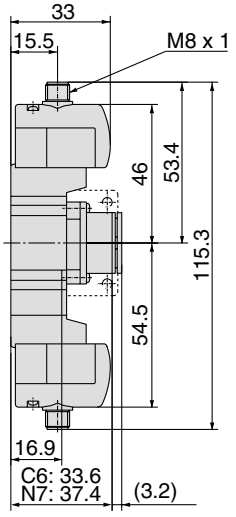
L plug connector (L): SY3$^{3}_{5}$20-□L□□-$^{C4, N3}_{C6, N7}$(-F2)



M plug connector (M): SY3$^{3}_{5}$20-□M□□-$^{C4, N3}_{C6, N7}$(-F2)



M8 connector (WO): SY3$^{3}_{5}$20-□WO□□-$^{C4, N3}_{C6, N7}$(-F2)



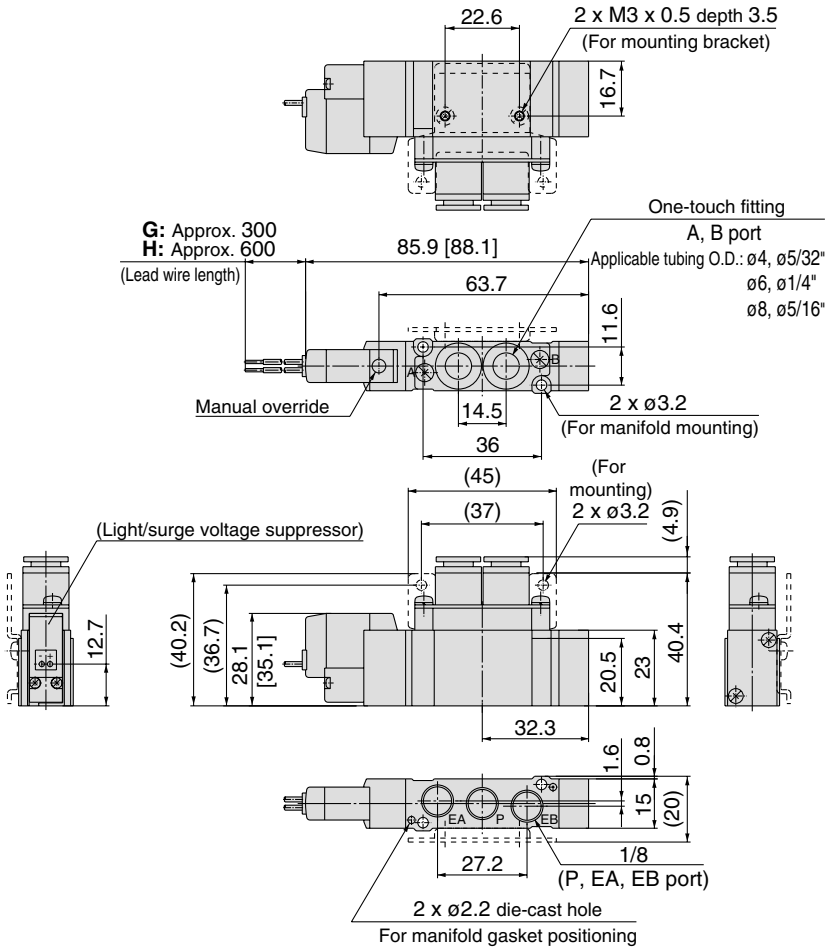
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY5000

[ ]: AC

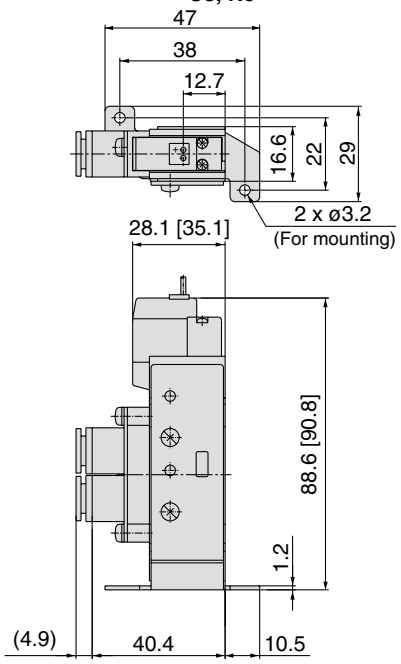
2 position single

Grommet (G), (H): SY5120-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$□(-F2)
$^{C8, N9}$

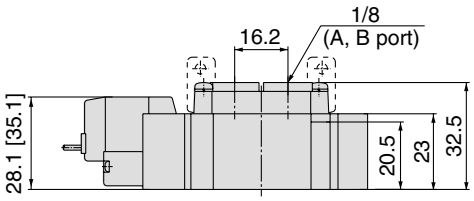


Foot bracket

SY5120-□$^{G}_{H}$□□-$^{C4, N3}_{C6, N7}$□-F1
$^{C8, N9}$

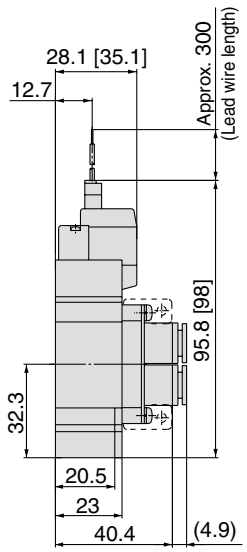


SY5120-□$^{G}_{H}$□□-01□(-F$^{1}_{2}$)



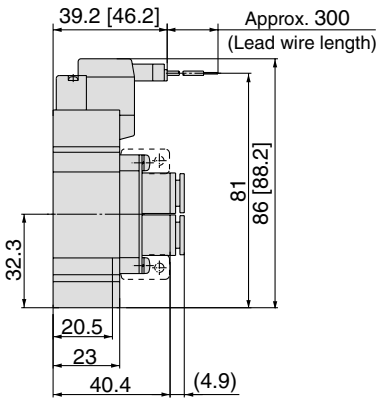
L plug connector (L):

SY5120-□L□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)
$^{C8, N9}$



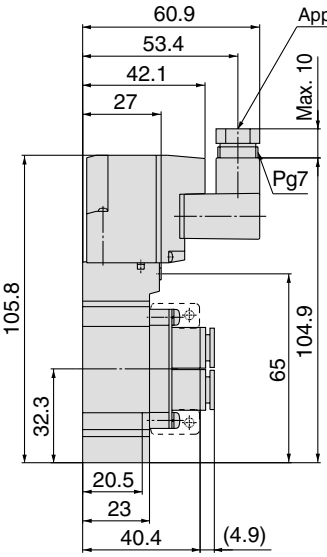
M plug connector (M):

SY5120-□M□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)
$^{C8, N9}$



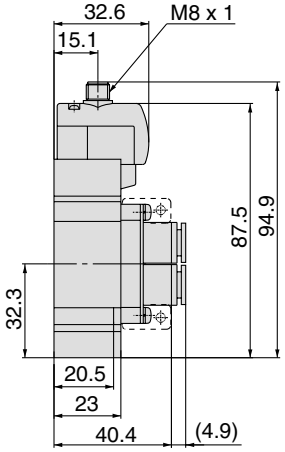
DIN terminal (D, Y):

SY5120-□$^{D}_{Y}$□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)
$^{C8, N9}$



M8 connector (WO):

SY5120-□WO□□-$^{C4, N3}_{C6, N7}$□(-F$^{1}_{2}$)
$^{C8, N9}$



Note) Refer to page 340 for dimensions of connector types.

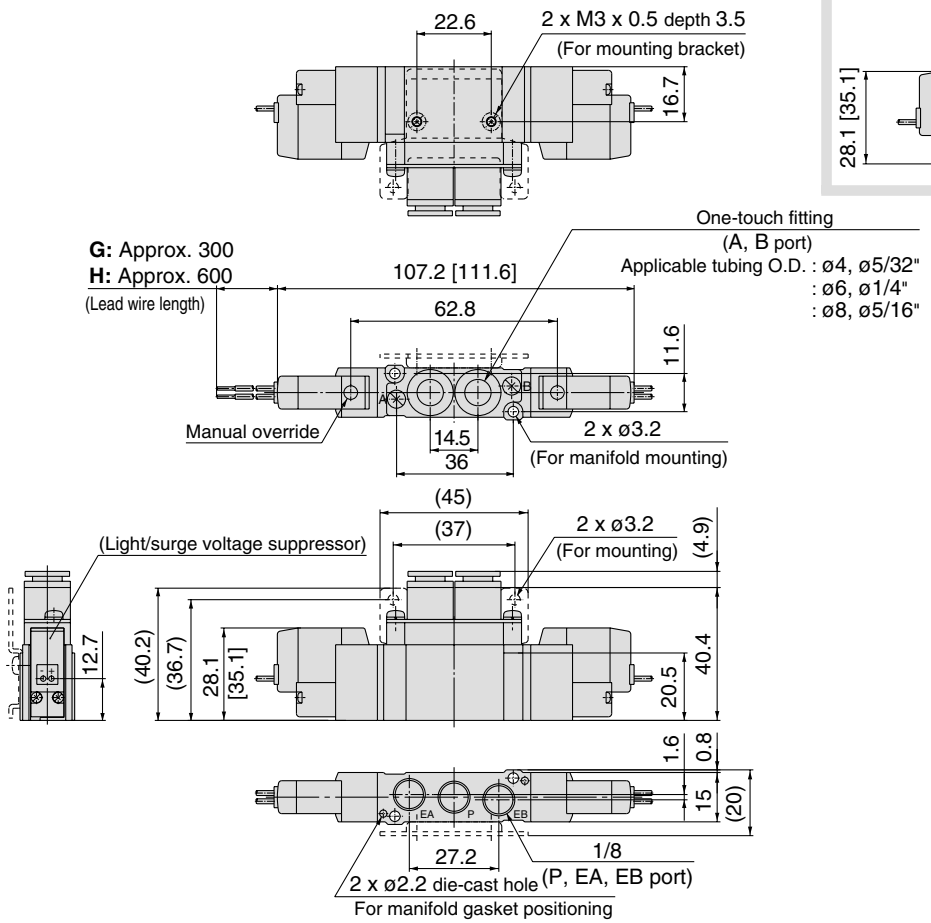
SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Dimensions: Series SY5000

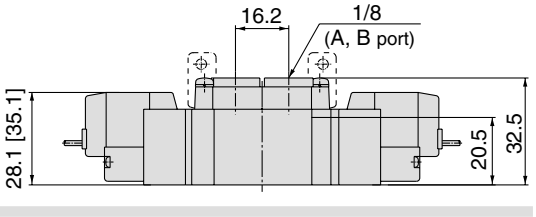
[ ]: AC

2 position double

Grommet (G), (H): SY5220-□ G H □□- C4, N3 C6, N7 C8, N9 □(-F2)



SY5220-□ G H □□-01□(-F2)

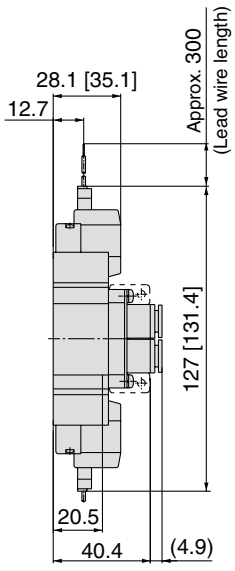


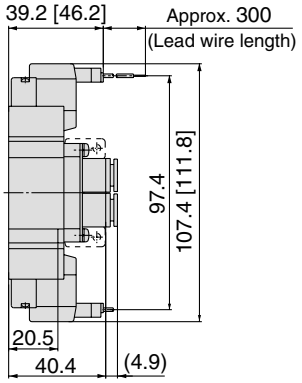
L plug connector (L):
SY5220-□L□□- C4, N3 C6, N7 C8, N9 □(-F2)

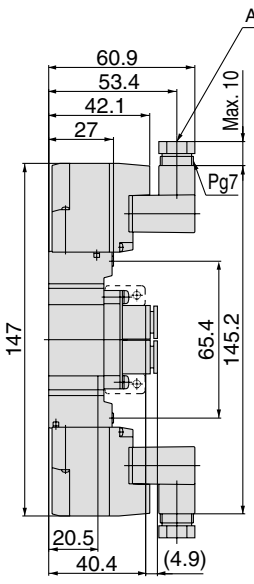
M plug connector (M):
SY5220-□M□□- C4, N3 C6, N7 C8, N9 □(-F2)

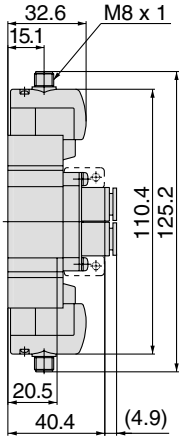
DIN terminal (D, Y):
SY5220-□ D Y □□- C4, N3 C6, N7 C8, N9 □(-F2)

M8 connector (WO):
SY5220-□WO□□- C4, N3 C6, N7 C8, N9 □(-F2)









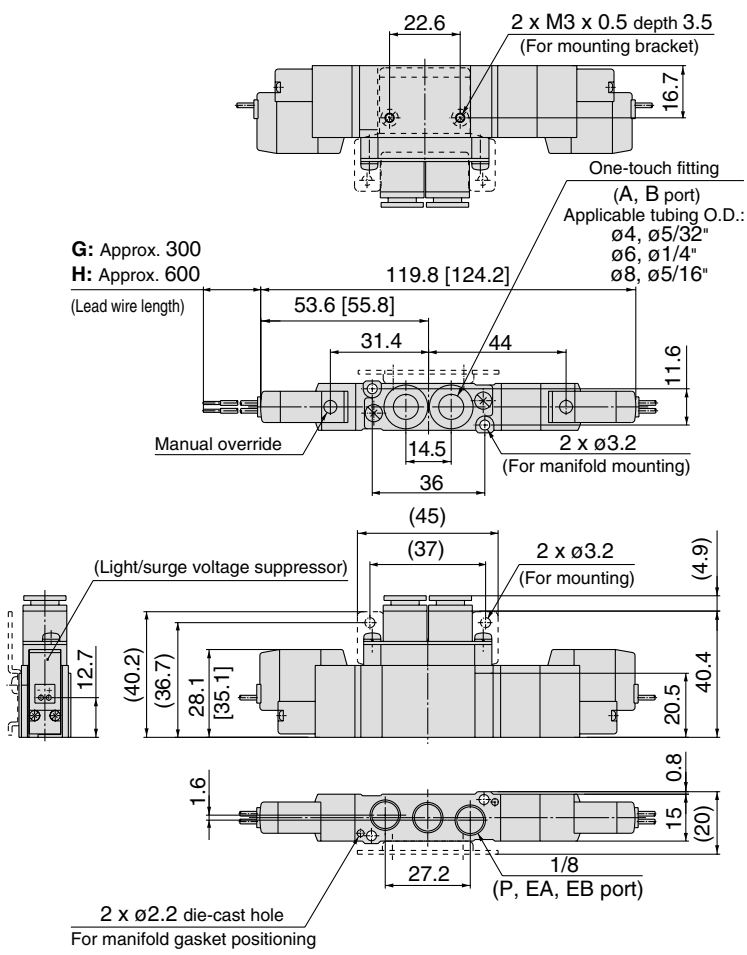
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY5000

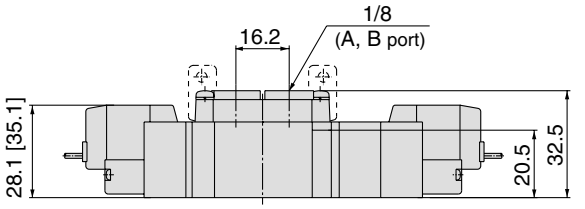
[ ]: AC

3 position closed center / exhaust center / pressure center

Grommet (G), (H): SY5$^{3}_{5}$4$^{G}_{H}$20-□□□-C4, N3, C6, N7, C8, N9□(-F2)



SY5$^{3}_{5}$4$^{3}_{4}$20-□$^{3}_{5}$□□-01□(-F2)



L plug connector (L):

SY5$^{3}_{5}$4$^{C4, N3}_{C6, N7}$20-□L□□-C8, N9□(-F2)

M plug connector (M):

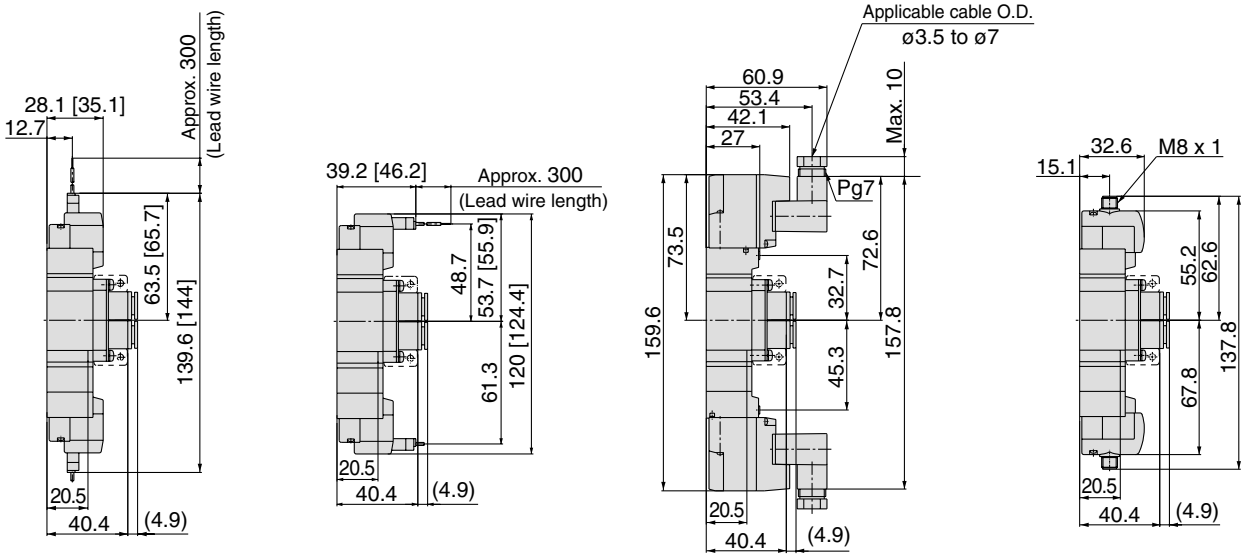
SY5$^{3}_{5}$4$^{C4, N3}_{C6, N7}$20-□M□□-C8, N9□(-F2)

DIN terminal (D, Y):

SY5$^{3}_{5}$4$^{D}_{Y}$20-□□□-C4, N3, C6, N7, C8, N9□(-F2)

M8 connector (WO):

SY5$^{3}_{5}$4$^{C4, N3}_{C6, N7}$20-□WO□□-C8, N9□(-F2)



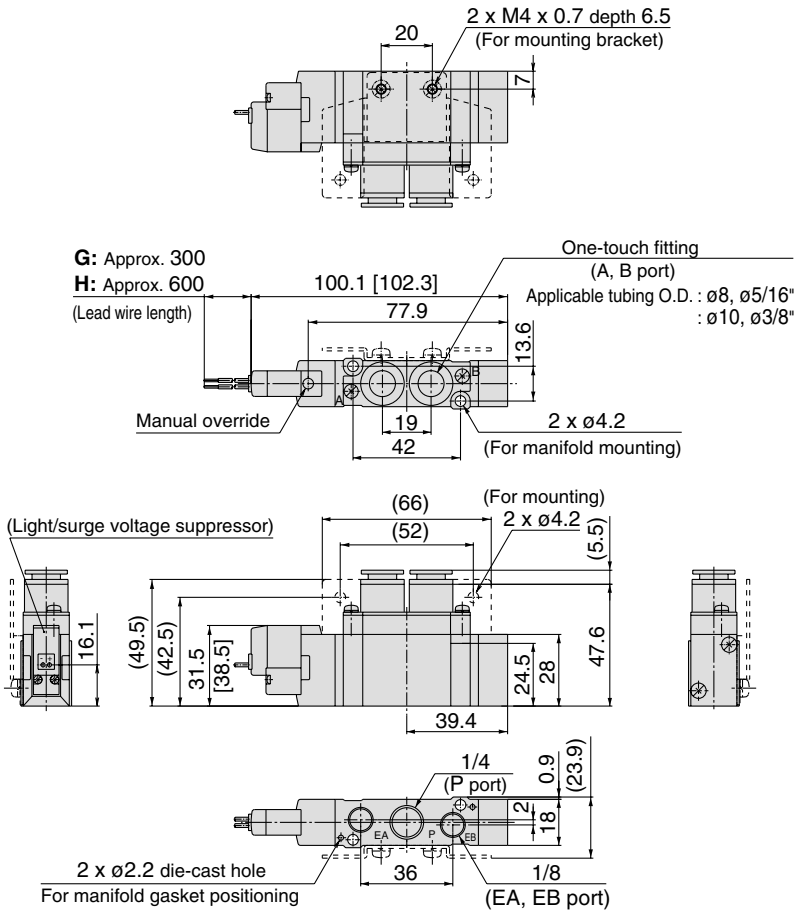
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY7000

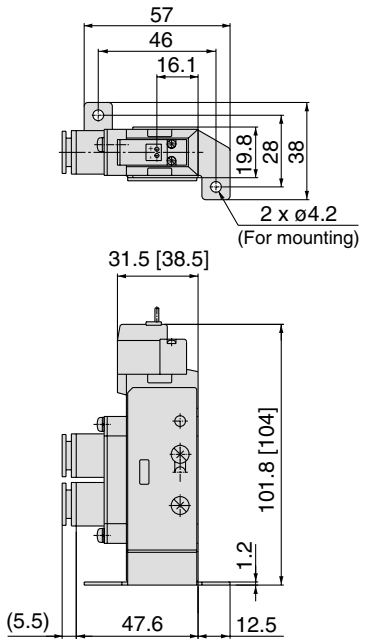
[ ]: AC

2 position single

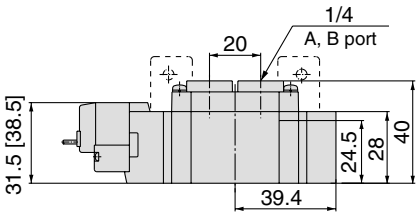
Grommet (G), (H): SY7120-□$^{G}_{H}$□□-$^{C8, N9}_{C10, N11}$□(-F2)



SY7120-□$^{G}_{H}$□-$^{C8, N9}_{C10, N11}$□-F1



SY7120-□$^{G}_{H}$□□-02□(-F2)

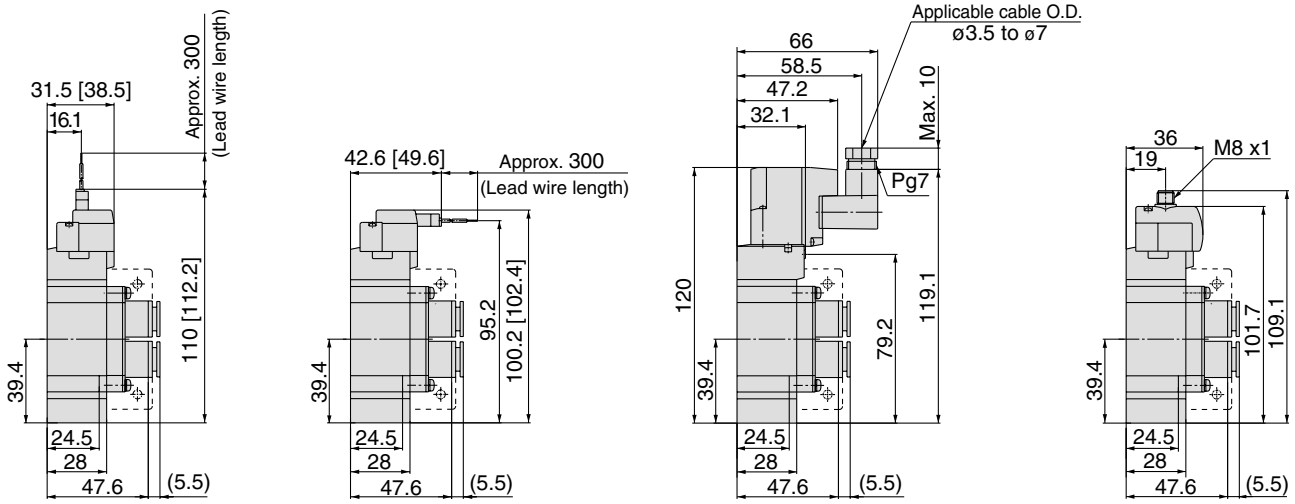


L plug connector (L): SY7120-□L□□-$^{C8, N9}_{C10, N11}$□(-F$^{1}_{2}$)

M plug connector (M): SY7120-□M□□-$^{C8, N9}_{C10, N11}$□(-F$^{1}_{2}$)

DIN terminal (D, Y): SY7120-□$^{D}_{Y}$□□-$^{C8, N9}_{C10, N11}$□(-F$^{1}_{2}$)

M8 connector (WO): SY7120-□WO□□-$^{C8, N9}_{C10, N11}$□(-F$^{1}_{2}$)



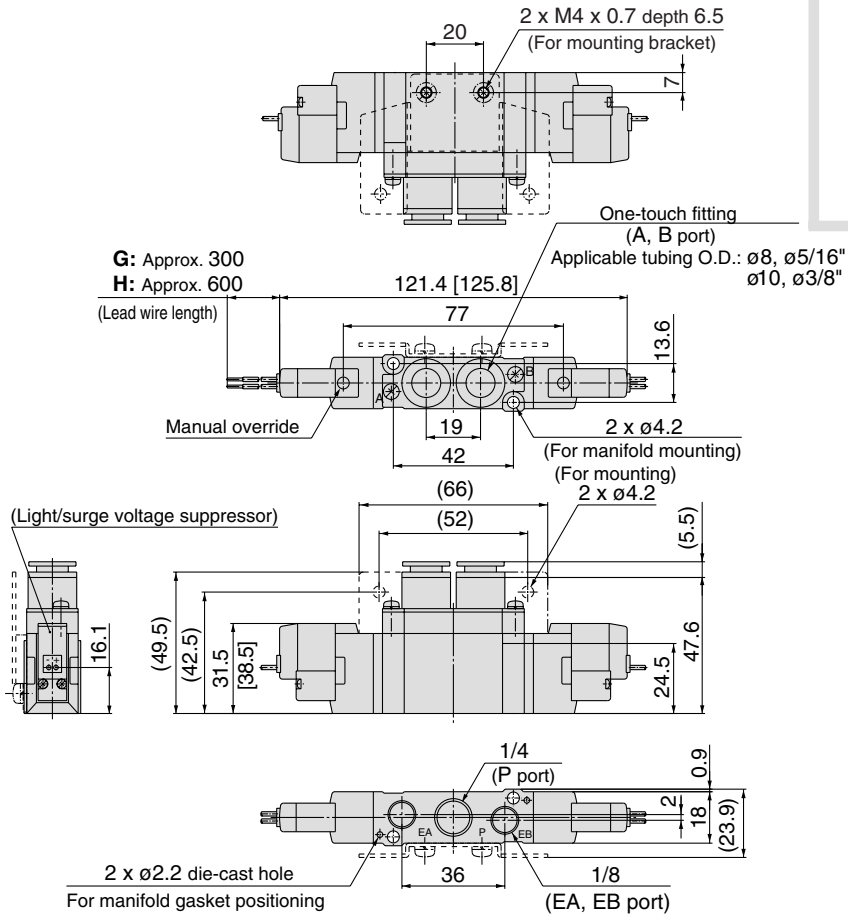
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY7000

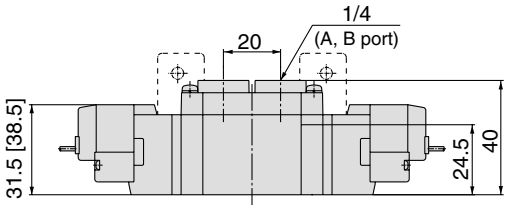
[ ]: AC

2 position double

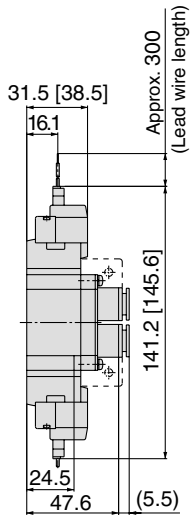
Grommet (G), (H): SY7220-□$^{G}_{H}$□□-$^{C8, N9}_{C10, N11}$□(-F2)



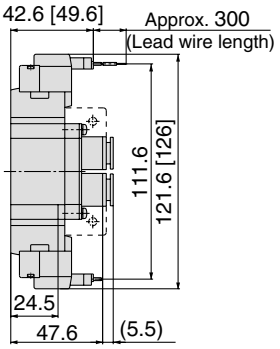
SY7220-□$^{G}_{H}$□□-02□(-F2)



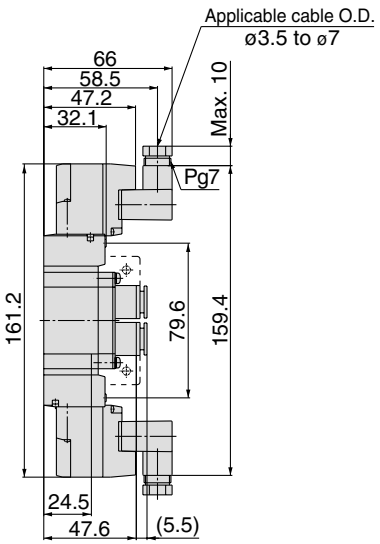
L plug connector (L): SY7220-□L□□-$^{C8, N9}_{C10, N11}$□(-F2)



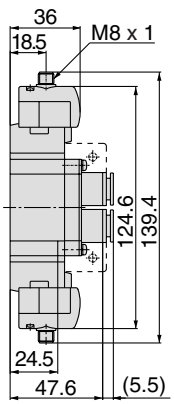
M plug connector (M): SY7220-□M□□-$^{C8, N9}_{C10, N11}$□(-F2)



DIN terminal (D, Y): SY7220-□$^{D}_{Y}$□□-$^{C8, N9}_{C10, N11}$□(-F2)



M8 connector (WO): SY7220-□WO□□-$^{C8, N9}_{C10, N11}$□(-F2)



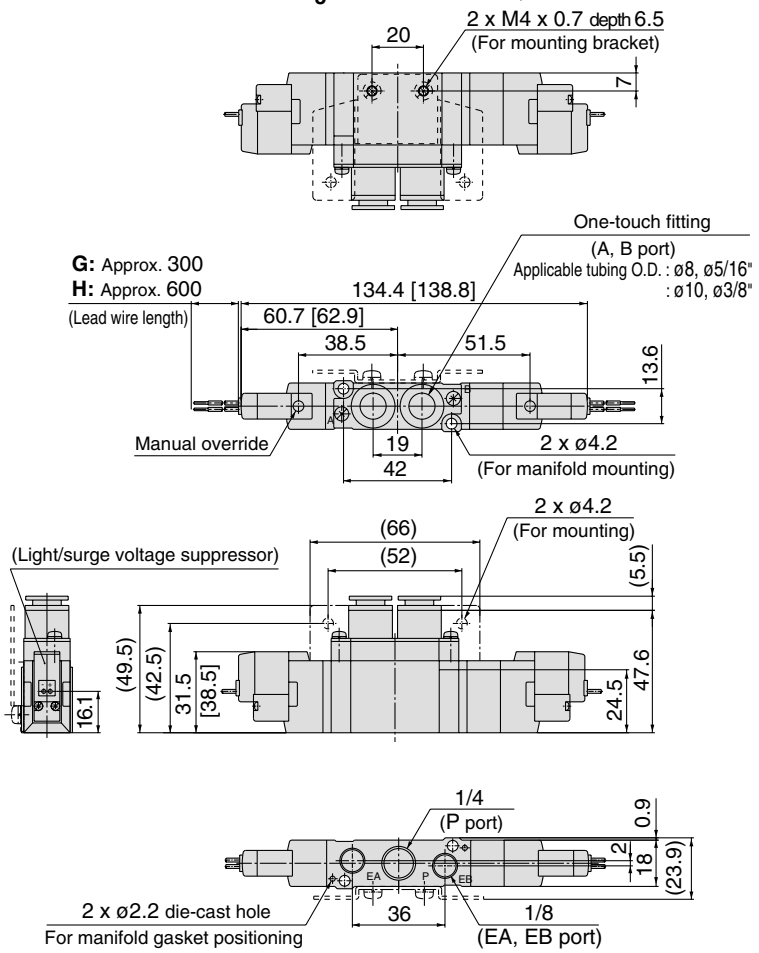
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY7000

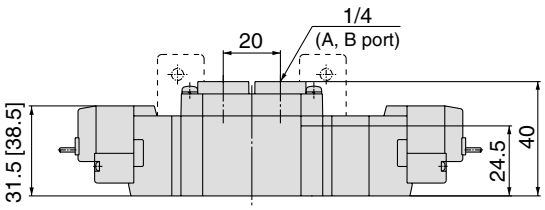
[ ]: AC

3 position closed center / exhaust center / pressure center

Grommet (G), (H): SY7$^{3}_{5}$20-□$^{G}_{H}$□□-$^{C8, N9}_{C10, N11}$□(-F2)



SY7$^{3}_{5}$20-□$^{G}_{H}$□□-02□(-F2)

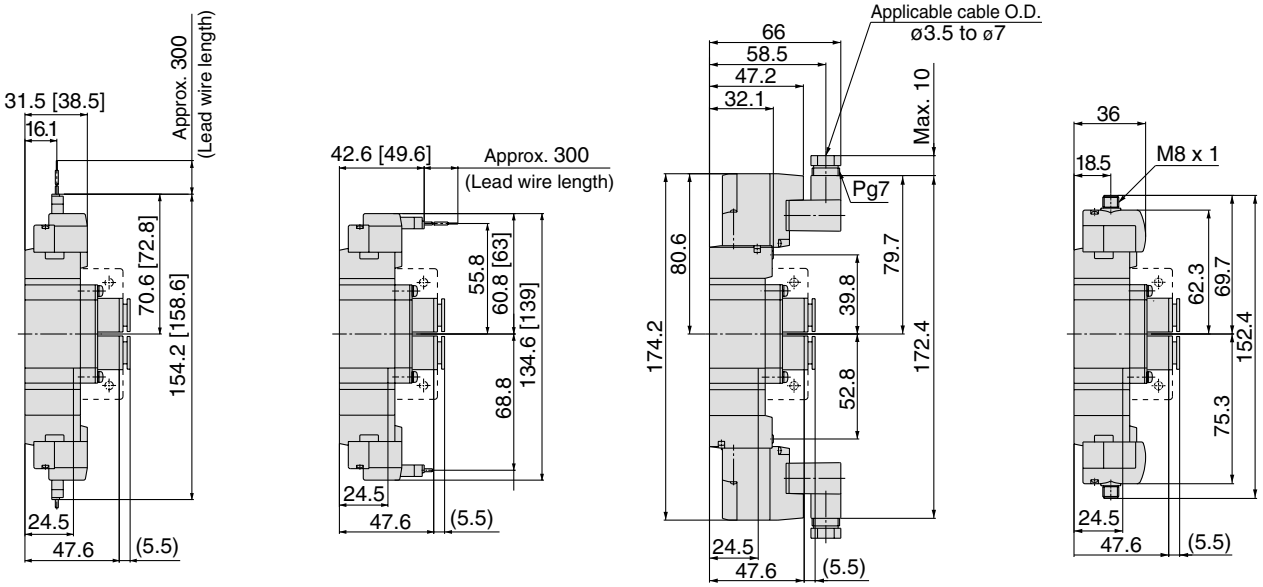


L plug connector (L): SY7$^{3}_{5}$20-□L□□-$^{C8, N9}_{C10, N11}$□(-F2)

M plug connector (M): SY7$^{3}_{5}$20-□M□□-$^{C8, N9}_{C10, N11}$□(-F2)

DIN terminal (D, Y): SY7$^{3}_{5}$20-□$^{D}_{Y}$□□-$^{C8, N9}_{C10, N11}$□(-F2)

M8 connector (WO): SY7$^{3}_{5}$20-□WO□□-$^{C8, N9}_{C10, N11}$□(-F2)

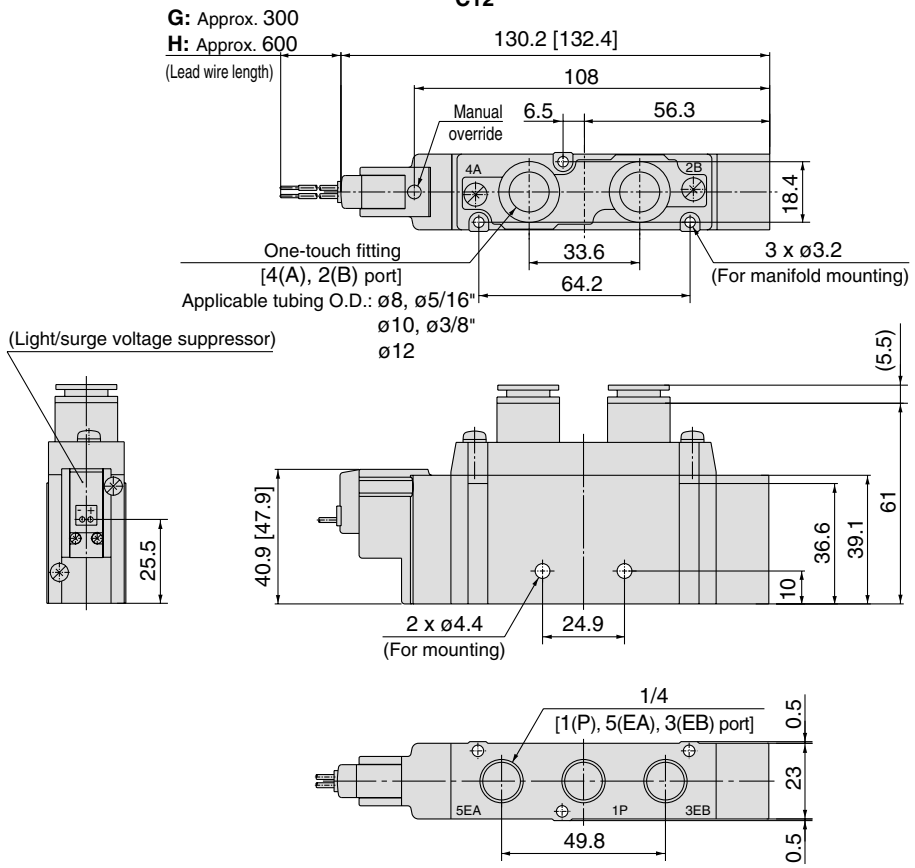


Note) Refer to page 340 for dimensions of connector types.

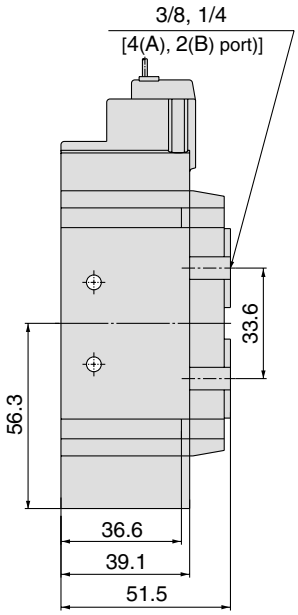
Dimensions: Series SY9000

[ ] AC

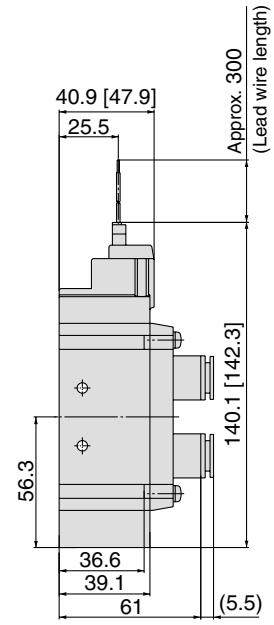
2 position single
Grommet (G), (H): SY9120-□$^{G}_{H}$□□-$^{C8, N9}_{C10, N11}$□
C12



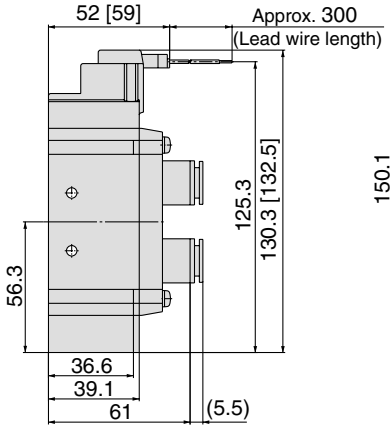
SY9120-□$^{G}_{H}$□□-$^{02}_{03}$□



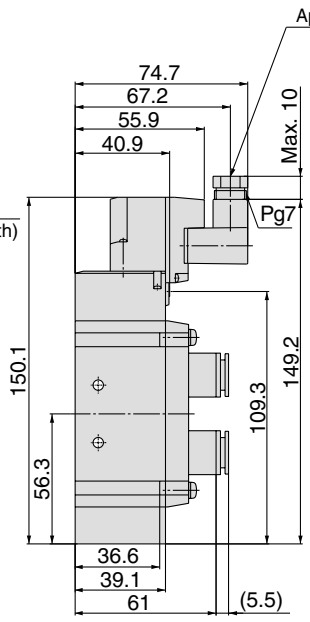
L plug connector (L):
SY9120-□L□□-$^{C8, N9}_{C10, N11}$□
C12



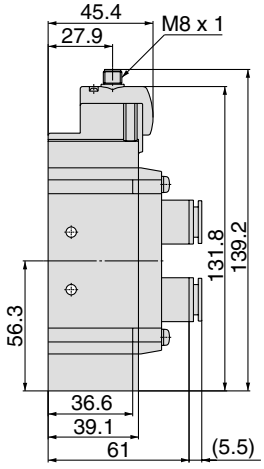
M plug connector (M):
SY9120-□M□□-$^{C8, N9}_{C10, N11}$□
C12



DIN terminal (D, Y):
SY9120-□$^{D}_{Y}$□□-$^{C8, N9}_{C10, N11}$□
C12



M8 connector (WO):
SY9120-□WO□□-$^{C8, N9}_{C10, N11}$□
C12

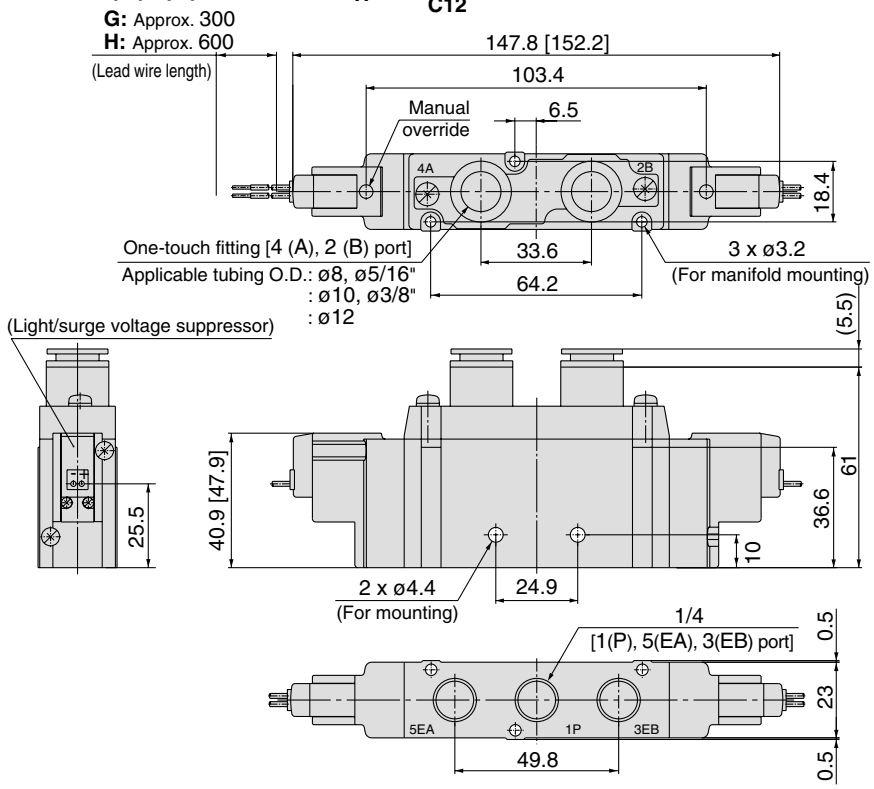


Note) Refer to page 340 for dimensions of connector types.

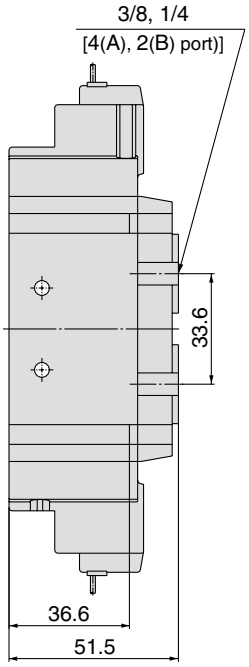
Dimensions: Series SY9000

[ ] : AC

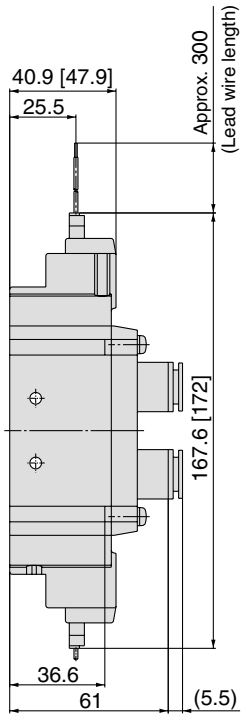
2 position double
Grommet (G), (H): SY9220-□$^{G}_{H}$□□-$^{C8, N9}_{C10, N11}$□



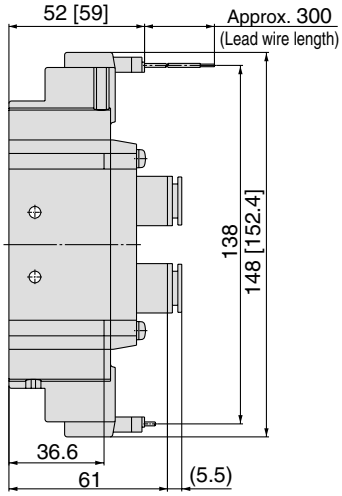
SY9220-□$^{G}_{H}$□□-$^{02}_{03}$□



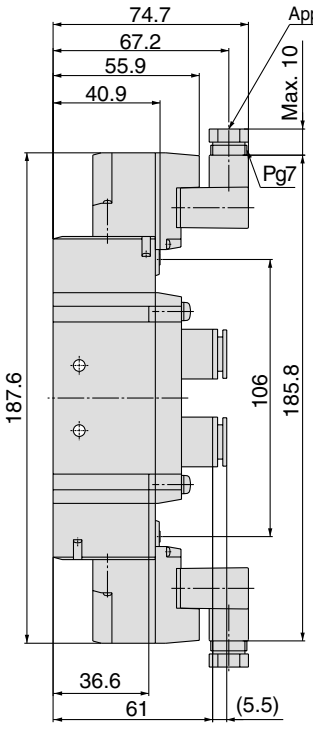
L plug connector (L): SY9220-□L□□-$^{C8, N9}_{C10, N11}$□



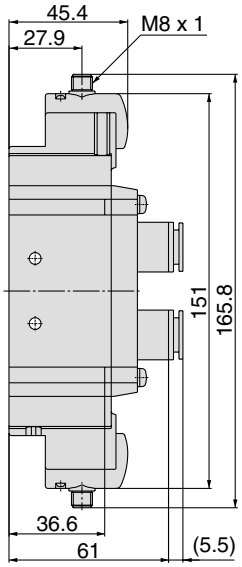
M plug connector (M): SY9220-□M□□-$^{C8, N9}_{C10, N11}$□



DIN terminal (D, Y): SY9220-□$^{D}_{Y}$□□-$^{C8, N9}_{C10, N11}$□



M8 connector (WO): SY9220-□WO□□-$^{C8, N9}_{C10, N11}$□



Note) Refer to page 340 for dimensions of connector types.

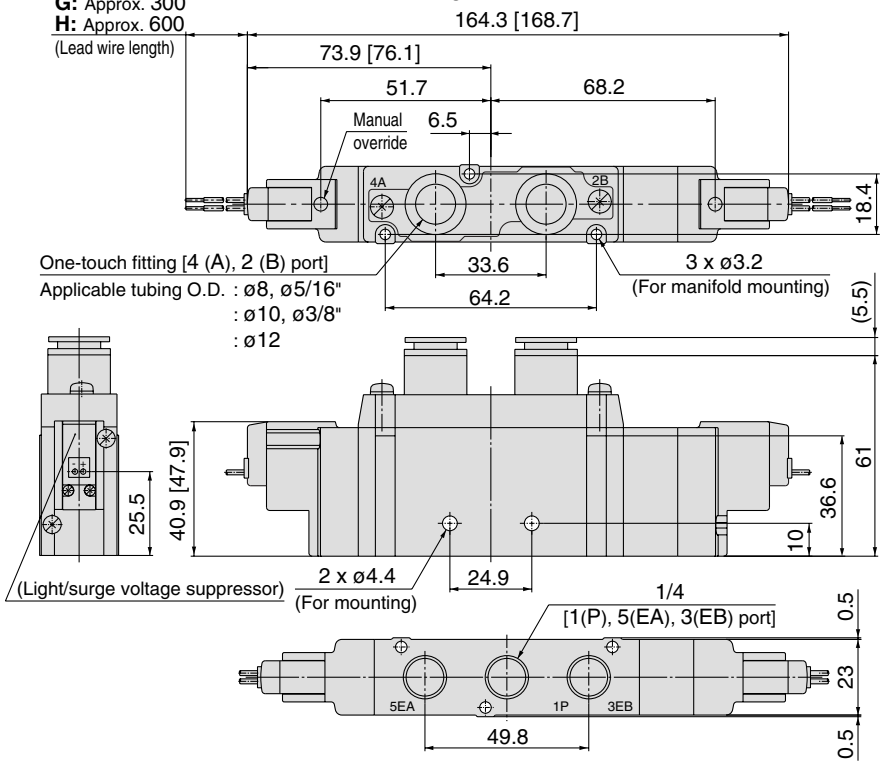
Dimensions: Series SY9000

[ ]: AC

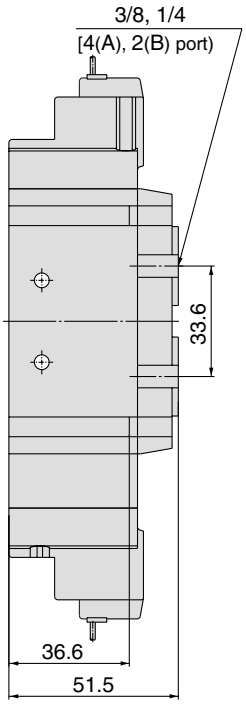
3 position closed center / exhaust center / pressure center

Grommet (G), (H): SY9$^{3}_{5}$4$^{G}_{H}$20-□□□-$^{C8, N9}_{C10, N11}$□

G: Approx. 300
H: Approx. 600
(Lead wire length)



SY9$^{3}_{5}$4$^{G}_{H}$20-□□-$^{02}_{03}$□

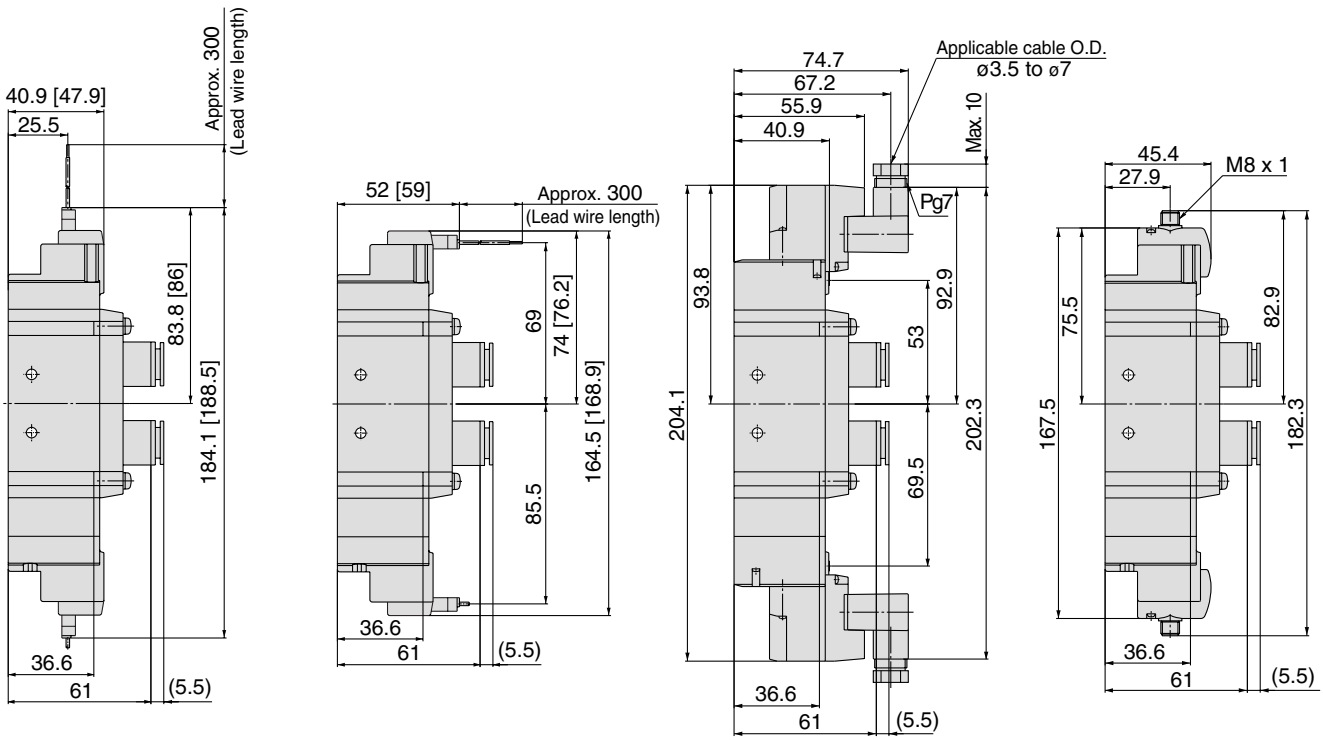


L plug connector (L):
SY9$^{3}_{5}$4$^{G}_{H}$20-□L□□-$^{C8, N9}_{C10, N11}$□

M plug connector (M):
SY9$^{3}_{5}$4$^{G}_{H}$20-□M□□-$^{C8, N9}_{C10, N11}$□

DIN terminal (D, Y):
SY9$^{3}_{5}$4$^{G}_{H}$20-□$^{D}_{Y}$□□-$^{C8, N9}_{C10, N11}$□

M8 connector (WO):
SY9$^{3}_{5}$4$^{G}_{H}$20-□WO□□-$^{C8, N9}_{C10, N11}$□



Note) Refer to page 340 for dimensions of connector types.

5 Port Solenoid Valve
Base Mounted/Single Unit
Series SY3000/5000/7000/9000

CE

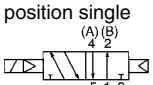
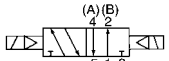
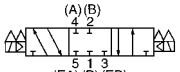
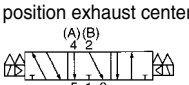
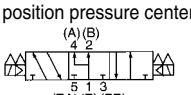
How to Order

SY [5] [2] 40 [ ] [ ] – [5] [L] [ ] [ ] – [ ] [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

1	2 position single 
2	2 position double 
3	3 position closed center 
4	3 position exhaust center 
5	3 position pressure center 

Pilot type

Nil	Internal pilot
R	External pilot

Coil specifications

Nil	Standard
T	With power saving circuit (24, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Port size

Symbol	Port size	Applicable series
Nil	Without sub-plate	
01	1/8 With sub-plate	SY3000
02	1/4 With sub-plate	SY5000 SY7000
03	3/8 With sub-plate	SY7000 SY9000
04	1/2 With sub-plate	SY9000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Made to Order

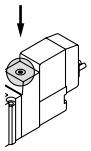
Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

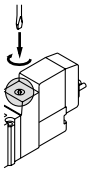
CE-compliant

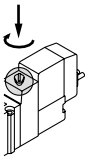
Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Manual override

Nil: Non-locking push type 

D: Push-turn locking slotted type 

E: Push-turn locking lever type 

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

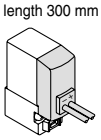
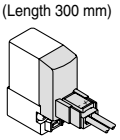
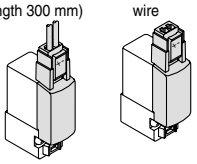
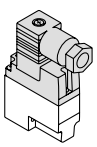
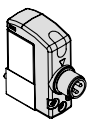
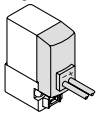
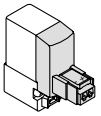
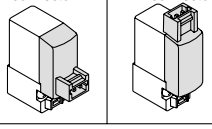
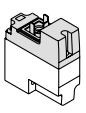
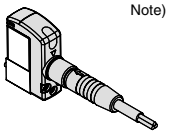
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

24, 12, 6, 5, 3 VDC / 100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm 	**L:** With lead wire (Length 300 mm) 	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire 	**(Except SY3000)** **D, Y:** With connector 	**WO:** Without connector cable 
H: Lead wire length 600 mm 	**LN:** Without lead wire 	**LO:** Without connector **MO:** Without connector 	**DO, YO:** Without connector 	**W□:** With connector cable Note) 

∗ LN, MN type: with 2 sockets.
∗ For DIN terminal of SY3000 series, refer to page 337.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.



Made to Order
Made to Order
(For details, refer to pages 324 to 332.)

Specifications

Series			SY3000	SY5000	SY7000	SY9000
Fluid			Air			
Internal pilot Operating pressure range (MPa)	**2 position single**		0.15 to 0.7			
	2 position double		0.1 to 0.7			
	3 position		0.2 to 0.7			
External pilot Operating pressure range (MPa)	**Operating pressure range**		–100 kPa to 0.7			
	Pilot pressure range	**2 position single**	0.25 to 0.7			
		2 position double	0.25 to 0.7			
		3 position	0.25 to 0.7			
Ambient and fluid temperature (°C)			–10 to 50 (No freezing.)			
Max. operating frequency (Hz)	**2 position single, double**		10	5	5	5
	3 position		3	3	3	3
Manual override (Manual operation)			Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type			
Pilot exhaust method	**Internal pilot**		Common exhaust type for main and pilot valve			
	External pilot		Pilot valve individual exhaust			
Lubrication			Not required			
Mounting orientation			Unrestricted			
Impact/Vibration resistance (m/s²) Note)			150/30			
Enclosure			Dust proof (∗ DIN terminal and M8 connector: IP65)			

∗ Based on IEC60529

Note) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Response Time

Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

SY3000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	12 or less	15 or less	12 or less
2 position double	10 or less	13 or less	10 or less
3 position	15 or less	20 or less	16 or less

SY5000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	19 or less	26 or less	19 or less
2 position double	18 or less	22 or less	18 or less
3 position	32 or less	38 or less	32 or less

SY7000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	31 or less	38 or less	33 or less
2 position double	27 or less	30 or less	28 or less
3 position	50 or less	56 or less	50 or less

SY9000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		Type S, Z	Type R, U
2 position single	35 or less	41 or less	35 or less
2 position double	35 or less	41 or less	35 or less
3 position	62 or less	64 or less	62 or less

Solenoid Specifications

Electrical entry			Grommet (G), (H) L plug connector (L) M plug connector (M)	DIN terminal (D), (Y) M8 connector (W)
			G, H, L, M, W	D, Y
Coil rated voltage (V)	**DC**		24, 12, 6, 5, 3	24, 12
	AC 50/60 Hz		100, 110, 200, 220	
Allowable voltage fluctuation			±10% of rated voltage ∗	
Power consumption (W)	**DC**	**Standard**	0.35 (With indicator light: 0.4 DIN terminal with indicator light: 0.45)	
		With power saving circuit	0.1 (With indicator light only)	
Apparent power (VA) ∗	**AC**	**100 V**	0.78 (With indicator light: 0.81)	0.78 (With indicator light: 0.87)
		110 V [115 V]	0.86 (With indicator light: 0.89) [0.94 (With indicator light: 0.97)]	0.86 (With indicator light: 0.97) [0.94 (With indicator light: 1.07)]
		200 V	1.18 (With indicator light: 1.22)	1.15 (With indicator light: 1.30)
		220 V [230 V]	1.30 (With indicator light: 1.34) [1.42 (With indicator light: 1.46)]	1.27 (With indicator light: 1.46) [1.39 (With indicator light: 1.60)]
Surge voltage suppressor			Diode (Varistor is for DIN terminal and Non-polar type.)	
Indicator light			LED (AC of DIN connector is neon light.)	

∗ In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.

∗ For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.

∗ S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.

S and Z type: 24 VDC: –7% to +10%
12 VDC: –4% to +10%
T type: 24 VDC: –8% to +10%
12 VDC: –6% to +10%

Flow Characteristics/Mass

Series SY3000

Valve model	Type of actuation		Port size	Flow characteristics Note 1)						Mass (g) Note 2)		
				1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector, M plug connector	W M8 connector
				C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv			
SY3□40-□-01	2 position	Single	1/8	1.0	0.30	0.24	1.1	0.30	0.26	84 (50)	85 (53)	89 (57)
		Double								102 (68)	107 (73)	115 (81)
	3 position	Closed center		0.77	0.28	0.18	0.85	0.30	0.19	104 (69)	109 (74)	117 (82)
		Exhaust center		0.73	0.31	0.18	1.1 [0.55]	0.26 [0.52]	0.24 [0.16]			
		Pressure center		1.2 [0.51]	0.24 [0.45]	0.29 [0.14]	0.89	0.47	0.24			

Note 1) [ ]: denotes the normal position. Note 2) ( ): denotes without sub-plate.

Series SY5000

Valve model	Type of actuation		Port size	Flow characteristics Note 1)						Mass (g) Note 2)			
				1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector, M plug connector	DIN terminal	W M8 connector
				C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv				
SY5□40-□-02	2 position	Single	1/4	2.4	0.41	0.64	2.8	0.29	0.66	121 (58)	123 (61)	154 (92)	127 (65)
		Double								139 (76)	144 (81)	186 (123)	152 (89)
	3 position	Closed center		1.8	0.47	0.50	1.8	0.40	0.47	144 (82)	150 (87)	192 (129)	158 (95)
		Exhaust center		1.4	0.55	0.44	3.0 [1.2]	0.33 [0.48]	0.72 [0.37]				
		Pressure center		3.3 [0.84]	0.36 [0.60]	0.85 [0.28]	1.8	0.40	0.48				

Note 1) [ ]: denotes the normal position. Note 2) ( ): denotes without sub-plate.

Series SY7000

Valve model	Type of actuation		Port size	Flow characteristics Note 1)						Mass (g) Note 2)			
				1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector, M plug connector	DIN terminal	W M8 connector
				C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv				
SY7□40-□-02	2 position	Single	1/4	4.1	0.41	1.1	4.1	0.29	1.0	218 (89)	221 (92)	242 (113)	225 (96)
		Double								237 (108)	242 (113)	284 (155)	250 (121)
	3 position	Closed center		3.0	0.43	0.80	2.6	0.41	0.72	239 (110)	245 (116)	287 (158)	253 (124)
		Exhaust center		2.6	0.42	0.71	4.7 [1.7]	0.35 [0.48]	1.1 [0.49]				
		Pressure center		5.3 [2.3]	0.39 [0.49]	1.3 [0.65]	2.2	0.49	0.63				
SY7□40-□-03	2 position	Single	3/8	4.9	0.29	1.2	4.5	0.27	1.1	218 (89)	221 (92)	242 (113)	225 (96)
		Double								237 (108)	242 (113)	284 (155)	250 (121)
	3 position	Closed center		3.0	0.40	0.80	2.6	0.45	0.73	239 (110)	245 (116)	287 (158)	253 (124)
		Exhaust center		2.6	0.42	0.71	4.8 [1.7]	0.35 [0.48]	1.1 [0.49]				
		Pressure center		5.3 [2.3]	0.31 [0.51]	1.3 [0.64]	2.3	0.45	0.66				

Note 1) [ ]: denotes the normal position. Note 2) ( ): denotes without sub-plate.

Series SY9000

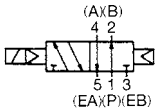
Valve model	Type of actuation		Port size	Flow characteristics Note1)						Mass (g) Note 2)			
				1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)			Grommet	L plug connector, M plug connector	DIN terminal	W M8 connector
				C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv				
SY9□40-□-03	2 position	Single	3/8	7.9	0.34	2.0	9.6	0.43	2.6	469(172)	472(175)	493(196)	476(179)
		Double								488(191)	494(197)	535(239)	502(205)
	3 position	Closed center		7.5	0.33	1.8	7.3	0.30	1.7	512(215)	518(221)	560(263)	526(229)
		Exhaust center		7.2	0.34	1.7	13 [4.0]	0.23 [0.41]	2.8 [0.95]				
		Pressure center		12 [3.3]	0.26 [0.41]	2.8 [0.84]	6.7	0.40	1.9				
SY9□40-□-04	2 position	Single	1/2	8.0	0.48	2.2	10	0.29	2.5	448 (172)	453 (175)	472	457(179)
		Double								467 (191)	473 (197)	515	481(205)
	3 position	Closed center		7.6	0.32	1.8	7.3	0.32	1.8	491 (215)	497 (221)	539	505(229)
		Exhaust center		7.3	0.42	2.0	13 [4.7]	0.32 [0.54]	3.6 [1.5]				
		Pressure center		12 [3.3]	0.33 [0.51]	3.3 [0.94]	7.4	0.33	1.9				

Note 1) [ ]: denotes the normal position. Note 2) ( ): denotes without sub-plate.

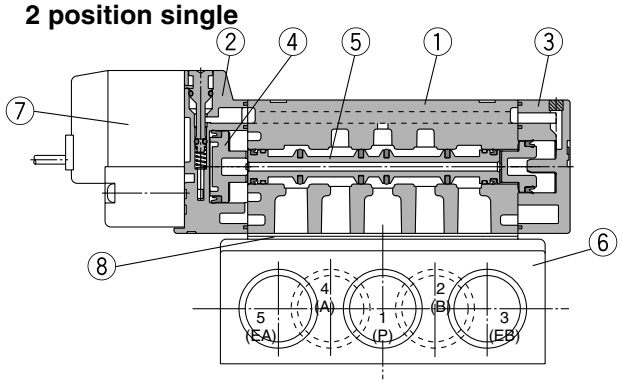
Construction

Series SY

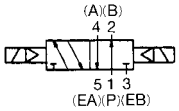
JIS Symbol
2 position single



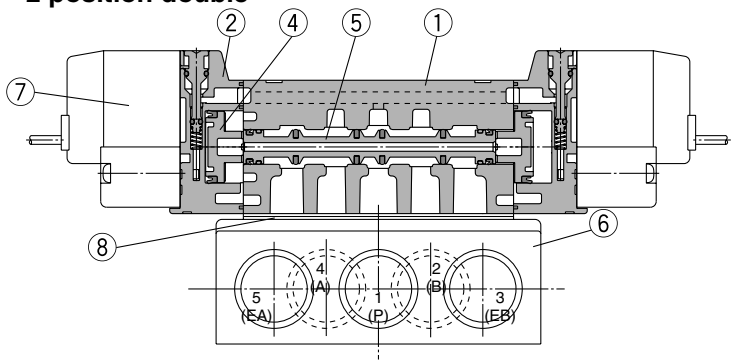
2 position single



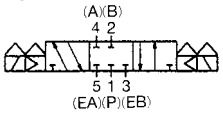
JIS Symbol
2 position double



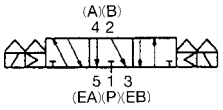
2 position double



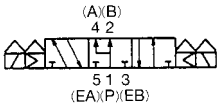
JIS Symbol
3 position closed center



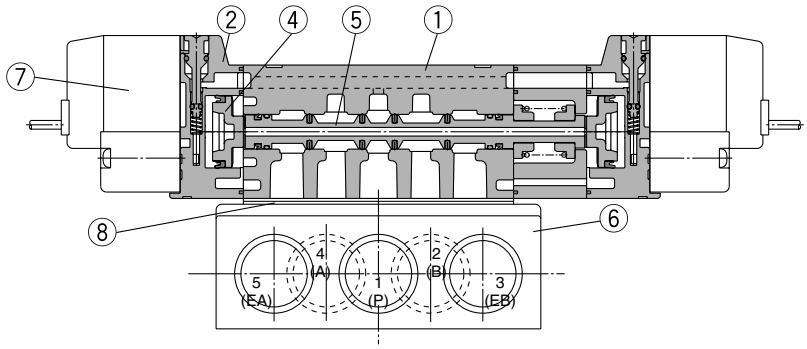
3 position exhaust center



3 position pressure center



3 position closed center / exhaust center / pressure center



(This figure shows a closed center type.)

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted (SY3000: Zinc die-casted)	White
2	**Adapter plate**	Resin	White (SY9000: Gray)
3	**End plate**	Resin	White
4	**Piston**	Resin	–
5	**Spool valve assembly**	Aluminum, H-NBR	–

Replacement Parts

No.	Description	Part No.				Note
		SY3□40	**SY5□40**	**SY7□40**	**SY9□40**	
6	**Sub-plate** Note)	SY3000-27-1✳(-Q)	SY5000-27-1✳(-Q)	1/4: SY7000-27-1✳(-Q) 3/8: SY7000-27-2✳(-Q)	3/8: SY9000-27-1✳(-Q) 1/2: SY9000-27-2✳(-Q)	Aluminum die-casted
7	**Pilot valve assembly**	Refer to "How to Order Pilot Valve Assembly" on page 130.				
8	**Gasket**	SY3000-11-25	SY5000-11-15	SY7000-11-11	SY9000-11-2	H-NBR
–	**Round head combination screw**	SY3000-23-4 (M2 x 21)	M3 x 26	M4 x 31	SY9000-18-2 (M3 x 42)	For valve mounting (Matt nickel plated)

✳ Thread type
Note) For CE-compliant, suffix "Q" at the end of part no.

⚠ Caution

Mounting screw tightening torques

M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

How to Order Pilot Valve Assembly

V111 □ – 5 G □

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, DO or W□ type.

Rated voltage

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz [115 VAC 50/60 Hz]
4	220 VAC 50/60 Hz [230 VAC 50/60 Hz]

∗ For type W□, DC voltage is only available.
∗ CE-compliant: For DC only.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no “S” option. It is already built-in to the rectifier circuit.
∗ For “R” and “U”, DC voltage is only available.
∗ Power saving circuit is only available in the “Z” type.

Electrical entry

G	Grommet, 300 mm lead wire	
H	Grommet, 600 mm lead wire	
L	L plug connector	With lead wire
LN		Without lead wire
LO		Without connector
M	M plug connector	With lead wire
MN		Without lead wire
MO		Without connector
WO	M8 connector	Without connector cable
W□		With connector cable Note 1)

∗ For connector cable of M8 connector, refer to page 339.
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

■ DIN terminal type

V115 – 5 D □

Rated voltage

5	24 VDC
6	12 VDC
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz [115 VAC 50/60 Hz]
4	220 VAC 50/60 Hz [230 VAC 50/60 Hz]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no “S” option. It is already built-in to the rectifier circuit.

Electrical entry

D	DIN terminal (Type D)	With connector
DO		Without connector
Y	DIN terminal (Type Y)	With connector
YO		Without connector

Note) Do not replace V111 (G, H, L, M) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

Note) Since V111 and V115 are CE-compliant as standard, the suffix “-Q” is not necessary.

How to Order Interface Regulator

Series SY3000

ARBY3000 – 05 – P – 2

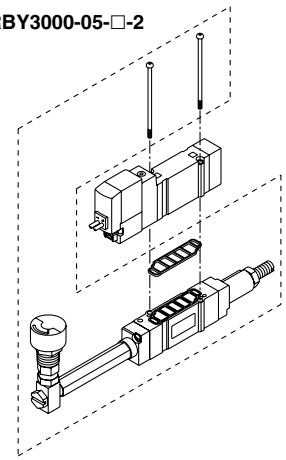
Pressure gauge connection port

05	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

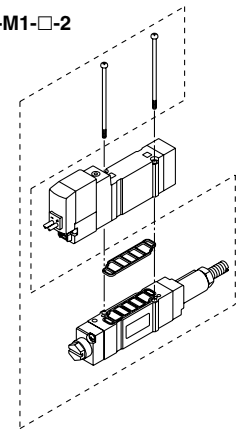
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

ARBY3000-05-□-2



ARBY3000-M1-□-2



Series SY5000

ARBY5000 – 00 – P – 2

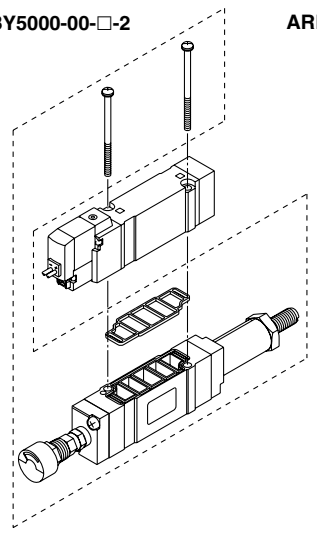
Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

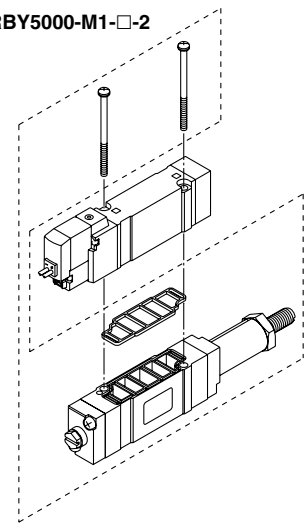
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

ARBY5000-00-□-2



ARBY5000-M1-□-2



Series SY7000

ARBY7000 – 00 – P – 2

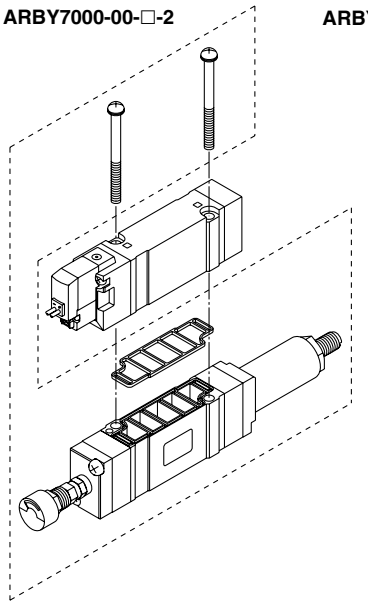
Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

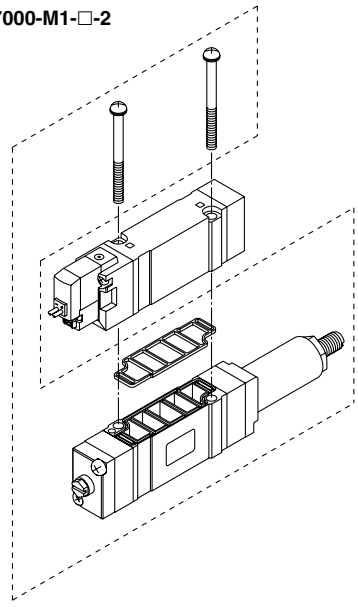
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

ARBY7000-00-□-2



ARBY7000-M1-□-2



Note) ARBY is not CE-compliant.

Accessory

Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2 x 36)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6
ARBY7000	M4 x 57, Matt nickel plated	SX7000-57-4

⚠ Caution

Mounting screw tightening torques

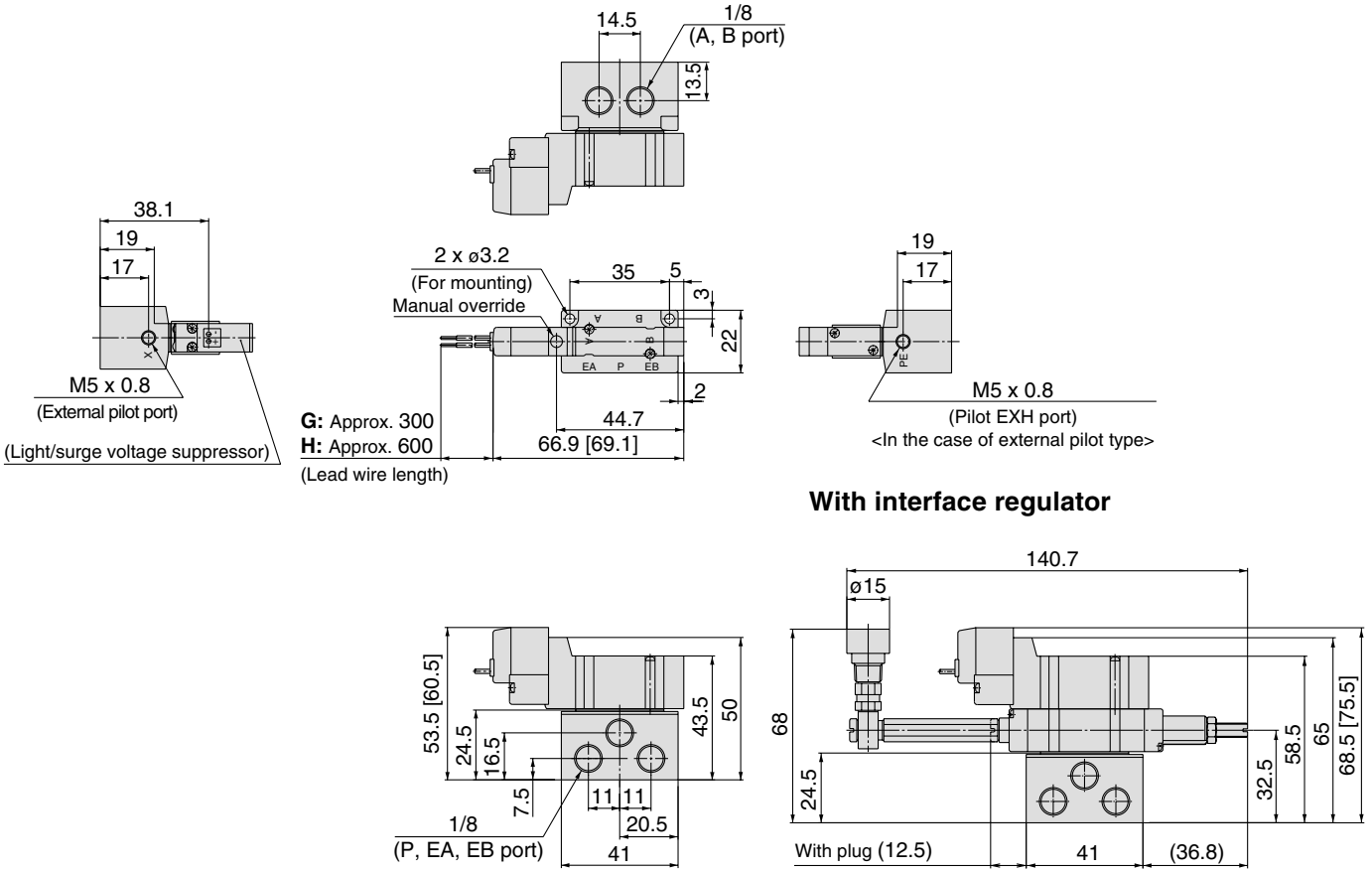
M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

Dimensions: Series SY3000

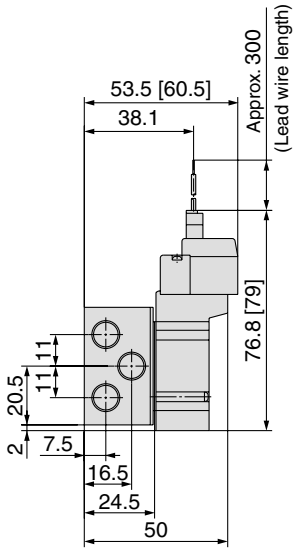
[ ]: AC

2 position single

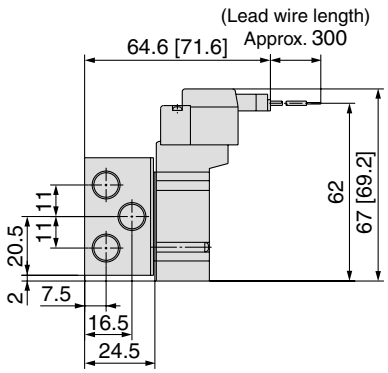
Grommet (G), (H): SY3140(R)-□$^{G}_{H}$□□-01□



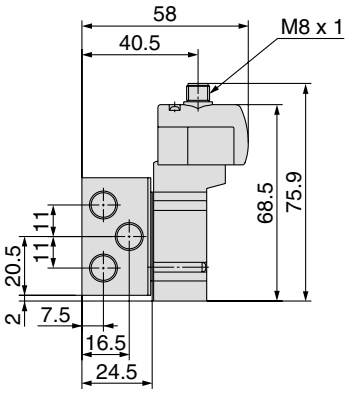
L plug connector (L):
SY3140(R)-□L□□-01□



M plug connector (M):
SY3140(R)-□M□□-01□



M8 connector (WO):
SY3140(R)-□WO□□-01□



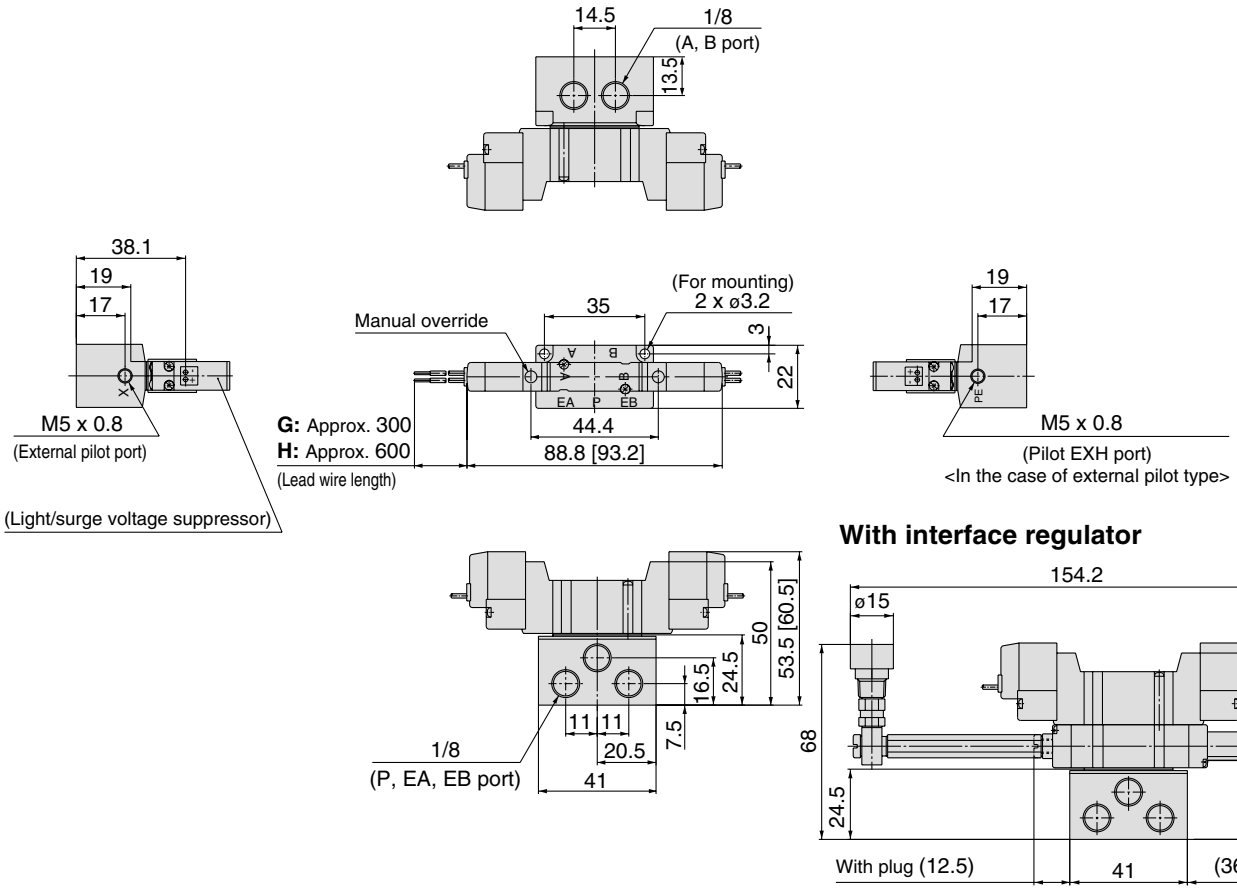
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY3000

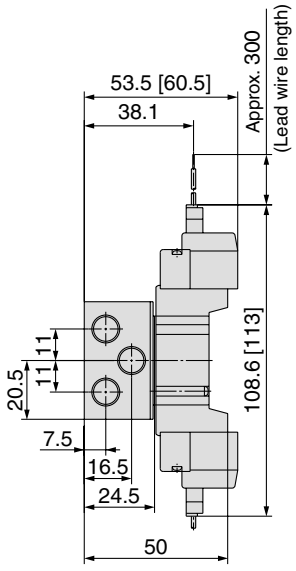
[ ]: AC

2 position double

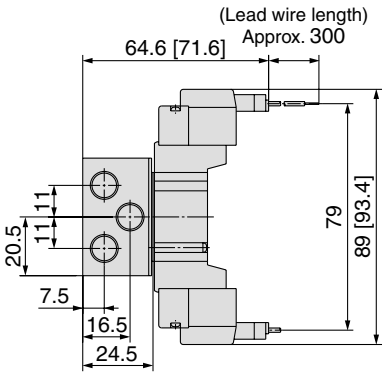
Grommet (G), (H): SY3240(R)-□$^{G}_{H}$□□-01□



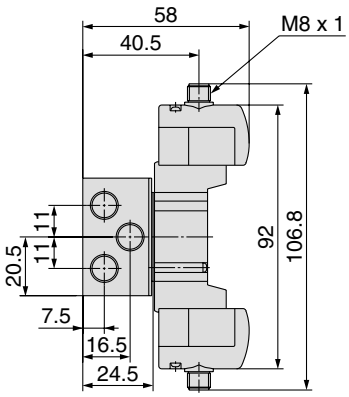
L plug connector (L): SY3240(R)-□L□□-01□



M plug connector (M): SY3240(R)-□M□□-01□



M8 connector (WO): SY3240(R)-□WO□□-01□

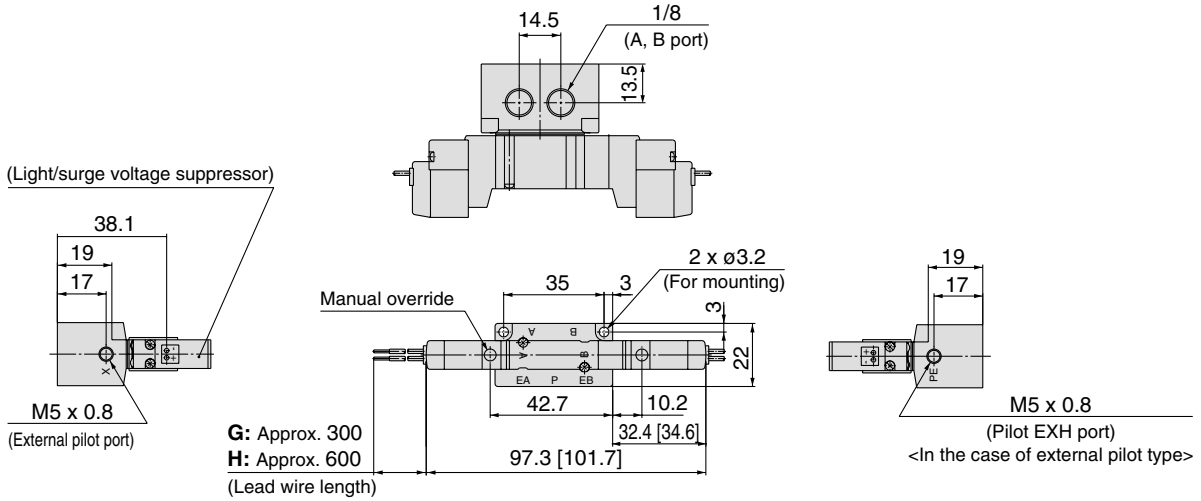


Note) Refer to page 340 for dimensions of connector types.

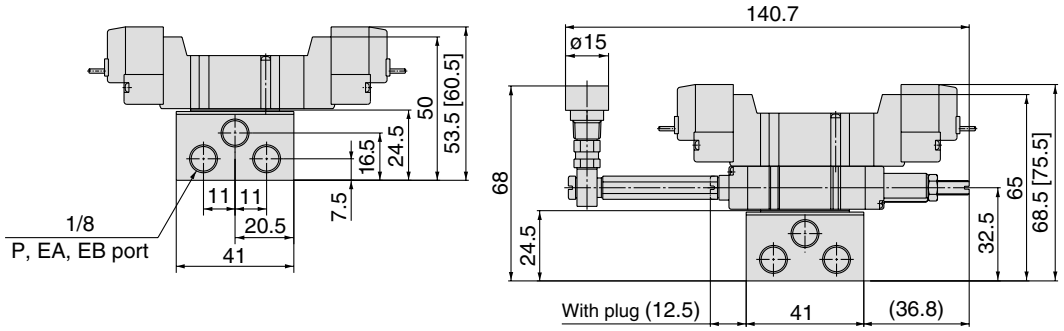
Dimensions: Series SY3000

[ ]: AC

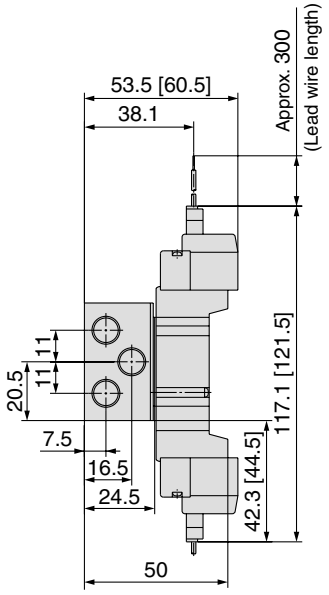
3 position closed center / exhaust center / pressure center
Grommet (G), (H): SY3$^{3}_{5}$40(R)-□$^{G}_{H}$□□-01□



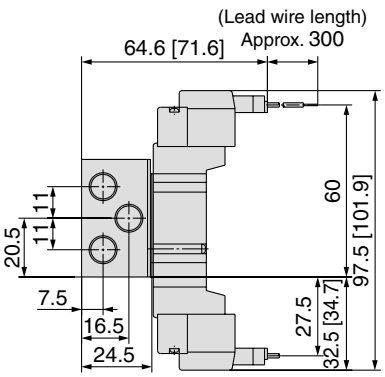
With interface regulator



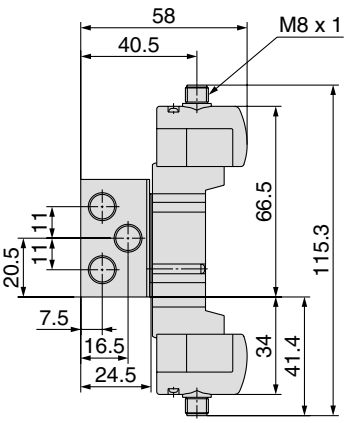
L plug connector (L):
SY3$^{3}_{5}$40(R)-□L□□-01□



M plug connector (M):
SY3$^{3}_{5}$40(R)-□M□□-01□



M8 connector (WO):
SY3$^{3}_{5}$40(R)-□WO□□-01□



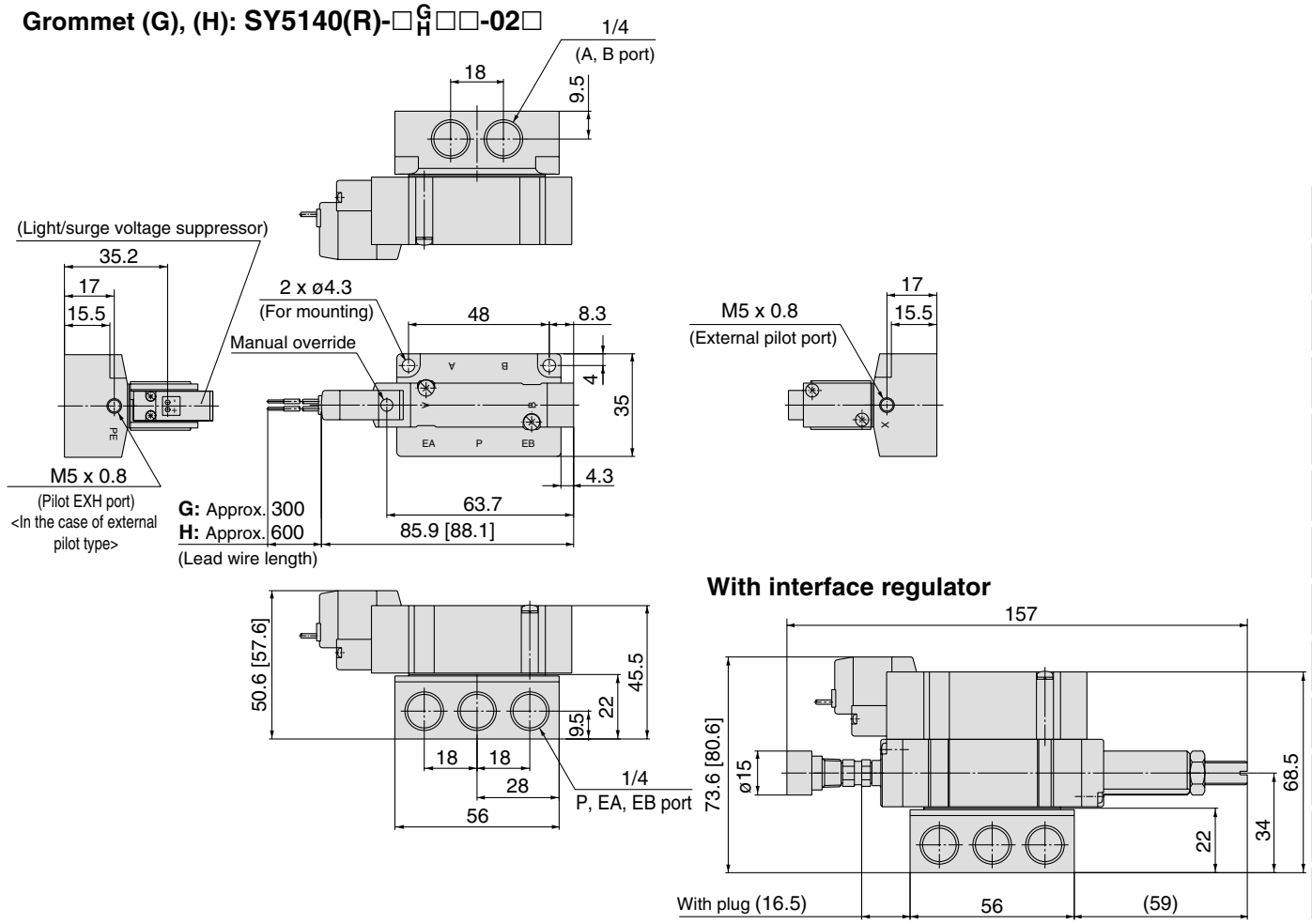
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY5000

[ ]: AC

2 position single

Grommet (G), (H): SY5140(R)-□$^{G}_{H}$□□-02□

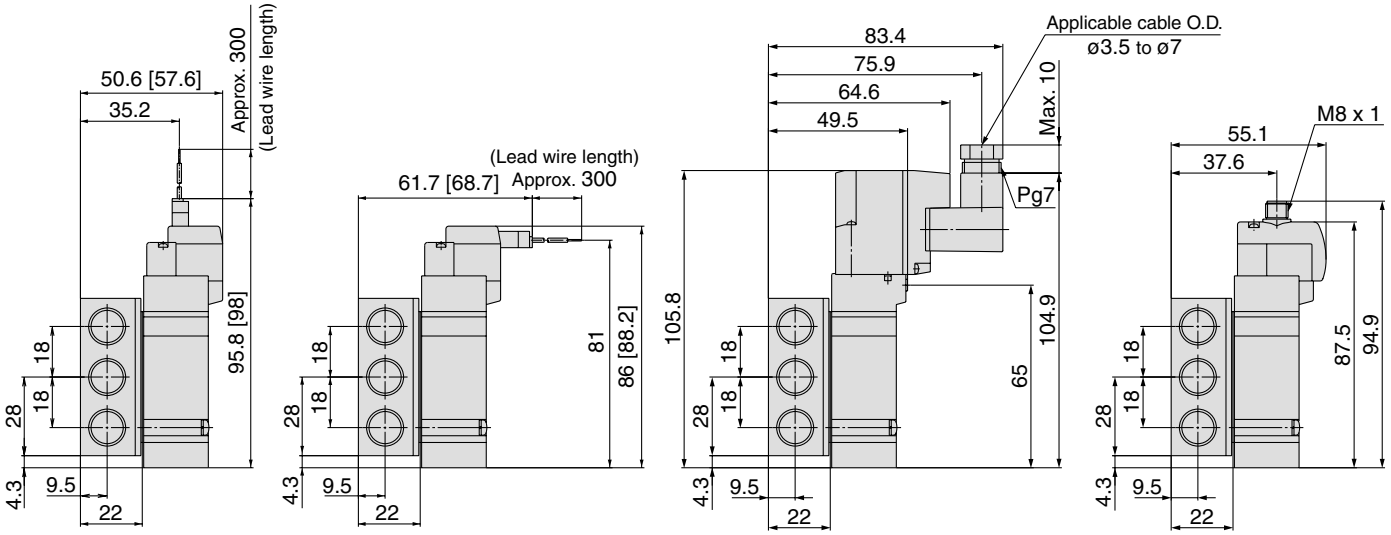


L plug connector (L): SY5140(R)-□L□□-02□

M plug connector (M): SY5140(R)-□M□□-02□

DIN terminal (D, Y): SY5140(R)-□$^{D}_{Y}$□□-02□

M8 connector (WO): SY5140(R)-□WO□□-02□



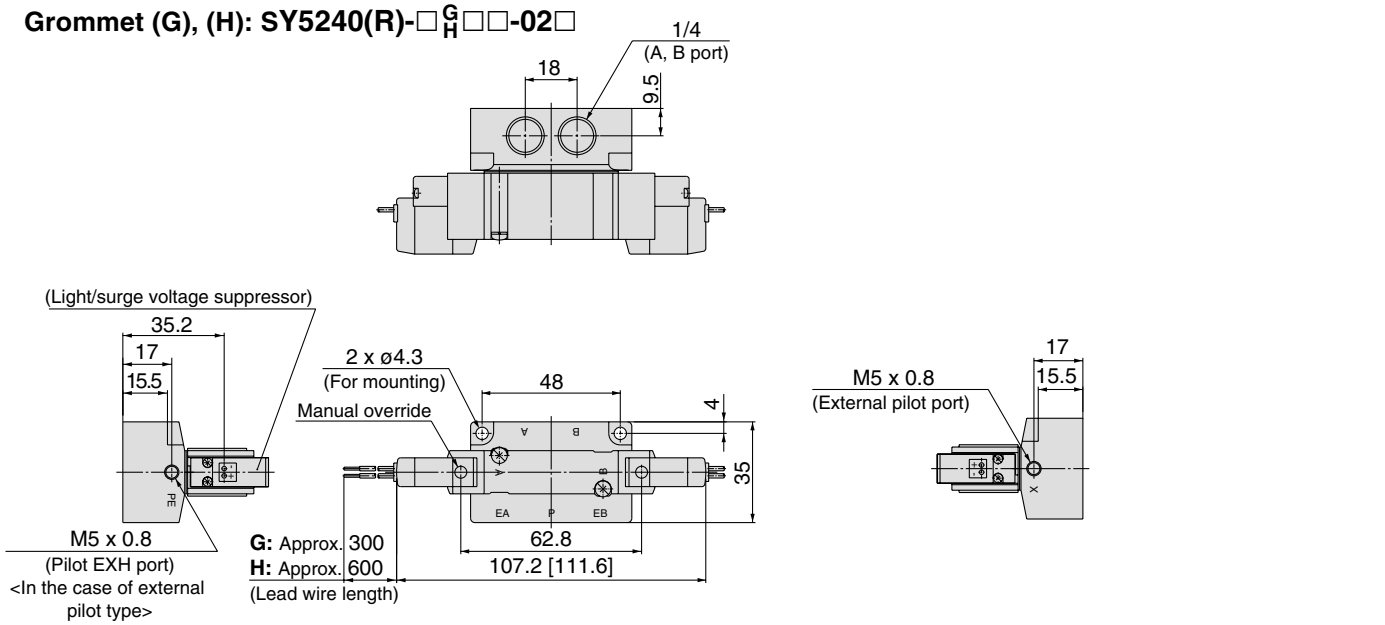
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY5000

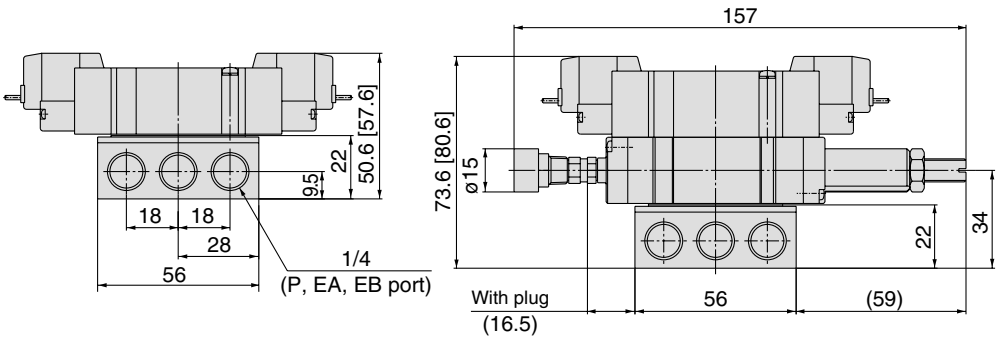
[ ]: AC

2 position double

Grommet (G), (H): SY5240(R)-□G/H□□-02□



With interface regulator

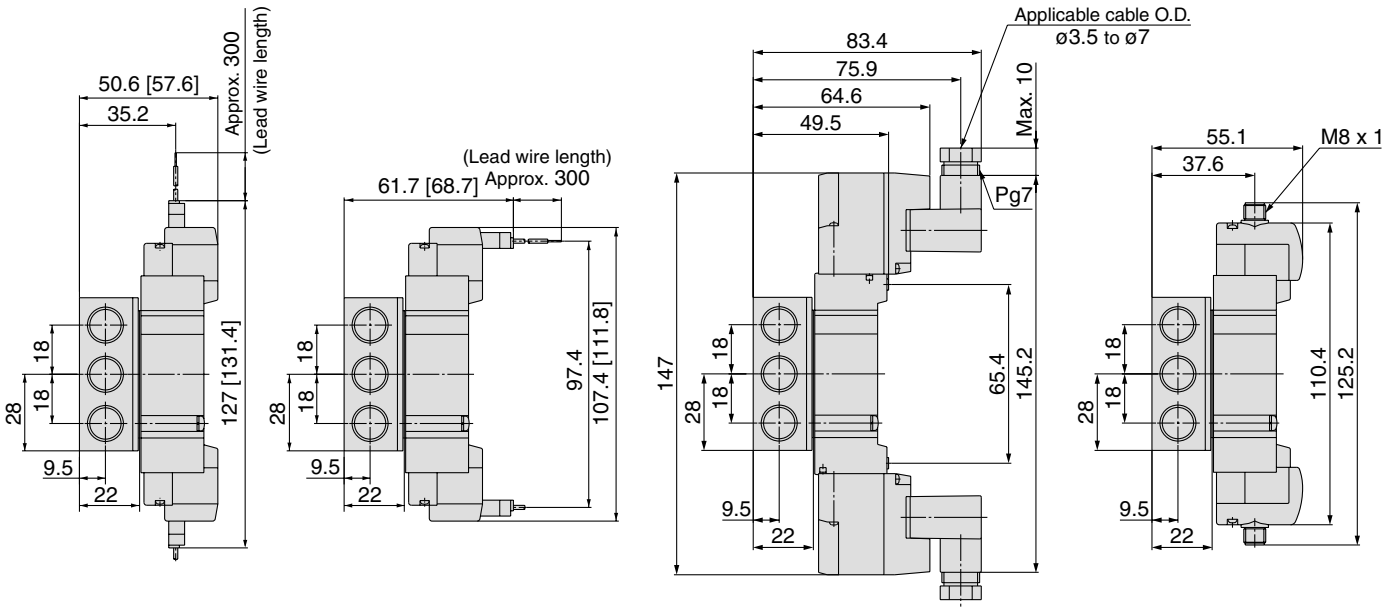


L plug connector (L): SY5240(R)-□L□□-02□

M plug connector (M): SY5240(R)-□M□□-02□

DIN terminal (D, Y): SY5240(R)-□D/Y□□-02□

M8 connector (WO): SY5240(R)-□WO□□-02□

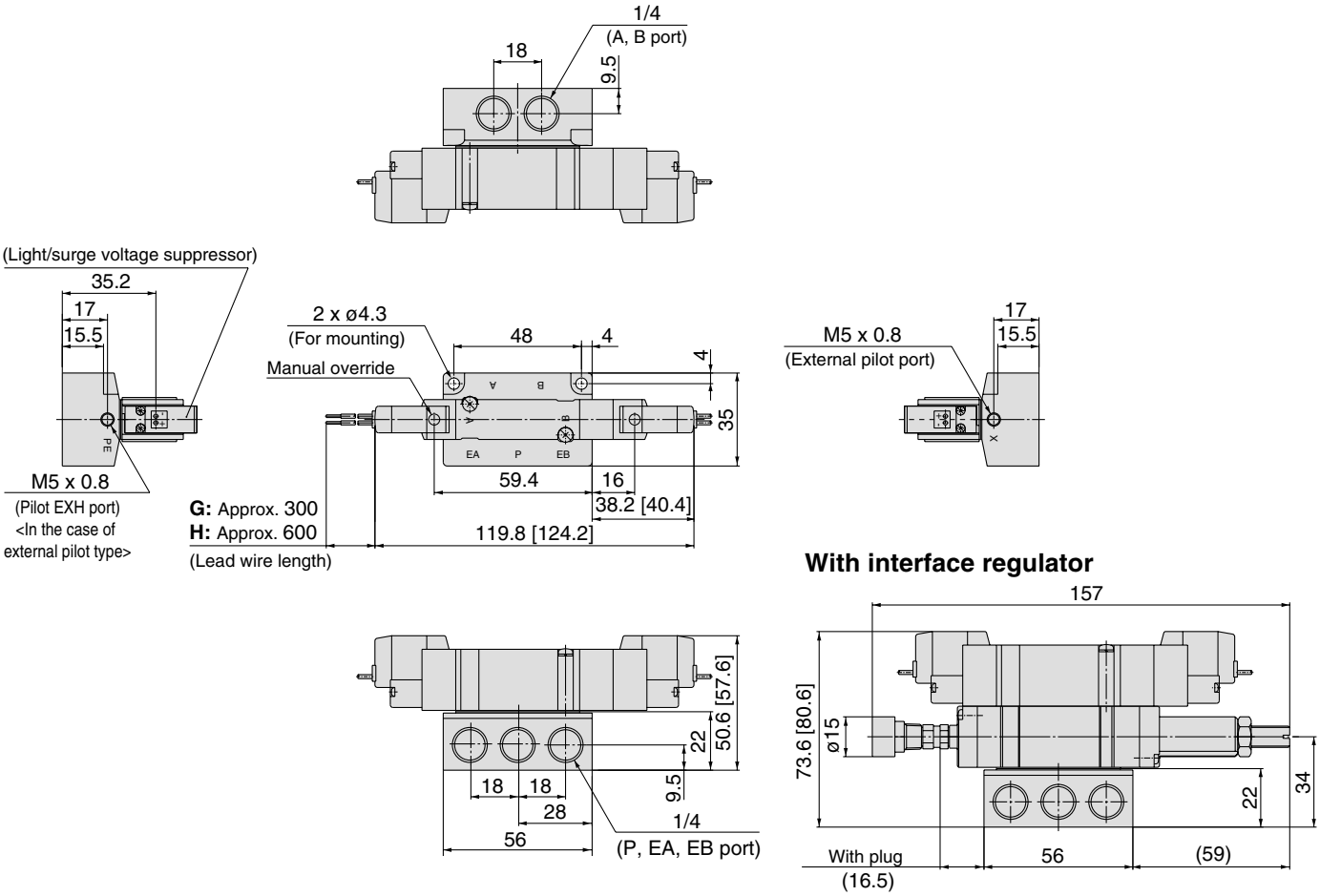


Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY5000

[ ]: AC

3 position closed center / exhaust center / pressure center
Grommet (G), (H): SY5$^{3}_{5}$40(R)-□$^{G}_{H}$□□-02□

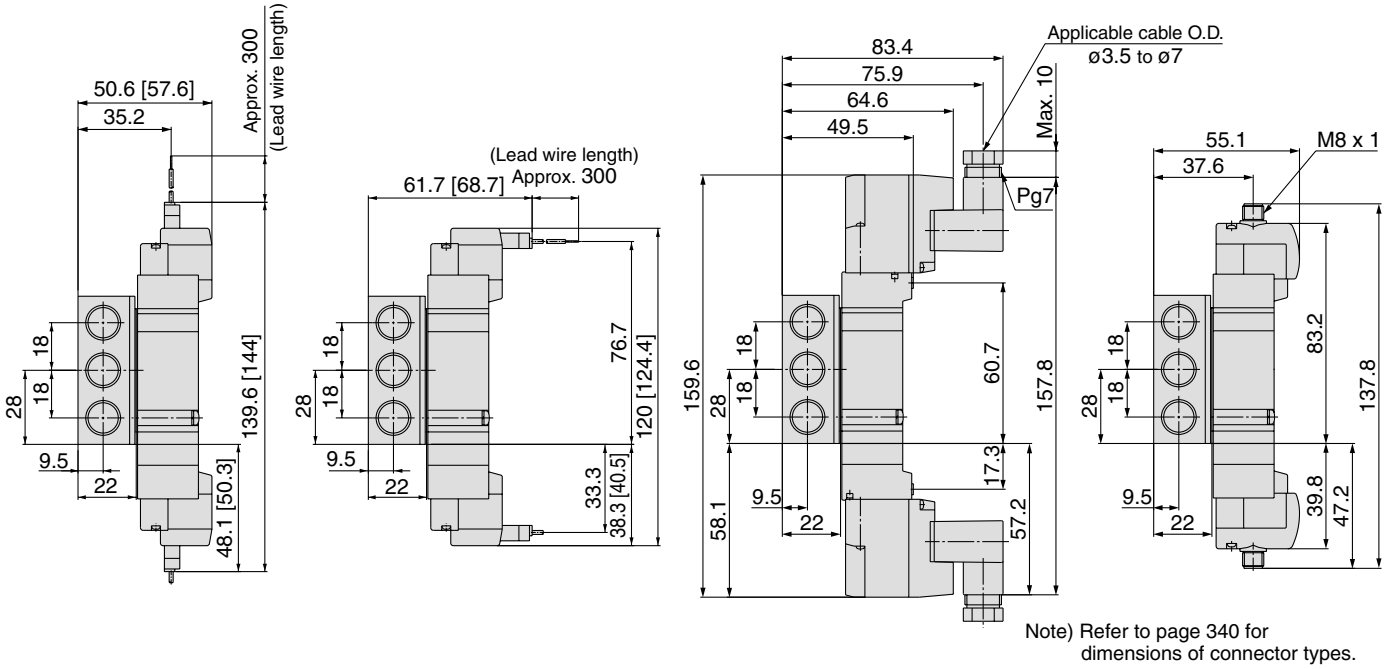


L plug connector (L): SY5$^{3}_{5}$40(R)-□L□□-02□

M plug connector (M): SY5$^{3}_{5}$40(R)-□M□□-02□

DIN terminal (D, Y): SY5$^{3}_{5}$40(R)-□$^{D}_{Y}$□□-02□

M8 connector (WO): SY5$^{3}_{5}$40(R)-□WO□□-02□



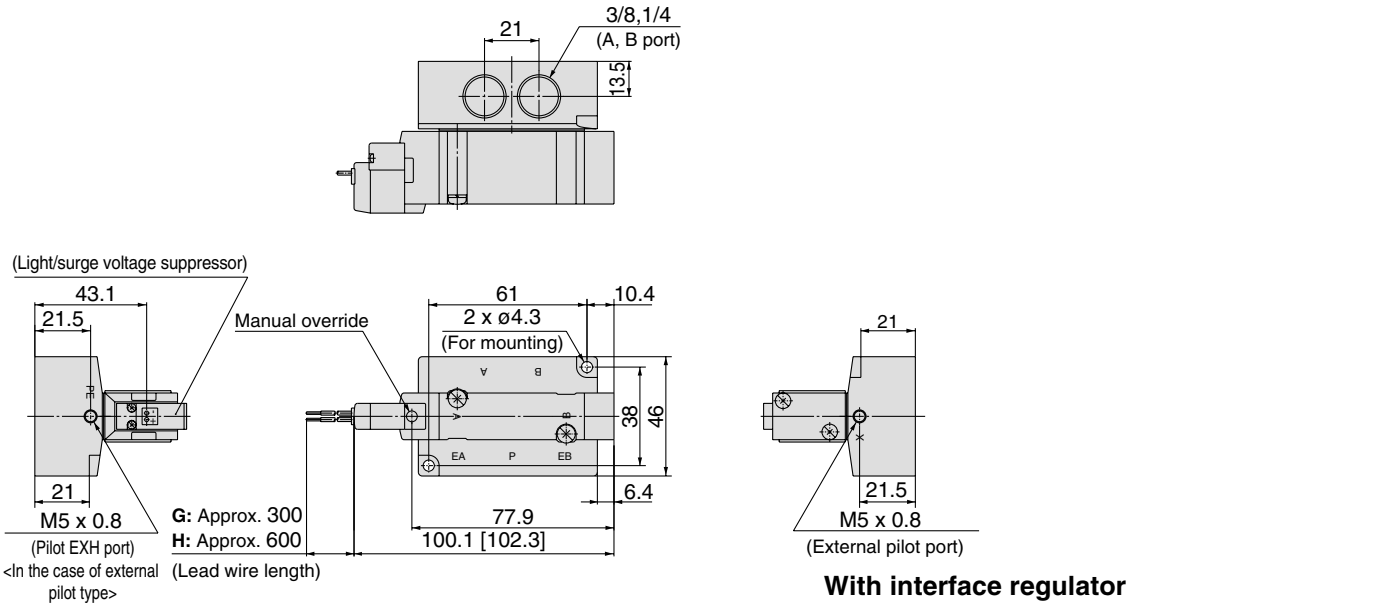
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY7000

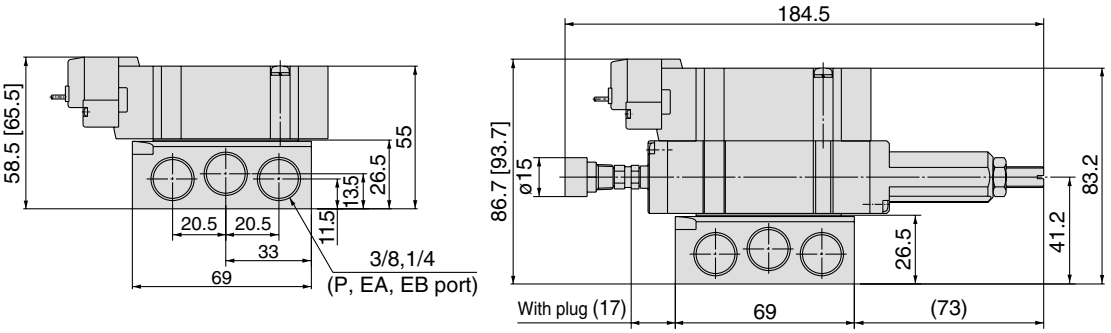
[ ]: AC

2 position single

Grommet (G), (H): SY7140(R)-□G/H□□-02/03□



With interface regulator

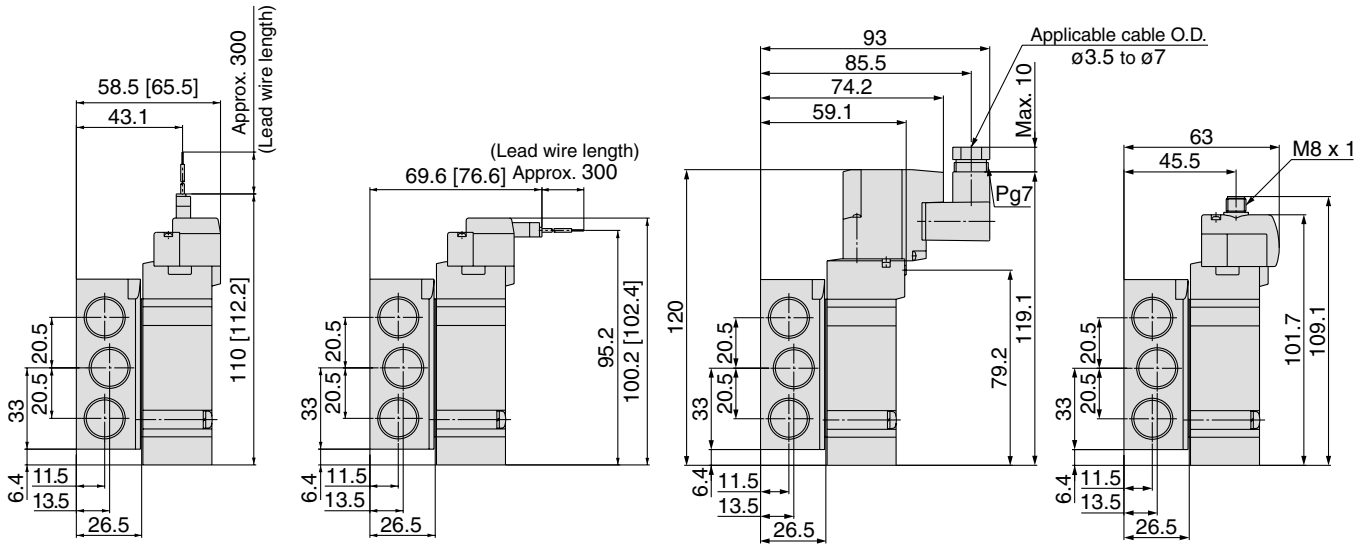


L plug connector (L): SY7140(R)-□L□□-02/03□

M plug connector (M): SY7140(R)-□M□□-02/03□

DIN terminal (D, Y): SY7140(R)-□D/Y□□-02/03□

M8 connector (WO): SY7140(R)-□WO□□-02/03□



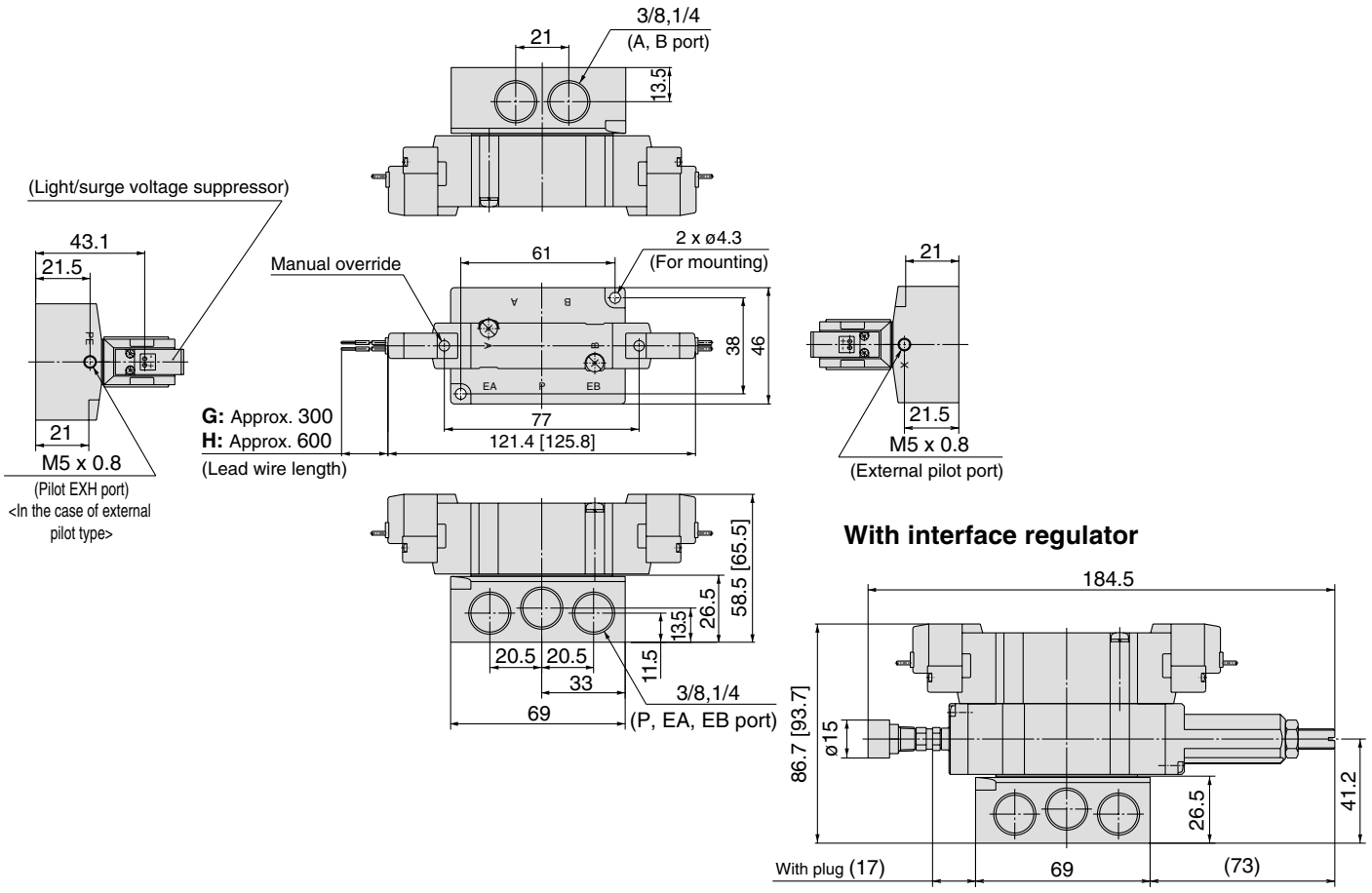
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY7000

[ ]: AC

2 position double

Grommet (G), (H): SY7240(R)-□$^{G}_{H}$□□-$^{02}_{03}$□



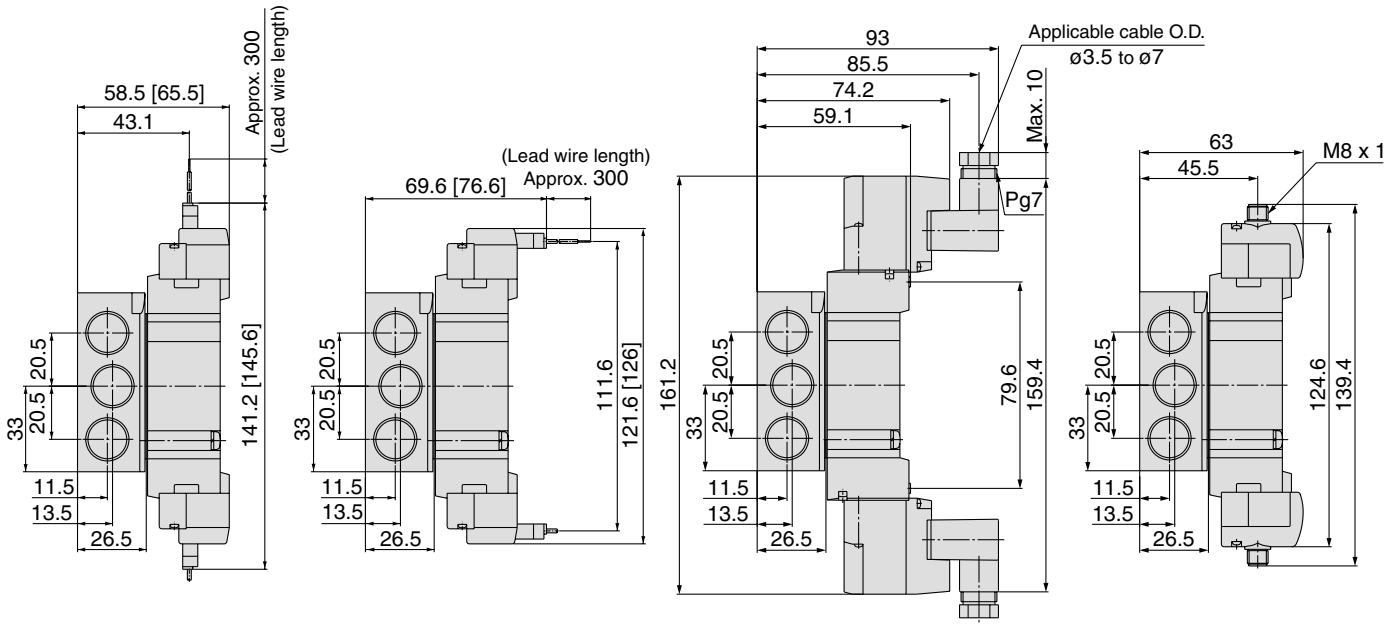
With interface regulator

L plug connector (L): SY7240(R)-□L□□-$^{02}_{03}$□

M plug connector (M): SY7240(R)-□M□□-$^{02}_{03}$□

DIN terminal (D, Y): SY7240(R)-□$^{D}_{Y}$□□-$^{02}_{03}$□

M8 connector (WO): SY7240(R)-□WO□□-$^{02}_{03}$□



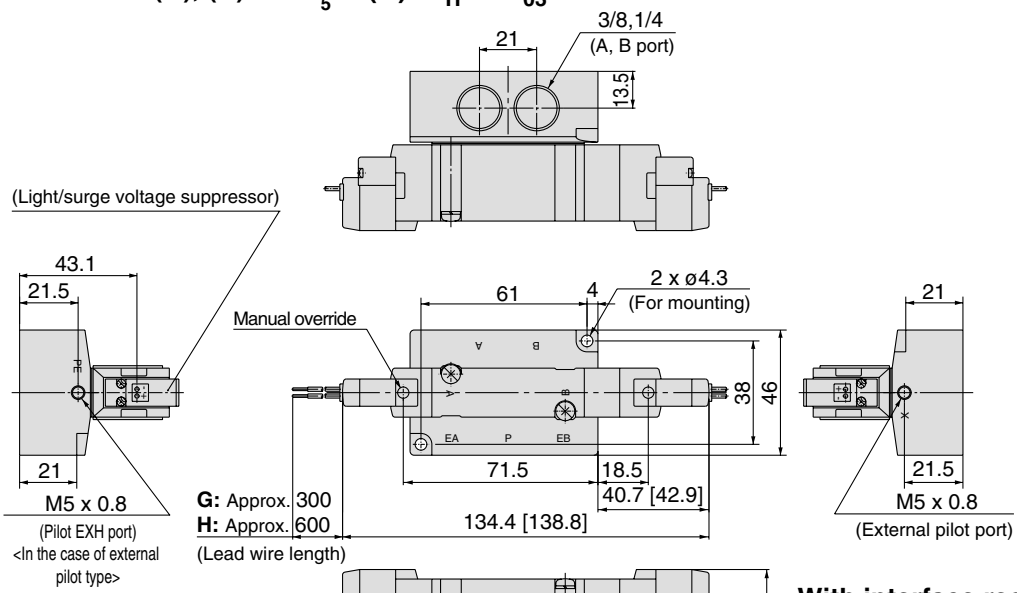
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY7000

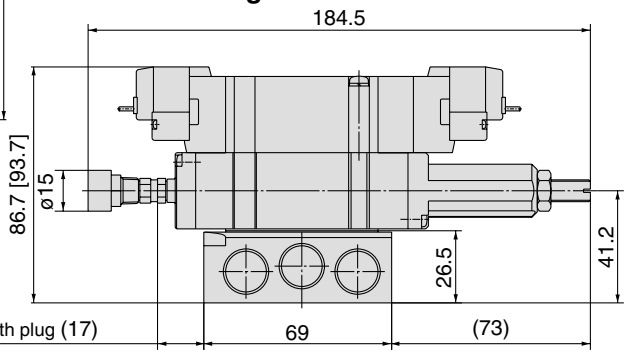
[ ]: AC

3 position closed center / exhaust center / pressure center

Grommet (G), (H): SY7$^{3}_{5}$40(R)-□$^{G}_{H}$□□-$^{02}_{03}$□



With interface regulator

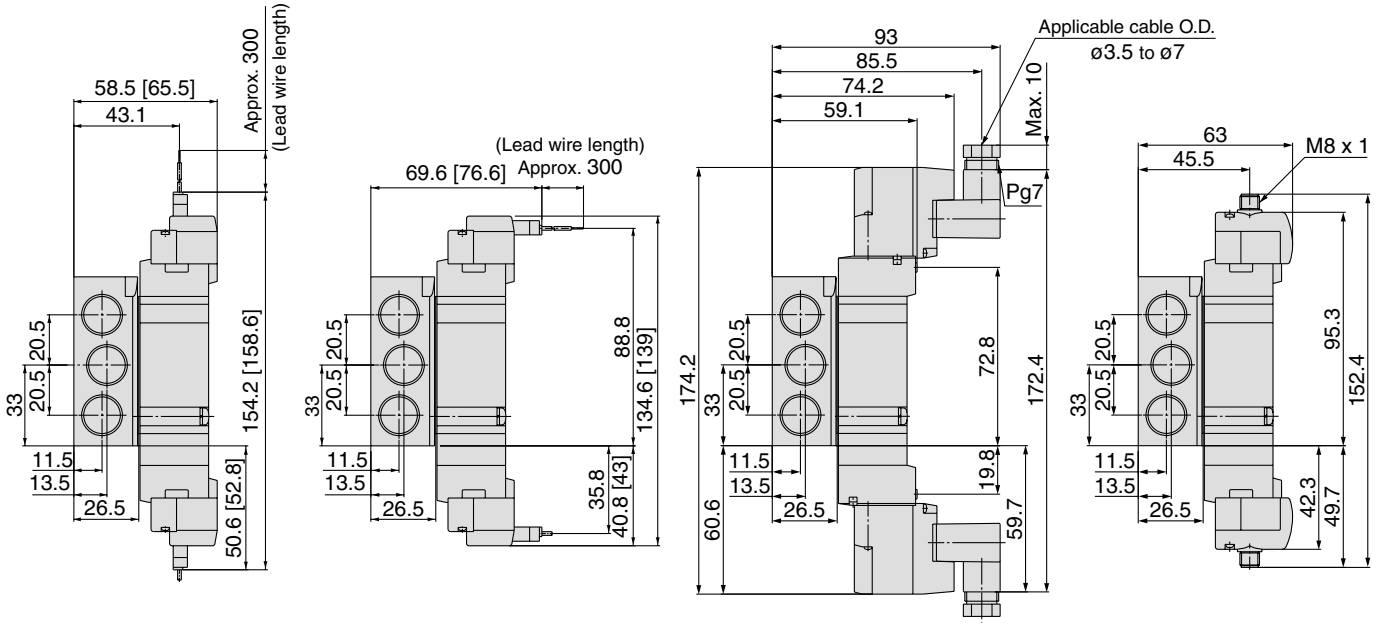


L plug connector (L):
SY7$^{3}_{5}$40(R)-□L□□-$^{02}_{03}$□

M plug connector (M):
SY7$^{3}_{5}$40(R)-□M□□-$^{02}_{03}$□

DIN terminal (D, Y):
SY7$^{3}_{5}$40(R)-□$^{D}_{Y}$□□-$^{02}_{03}$□

M8 connector (WO):
SY7$^{3}_{5}$40(R)-□WO□□-$^{02}_{03}$□

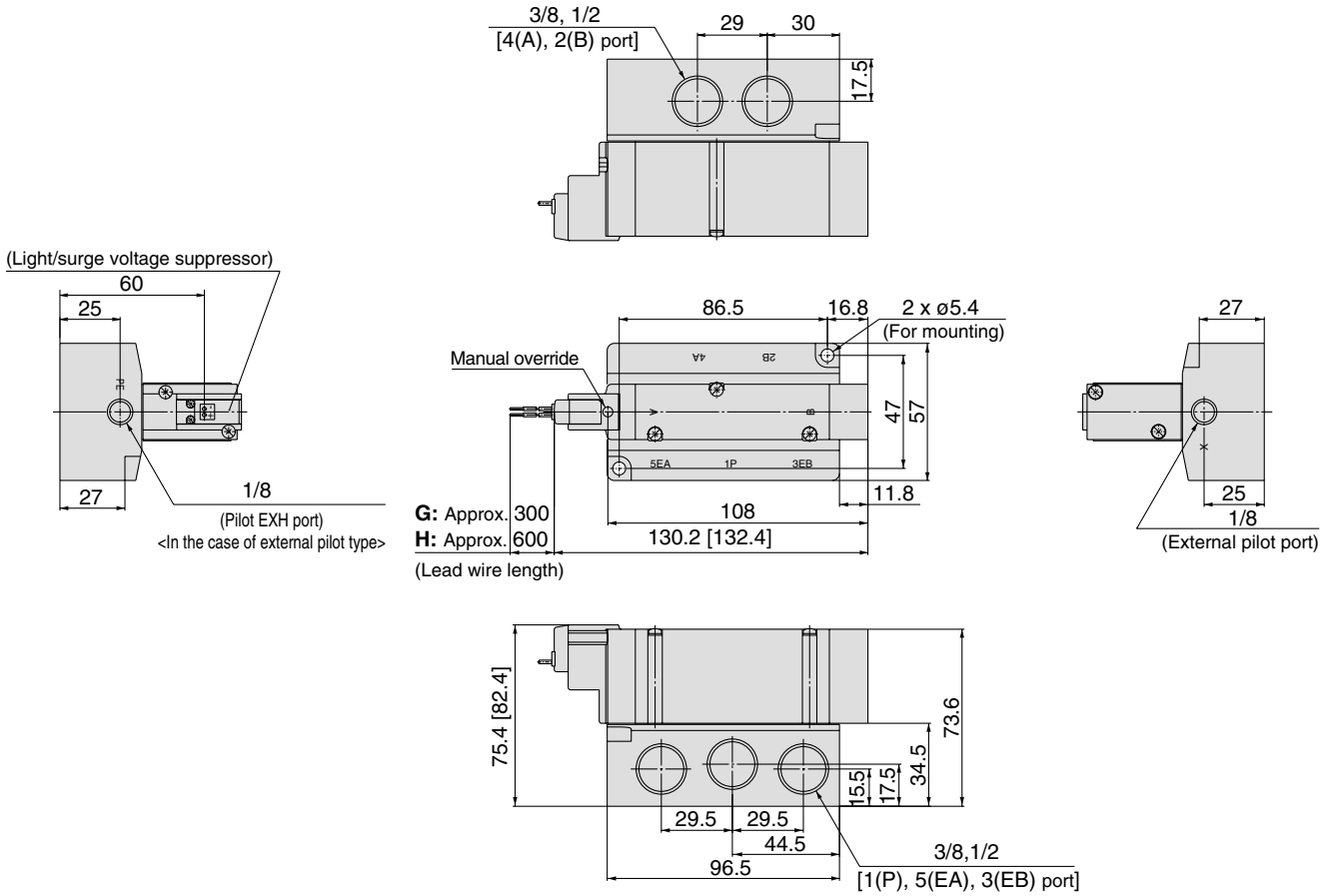


Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY9000

[ ]: AC

2 position single
Grommet (G), (H): SYJ9140-□$^{G}_{H}$□□-$^{03}_{04}$□

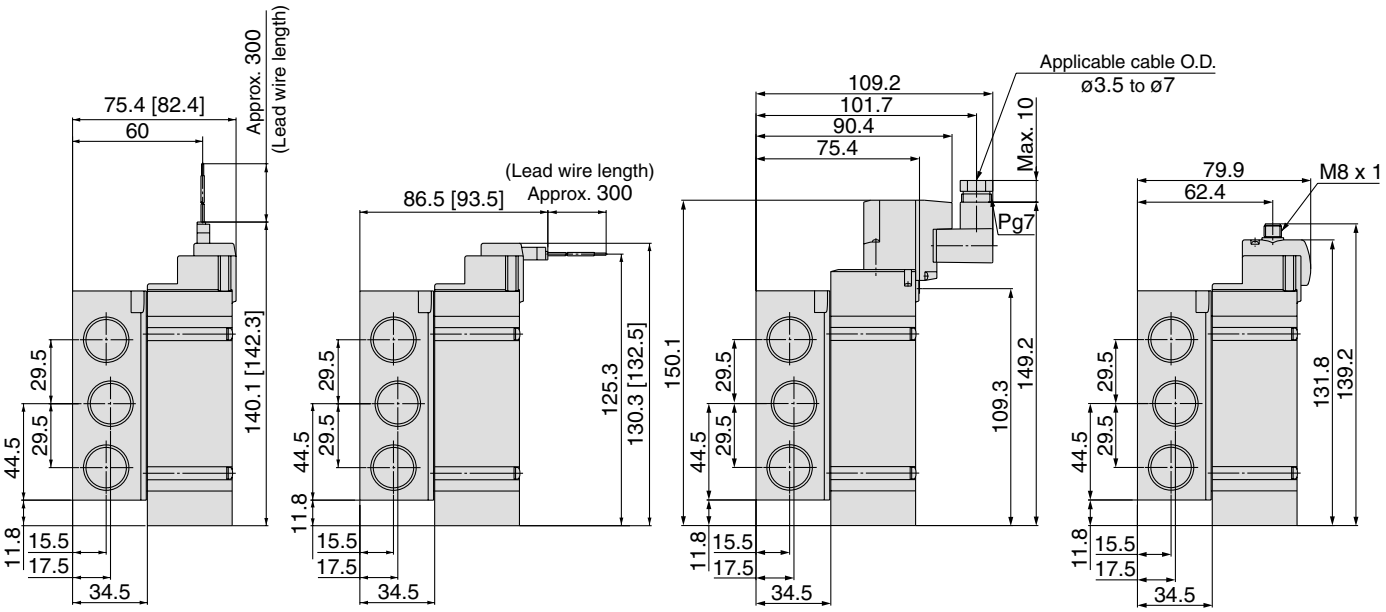


L plug connector (L):
SY9140(R)-□L□□-$^{03}_{04}$□

M plug connector (M):
SY9140(R)-□M□□-$^{03}_{04}$□

DIN terminal (D, Y):
SY9140(R)-□$^{D}_{Y}$□□-$^{03}_{04}$□

M8 connector (WO):
SY9140(R)-□WO□□-$^{03}_{04}$□

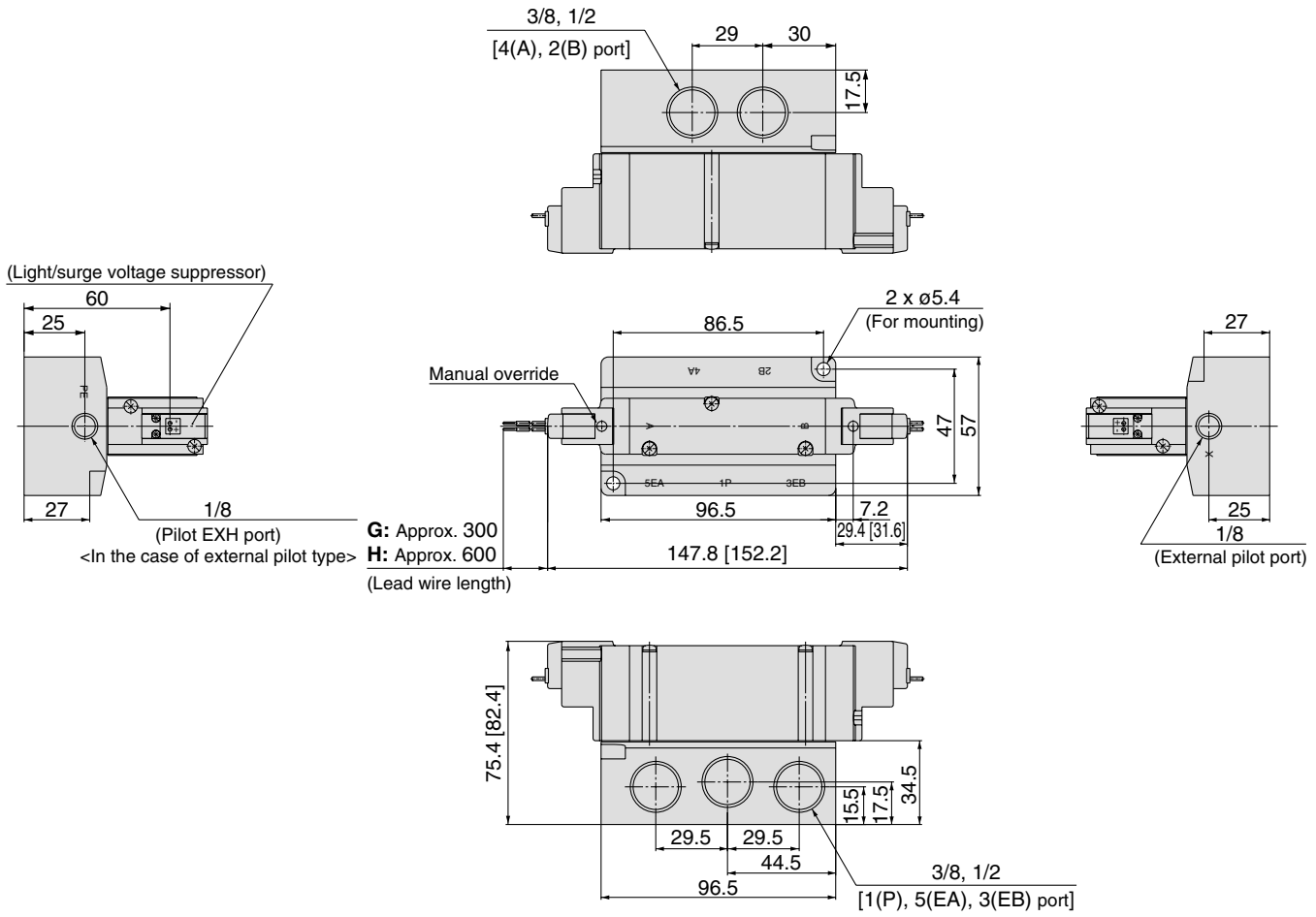


Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY9000

[ ]: AC

2 position double
Grommet (G), (H): SY9240(R)-□$^{G}_{H}$□□-$^{03}_{04}$□

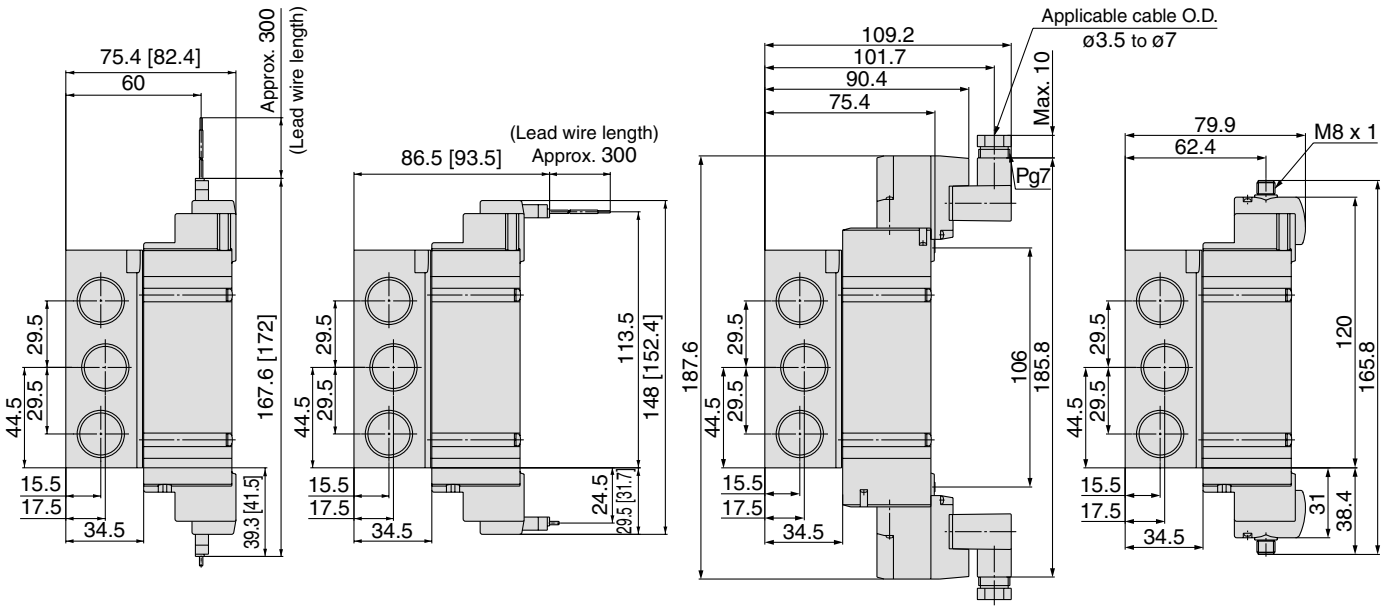


L plug connector (L): SY9240(R)-□L□□-$^{03}_{04}$□

M plug connector (M): SY9240(R)-□M□□-$^{03}_{04}$□

DIN terminal (D, Y): SY9240(R)-□$^{D}_{Y}$□□-$^{03}_{04}$□

M8 connector (WO): SY9240(R)-□WO□□-$^{03}_{04}$□



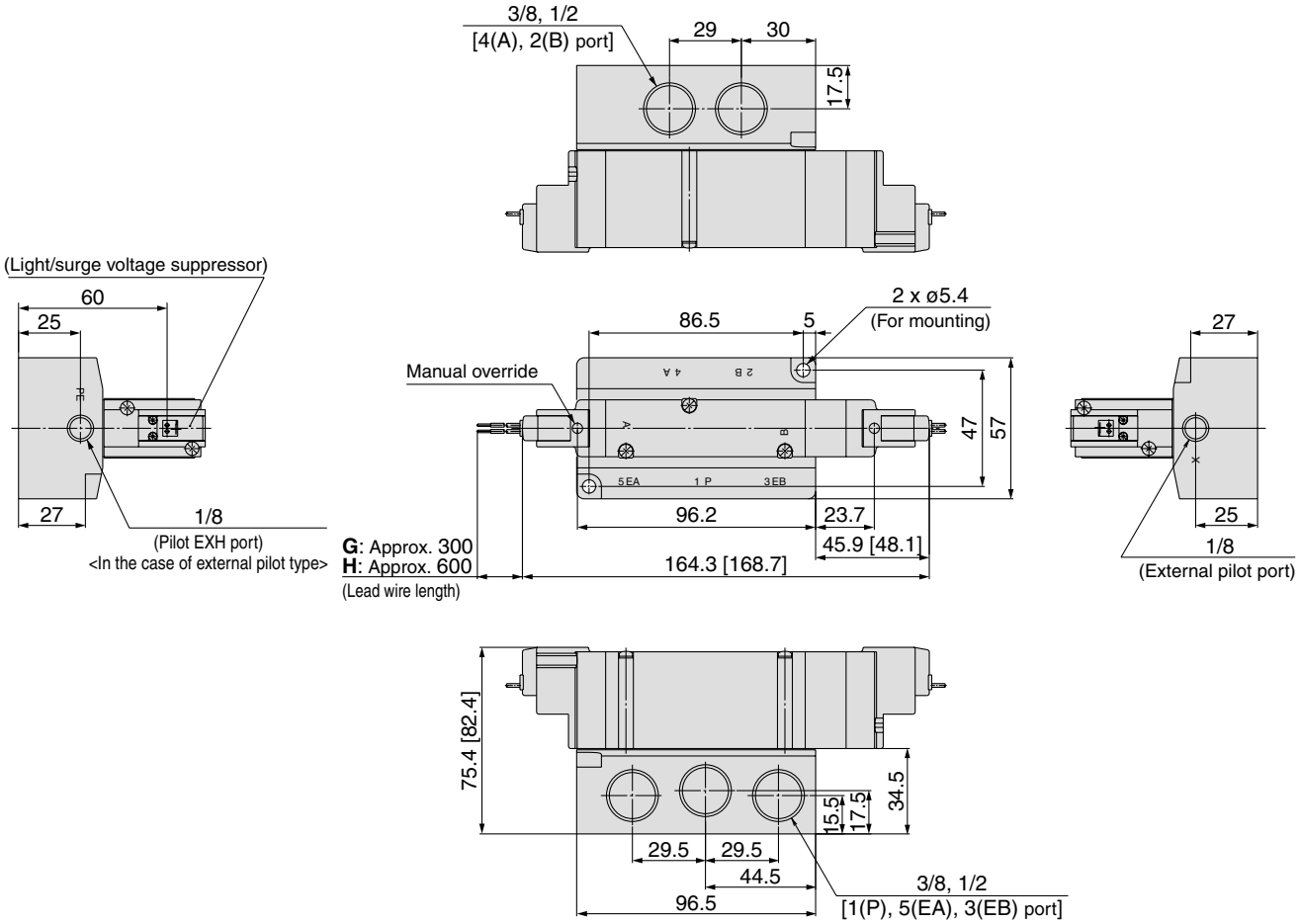
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY9000

[ ]: AC

3 position closed center / exhaust center / pressure center

Grommet (G), (H): SY9$^{3}_{5}$40-□$^{G}_{H}$□□-$^{03}_{04}$□

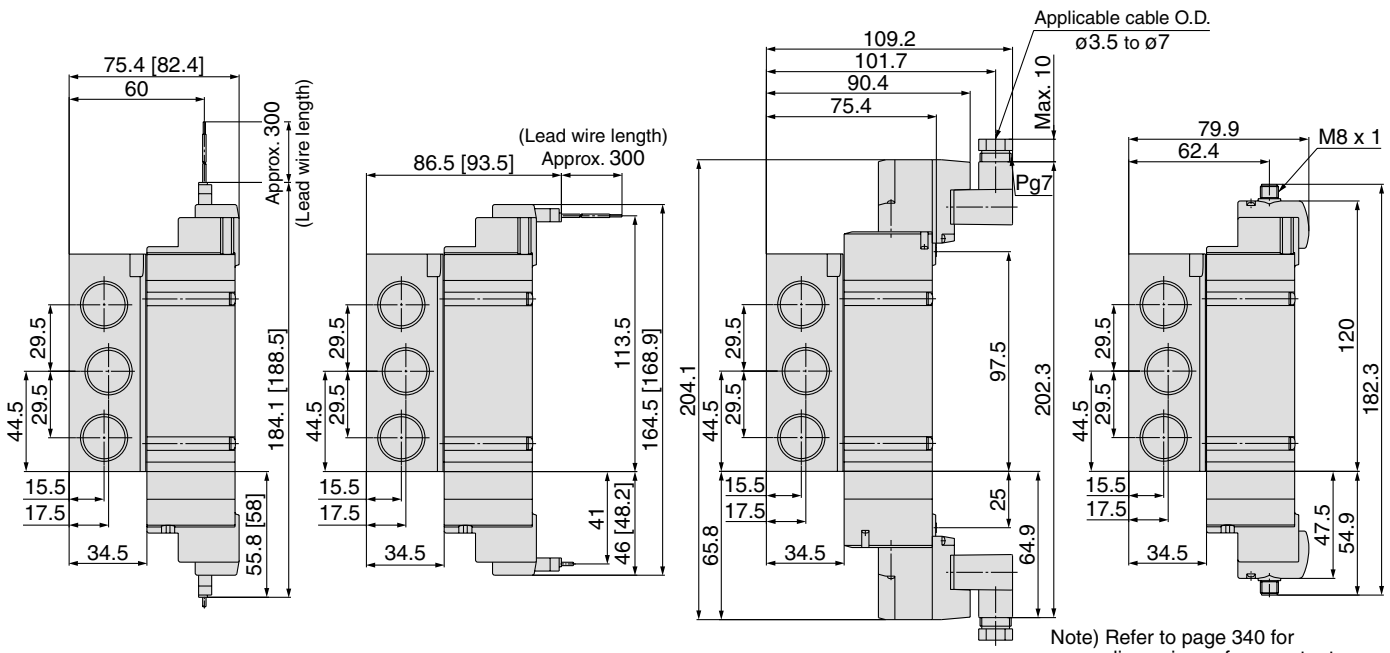


L plug connector (L): SY9$^{3}_{5}$40(R)-□L□□-$^{03}_{04}$□

M plug connector (M): SY9$^{3}_{5}$40(R)-□M□□-$^{03}_{04}$□

DIN terminal (D, Y): SY9$^{3}_{5}$40(R)-□$^{D}_{Y}$□□-$^{03}_{04}$□

M8 connector (WO): SY9$^{3}_{5}$40(R)-□WO□□-$^{03}_{04}$□



Note) Refer to page 340 for dimensions of connector types.

5 Port Solenoid Valve
Body Ported Manifold
Bar Stock Type/Individual Wiring

Type 20

Series SY3000/5000/7000

How to Order Manifold

SS5Y 5 – 20 – 05 – □ – □

Manifold series

3	SY3000
5	SY5000
7	SY7000

Stations

02	2 stations
⋮	⋮
20	20 stations

∗ This also includes the number of blanking plate assemblies.

Thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

How to Order Manifold Assembly (Example)

Example

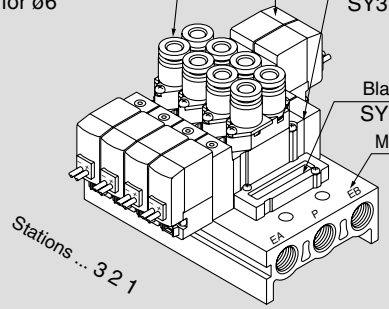
Cylinder port size
C6: With one-touch fitting for ø6

Double solenoid (24 VDC)
SY3220-5G-C6 (2 sets)

Single solenoid (24 VDC)
SY3120-5G-C6 (2 sets)

Blanking plate assembly
SY3000-26-9A (1 set)

Manifold base (5 stations)
SS5Y3-20-05



SS5Y3-20-05 ····· 1 set (Type 20, 5-station manifold base part no.)
∗ SY3000-26-9A ···· 1 set (Blanking plate assembly part no.)
∗ SY3120-5G-C6 ··· 2 sets (Single solenoid part no.)
∗ SY3220-5G-C6 ··· 2 sets (Double solenoid part no.)
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve

SY [5] [1] **20** [ ] – [5] [L] [ ] [ ] – [01] [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Electrical entry

24, 12, 6, 5, 3 VDC/ 100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	**L plug connector**	**M plug connector**	**DIN terminal**	**M8 connector**
G: Lead wire length 300 mm **H**: Lead wire length 600 mm	**L**: With lead wire (Length 300 mm) **LN**: Without lead wire **LO**: Without connector	**M**: With lead wire (Length 300 mm) **MN**: Without lead wire **MO**: Without connector	**D**: With connector **DO**: Without connector **Y**: With connector **YO**: Without connector	**WO**: Without connector cable **W□**: With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ For DIN terminal of SY3000 series, refer to page 337.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 thread conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.

Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000

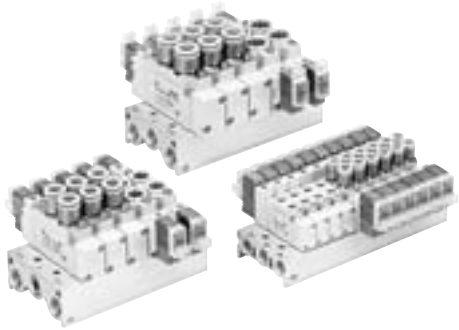
One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 173.)



Manifold Specifications

Model		SS5Y3-20(-Q)	SS5Y5-20(-Q)	SS5Y7-20(-Q)
Applicable valve		SY3□20	SY5□20	SY7□20
Manifold type		Single base/B mount		
P (SUP)/R (EXH)		Common SUP, Common EXH		
Valve stations		2 to 20 stations Note1)		
A, B port location		Valve		
Port size	**P, EA, EB port**	1/8	1/4	1/4
	A, B port	M5 x 0.8 C4(One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10)
Manifold base mass W (g) **n: Stations**		W = 13n + 35	W = 36n + 64	W = 43n + 64

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.

Note 2) Refer to "Manifold Option" on page 173.

Flow Characteristics

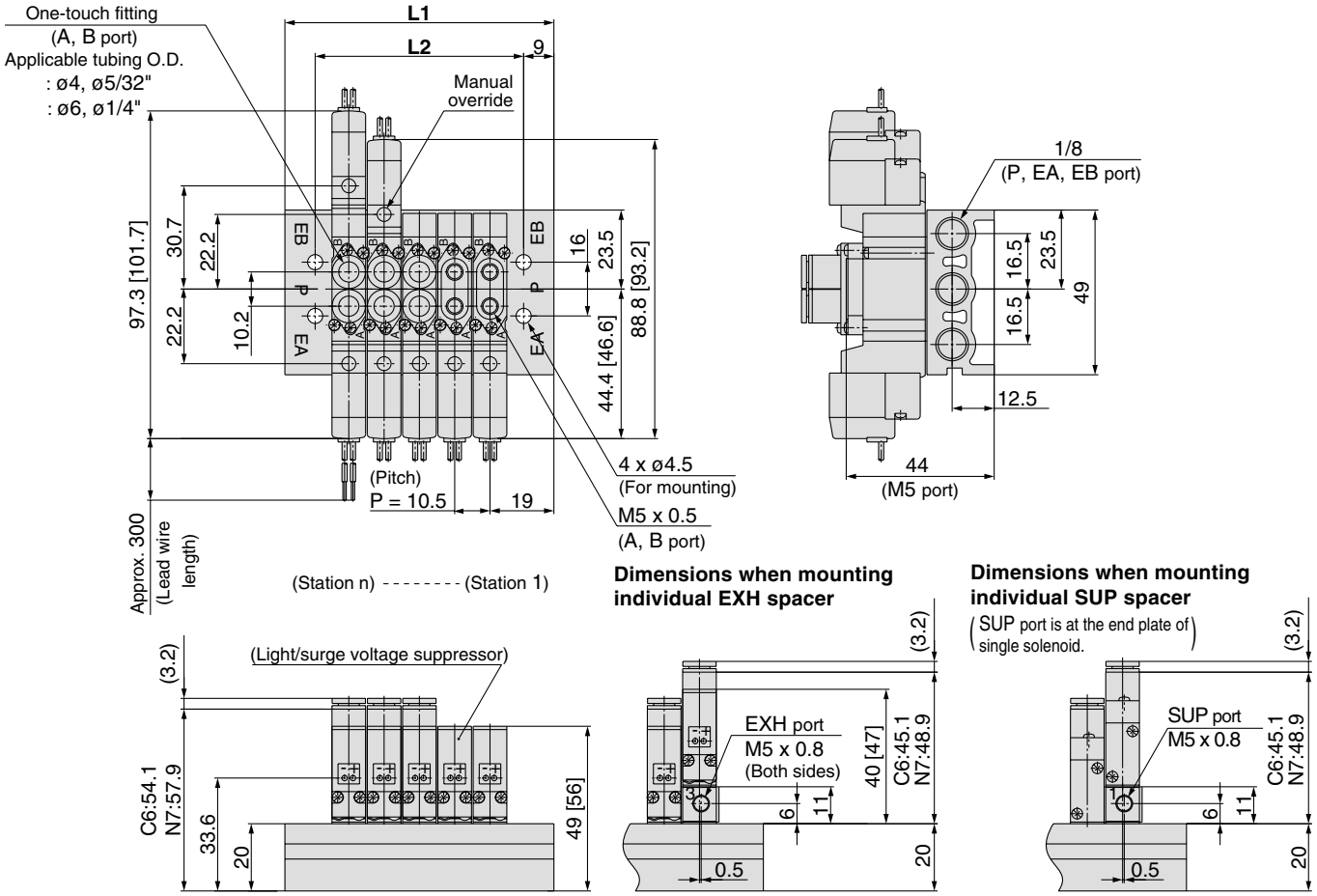
Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-20(-Q)	1/8	C6	0.72	0.29	0.18	0.80	0.36	0.21
SS5Y5-20(-Q)	1/4	C8	1.9	0.28	0.48	2.2	0.20	0.53
SS5Y7-20(-Q)	1/4	C10	3.6	0.31	0.93	3.6	0.27	0.88

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

SY3000: SS5Y3-20-Stations -

[ ]: AC

Grommet (G)

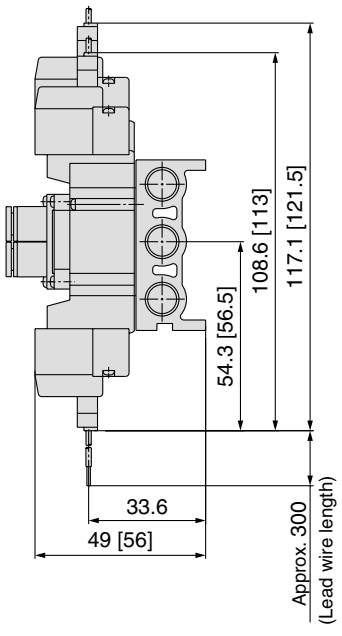


Dimensions when mounting individual EXH spacer

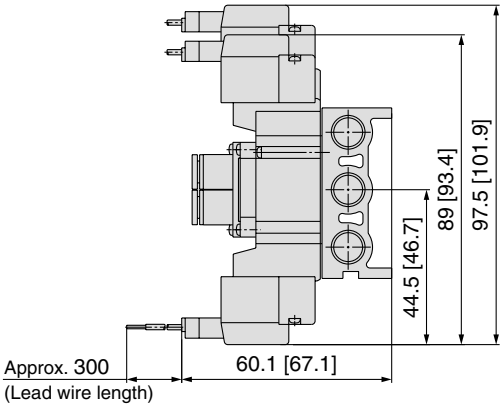
Dimensions when mounting individual SUP spacer

(SUP port is at the end plate of single solenoid.)

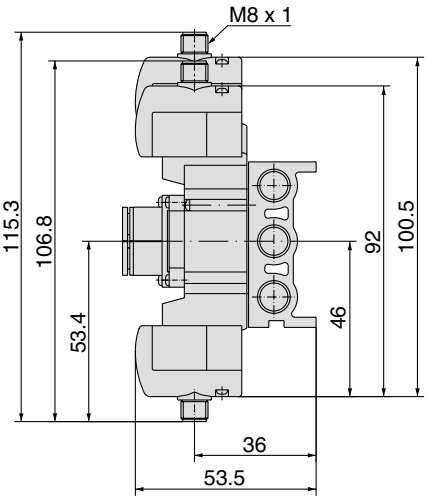
L plug connector (L)



M plug connector (M)



M8 connector (WO)



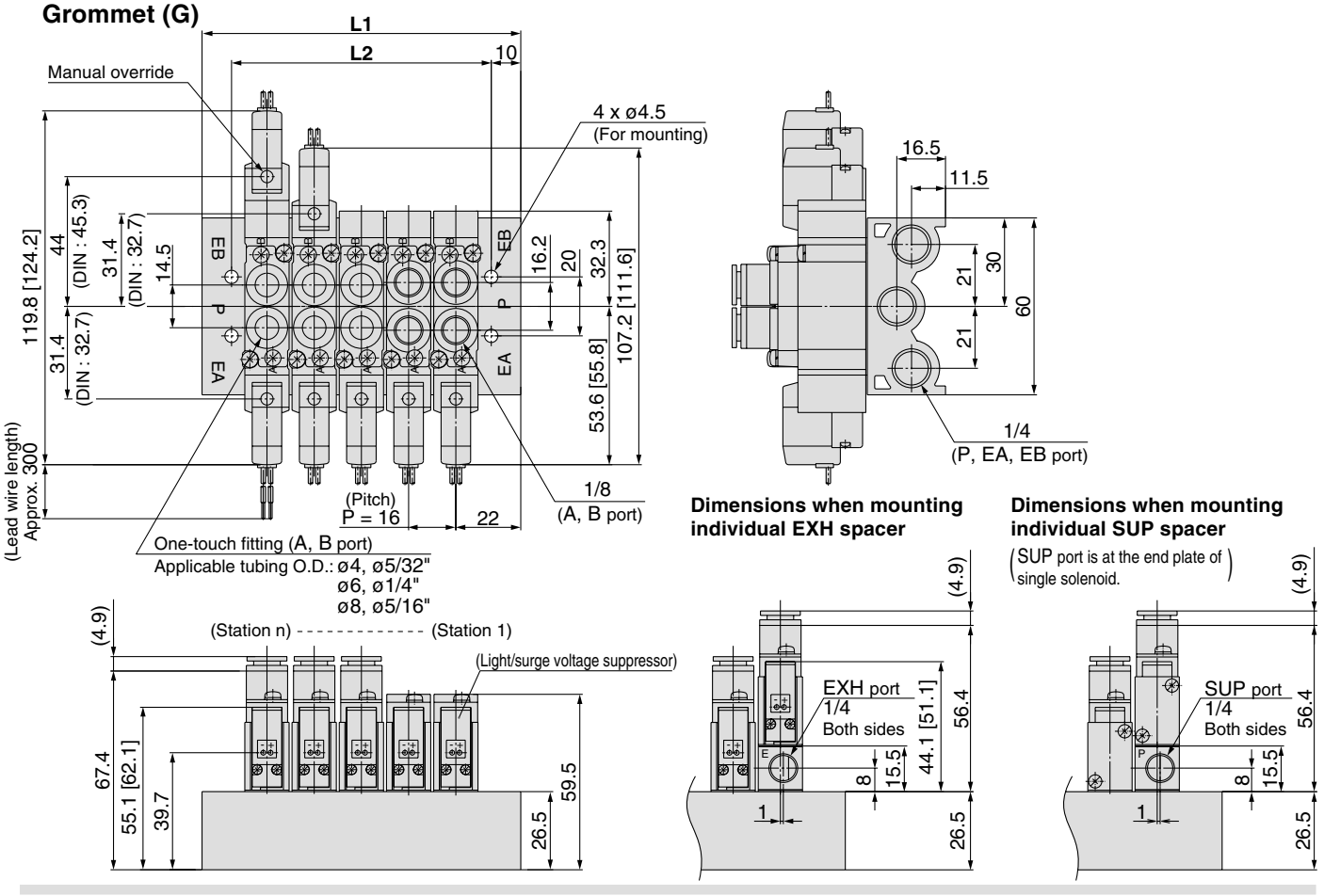
Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	48.5	59	69.5	80	90.5	101	111.5	122	132.5	143	153.5	164	174.5	185	195.5	206	216.5	227	237.5
L2	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

SY5000: SS5Y5-20-Stations-□

[ ]: AC

Grommet (G)

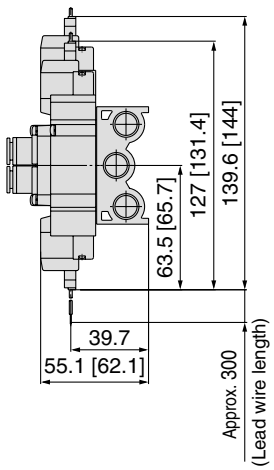


Dimensions when mounting individual EXH spacer

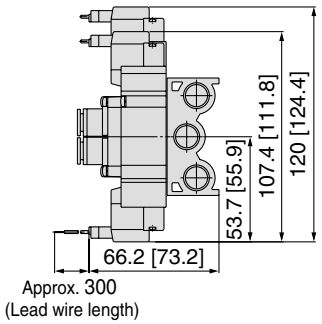
Dimensions when mounting individual SUP spacer

(SUP port is at the end plate of single solenoid.)

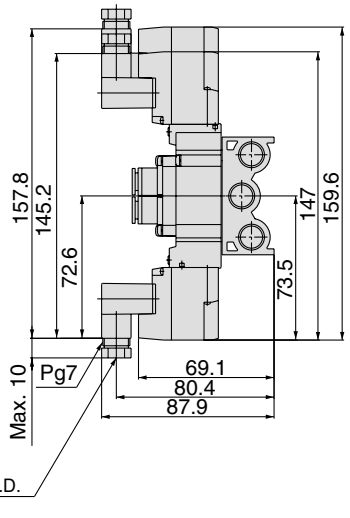
L plug connector (L)



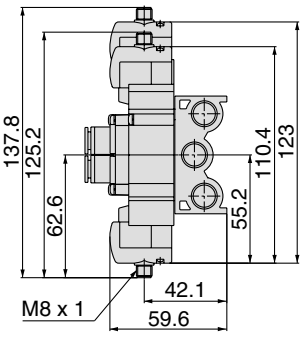
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



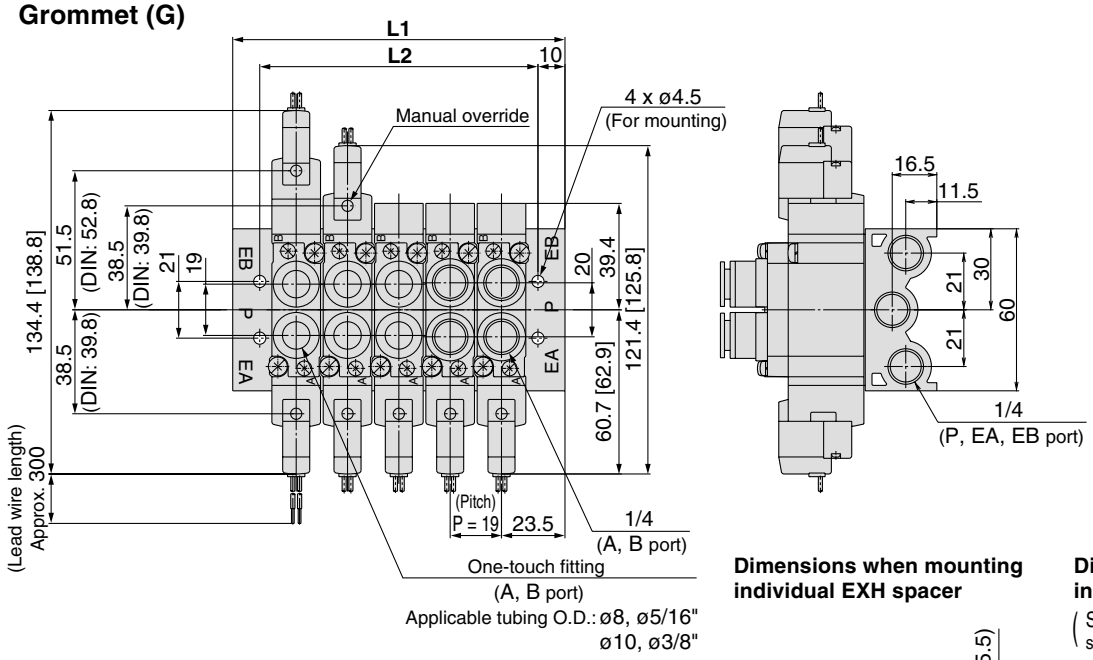
Note) Refer to page 340 for dimensions of connector types.

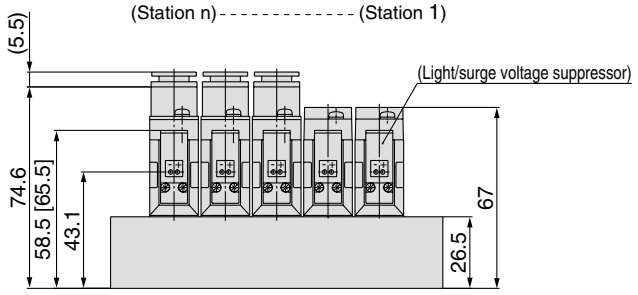
Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	60	76	92	108	124	140	156	172	188	204	220	236	252	268	284	300	316	332	348
L2	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296	312	328

SY7000: SS5Y7-20-Stations -

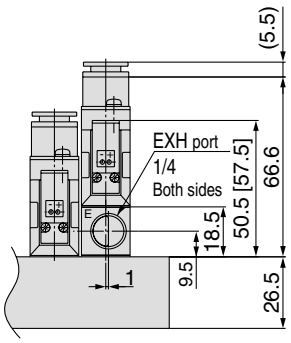
[ ]: AC

Grommet (G)



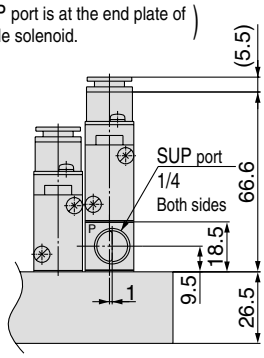


Dimensions when mounting individual EXH spacer

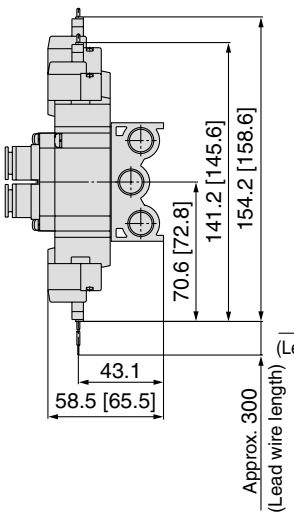


Dimensions when mounting individual SUP spacer

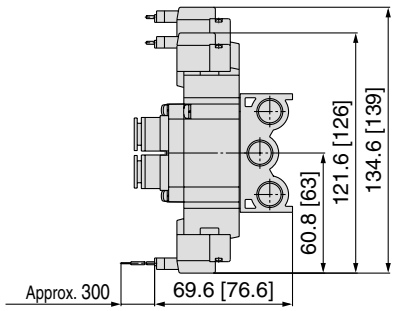
(SUP port is at the end plate of single solenoid.)



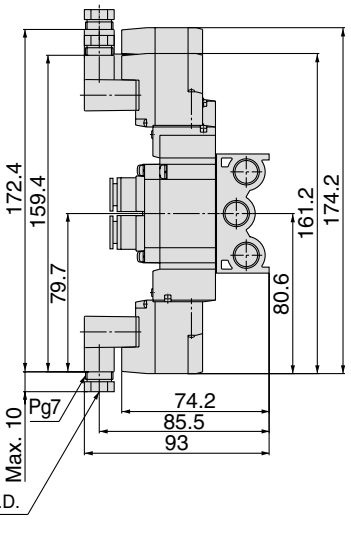
L plug connector (L)



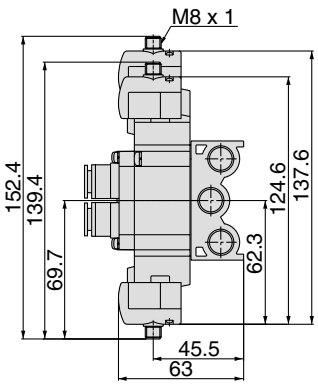
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	66	85	104	123	142	161	180	199	218	237	256	275	294	313	332	351	370	389	408
L2	46	65	84	103	122	141	160	179	198	217	236	255	274	293	312	331	350	369	388

5 Port Solenoid Valve
Body Ported Manifold
Stacking Type/Individual Wiring

Type 23

Series SY9000

How to Order Manifold

SS5Y 9 − 23 − 05 − □ − □ − □

Manifold series

9	SY9000

Valve stations

Symbol	Stations
02	2 stations
⋮	⋮
20	20 stations

∗ This also includes the number of blanking plate assemblies.

Thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

Option

Symbol	Mounting
Nil	Direct mounting
D	DIN rail mounting (with DIN rail)
D0	DIN rail mounting (without DIN rail)
D∗	When a longer DIN rail is desired than the specified stations, specify the station number to be required into ∗ mark.

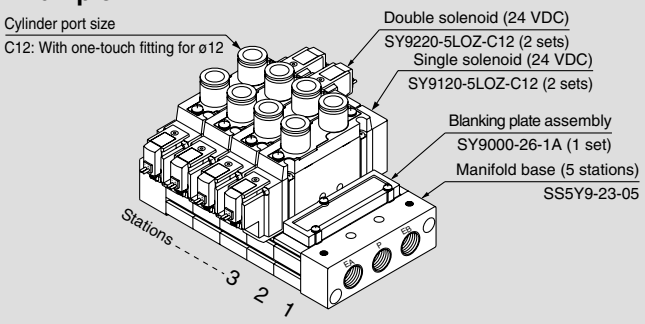
∗ Type 23 manifold of Series SY9000 is concurrently used for the internal and external pilot.

CE-compliant

Nil	—
Q	CE-compliant

How to Order Manifold Assembly (Example)

Example



SS5Y9-23-05 ····· 1 set (Type 23, 5-station manifold base part no.)
∗ SY9000-26-1A ····· 1 set (Blanking plate assembly part no.)
∗ SY9120-5LOZ-C12 ··· 2 sets (Single solenoid part no.)
∗ SY9220-5LOZ-C12 ··· 2 sets (Double solenoid part no.)
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve

SY 9 1 20 □ □ – 5 L □ □ – 02 □ – □ – □

Series

9	SY9000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot specifications

Nil	Internal pilot
R	External pilot

∗ In the case of external pilot specifications, it cannot be used as a single unit.

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Electrical entry

24, 12, 6, 5, 3 VDC/ 100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm **H**: Lead wire length 600 mm	**L**: With lead wire (Length 300 mm) **LN**: Without lead wire **LO**: Without connector	**M**: With lead wire (Length 300 mm) **MN**: Without lead wire **MO**: Without connector	**D**: With connector **DO**: Without connector **Y**: With connector **YO**: Without connector	**WO**: Without connector cable **W□**: With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

A, B port size

Thread piping

Symbol	Port size
02	1/4
03	3/8

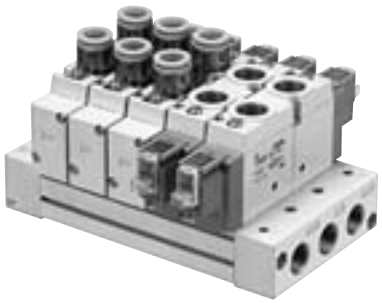
One-touch fitting (Metric size)

Symbol	Port size
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12

One-touch fitting (Inch size)

Symbol	Port size
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary.
For details, refer to page 173.



Manifold Specifications

Model		SS5Y9-23(-Q)
Applicable valve		SY9□20
Manifold type		Stacking type
P (SUP)/R (EXH)		Common SUP, Common EXH
Valve stations		2 to 20 stations Note1)
A, B port location		Valve
Port size	**P, EA, EB port**	3/8
	A, B port	1/4 3/8 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10) C12 (One-touch fitting for ø12)
Manifold base mass W (g) **n: Stations**		W = 66n + 246

Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) Refer to “Manifold Option” on page 173.

Flow Characteristics

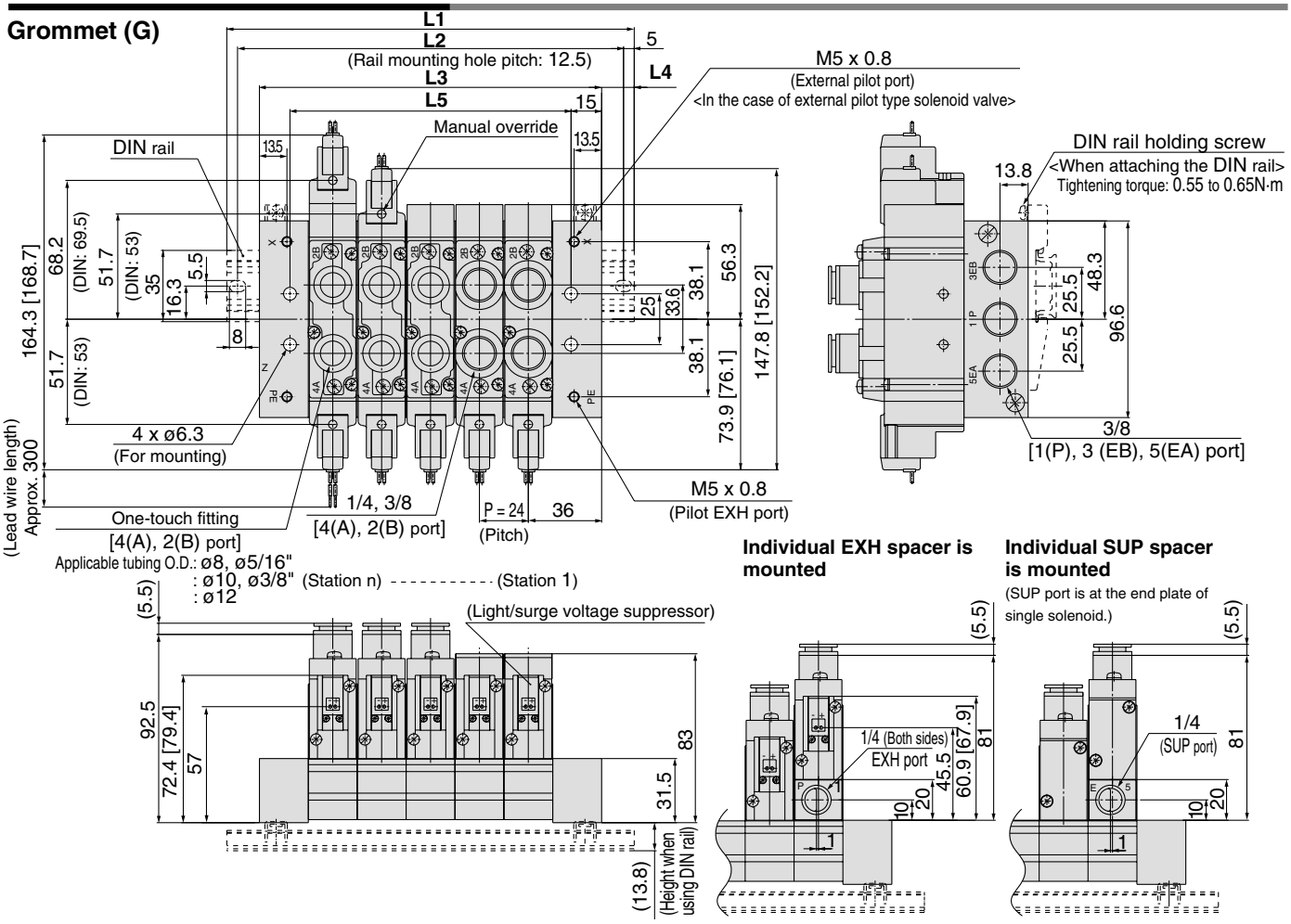
Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y9-23(-Q)	3/8	C12	6.3	0.20	1.5	8.2	0.28	1.9

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

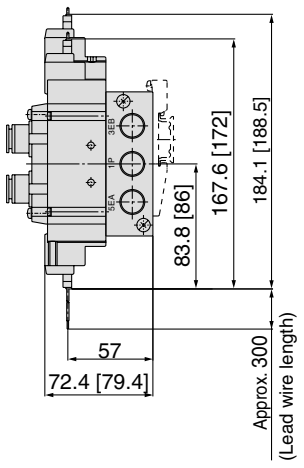
SY9000: SS5Y9-23-Stations-(D)

[ ]: AC

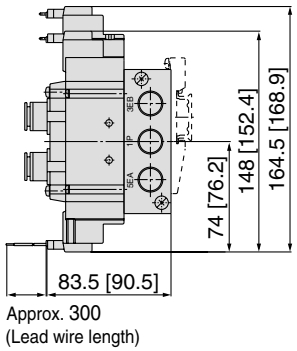
Grommet (G)



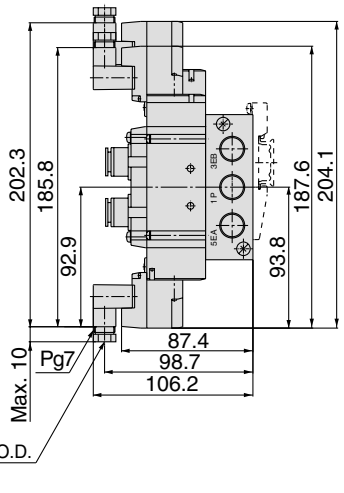
L plug connector (L)



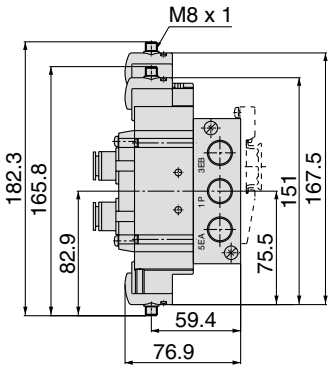
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	123	148	173	198	223	248	273	298	323	335.5	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5
L2	112.5	137.5	162.5	187.5	212.5	237.5	262.5	287.5	312.5	325	350	375	400	425	450	475	500	525	550
L3	96	120	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480	504	528
L4	13.5	14	14.5	15	15.5	16	16.5	17	17.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5
L5	66	90	114	138	162	186	210	234	258	282	306	330	354	378	402	426	450	474	498

Note) In the case of direct mounting without DIN rail, total width of manifold is L3.

5 Port Solenoid Valve
Body Ported Manifold
Bar Stock Type/Flat Ribbon Cable

Type 20P

Series SY3000/5000/7000

How to Order Manifold

SS5Y 5 – 20P – 05 – ☐ – ☐

Manifold series

3	SY3000
5	SY5000
7	SY7000

Stations

03	3 stations
⋮	⋮
12	12 stations

Note) SS5Y3 has 4 to 12 stations.

Thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

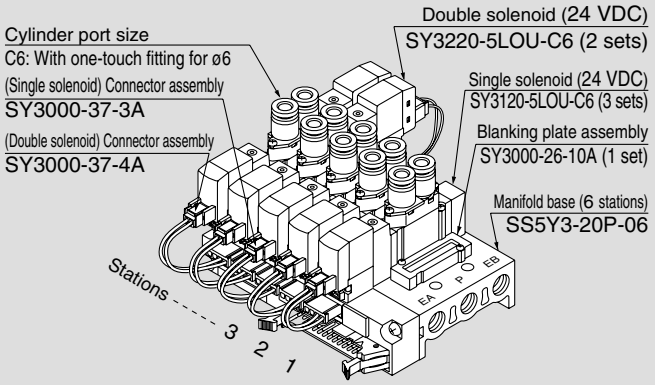
CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

How to Order Manifold Assembly (Example)

Example

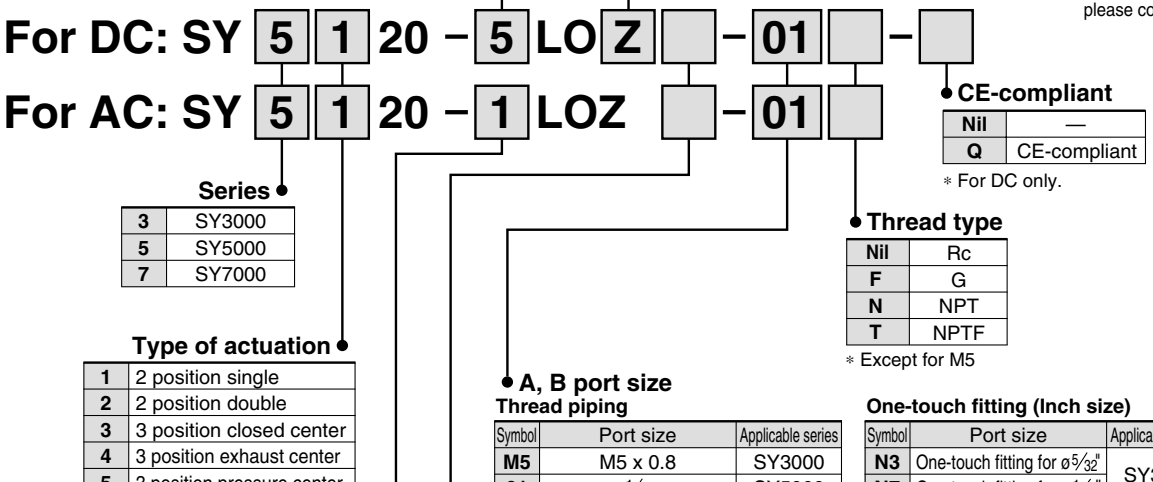


SS5Y3-20P-06 ····· 1 set (Type 20P, 6-station manifold part no.)
∗ SX3000-26-10A ····· 1 set (Blanking plate assembly part no)
∗ SY3120-5LOU-C6 ··· 3 sets (Single solenoid part no.)
∗ SY3220-5LOU-C6 ··· 2 sets (Double solenoid part no.)
∗ SY3000-37-3A ····· 3 sets (Connector assembly part no.)
∗ SY3000-37-4A ····· 2 sets (Connector assembly part no.)

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve



Rated voltage

5	24 VDC
6	12 VDC

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	With light/surge voltage suppressor (Non-polar type)

Note) Z: Positive common specifications only.

Note) In the case of flat cable type, "U" and "Z" types are for DC specifications and "Z" type is for AC specifications. "Z" for DC is positive common specifications only. For the other combination, please contact SMC.

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Rated voltage

1	100 VAC
3	110 VAC (115 VAC)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary.
(For details, refer to page 173.)

- **Multiple valve wiring is simplified through the use of the flat cable connector**
- **Clean appearance**

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



Manifold Specifications

Model		SS5Y3-20P(-Q)	SS5Y5-20P(-Q)	SS5Y7-20P(-Q)
Applicable valve		SY3□20	SY5□20	SY7□20
Manifold type		Single base/B mount		
P (SUP)/R (EXH)		Common SUP, Common EXH		
Valve stations		4 to 12 stations(1)	3 to 12 stations Note 1)	
A, B port location		Valve		
Port size	P, EA, EB port	1/8	1/4	1/4
	A, B port	M5 x 0.8, C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10)
Manifold base mass W (g) n: Stations		W = 19n + 45	W = 43n + 77	W = 51n + 81
Applicable flat ribbon cable connector		Flat ribbon cable connector, Socket: 26 pins MIL type with strain relief, Conforming to MIL-C-83503		
Internal wiring		In common between +COM and –COM (Z type: +COM only).		
Rated voltage Note 4)		12, 24 VDC 100, 110 VAC		

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.
Note 3) Refer to "Manifold Option" on page 173.
Note 4) CE-compliant: For DC only.

Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv
SS5Y3-20P	1/8	C6	0.72	0.29	0.18	0.80	0.36	0.21
SS5Y5-20P	1/4	C8	1.9	0.28	0.48	2.2	0.20	0.53
SS5Y7-20P	1/4	C10	3.6	0.31	0.93	3.6	0.27	0.88

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

How to Order Connector Assembly

For 12, 24 VDC

Specifications	For SY3000	For SY5000/7000
For single solenoid:	SY3000-37-3A	SY5000-37-3A
Double solenoid, 3 position type	SY3000-37-4A	SY5000-37-4A
Single with spacer assembly	SY5000-37-3A	SY5000-37-5A
Double, 3 position with spacer assembly	SY3000-37-6A	SY5000-37-6A

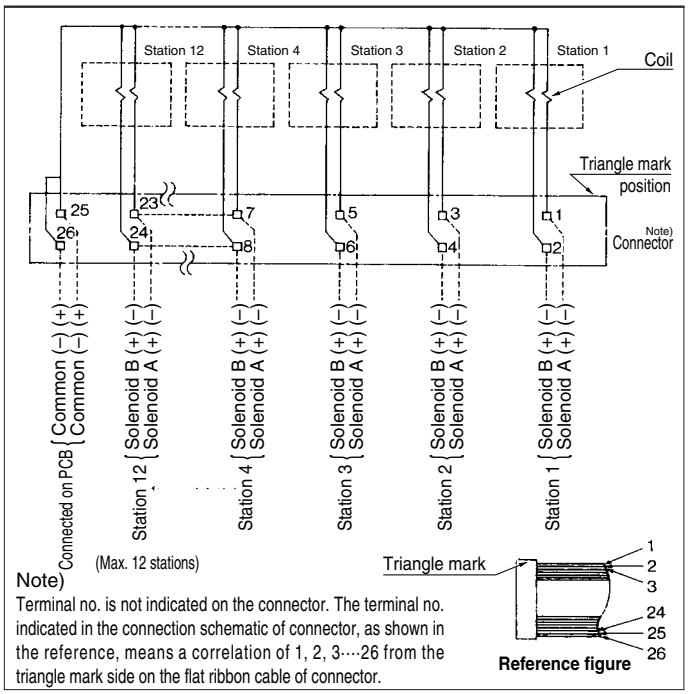
For 100 VAC

Specifications	For SY3000	For SY5000/7000
For single solenoid:	SY3000-37-32A	SY5000-37-15A
Double solenoid, 3 position type	SY3000-37-33A	SY5000-37-16A
Single with spacer assembly	SY5000-37-15A	SY5000-37-17A
Double, 3 position with spacer assembly	SY3000-37-34A	SY5000-37-18A

For 100 VAC (115 VAC)

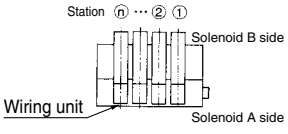
Specifications	For SY3000	For SY5000/7000
For single solenoid:	SY3000-37-35A	SY5000-37-19A
Double solenoid, 3 position type	SY3000-37-36A	SY5000-37-20A
Single with spacer assembly	SY5000-37-19A	SY5000-37-21A
Double, 3 position with spacer assembly	SY3000-37-37A	SY5000-37-22A

Internal Wiring of Manifold (Non-polar type)



Note)
Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····26 from the triangle mark side on the flat ribbon cable of connector.

- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid A side.
- The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.

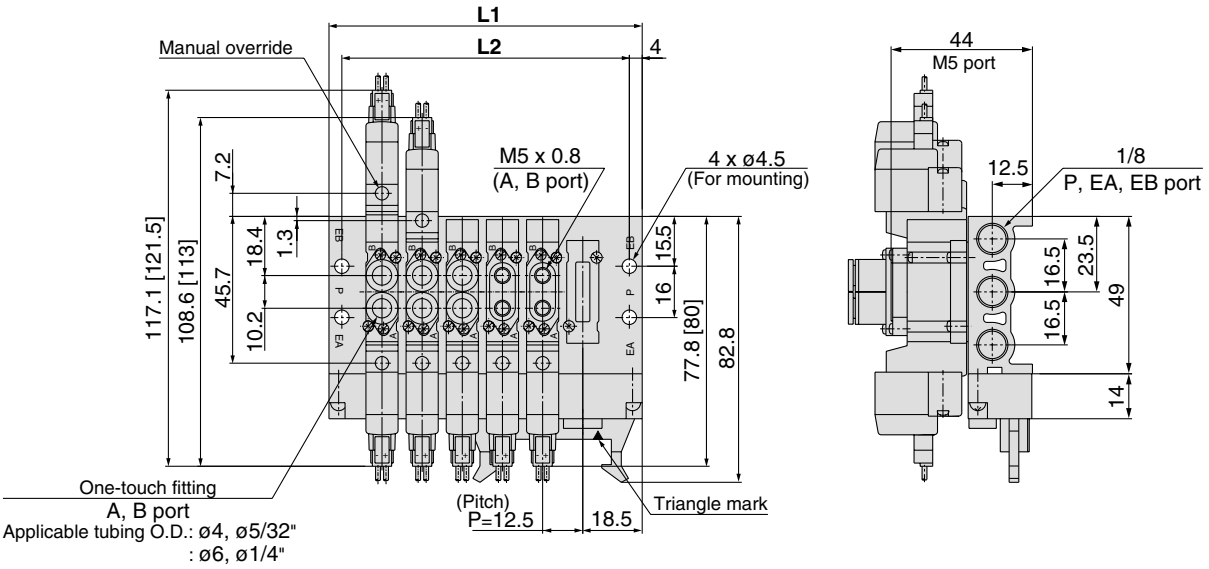


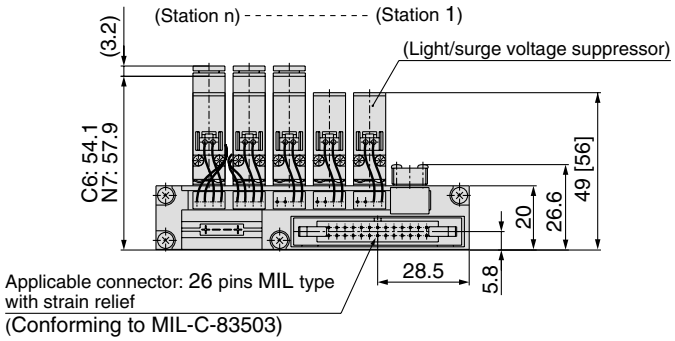
⚠Caution

- For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.

SY3000: SS5Y3-20P-Stations

[ ]: AC

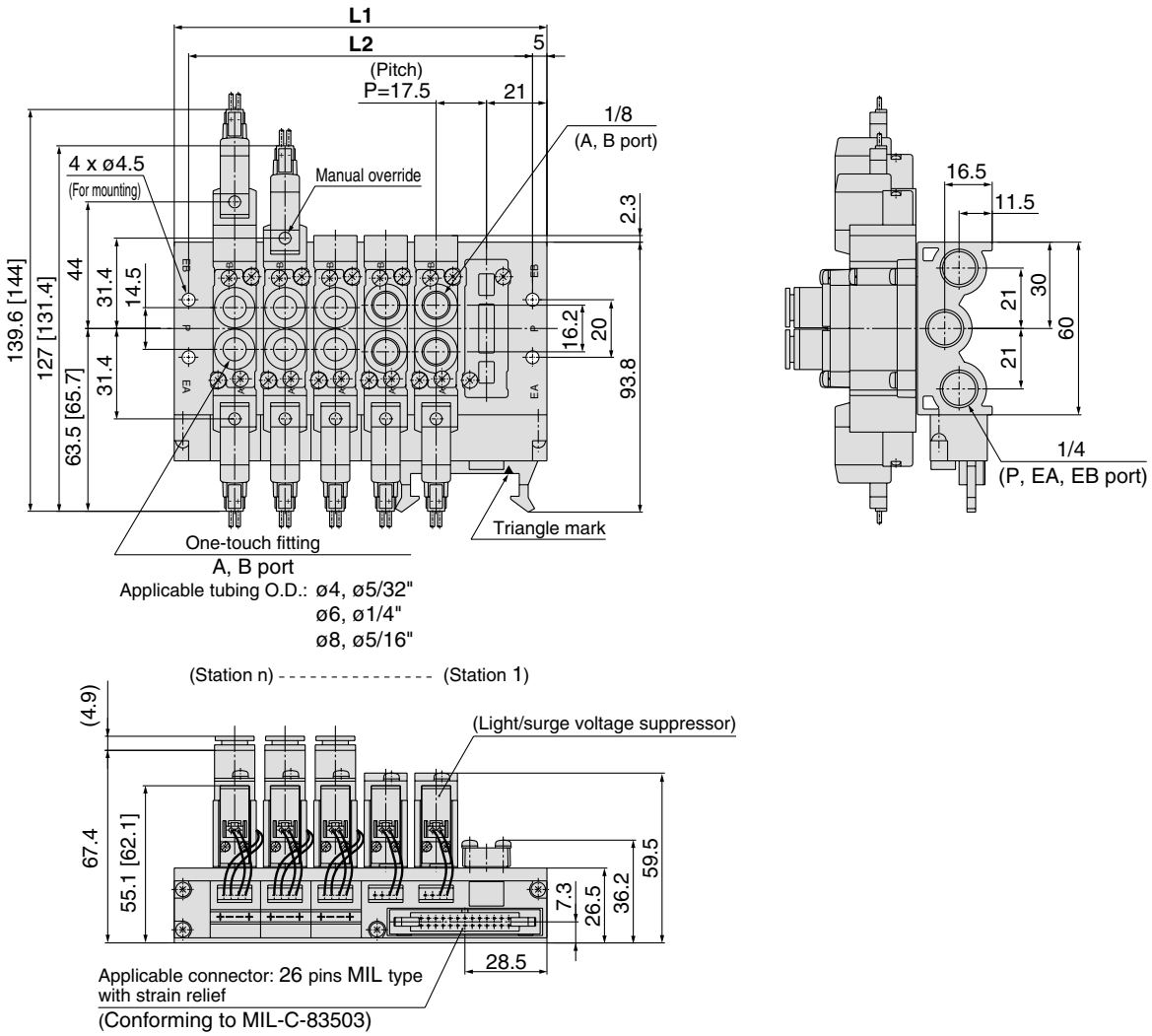




Stations n	4	5	6	7	8	9	10	11	12
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5

SY5000: SS5Y5-20P-Stations

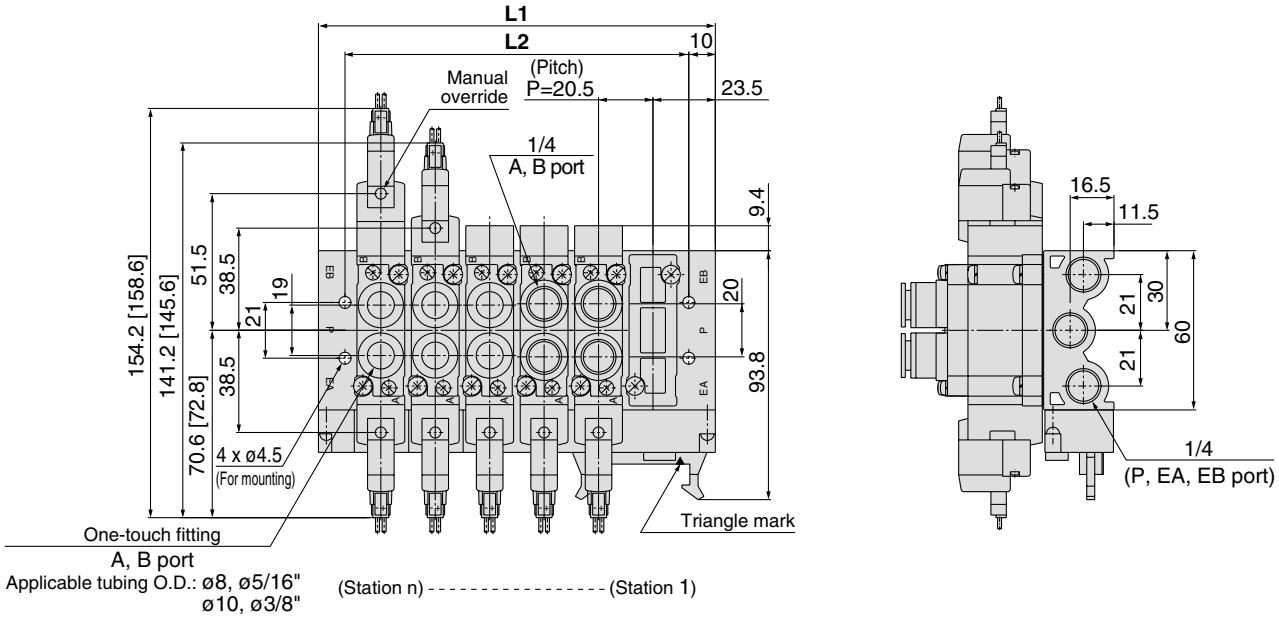
[ ]: AC

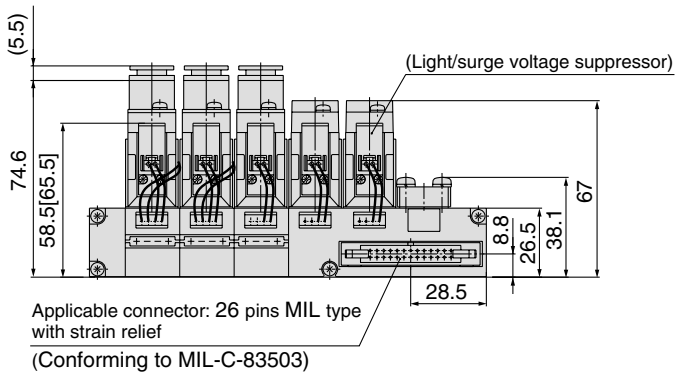


Stations n	3	4	5	6	7	8	9	10	11	12
L1	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5
L2	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5

SY7000: SS5Y7-20P-Stations

[ ]: AC





Stations n	3	4	5	6	7	8	9	10	11	12
L1	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5
L2	68	88.5	109	129.5	150	170.5	191	211.5	232	252.5

5 Port Solenoid Valve
Body Ported Manifold
Stacking Type/Flat Ribbon Cable

Type 23P

Series SY9000

How to Order Manifold

SS5Y 9 – 23P – 05 – □ – ⋯ – □

Manifold series

9	SY9000

Thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

Valve stations

Symbol	Stations
04	4 stations
⋮	⋮
12	12 stations

∗ This also includes the number of blanking plate assemblies.

∗ Type 23P manifold of Series SY9000 is concurrently used for the internal and external pilot.

Option

Symbol	Mounting
Nil	Direct mounting
D	DIN rail mounting (with DIN rail)
D0	DIN rail mounting (without DIN rail)
D ∗	When a longer DIN rail is desired than the specified stations, specify the station number to be required into ∗ mark.

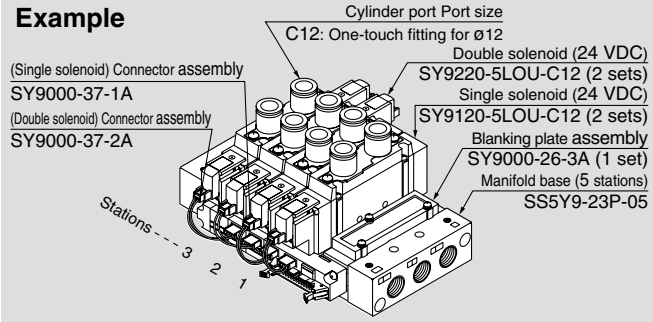
CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

How to Order Manifold Assembly (Example)

Example



SS5Y9-23P-05 ····· **1 set (Type 23, 5-station manifold base part no.)**
∗**SY9000-26-3A** ····· **1 set (Blanking plate assembly part no.)**
∗**SY9120-5LOU-C12** ··· **2 sets (Single solenoid part no.)**
∗**SY9220-5LOU-C12** ··· **2 sets (Double solenoid part no.)**
∗**SY9000-37-1A** ····· **2 sets (Connector assembly part no.)**
∗**SY9000-37-2A** ····· **2 sets (Connector assembly part no.)**

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	With light/surge voltage suppressor (Non-polar type)

Note) Z: Positive common specifications only.

Rated voltage

5	24 VDC
6	12 VDC

CE-compliant

Nil	—
Q	CE-compliant

For DC: SY 9 1 20 □ – 5 LO Z □ – 02 □ – □

For AC: SY 9 1 20 □ – 1 LOZ □ – 02 □

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Series

9	SY9000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot specifications

Nil	Internal pilot
R	External pilot

∗ Type 23P manifolds can be used for both internal and external pilots.

Rated voltage

1	100 VAC
3	110 VAC (115 VAC)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

A, B port size

Thread piping

Symbol	Port size
02	1/4
03	3/8

One-touch fitting (Metric size)

Symbol	Port size
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12

One-touch fitting (Inch size)

Symbol	Port size
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

Note) In the case of flat cable type, "U" and "Z" types are for DC specifications and "Z" type is for AC specifications. "Z" type for DC is positive common specification onlly. For the ohter combination, please contact SMC.

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 173.)

- **Multiple valve wiring is simplified through the use of the flat cable connector.**
- **Clean appearance**

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



How to Order Connector Assembly

For 12, 24 VDC

Specifications	For SY9000
For single solenoid	SY9000-37-1A
Double solenoid 3 position	SY9000-37-2A
Single with spacer assembly	SY9000-37-3A
Double, 3 position with spacer assembly	SY9000-37-4A

For 100 VAC

Specifications	For SY9000
For single solenoid	SY9000-37-1B
Double solenoid 3 position	SY9000-37-2B
Single with spacer assembly	SY9000-37-3B
Double, 3 position with spacer assembly	SY9000-37-4B

For 110 VAC (115 VAC)

Specifications	For SY9000
For single solenoid	SY9000-37-1C
Double solenoid 3 position	SY9000-37-2C
Single with spacer assembly	SY9000-37-3C
Double, 3 position with spacer assembly	SY9000-37-4C

⚠Caution

- For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.

Manifold Specifications

Model		SS5Y9-23P(-Q)
Applicable valve		SY9□20
Manifold type		Stacking type
P (SUP)/R (EXH)		Common SUP, Common EXH
Valve stations		4 to 12 stations Note1)
A, B port location		Valve
Port size	P, EA, EB port	3/8
	A, B port	1/4 3/8 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10) C12 (One-touch fitting for ø12)
Manifold base mass W (g) n: Stations		W = 73n + 259
Applicable flat ribbon cable connector		Flat ribbon cable connector, Socket: 26 pins MIL with strain relief, Conforming to MIL-C-83503
Internal wiring		In common between +COM and –COM (Z type: +COM only)
Rated voltage Note4)		12, 24 VDC, 100, 110 VAC

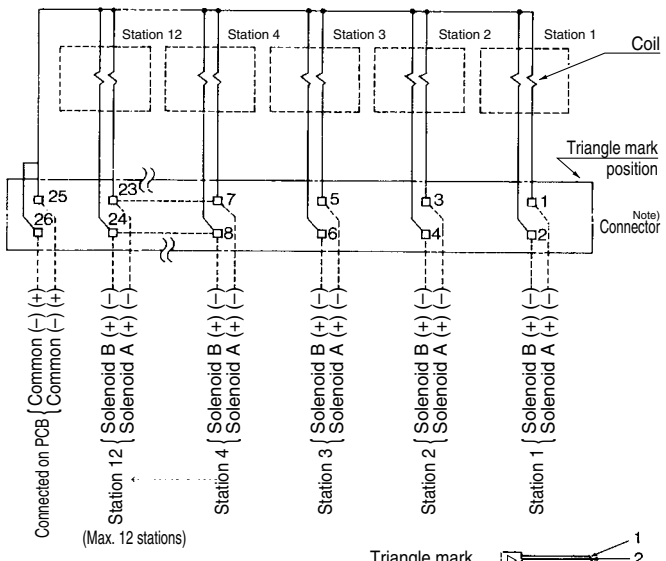
Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.
Note 3) Refer to "Manifold Option" on page 173.
Note 4) CE-compliant: For DC only.

Flow Characteristics

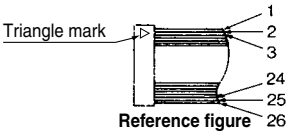
Model	Port size		Flow characteristics					
	1, 5, 3	4, 2	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
	(P, EA, EB)	(A, B)	C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y9-23P(-Q)	3/8	C12	6.3	0.20	1.5	8.2	0.28	1.9

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Internal Wiring of Manifold (Non-polar type)

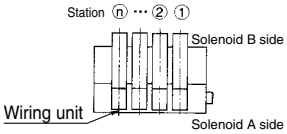


Note)
Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····26 from the triangle mark side on the flat ribbon cable of connector.



Reference figure

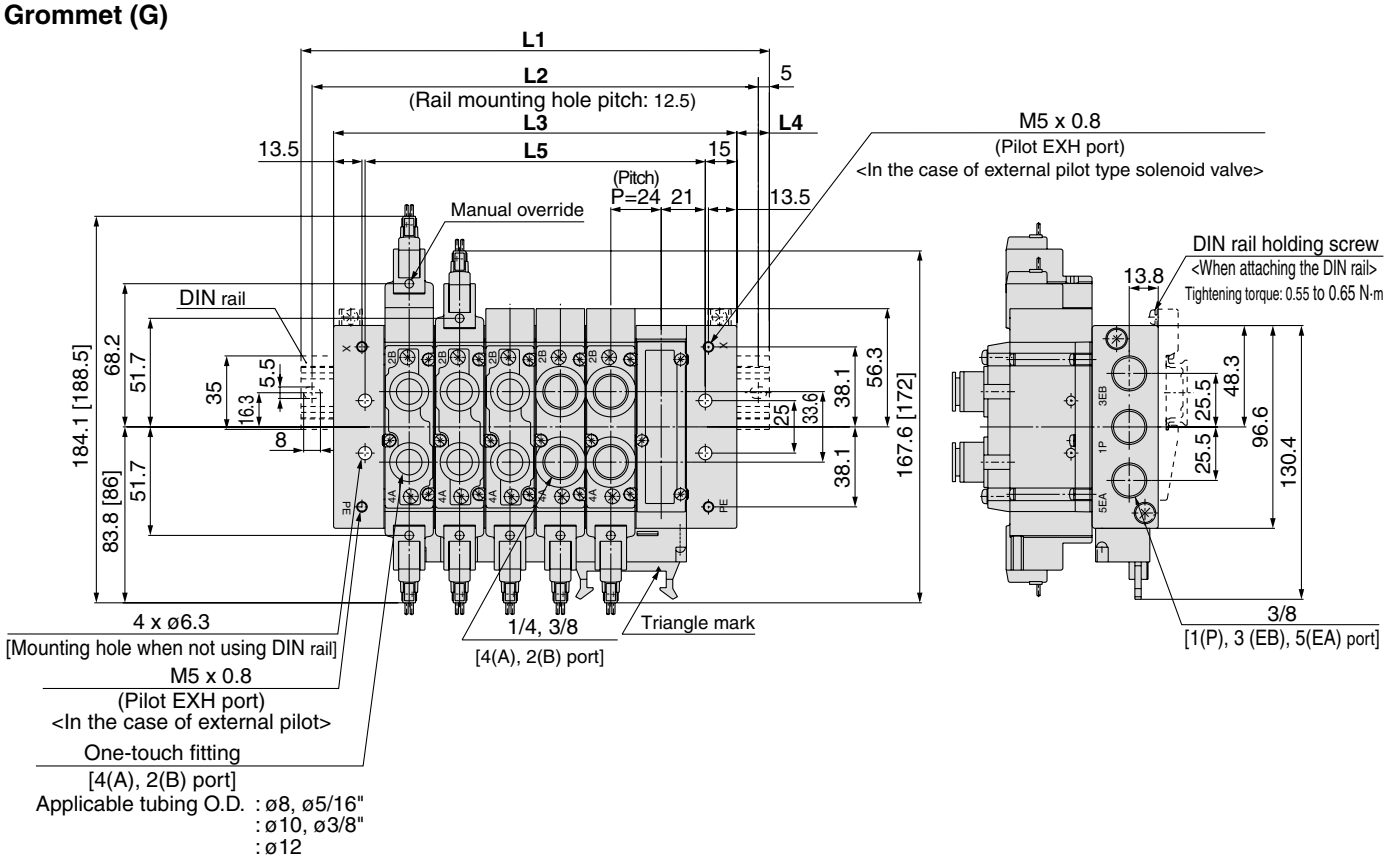
- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid A side.
- The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.

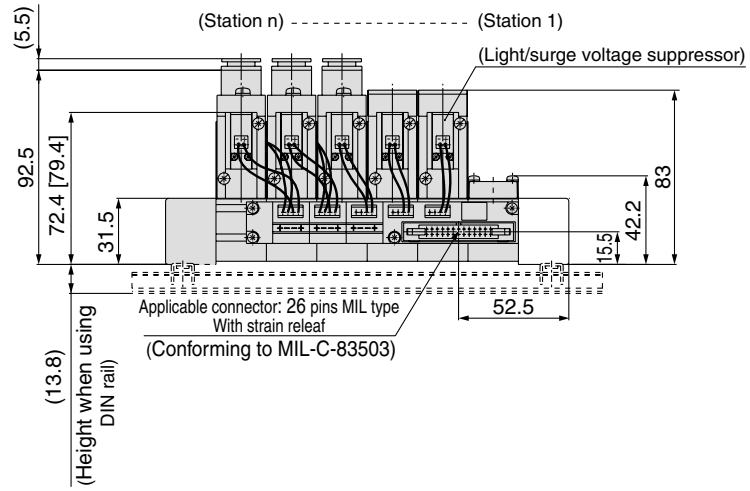


SY9000: SS5Y9-23P-[Stations]-(D)

[ ]: AC

Grommet (G)





Stations n	4 stations	5	6	7	8	9	10	11	12 stations
L1	173	198	223	248	273	298	323	335.5	360.5
L2	162.5	187.5	212.5	237.5	262.5	287.5	312.5	325	350
L3	144	168	192	216	240	264	288	312	336
L4	14.5	15	15.5	16	16.5	17	17.5	12	12.5
L5	114	138	162	186	210	234	258	282	306

Note) In the case of direct mounting without DIN rail, total width of manifold is L3.

EX510 Gateway System
Serial Transmission System
Body Ported Manifold/Integrated Base

Type 20SA

Series SY3000/5000/7000

CE

How to Order Manifold

SS5Y 3 – 20SA □ – 04 – □ – □

Manifold series

3	SY3000
5	SY5000
7	SY7000

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

SI unit part no.

Symbol	SI unit specifications	SI unit part no.	Page
Nil	NPN output (+COM.)	EX510-S001	P.1715 to 1717
N	PNP output (–COM.)	EX510-S101	

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

P, R port thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

Valve stations

Symbol	Stations	Note
03	3 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
03	3 stations	Specified layout Note 2) (Compatible with 16 solenoid valves)
⋮	⋮	
16	16 stations	

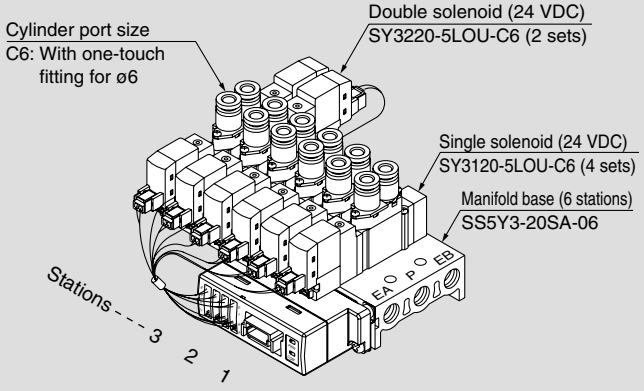
CE-compliant

Nil	—
Q	CE-compliant

• SS5Y3 can be set from 4 stations.
• The number of the blanking plate assembly is also included.
Note 1) Double wiring: Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

How to Order Manifold Assembly (Example)

Example



SS5Y3-20SA-06 ·····1 set (20SA type 6-station manifold part no.)
*** SY3120-5LOU-C6···4 sets (Single solenoid part no.)**
*** SY3220-5LOU-C6···2 sets (Double solenoid part no.)**

The asterisk denotes the symbol for assembly. Prefix to the part no. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

How to Order Valves

SY 3 1 20 – 5 LO Z □ – M5 □ – □

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Rated voltage: 24 VDC

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	Without light/surge voltage suppressor (non-polar type)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

A, B port size
Thread piping

M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000

One-touch fitting (Metric size)

C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

One-touch fitting (Inch size)

N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

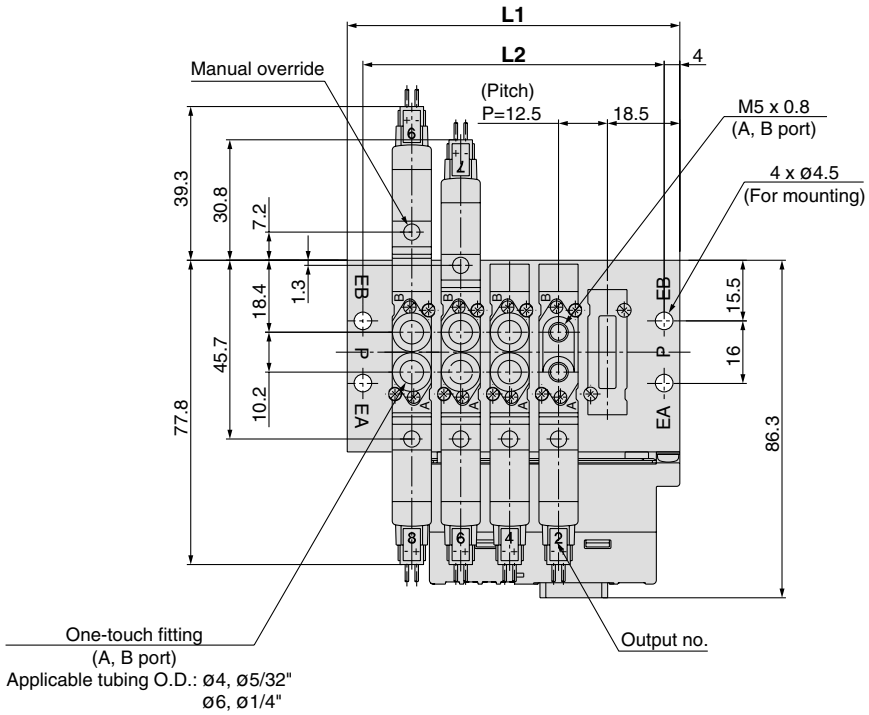
Thread type

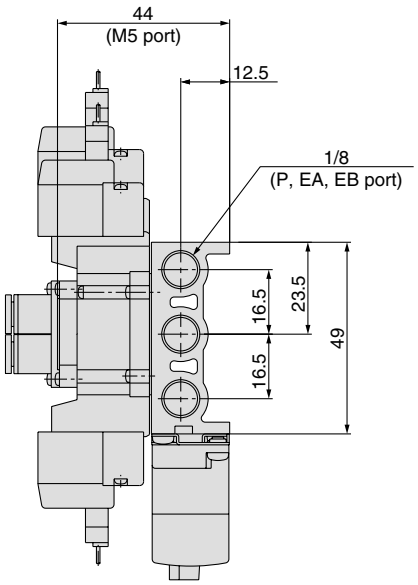
Nil	Rc
F	G
N	NPT
T	NPTF

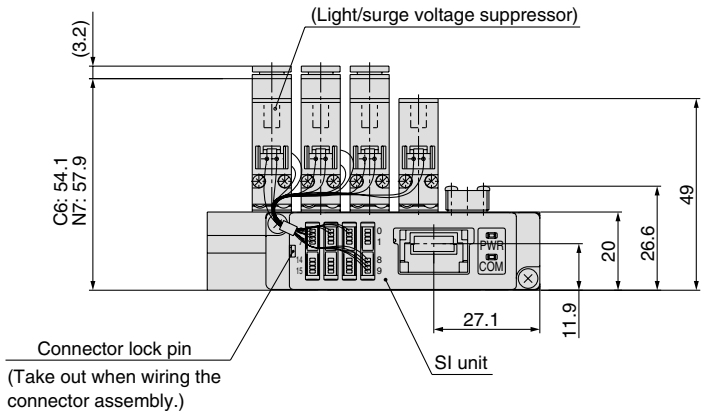
CE-compliant

Nil	—
Q	CE-compliant

SY3000: SS5Y3-20SA □ - Stations - □

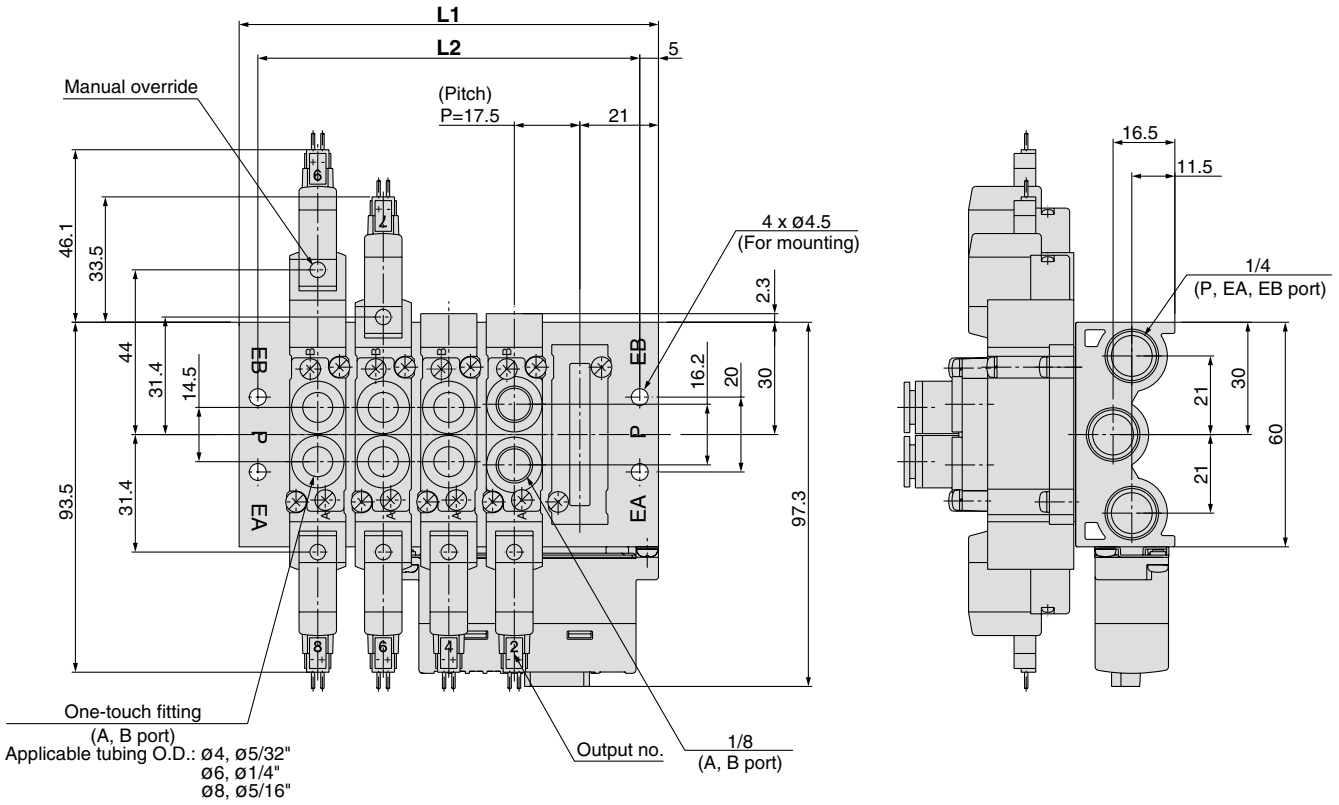


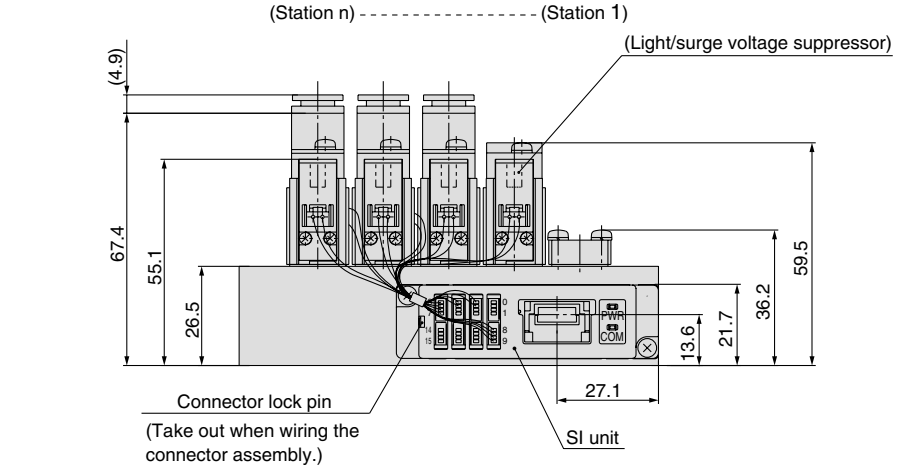




Stations n	4 stations	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5	185	197.5	210	222.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5	177	189.5	202	214.5

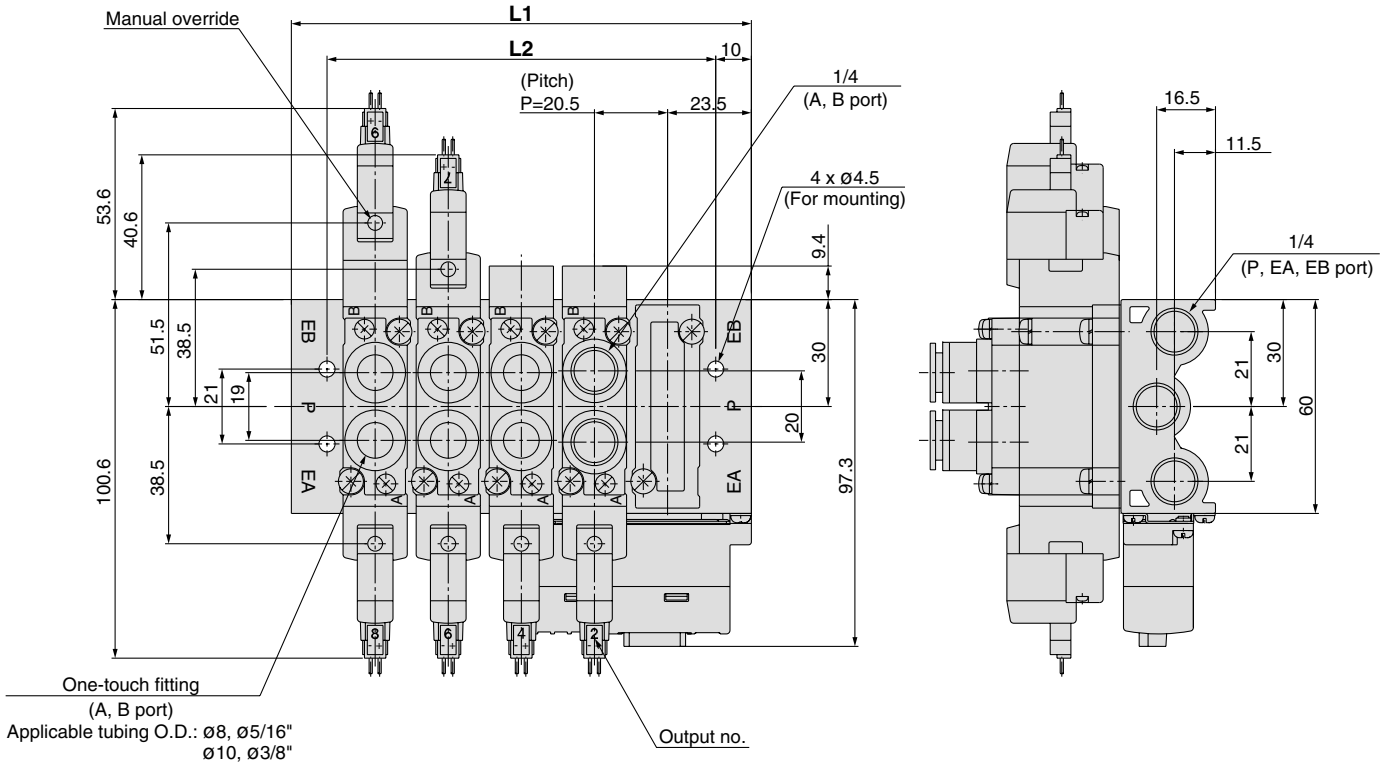
SY5000: SS5Y5-20SA □ - Stations - □

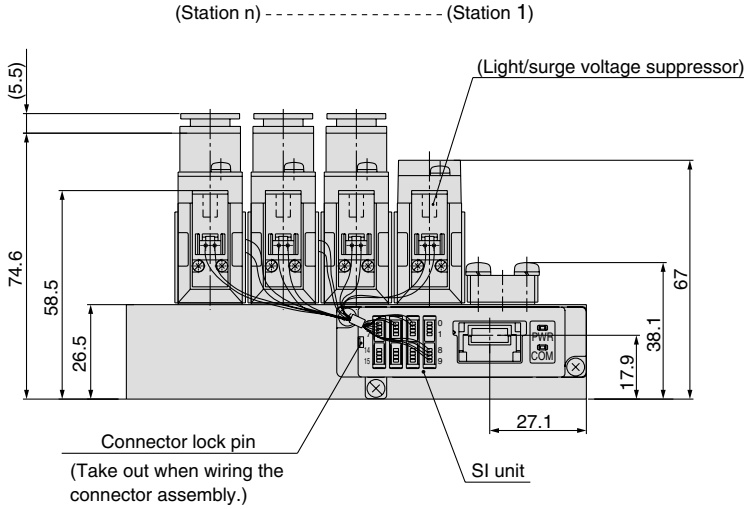




Stations n	**3** stations	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16** stations
L1	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5	252	269.5	287	304.5
L2	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5	242	259.5	277	294.5

SY7000: SS5Y7-20SA □ - Stations - □





Stations n	3 stations	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5	293	313.5	334	354.5
L2	68	88.5	109	129.5	150	170.5	191	211.5	232	252.5	273	293.5	314	334.5

EX510 Gateway System
Serial Transmission System
Body Ported Manifold/Stacking Type

Type 23SA

Series SY9000

How to Order Manifold

SS5Y9-23SA □-03-□-□-□

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

Valve stations

Symbol	Stations	Note
03	3 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
03	3 stations	Specified layout Note 2) (Compatible with 16 solenoid valves)
⋮	⋮	
16	16 stations	

• The number of the blanking plate assembly is also included.

Note 1) Double wiring: Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

P, R port thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

Option

Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
DO	DIN rail mounting (Without DIN rail)
D*	When a longer DIN rail is desired than the specified stations, specify the station number to be required into * mark.

CE-compliant

Nil	—
Q	CE-compliant

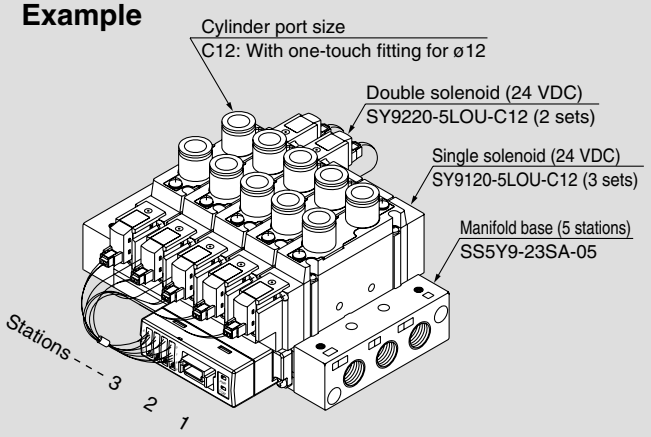
SI unit part no.

Symbol	SI unit specifications	SI unit part no.	Page
Nil	NPN output (+COM.)	EX510-S001	P.1715 to 1717
N	PNP output (–COM.)	EX510-S101	

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

How to Order Manifold Assembly (Example)

Example



SS5Y9-23SA-05 ·····1 set (23SA type 5-station manifold part no.)
*** SY9120-5LOU-C12···3 sets (Single solenoid part no.)**
*** SY9220-5LOU-C12···2 sets (Double solenoid part no.)**

→The asterisk denotes the symbol for assembly. Prefix to the part no. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

How to Order Valves

SY9 1 20 □ – 5 LO Z □ – 02 □ – □

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot specifications

Nil	Internal pilot
R	External pilot

Rated voltage: 24 VDC

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	Without light/surge voltage suppressor (non-polar type)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

A, B port size
Thread piping

02	1/4
03	3/8

One-touch fitting (Metric size)

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12

One-touch fitting (Inch size)

N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"

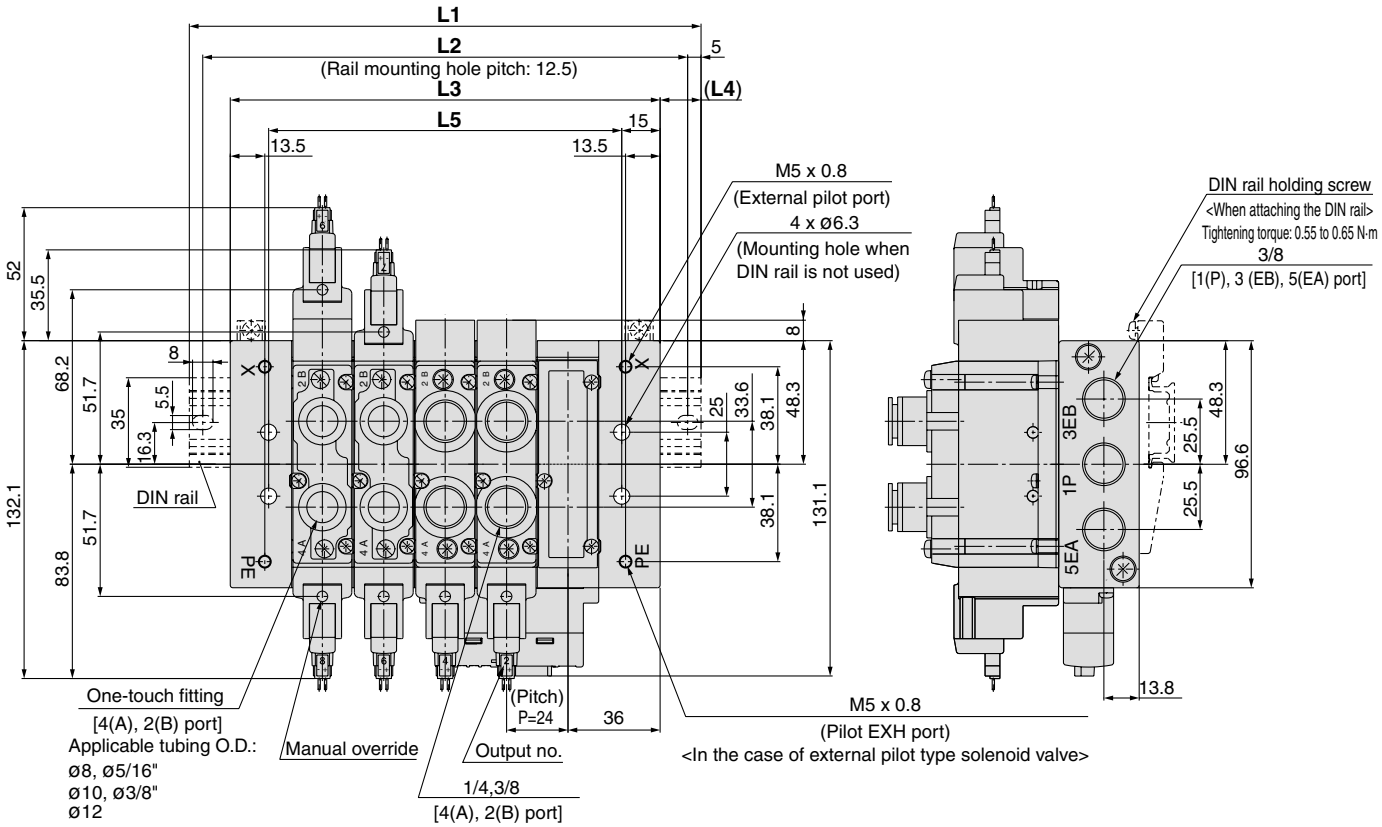
Thread type

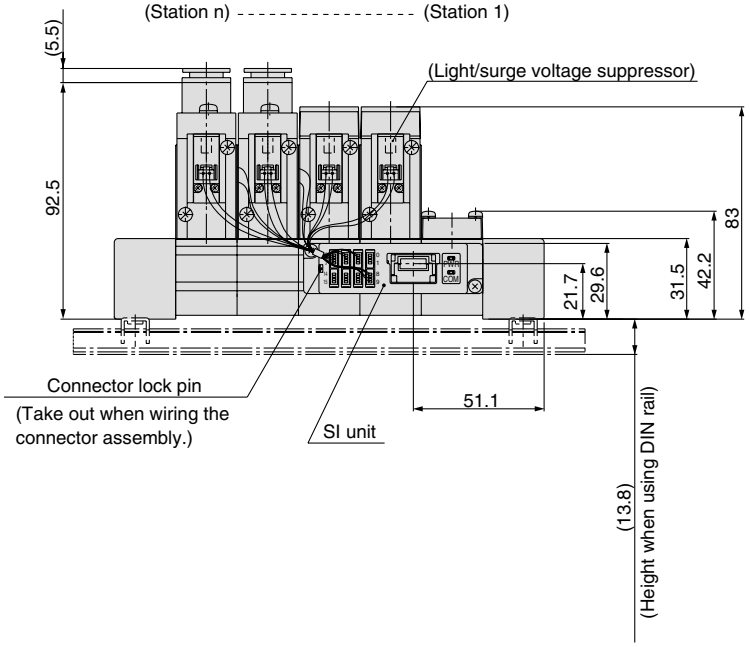
Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

SY9000: SS5Y9-23SA □ - Stations - □ (-D)





Stations n	3 stations	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	148	173	198	223	248	273	298	323	335.5	360.5	385.5	410.5	435.5	460.5
L2	137.5	162.5	187.5	212.5	237.5	262.5	287.5	312.5	325	350	375	400	425	450
L3	120	144	168	192	216	240	264	288	312	336	360	384	408	432
L4	14	14.5	15	15.5	16	16.5	17	17.5	12	12.5	13	13.5	14	14.5
L5	90	114	138	162	186	210	234	258	282	306	330	354	378	402

Note) In the case of direct mounting without DIN rail, total width of manifold is L3.

Manifold Option

■ Type 20, 23, 20SA, 23SA Blanking plate assembly



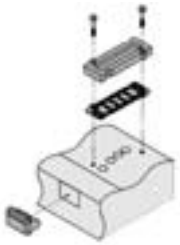
<Standard>

Series	Assembly part no.
SY3000	SY3000-26-9A
SY5000	SY5000-26-20A
SY7000	SY7000-26-22A
SY9000	SY9000-26-1A

<CE-compliant>

Series	Assembly part no.
SY3000	SY3000-26-19A-Q
SY5000	SY5000-26-1A-Q
SY7000	SY7000-26-1A-Q
SY9000	SY9000-26-1A-Q

■ Type 20P, 23P Blanking plate assembly



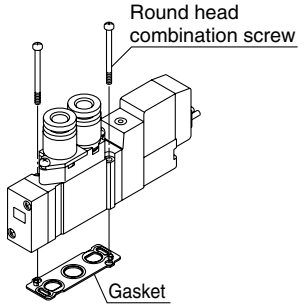
<Standard>

Series	Assembly part no.
SY3000	SY3000-26-10A
SY5000	SY5000-26-21A
SY7000	SY7000-26-23A
SY9000	SY9000-26-3A

<CE-compliant>

Series	Assembly part no.
SY3000	SY3000-26-20A-Q
SY5000	SY5000-26-3A-Q
SY7000	SY7000-26-3A-Q
SY9000	SY9000-26-3A-Q

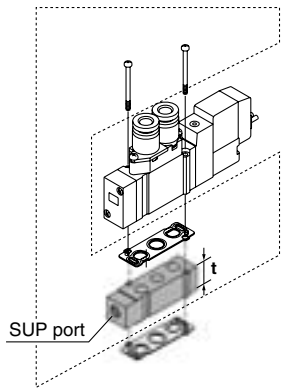
■ Gasket assembly part no.



Series	Gasket assembly part no.
SY3000	SY3000-GS-1
SY5000	SY5000-GS-1
SY7000	SY7000-GS-1
SY9000	SY9000-GS-1

Note) The gasket assembly includes 10 sets of mounting screws and a gasket.

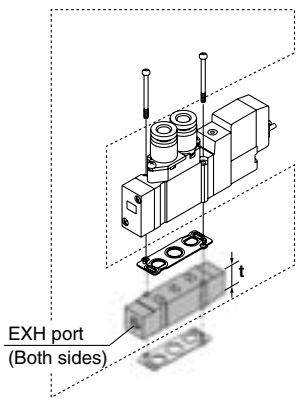
■ Individual SUP spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-38-20A(-Q)	M5 x 0.8	10.5
SY5000	SY5000-38-1∗A(-Q)	1/8	15
SY7000	SY7000-38-1∗A(-Q)	1/4	18
SY9000	SY9000-38-1∗A(-Q)	1/4	20

Note) • The SUP port of SY3000/5000/7000 may be either on the lead wire side or on the end plate side. (An assembly is shipped under the conditions shown in the figure.)
• The end plate side is only available to SY9000.

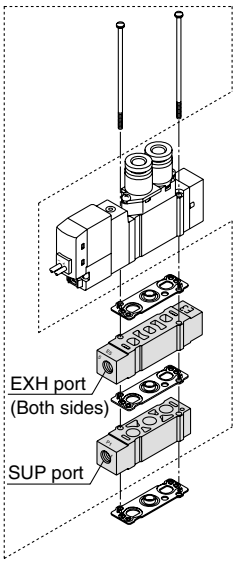
■ Individual EXH spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-39-20A(-Q)	M5 x 0.8	10.5
SY5000	SY5000-39-1∗A(-Q)	1/8	15
SY7000	SY7000-39-1∗A(-Q)	1/4	18
SY9000	SY9000-39-1∗A(-Q)	1/4	20

Note) In case of 20P and 23P, for protection of the wiring unit section from drainage, piping at the EA port should be arranged so that it will not be directly exposed to exhaust from the valve.

■ Individual SUP spacer assembly + Individual EXH spacer assembly (Double spacer)



[●: Available ×: Not available]

Series	Individual SUP + Individual EXH Assemble part no.	Port size	Applicable manifold types	
			20	20P
SY3000	SY3000-120-1A(-Q)	M5 x 0.8	●	×
SY5000	SY5000-75-2∗A(-Q)	1/8	●	×
SY7000	SY7000-73-3∗A(-Q)	1/4	●	×

Note) The SUP spacer's port does not have an orientation. As for the EXH ports, adjust the symbol "5" to the pilot valve side. Also, please make sure to connect the individual ports to protect the wiring section of the pilot valve from drainage, etc. The individual SUP spacer and EXH spacer can be mounted either on the upper side or lower side. (The above illustration shows the condition when the product is shipped out from a factory.)

⚠ Caution

Mounting screw tightening torques

M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

⚠ Warning

When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

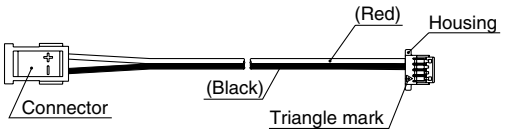
∗ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

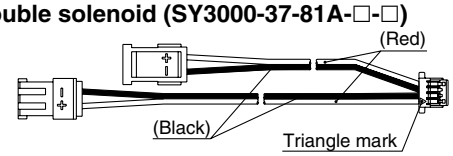
Manifold Option

■ **Connector assembly**

For single solenoid (SY3000-37-81A-□-N)



For double solenoid (SY3000-37-81A-□-□)

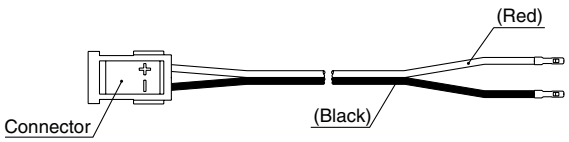


Connector assembly order no. (Can be used for the manifold without a specified layout (8 stations or less))
Integrated type

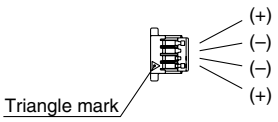
Model	Part no.	Connector mounting position
SS5Y3-20SA	SY3000-37-81A-3-N	Single : For 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: For 1 to 4 stations
	SY3000-37-81A-2-N	Single : For 5 to 8 stations
	SY3000-37-81A-2-4	Double/3 position: For 5 to 8 stations
SS5Y5-20SA	SY3000-37-81A-3-N	Single : For 1 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: For 1 to 8 stations
SS5Y7-20SA	SY3000-37-81A-3-N	Single : For 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: For 1 to 4 stations
	SY3000-37-81A-4-N	Single : For 5 to 8 stations
	SY3000-37-81A-4-7	Double/3 position: For 5 to 8 stations

Note) The above is for the station addition or maintenance. When ordering a connector assembly separately, a number would not be printed on the connector.

■ **Connector assembly**
SY3000-37-80A-□



■ **Housing (8 pcs./set)**
SY3000-44-3A



Connector assembly order no. (Can be used for the manifold with a specified layout)

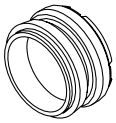
Model	Part no.	Connector mounting position	
SS5Y3-20SA	SY3000-37-80A-3	For A side	For 1 to 8 stations
	SY3000-37-80A-6	For B side	
	SY3000-37-80A-4	For A side	For 9 to 16 stations
	SY3000-37-80A-7	For B side	
SS5Y5-20SA	SY3000-37-80A-3	For A side	For 1 to 8 stations
	SY3000-37-80A-6	For B side	
	SY3000-37-80A-7	For A side	For 9 to 16 stations
	SY3000-37-80A-9	For B side	
SS5Y7-20SA	SY3000-37-80A-4	For A side	For 1 to 8 stations
	SY3000-37-80A-7	For B side	
	SY3000-37-80A-8	For A side	For 9 to 16 stations
	SY3000-37-80A-11	For B side	
SS5Y9-23SA	SY3000-37-80A-6	For A side	For 1 to 8 stations
	SY3000-37-80A-11	For B side	
	SY3000-37-80A-9	For A side	For 9 to 12 stations
	SY3000-37-80A-14	For B side	
	SY3000-37-80A-13	For A side	For 13 to 16 stations
	SY3000-37-80A-18	For B side	

Note 1) The above is for station addition or maintenance. When ordering a connector assembly separately, a number will not be printed on the connector.
Note 2) After inserting the connector assembly into the housing, be sure to confirm that the lead wire will not come off by lightly pulling the wire. Furthermore, do not reuse the lead wire after it has been inserted and removed.
Note 3) Wiring is set longer than the actual wiring distance.

Manifold Option

▪ SUP blocking disk (For SY9000)

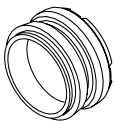
By installing a SUP blocking disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY9000	SY9000-61-2A

▪ EXH blocking disk (For SY9000)

By installing an EXH blocking disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)



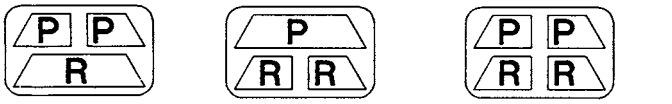
Series	Part no.
SY9000	SY9000-61-2A

▪ Label for blocking disk (For SY9000)

The labels shown below are used on manifold stations containing SUP/EXH blocking disk(s) to show their location. (3 pcs. each)

VZ3000-123-1A

Label for SUP block disk **Label for EXH block disk** **Label for SUP/EXH block disk**



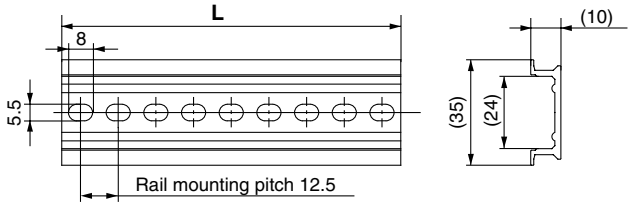
∗ When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

▪ DIN Rail Dimensions/Mass for SY9000

VZ1000 − 11 − 4 − □

● Refer to L dimensions

∗ Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.

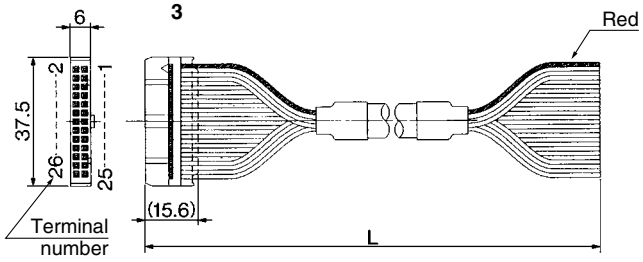


No.	0	1	2	3	4	5	6	7	8	9
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Mass (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3
No.	10	11	12	13	14	15	16	17	18	19
L Dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Mass (g)	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9
No.	20	21	22	23	24	25	26	27	28	29
L Dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Mass (g)	88	91.2	94.4	97.5	100.7	103.9	107	110.2	113.3	116.5

Note) · For DIN rail, refer to page 338.
· Refer to L1 dimension on pages 153, 162 and 172 for lengths that correspond to the number of manifold stations.

▪ Cable assembly (For 20P, 23P)

AXT100-FC26-$^{1}_{to}$ 3



Connector Assembly for Flat Ribbon Cables

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-FC26-1	Cable 26 core x 28 AWG
3 m	AXT100-FC26-2	
5 m	AXT100-FC26-3	

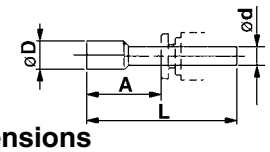
∗ For other commercial connectors, use a 26 pins with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- **Hirose Electric Company**
- **Japan Aviation Electronics Industry, Ltd.**
- **Sumitomo 3M Limited**
- **J.S.T. Mfg. Co., Ltd.**
- **Fujitsu Limited**

■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports.
Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ød	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
12	**KQ2P-12**	24	44.5	14
1/8"	**KQ2P-01**	16	31.5	5
5/32"	**KQ2P-03**	16	32	6
1/4"	**KQ2P-07**	18	35	8.5
5/16"	**KQ2P-09**	20.5	39	10
3/8"	**KQ2P-11**	22	43	11.5

How to Increase Manifold Bases (Series SY9000 only) Manifold case can be added at any location.

When a type 23 manifold base is added, tension bolts as well as manifold block assembly will be required. Order the tension bolt suitable for the stations after a station was increased (decreased), since the length of a tension bolt differs by the number of stations. (For changing the number of stations for a type 23P manifold, wiring unit for the stations and lead assembly will be required.)

1. Loosen the tension bolts ⑤ connecting the manifold base, and pull out both of 2 tension bolts.
   (When equipped with a DIN rail, loosen one DIN rail holding screw on either U side or D side.)
2. Separate the blocks at the location where station expansion is desired.
3. Mount additional manifold block assembly.
4. Press block-to-block so that there's no gap. After connection, insert a tension bold for desired stations and then tighten it.

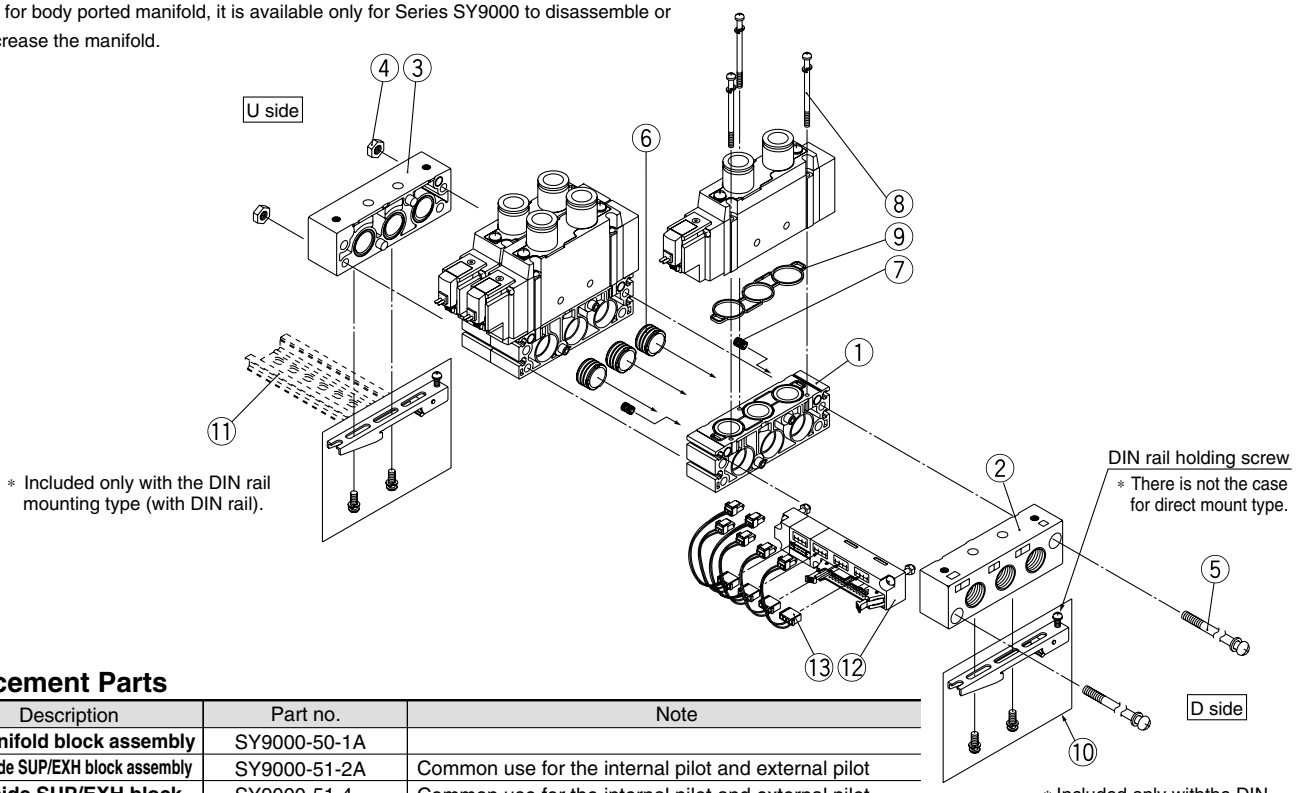
⚠ **Caution** (Tightening torque: 2.9 N·m)
(When equipped with a DIN rail, be sure to tighten the DIN rail holding screws after tightening the tension bolts. Tightening torque: 1.4 N·m)

⚠ Caution

1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
2. When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate.
3. By adding wiring unit assembly to type 23 manifold, it can be changed to type 23P manifold, too.

Body Ported Manifold Exploded View, 23/23P Common

As for body ported manifold, it is available only for Series SY9000 to disassemble or increase the manifold.



Replacement Parts

No.	Description	Part no.	Note
1	**Manifold block assembly**	SY9000-50-1A	
2	**D side SUP/EXH block assembly**	SY9000-51-2A	Common use for the internal pilot and external pilot
3	**U side SUP/EXH block**	SY9000-51-4	Common use for the internal pilot and external pilot
4	**Hexagon nut**	SY9000-25-1	M5 x 0.8
5	**Tension bolt**	SY9000-23-□	Since □ at the end of part number corresponds with the number of stations, fill in the same number as the number of stations.
6	**Bush assembly**	SY9000-61-1A	Included in the Manifold block assembly and the D side SUP/EXH block assembly.
7	**Bush assembly**	SY9000-61-3A	Included in the Manifold block assembly and the D side SUP/EXH block assembly.
8	**Round head combination screw**	SY9000-18-2	Included in the Manifold block assembly.
9	**Manifold gasket**	SY9000-11-1	Included in the Manifold block assembly.
10	**Clamp sub assembly**	SY9000-29-1A	
11	**DIN rail**	VZ1000-11-4-□	Refer to page 175.
12	**Wiring unit assembly**	SY9000-36-□A	Since □ in part number corresponds with the number of stations, fill in the number of stations (4 to 12).
13	**Connector assembly**	SY9000-37-□□	Refer to page 161.

5 Port Solenoid Valve
Body Ported Manifold
Cassette Type

Type 60

Series SY3000/5000/7000



How to Order

SS5Y 3 – 60 – 05 D – □ – □

Series

3	SY3000
5	SY5000
7	SY7000

Valve stations

02	2 stations
⋮	⋮
20	20 stations

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

Option

When a DIN rail longer than standard is required, enter the number of manifold stations that corresponds with the length of DIN rail needed. Max. 20 stations

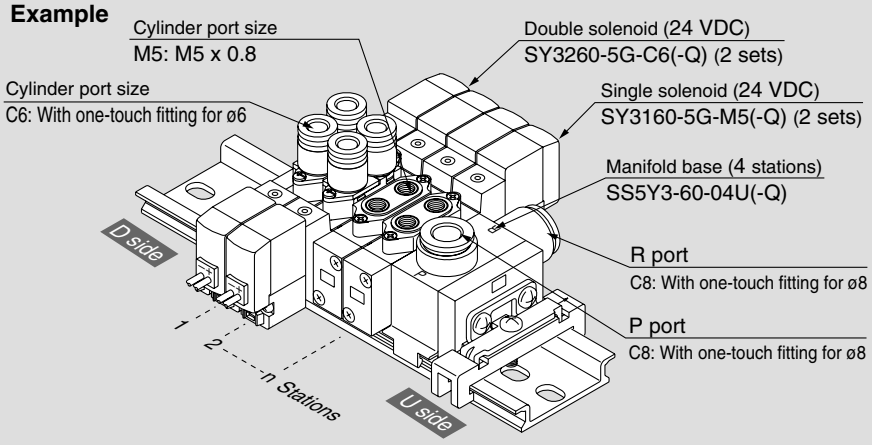
SUP/EXH block assembly mounting position

Symbol	Mounting position	Applicable stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 20 stations
M∗	Special location	

∗ For special specifications, indicate separately by the manifold specification sheet.

How to Order Manifold Assembly (Example)

Example



SS5Y3-60-04U ····· 1 set (Type 60, 4-station manifold base part no.)
∗ SY3260-5G-C6 ····· 2 sets (Double solenoid part no.)
∗ SY3160-5G-M5 ····· 2 sets (Single solenoid part no.)

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

Manifold Specifications

Model		SS5Y3-60(-Q)	SS5Y5-60(-Q)	SS5Y7-60(-Q)
Applicable valve		SY3□60	SY5□60	SY7□60
Manifold type		Stacking type/DIN rail mounted		
P (SUP)/R (EXH)		Common SUP/Common EXH		
Valve stations		2 to 20 stations Note 1)		
A, B port location		Valve		
Port size	P, R port	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)	C12 (One-touch fitting for ø12)
	A, B port	M5 x 0.8 C4(One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10)
Manifold base mass W (g) Note 2) (n: Number of SUP/EXH blocks, m: Mass of DIN rail)		W = 13n + m + 36	W = 41.2n + m + 77.6	W = 65.4n + m + 128.2

Note 1) In cases such as those where many valves are operated simultaneously, use "-station B (SUP/EXH block on both sides)", applying pressure to the P ports on both sides and exhausting from the R ports on both sides.

Note 2) For DIN rail mass, refer to page 186.

Flow Characteristics

Model	Port size		Flow characteristics					
	1,5/3 (P,R)	4,2 (A,B)	1 → 4/2(P → A/B)			4/2 → 5/3(A/B → R)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-60(-Q)	C8	M5	0.55	0.29	0.14	0.72	0.24	0.18
		C4	0.57	0.24	0.14	0.71	0.20	0.17
		C6	0.68	0.28	0.17	0.77	0.24	0.19
SS5Y5-60(-Q)	C10	1/8	1.8	0.24	0.44	2.1	0.17	0.47
		C6	1.5	0.30	0.37	2.0	0.16	0.46
		C8	1.8	0.20	0.45	2.2	0.17	0.50
SS5Y7-60(-Q)	C12	1/4	3.7	0.25	0.96	3.8	0.19	0.94
		C8	3.2	0.26	0.81	4.0	0.18	0.96
		C10	3.7	0.28	0.98	4.1	0.19	1.0

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

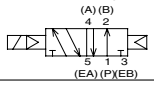
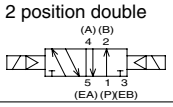
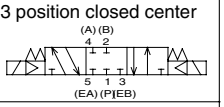
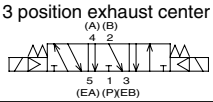
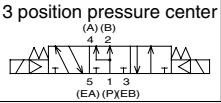
How to Order Valve

SY [3] [1] **60** [ ] – [5] [L] [ ] [ ] – [C6] [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

1	2 position single 
2	2 position double 
3	3 position closed center 
4	3 position exhaust center 
5	3 position pressure center 

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ D, Y, DO and YO only available for SY5000, SY7000.
∗ For type W□, DC voltage is only available.

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

Made to Order

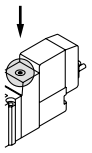
Nil	—
X20	Body ported external pilot (Refer to page 332.)
X90	Main valve fluoro rubber (Refer to page 332.)

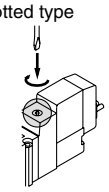
CE-compliant

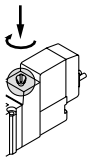
Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Manual override

Nil: Non-locking push type 

D: Push-turn locking slotted type 

E: Push-turn locking lever type 

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With light/surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

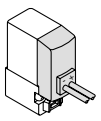
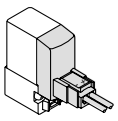
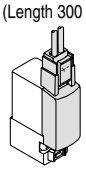
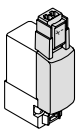
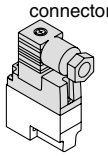
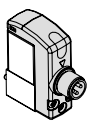
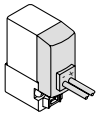
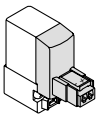
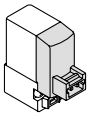
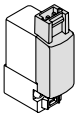
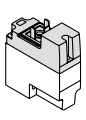
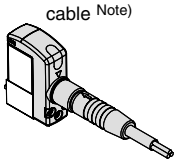
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y (SY500/7000 only)

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC				24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector		DIN terminal	M8 connector
G: Lead wire length 300 mm 	**L:** With lead wire (Length 300 mm) 	**M:** With lead wire (Length 300 mm) 	**MN:** Without lead wire 	(**SY5000, 7000**) **D, Y:** With connector 	**WO:** Without connector cable 
H: Lead wire length 600 mm 	**LN:** Without lead wire 	**LO:** Without connector 	**MO:** Without connector 	**DO, YO:** Connector 	**W□:** With connector cable Note) 

∗ LN, MN type: with 2 sockets.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Specifications

Series		SY3000	SY5000	SY7000
Fluid		Air		
Internal pilot Operating pressure range (MPa)	**2 position single**	0.15 to 0.7		
	2 position double	0.1 to 0.7		
	3 position	0.2 to 0.7		
Ambient and fluid temperature (°C)		Max. 50		
Max. operating frequency (Hz)	**2 position double**	10	5	5
	3 position	3	3	3
Manual override (Manual operation)		Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type		
Pilot exhaust method		Common exhaust type for main and pilot valve		
Lubrication		Not required		
Mounting position		Unrestricted		
Impact/Vibration resistance Note)		150/30		
Enclosure		Dust proof (∗ DIN terminal, M8 connector: IP65)		

Note) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition.

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values in the initial stage)

∗ Based on IEC60529

Solenoid Specifications

Electrical entry			Grommet (G), (H) L plug connector (L) M plug connector (M) DIN terminal (D), (Y) M8 connector (W)	
			G, H, L, M, W	D, Y
Coil rated voltage (V)	**DC**		24, 12, 6, 5, 3	24, 12
	AC 50/60 Hz		100, 110, 200, 220	
Allowable voltage fluctuation			±10% of rated voltage ∗	
Power consumption (W)	**DC**	**Standard**	0.35 [With indicator light: 0.4 (DIN terminal with indicator light: 0.45)]	
		With power saving circuit	0.1 (With indicator light only)	
Apparent power (VA) ∗	**AC**	**100 V**	0.78 (With indicator light: 0.81)	0.78 (With indicator light: 0.87)
		110 V [115 V]	0.86 (With indicator light: 0.89) [0.94 (With indicator light: 0.97)]	0.86 (With indicator light: 0.97) [0.94 (With indicator light: 1.07)]
		200 V	1.18 (With indicator light: 1.22)	1.15 (With indicator light: 1.30)
		220 V [230 V]	1.30 (With indicator light: 1.34) [1.42 (With indicator light: 1.46)]	1.27 (With indicator light: 1.46) [1.39 (With indicator light: 1.60)]
Surge voltage suppressor			Diode (Varistor is for DIN terminal and non-polar)	
Indicator light			LED (AC of DIN connector is neon light.)	

∗ In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.

∗ For 115 VAC and 230 VAC, the allowable voltage is –15% to +5% of rated voltage.

∗ S, Z and T type (with power saving circuit) should be used within the following allowable voltage fluctuation range due to a voltage drop caused by the internal circuit.

S and Z type: 24 VDC: –7% to +10%
12 VDC: –4% to +10%
T type: 24 VDC: –8% to +10%
12 VDC: –6% to +10%

Response Time

Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

SY3000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without surge voltage suppressor	With surge voltage suppressor	
		S, Z type	R, U type
2 position single	12 or less	15 or less	12 or less
2 position double	10 or less	13 or less	10 or less
3 position	15 or less	20 or less	16 or less

SY5000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without surge voltage suppressor	With surge voltage suppressor	
		S, Z type	R, U type
2 position single	19 or less	26 or less	19 or less
2 position double	18 or less	22 or less	18 or less
3 position	32 or less	38 or less	32 or less

SY7000

Type of actuation	Response time (ms) (at the pressure of 0.5 MPa)		
	Without light/surge voltage suppressor	With light/surge voltage suppressor	
		S, Z type	R, U type
2 position single	31 or less	38 or less	33 or less
2 position double	27 or less	30 or less	28 or less
3 position	50 or less	56 or less	50 or less

Mass

Series SY3000

Valve model	Type of actuation		Port size	Mass (g)		
			A, B	Grommet	L/M plug connector	M8 Connector
SY3□60-□-M5	2 position	Single	M5 x 0.8	49	51	55
		Double		70	73	81
	3 position	Closed center		73	76	84
		Exhaust center				
		Pressure center				
SY3□60-□-C4	2 position	Single	C4 (One-touch fitting for ø4)	62	61	65
		Double		80	83	91
	3 position	Closed center		82	86	94
		Exhaust center				
		Pressure center				
SY3□60-□-C6	2 position	Single	C6 (One-touch fitting for ø6)	55	57	61
		Double		76	79	87
	3 position	Closed center		78	82	90
		Exhaust center				
		Pressure center				

Note) [ ]: denotes normal position.

Series SY5000

Valve model	Type of actuation		Port size	Mass (g)			
			A, B	Grommet	L/M plug connector	DIN terminal	M8 Connector
SY5□60-□-01	2 position	Single	1/8	67	69	90	71
		Double		91	94	136	102
	3 position	Closed center		97	100	142	108
		Exhaust center					
		Pressure center					
SY5□60-□-C4	2 position	Single	C4 (One-touch fitting for ø4)	91	93	114	97
		Double		113	116	158	124
	3 position	Closed center		119	122	164	130
		Exhaust center					
		Pressure center					
SY5□60-□-C6	2 position	Single	C6 (One-touch fitting for ø6)	86	88	109	92
		Double		108	111	153	119
	3 position	Closed center		114	117	159	125
		Exhaust center					
		Pressure center					
SY5□60-□-C8	2 position	Single	C8 (One-touch fitting for ø8)	78	80	101	84
		Double		100	103	145	111
	3 position	Closed center		106	109	151	117
		Exhaust center					
		Pressure center					

Series SY7000

Valve model	Type of actuation		Port size	Mass (g)			
			A, B	Grommet	L/M plug connector	DIN terminal	M8 Connector
SY7□60-□-02	2 position	Single	1/4	103	105	126	109
		Double		125	128	170	136
	3 position	Closed center		133	136	178	144
		Exhaust center					
		Pressure center					
SY7□60-□-C8	2 position	Single	C8 (One-touch fitting for ø8)	138	139	160	143
		Double		160	163	205	171
	3 position	Closed center		168	171	213	179
		Exhaust center					
		Pressure center					
SY7□60-□-C10	2 position	Single	C10 (One-touch fitting for ø10)	123	125	146	129
		Double		145	149	191	157
	3 position	Closed center		153	157	199	165
		Exhaust center					
		Pressure center					

How to Order Pilot Valve Assembly

V111 □ – 5 G □

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, DO or W□ type.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Rated voltage

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz [115 VAC 50/60 Hz]
4	220 VAC 50/60 Hz [230 VAC 50/60 Hz]

∗ For type W□, DC voltage is only available.
∗ CE-compliant: For DC only.

Electrical entry

G	Grommet, 300 mm lead wire	
H	Grommet, 600 mm lead wire	
L	L plug connector	With lead wire
LN		Without lead wire
LO		Without connector
M	M plug connector	With lead wire
MN		Without lead wire
MO		Without connector
WO	M8 connector	Without connector cable
W□		With connector cable Note 1)

∗ For connector cable of M8 connector, refer to page 339.
Note 1) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

■ DIN terminal type

V115 – 5 D □

Rated voltage

5	24 VDC
6	12 VDC
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz [115 VAC 50/60 Hz]
4	220 VAC 50/60 Hz [230 VAC 50/60 Hz]

∗ DC specifications of Type D, Y, DO and YO is only available with 12 and 24 VDC.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

D	DIN terminal (Type D)	With connector
DO		Without connector
Y	DIN terminal (Type Y)	With connector
YO		Without connector

Note) Do not replace V111 (G, H, L, M) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

Note) Since V111 and V115 are CE-compliant as standard, the suffix "-Q" is not necessary.

How to Order Port Block Assembly

SY 3 000 − 6A − C4 □

Series

3	SY3000
5	SY5000
7	SY7000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	

How to Change Port Block Assembly

Connecting port size of A and B can be changed by replacing port block assembly mounted on body. When changing block assembly, correct screw torque must be achieved to avoid trouble; e.g. air leakage.

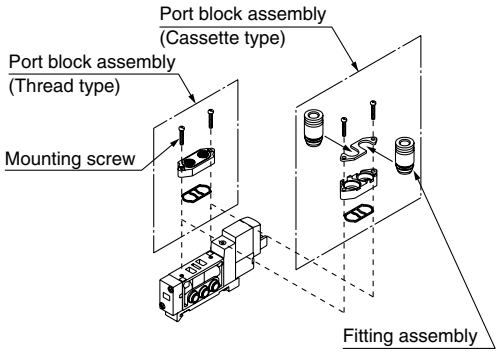
With the one-touch fitting port block assembly, it is only necessary to change the fitting and not the whole block. Refer to following part numbers.

One-touch fitting (Metric size)

Port size	Fitting assembly part no.	Applicable series
One-touch fitting for ø4	VVQ1000-50A-C4	SY3000
One-touch fitting for ø6	VVQ1000-50A-C6	
One-touch fitting for ø4	VVQ1000-51A-C4	SY5000
One-touch fitting for ø6	VVQ1000-51A-C6	
One-touch fitting for ø8	VVQ1000-51A-C8	
One-touch fitting for ø8	VVQ2000-51A-C8	SY7000
One-touch fitting for ø10	VVQ2000-51A-C10	

One-touch fitting (Inch size)

Port size	Fitting assembly part no.	Applicable series
One-touch fitting for ø5/32"	VVQ1000-50A-N3	SY3000
One-touch fitting for ø1/4"	VVQ1000-50A-N7	
One-touch fitting for ø5/32"	VVQ1000-51A-N3	SY5000
One-touch fitting for ø1/4"	VVQ1000-51A-N7	
One-touch fitting for ø5/16"	VVQ1000-51A-N9	
One-touch fitting for ø1/4"	VVQ2000-51A-N9	SY7000
One-touch fitting for ø3/8"	VVQ2000-51A-N11	



⚠ Caution

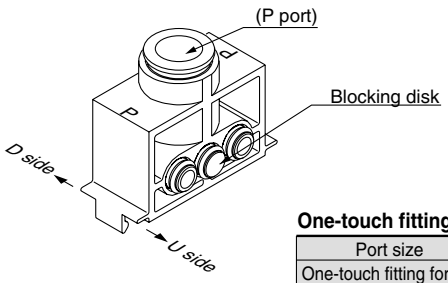
Torque for mounting screws

SY3000(M2): 0.12 N·m
SY5000, 7000 (M3): 0.6 N·m

∗ Refer to "How to Change Port Block Assembly" for part numbers.

Manifold Option

■ Individual SUP block assembly



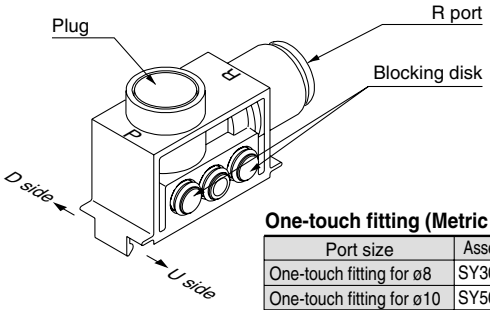
One-touch fitting (Metric size)

Port size	Assembly part no.	Applicable series
One-touch fitting for ø6	SY3000-54-2C(-Q)	SY3000
One-touch fitting for ø8	SY3000-54-1C(-Q)	
One-touch fitting for ø10	SY5000-54-1C(-Q)	SY5000
One-touch fitting for ø12	SY7000-54-1C(-Q)	SY7000

One-touch fitting (Inch size)

Port size	Assembly part no.	Applicable series
One-touch fitting for ø5/16"	SY3000-54-3C(-Q)	SY3000
One-touch fitting for ø3/8"	SY5000-54-2C(-Q)	SY5000
One-touch fitting for ø3/8"	SY7000-54-3C(-Q)	SY7000

■ Individual EXH block assembly



One-touch fitting (Metric size)

Port size	Assembly part no.	Applicable series
One-touch fitting for ø8	SY3000-55-1B(-Q)	SY3000
One-touch fitting for ø10	SY5000-55-1B(-Q)	SY5000
One-touch fitting for ø12	SY7000-55-1B(-Q)	SY7000

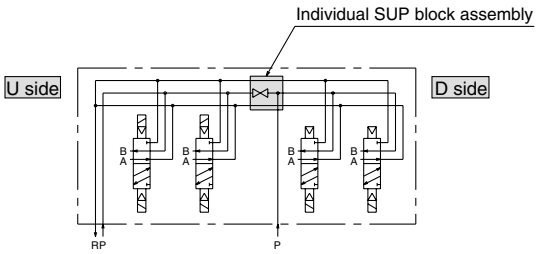
One-touch fitting (Inch size)

Port size	Assembly part no.	Applicable series
One-touch fitting for ø5/16"	SY3000-55-2B(-Q)	SY3000
One-touch fitting for ø3/8"	SY5000-55-2B(-Q)	SY5000
One-touch fitting for ø3/8"	SY7000-55-3B(-Q)	SY7000

[When supplying the manifold with 2 different supply pressures.]

Specify arrangement of individual SUP block assembly on the manifold specification sheet. (When using SS5Y□-60-□□D, blocking disk is assembled on

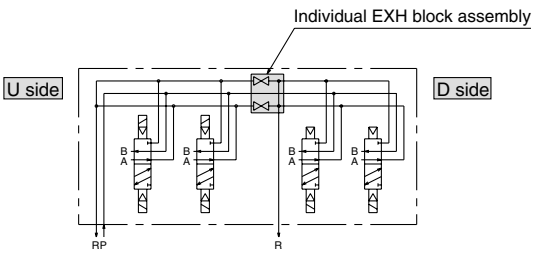
<Manifold model no.: SS5Y$^{3}_{5}$-60-□□$^{U}_{D}$>



[When 2 different EXH passages are required.]

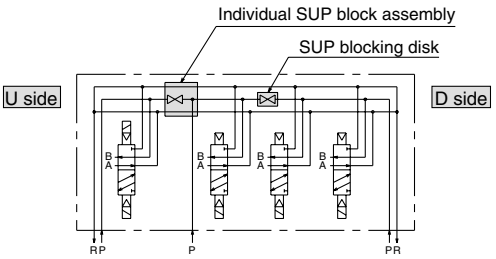
Specify arrangement of individual EXH block assembly on the manifold specification sheet. (When using SS5Y□-60-□□D, blocking disk is assembled on D side.)

<Manifold model no.: SS5Y$^{3}_{5}$-60-□□$^{U}_{D}$>



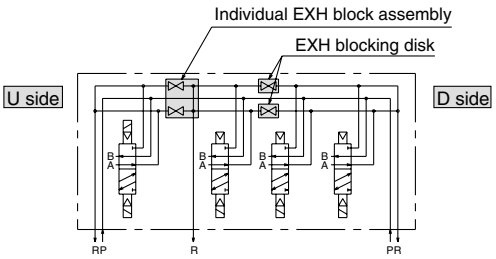
[When a different supply pressure is required for only a middle valve.]

Specify arrangement of individual SUP block assembly and SUP blocking disk on the manifold specification sheet.
(Applicable manifold model no.: SS5Y□-60-□□B)



[When a separate exhaust passage is needed on only a middle valve.]

Specify arrangement of individual EXH block assembly and EXH blocking disk on the manifold specification sheet.
(Applicable manifold model no.: SS5Y□-60-□□B)



Manifold Option

■ SUP blocking disk

By installing a SUP blocking disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold. (This is the same block disk used with the individual SUP block assembly.)



Series	Part no.
SY3000	SY3000-52-6A
SY5000	SY5000-52-4A
SY7000	SY7000-70-2A

■ EXH blocking disk

By installing an EXH blocking disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to separate both EXH passages. It is the same block disk that is used in the individual EXH block assembly.)



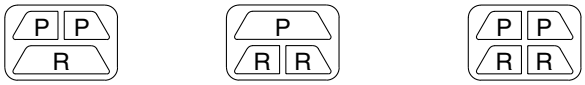
Series	Part no.
SY3000	SY3000-52-6A
SY5000	SY5000-52-4A
SY7000	SY7000-70-2A

■ Label for block disk

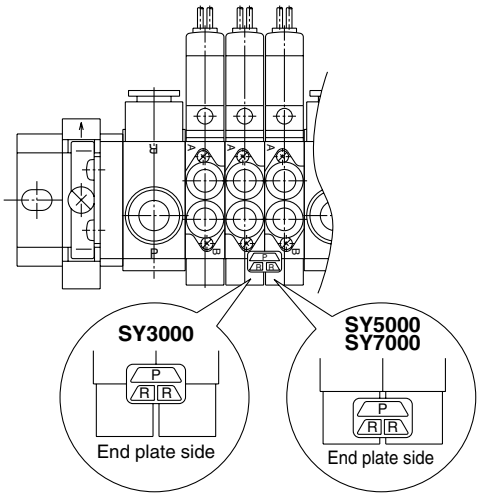
The labels shown below are used on manifold stations containing SUP/EXH blocking disk(s) to show their location. (3 pcs. each)

VZ3000-123-1A

Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk

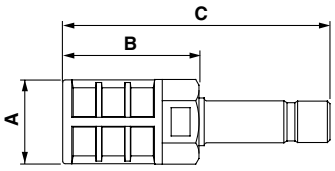


∗ When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.



■ Silencer with One-touch fitting

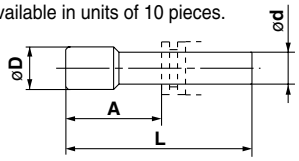
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	A	B	C
SY3000 (for ø8)	AN203-KM8	14 mm²	ø16	26	51
SY5000 (for ø10)	AN200-KM10	26 mm²	ø22	54	80.8
	AN300-KM10	30 mm²	ø25	70	97
SY7000 (for ø12)	AN300-KM12	41 mm²	ø25	70	98

■ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports.
Purchasing order is available in units of 10 pieces.



Dimensions

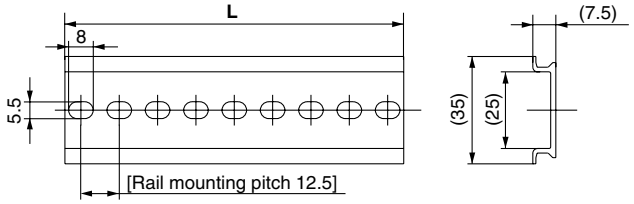
Applicable fittings size ød	Model	A	L	D
4	**KQ2P-04**	16	32	6
6	**KQ2P-06**	18	35	8
8	**KQ2P-08**	20.5	39	10
10	**KQ2P-10**	22	43	12
12	**KQ2P-12**	24	45.5	14
5/32"	**KQ2P-03**	16	32	6
1/4"	**KQ2P-07**	18	35	8.5
5/16"	**KQ2P-09**	20.5	39	10
3/8"	**KQ2P-11**	22	43	11.5

■ DIN Rail Dimensions/Mass for SY3000/5000

VZ1000-11-1-□

• Refer to the L dimension tables

∗ Enter a number from the DIN rail dimension table below in them.



No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Mass (g)	17.6	19.9	22.1	24.4	26.6	28.9	31.1	33.4	35.6	37.9

No.	10	11	12	13	14	15	16	17	18	19
L dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Mass (g)	40.1	42.4	44.6	46.9	49.1	51.4	53.6	55.9	58.1	60.4

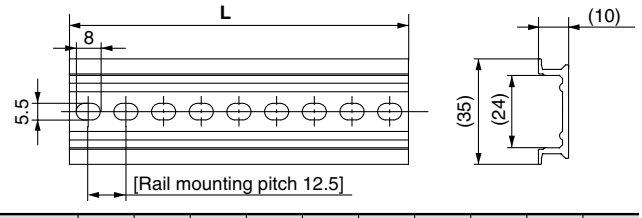
No.	20	21	22	23	24	25	26	27	28	29
L dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Mass (g)	62.6	64.9	67.1	69.4	71.6	73.9	76.1	78.4	80.6	82.9

■ DIN Rail Dimensions/Mass for SY7000

VZ1000-11-4-□

• Refer to the L dimension tables

∗ Enter a number from the DIN rail dimension table below in them.



No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Mass (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3

No.	10	11	12	13	14	15	16	17	18	19
L dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Mass (g)	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9

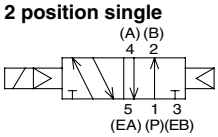
No.	20	21	22	23	24	25	26	27	28	29
L dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Mass (g)	88	91.2	94.4	97.5	100.7	103.9	107	110.2	113.3	116.5

Note) For DIN rail mounting, refer to page 338.

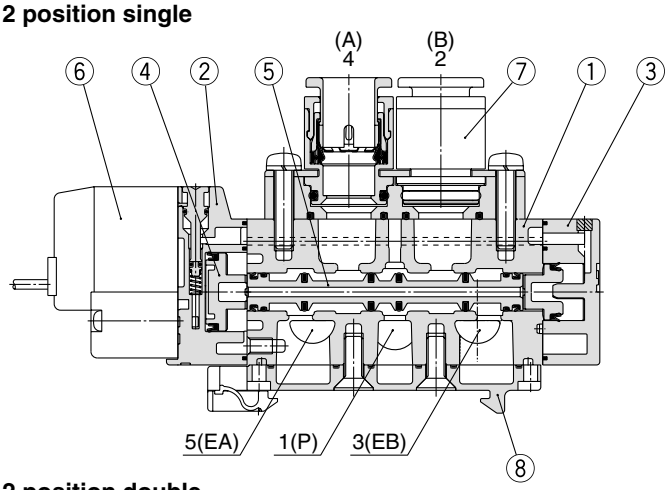
Construction

Series SY

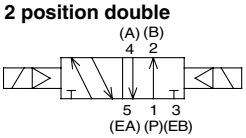
JIS Symbol
2 position single



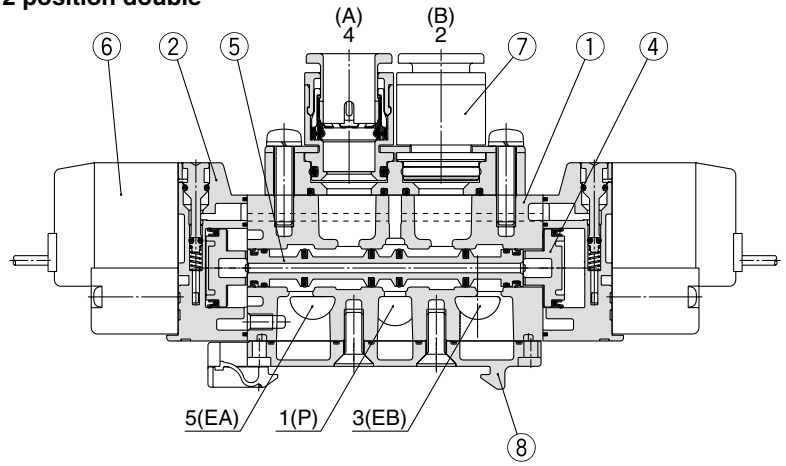
2 position single



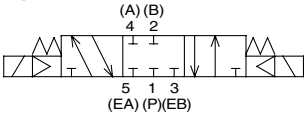
JIS Symbol
2 position double



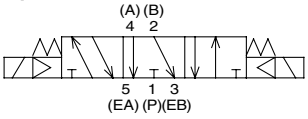
2 position double



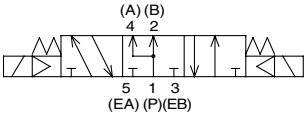
JIS Symbol
3 position closed center



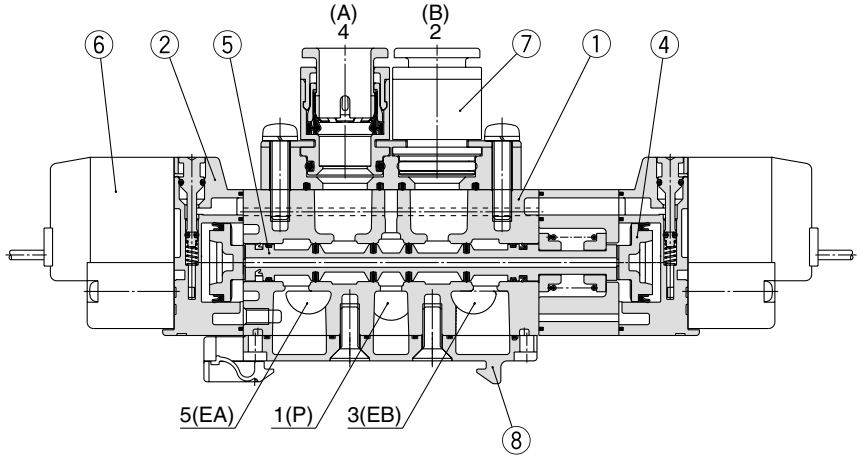
3 position exhaust center



3 position pressure center



3 position closed center / exhaust center / pressure center



(This figure shows a closed center type.)

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted (SY3000: Zinc die-casted)	White
2	**Adapter plate**	Resin	White
3	**End plate**	Resin	White
4	**Piston**	Resin	—
5	**Spool valve assembly**	Aluminum/H-NBR	—

Replacement Parts

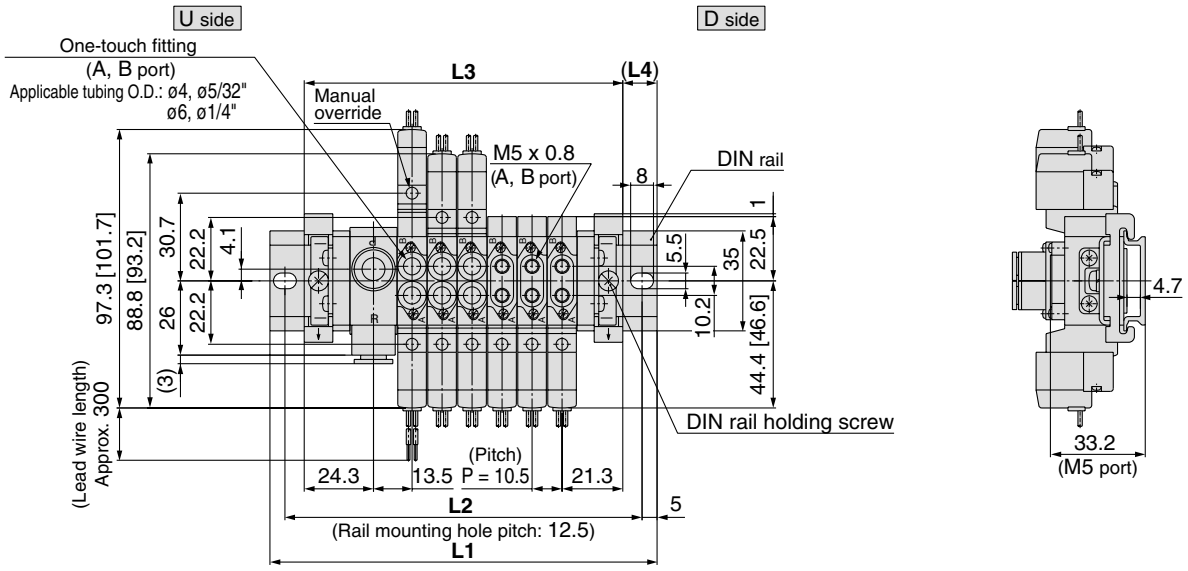
No.	Description	No.
6	**Pilot valve assembly**	Refer to “How to Order Pilot Valve Assembly” on page 183.
7	**Port block assembly**	Refer to “How to Order Port Block Assembly” on page 184.
8	**Bottom cover assembly** Note)	SY3000-41-2A (with screw, gasket)
		SY5000-41-2A (with screw, gasket)

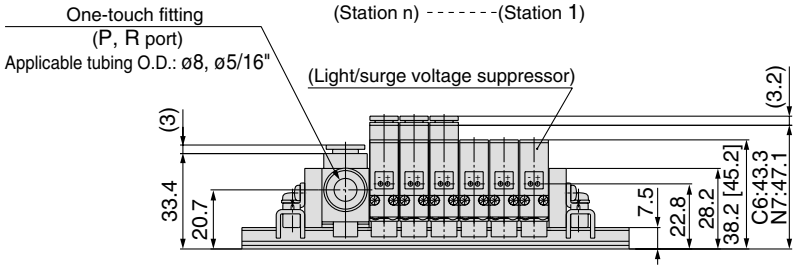
Note) There is no bottom cover assembly available for SY7000.

Dimensions

[ ]: AC

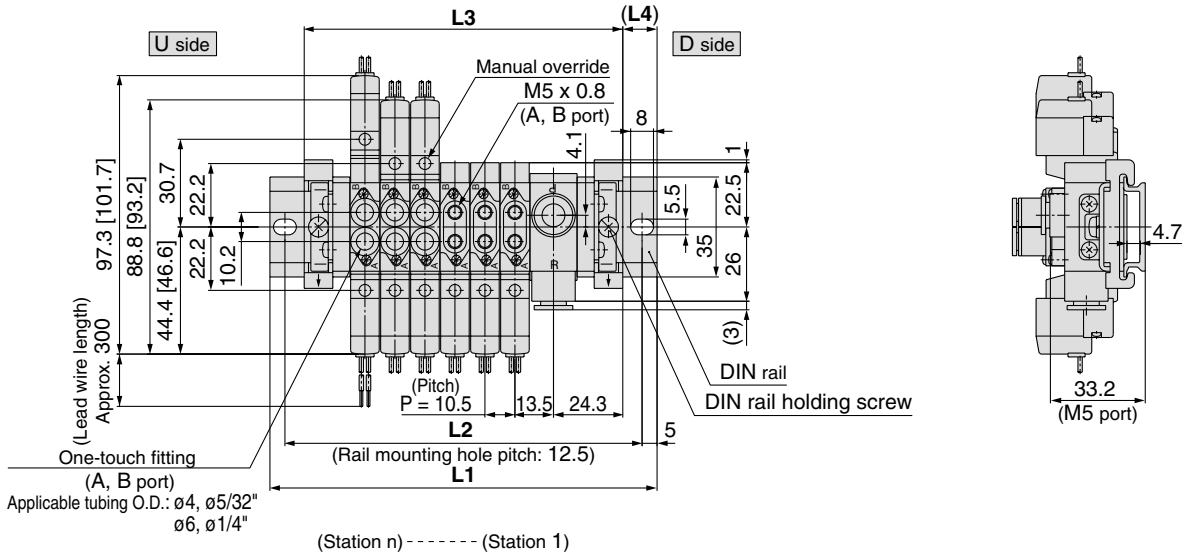
SS5Y3-60-Stations U

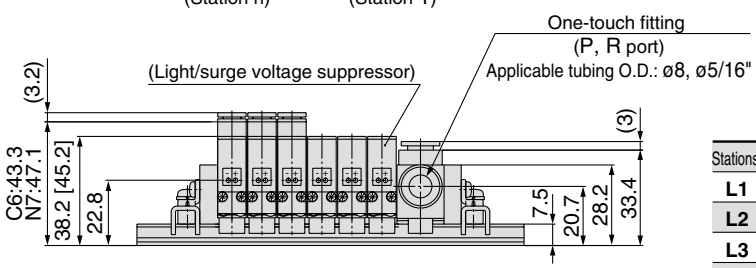




Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	98	110.5	123	135.5	135.5	148	160.5	173	185.5
L2	87.5	100	112.5	125	125	137.5	150	162.5	175
L3	69.5	80	90.5	101	111.5	122	132.5	143	153.5
L4	14	15	16	17	12	13	14	15	16

SS5Y3-60-Stations D

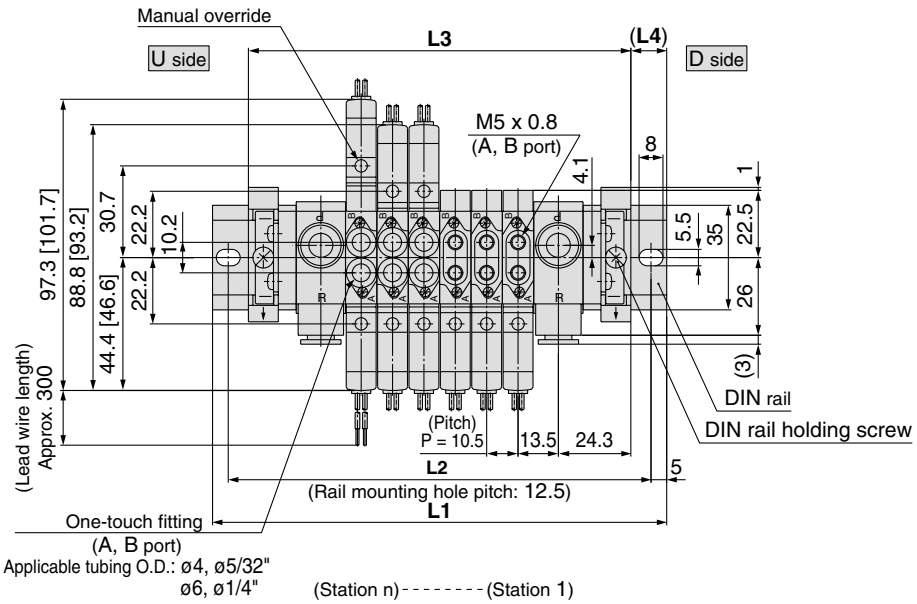


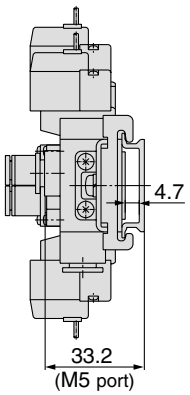


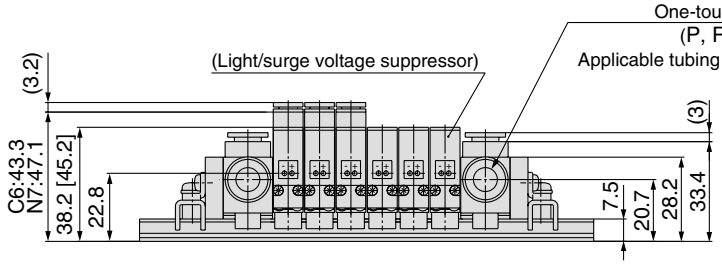
Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	98	110.5	123	135.5	135.5	148	160.5	173	185.5
L2	87.5	100	112.5	125	125	137.5	150	162.5	175
L3	69.5	80	90.5	101	111.5	122	132.5	143	153.5
L4	14	15	16	17	12	13	14	15	16

[ ]: AC

SS5Y3-60-Stations B



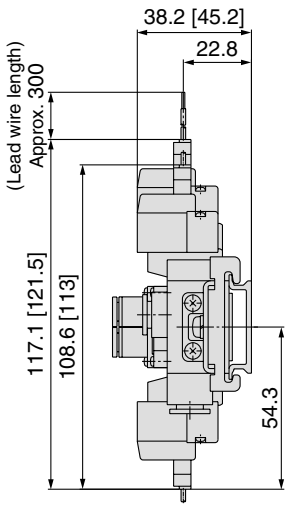




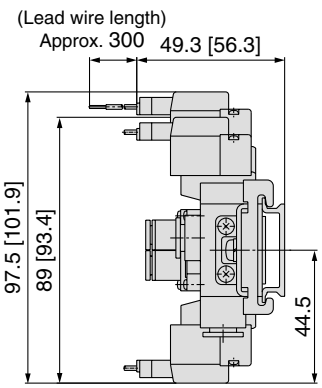
Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	110.5	123	135.5	148	160.5	173	173	185.5	198
L2	100	112.5	125	137.5	150	162.5	162.5	175	187.5
L3	86	96.5	107	117.5	128	138.5	149	159.5	170
L4	12	13	14	15	16	17	12	13	14

Stations	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	210.5	223	235.5	235.5	248	260.5	273	285.5	298	310.5
L2	200	212.5	225	225	237.5	250	262.5	275	287.5	300
L3	180.5	191	201.5	212	222.5	233	243.5	254	264.5	275
L4	15	16	17	11.5	12.5	13.5	14.5	15.5	16.5	17.5

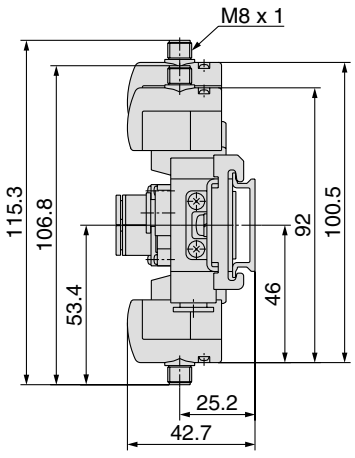
L plug connector (L)



M plug connector (M)



M8 connector (WO)

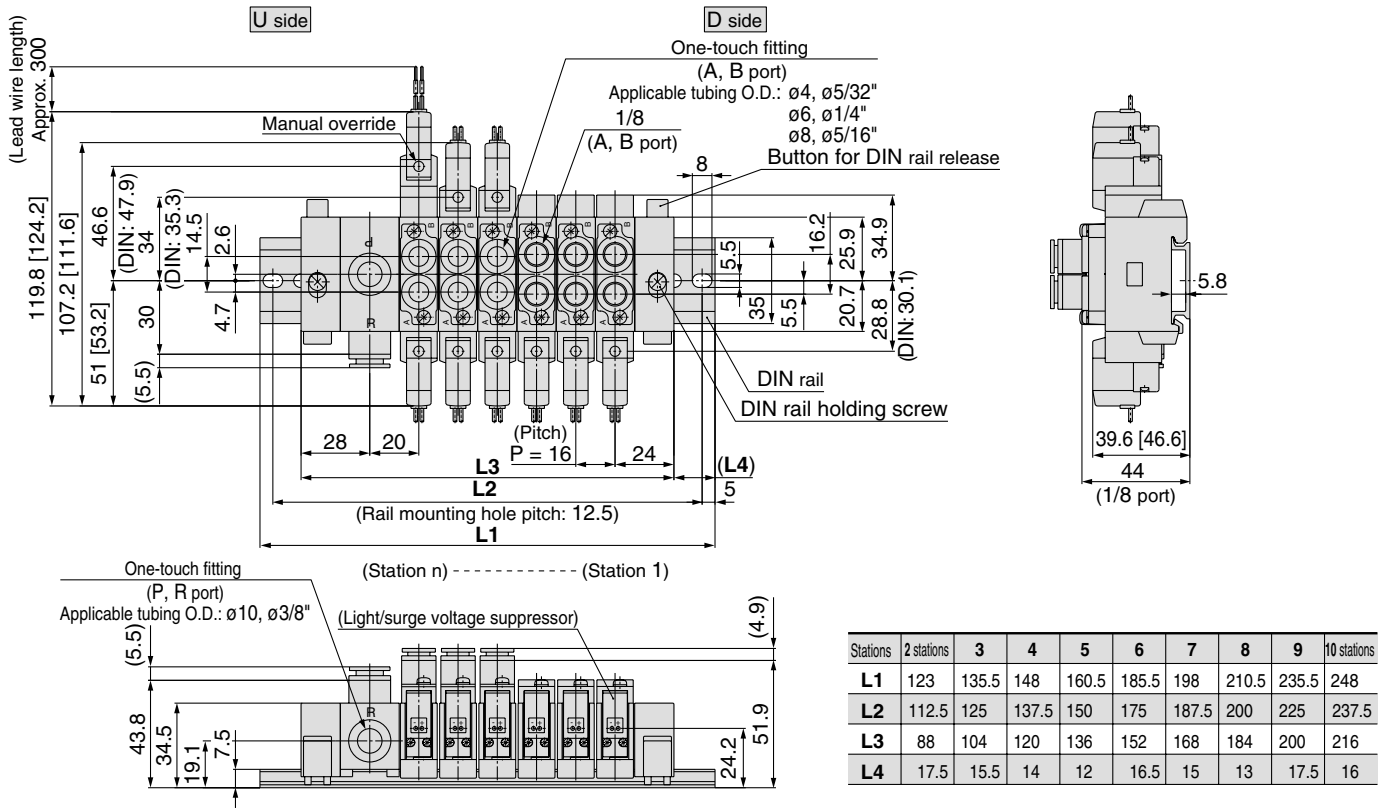


Note) Refer to page 340 for dimensions of connector types.

Dimensions

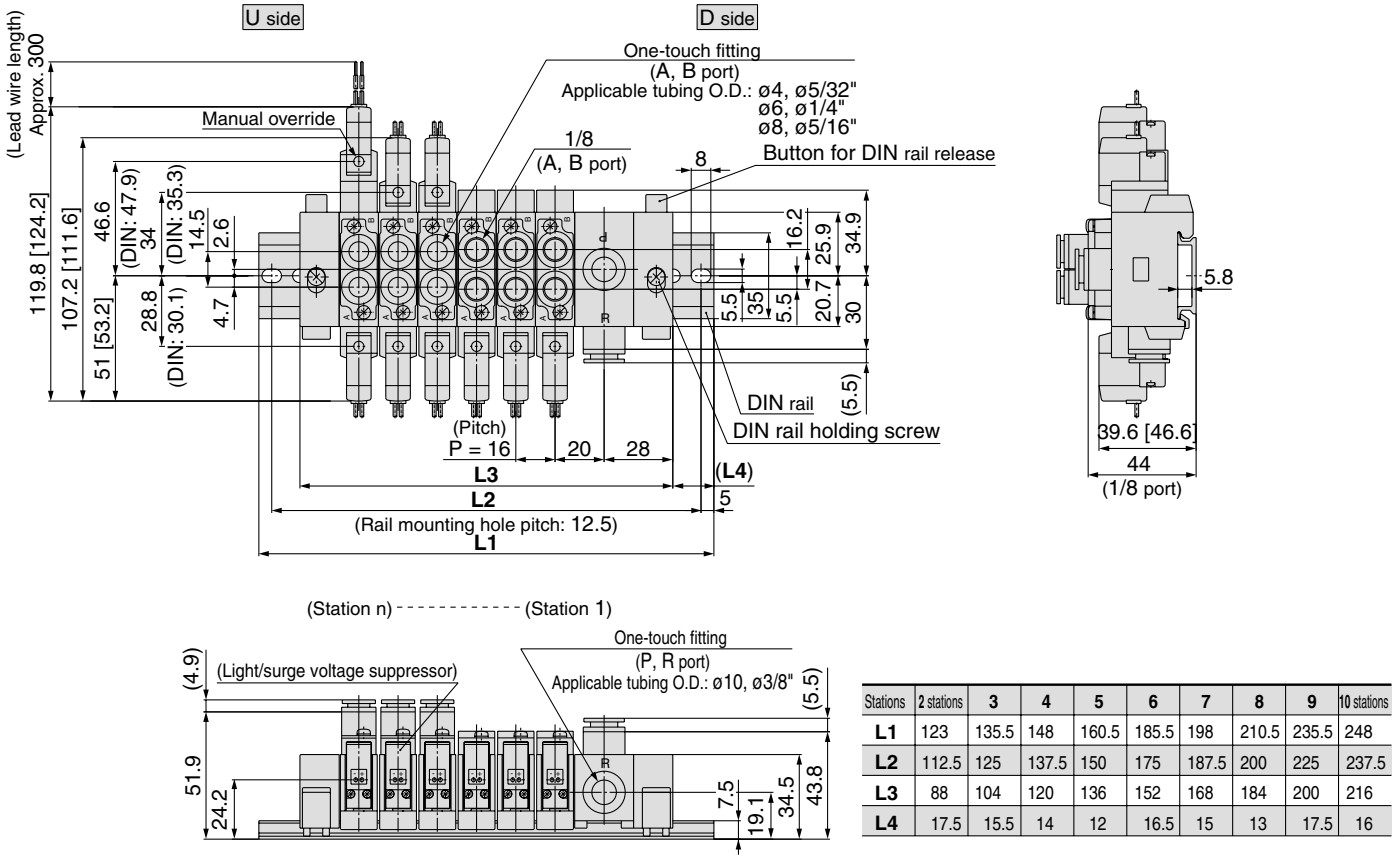
[ ]: AC

SS5Y5-60-Stations U



Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	160.5	185.5	198	210.5	235.5	248
L2	112.5	125	137.5	150	175	187.5	200	225	237.5
L3	88	104	120	136	152	168	184	200	216
L4	17.5	15.5	14	12	16.5	15	13	17.5	16

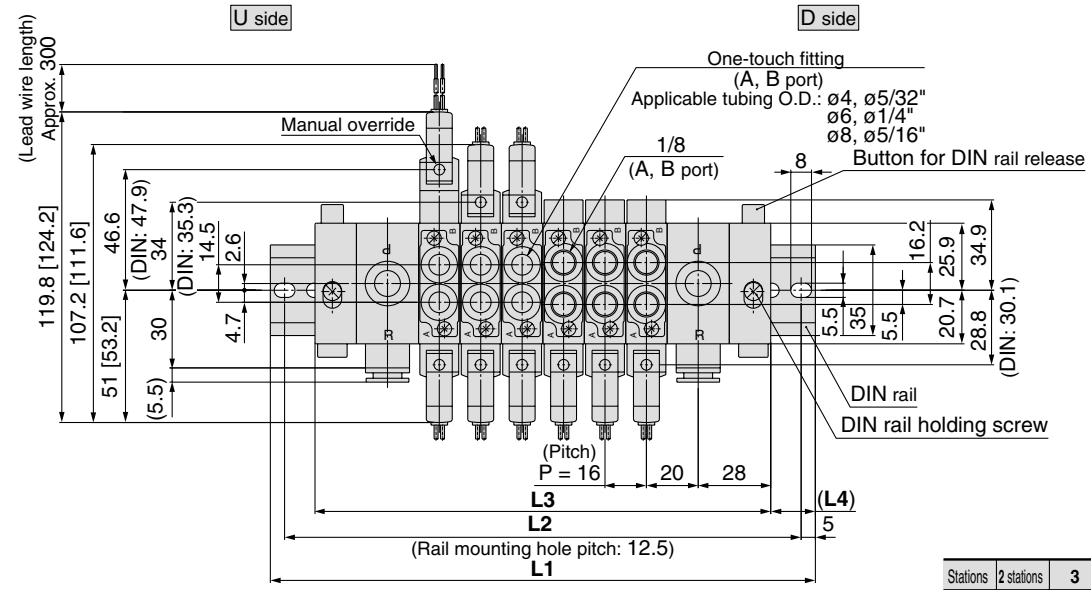
SS5Y5-60-Stations D

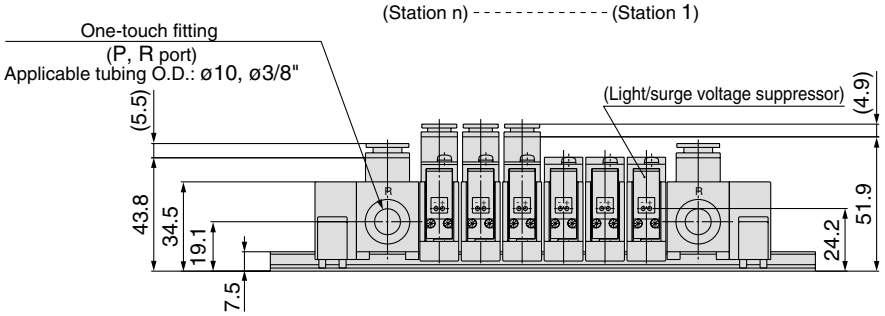


Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	160.5	185.5	198	210.5	235.5	248
L2	112.5	125	137.5	150	175	187.5	200	225	237.5
L3	88	104	120	136	152	168	184	200	216
L4	17.5	15.5	14	12	16.5	15	13	17.5	16

[ ]: AC

SS5Y5-60-Stations B



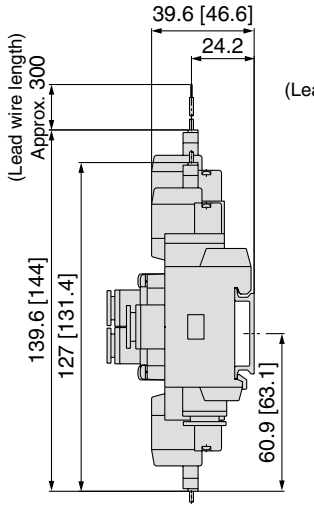


Stations	2 stations	3	4	5	6	7	8 stations
L1	135.5	160.5	173	185.5	210.5	223	235.5
L2	125	150	162.5	175	200	212.5	225
L3	112	128	144	160	176	192	208
L4	11.5	16	14.5	12.5	17.5	15.5	13.5

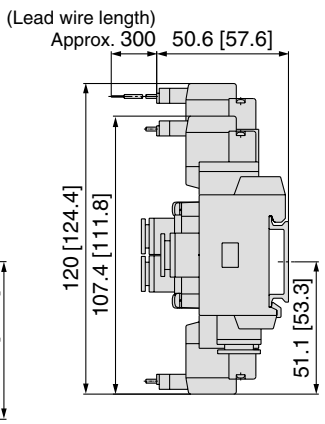
Stations	9 stations	10	11	12	13	14	15 stations
L1	248	273	285.5	298	323	335.5	348
L2	237.5	262.5	275	287.5	312.5	325	337.5
L3	224	240	256	272	288	304	320
L4	12	16.5	14.5	13	17.5	15.5	14

Stations	16 stations	17	18	19	20 stations
L1	360.5	385.5	398	410.5	435.5
L2	350	375	387.5	400	425
L3	336	352	368	384	400
L4	12	16.5	15	13	17.5

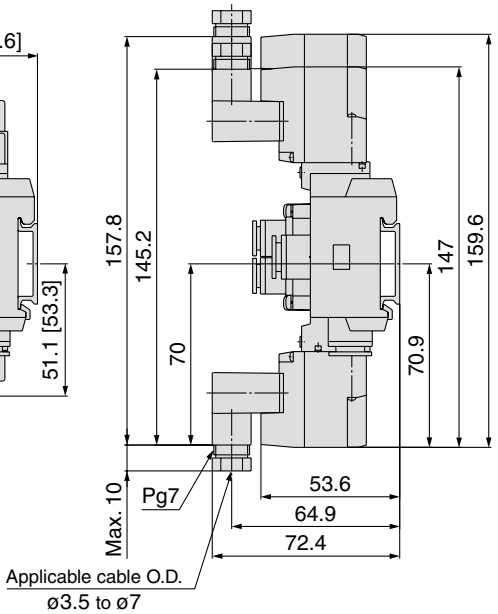
L plug connector (L)



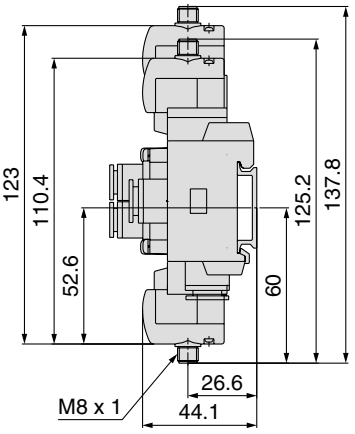
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)

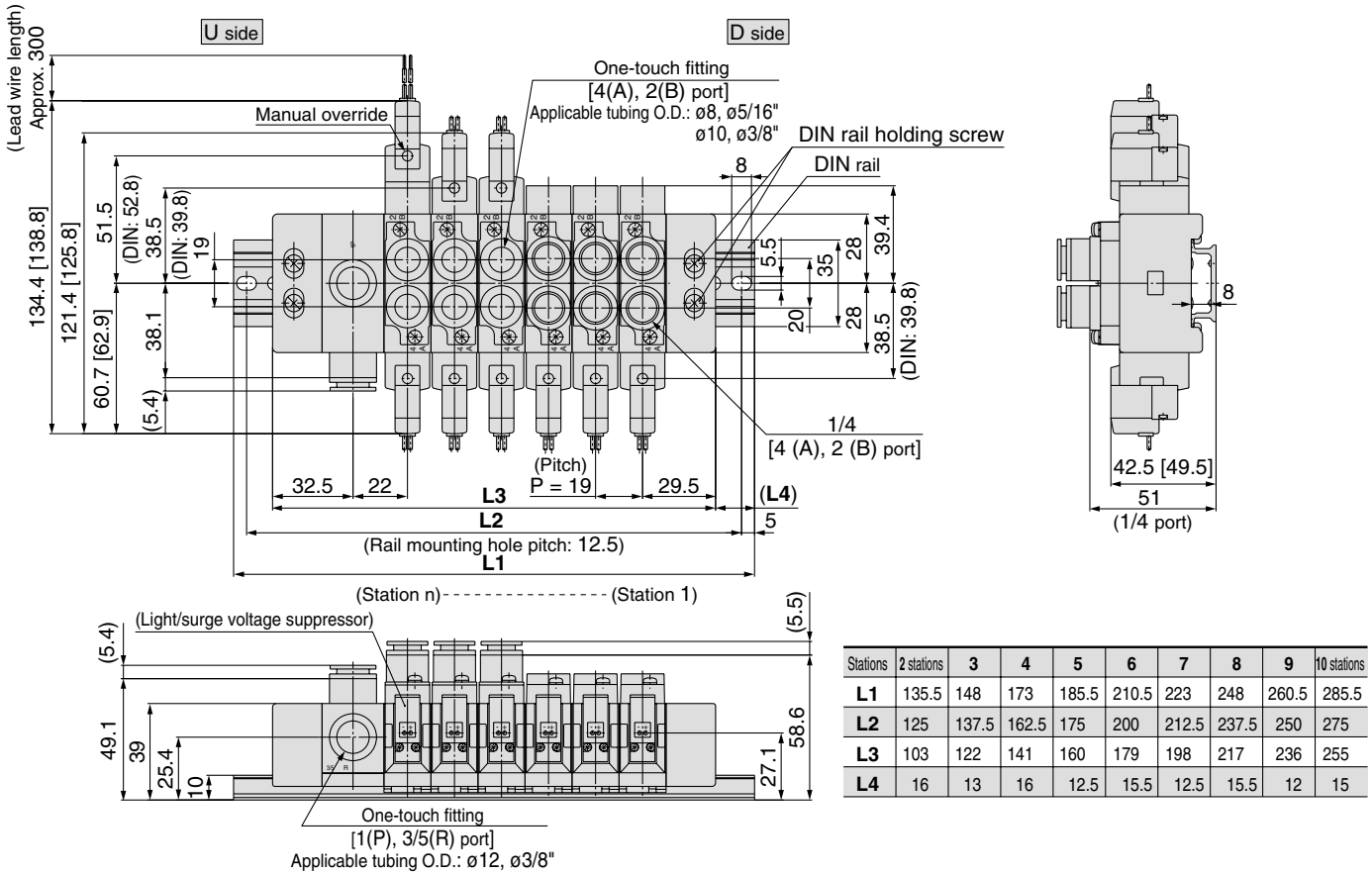


Note) Refer to page 340 for dimensions of connector types.

Dimensions

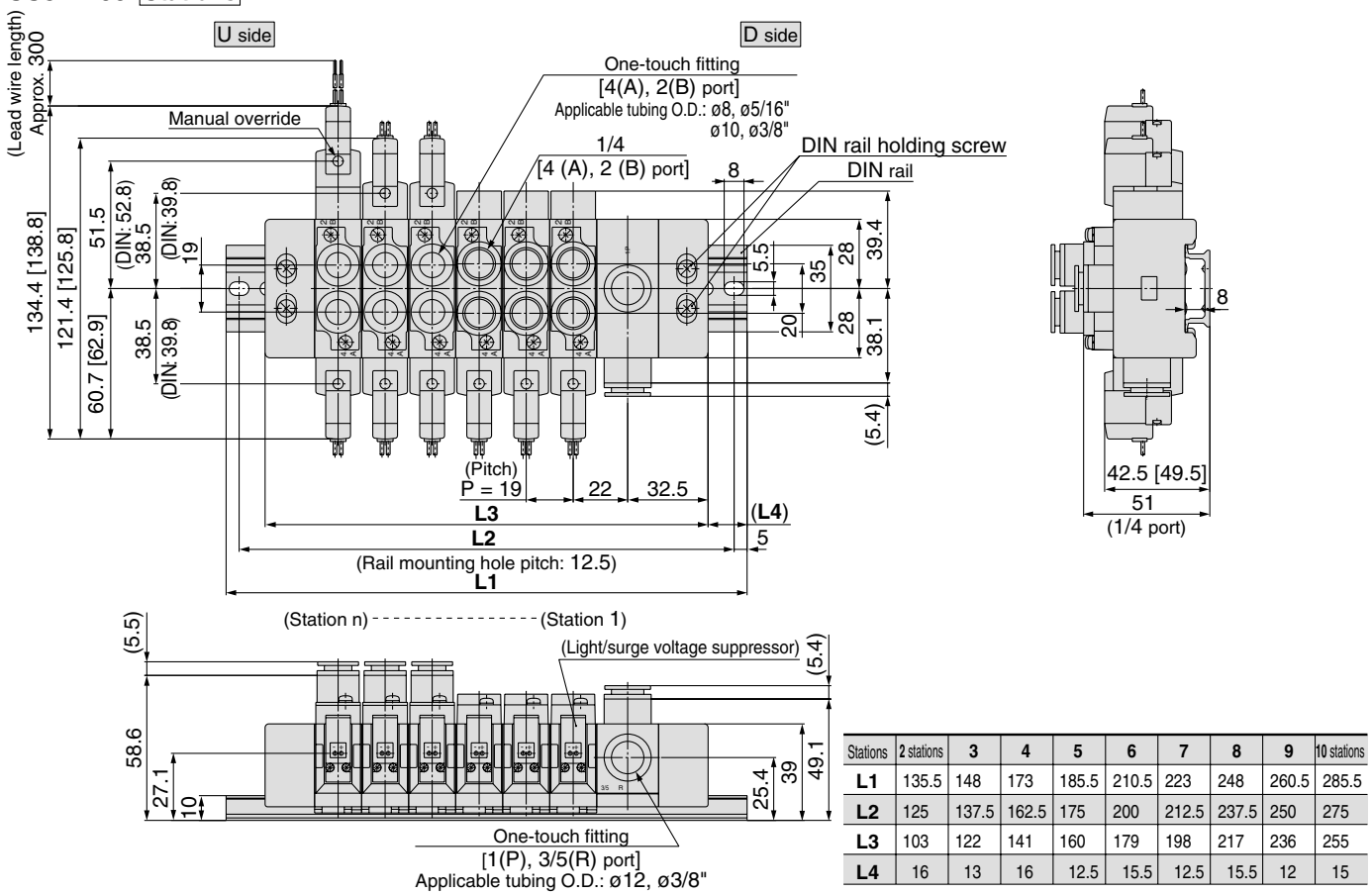
[ ]: AC

SS5Y7-60-Stations U



Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	173	185.5	210.5	223	248	260.5	285.5
L2	125	137.5	162.5	175	200	212.5	237.5	250	275
L3	103	122	141	160	179	198	217	236	255
L4	16	13	16	12.5	15.5	12.5	15.5	12	15

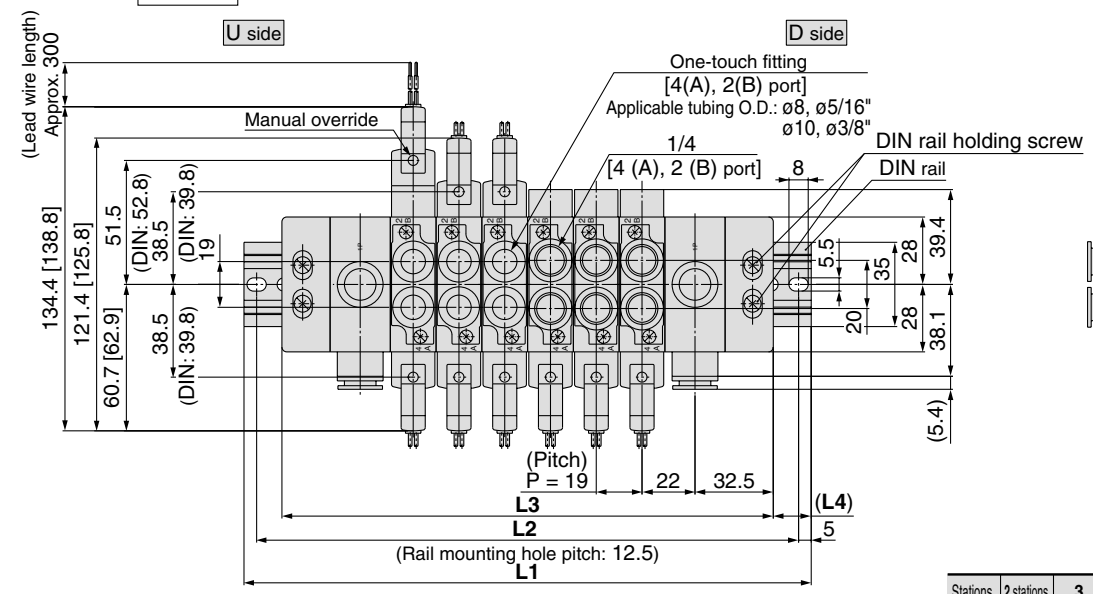
SS5Y7-60-Stations D



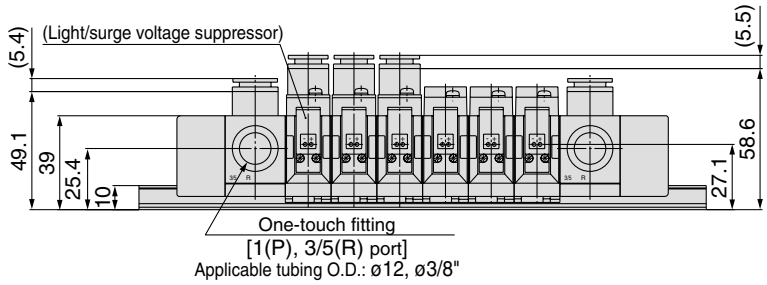
Stations	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	173	185.5	210.5	223	248	260.5	285.5
L2	125	137.5	162.5	175	200	212.5	237.5	250	275
L3	103	122	141	160	179	198	217	236	255
L4	16	13	16	12.5	15.5	12.5	15.5	12	15

[ ]: AC

SS5Y7-60- Stations **B**



(Station n) ---------- (Station 1)

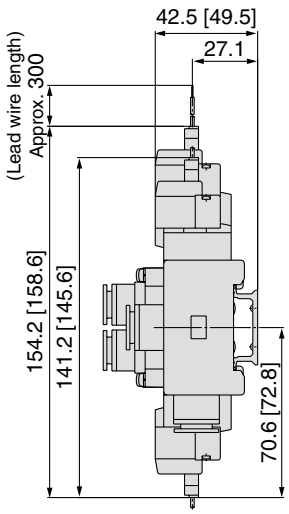


Stations	2 stations	3	4	5	6	7	8 stations
L1	160.5	173	198	210.5	235.5	248	273
L2	150	162.5	187.5	200	225	237.5	262.5
L3	128	147	166	185	204	223	242
L4	16	13	16	12.5	15.5	12.5	15.5

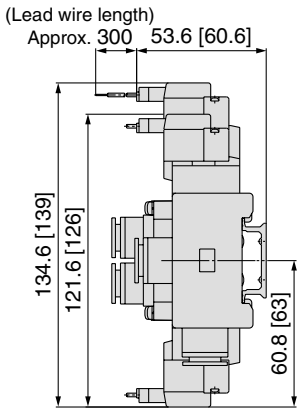
Stations	9 stations	10	11	12	13	14	15 stations
L1	285.5	310.5	323	348	360.5	385.5	410.5
L2	275	300	312.5	337.5	350	375	400
L3	261	280	299	318	337	356	375
L4	12	15	12	15	11.5	14.5	17.5

Stations	16 stations	17	18	19	20 stations
L1	423	448	460.5	485.5	498
L2	412.5	437.5	450	475	487.5
L3	394	413	432	451	470
L4	14.5	17.5	14	17	14

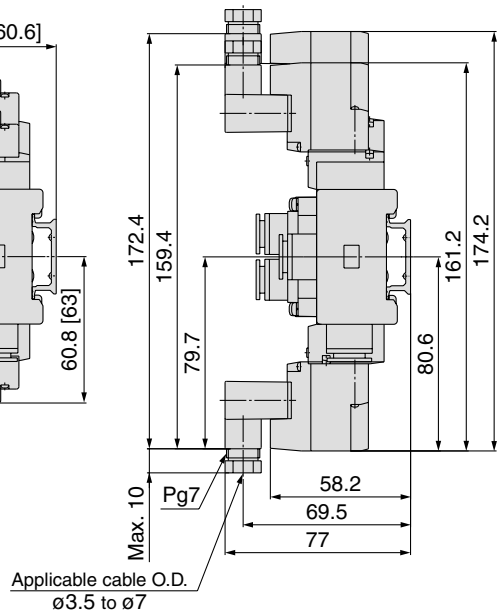
L plug connector (L)



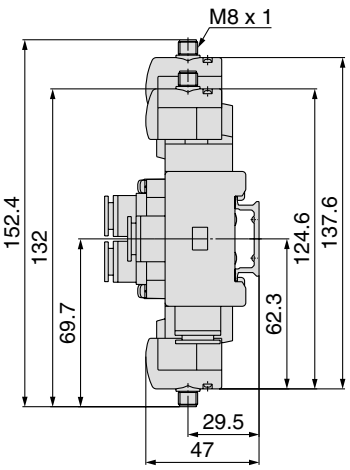
M plug connector (M)



DIN terminal (D, Y)



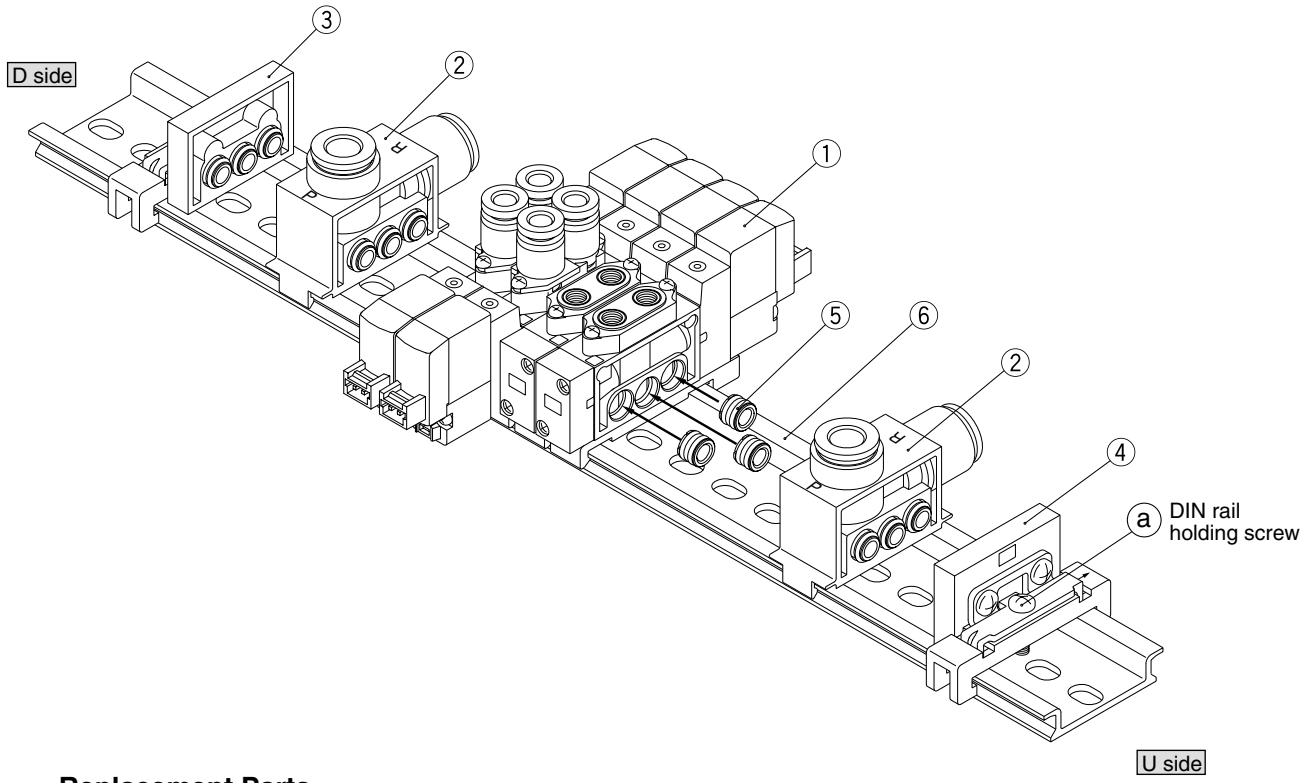
M8 connector (WO)



Note) Refer to page 340 for dimensions of connector types.

DIN Rail Manifold Exploded View

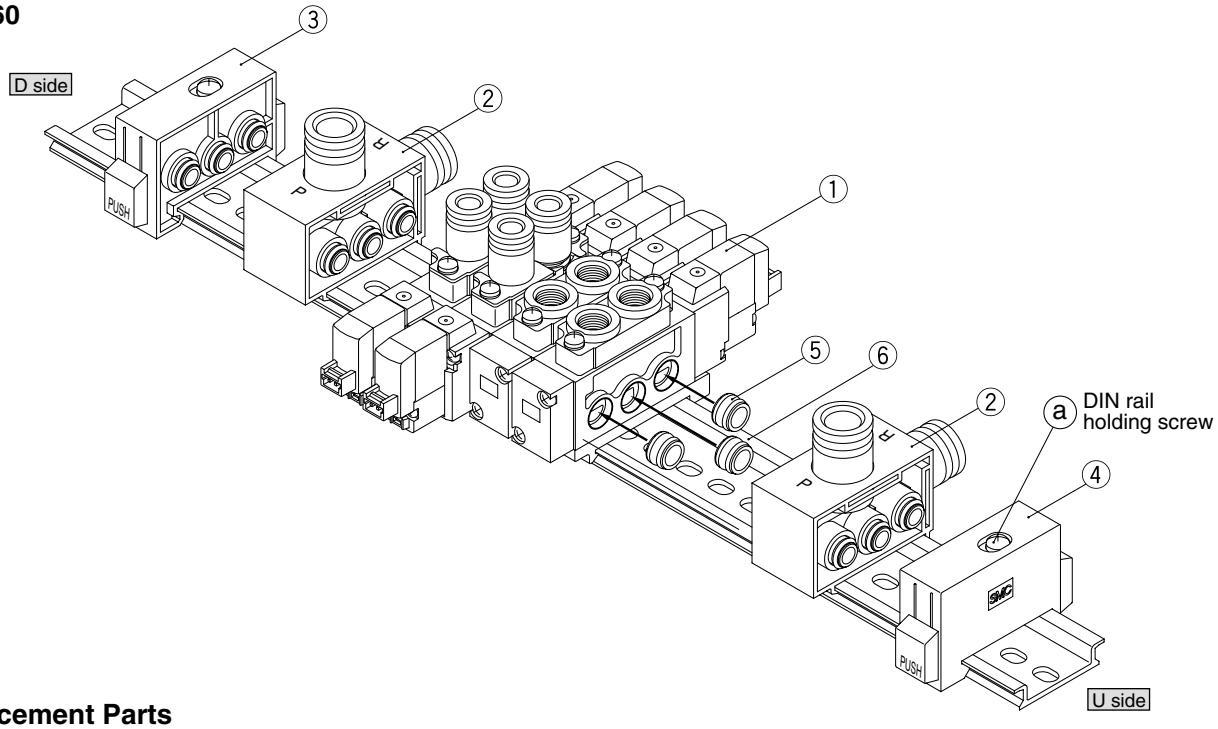
SY3000
Type 60



Replacement Parts

No.	Description	Part no.	Note
1	**Valve**	**SY3□60-□□-□(-Q)**	□ at the end of part number denotes A. B port size: M5, C4, C6, N3, N7. Includes bushing assembly (SY3000-52-5A) 3 pcs.
2	**SUP/EXH block assembly**	**SY3000-55-$\frac{1}{2}$A(-Q)**	P, R port (1: One-touch fitting for ø8, 2: One-touch fitting for ø5/16") Includes bushing assembly (SY3000-52-5A) 3 pcs.
3	**End block assembly**	**SY3000-56-1A(-Q)**	For D side (Bushing assembly: Not available for SY3000-52-5A)
4	**End block assembly**	**SY3000-56-1B(-Q)**	For U side (Bushing assembly: Not available for SY3000-52-5A)
5	**Bushing assembly**	**SY3000-52-5A**	CE-compliant: SY3000-52-1A
6	**DIN rail**	**VZ1000-11-1-□**	Refer to page 186.

SY5000
Type 60



Replacement Parts

No.	Description	Part no.	Note
1	**Valve**	**SY5□60-□□-□(-Q)**	□ at the end of part number denotes A. B port size: 01, C4, C6, C8, N3, N7, N9. Includes bushing assembly (SY5000-52-3A) 3 pcs.
2	**SUP/EXH block assembly**	**SY5000-55-$\frac{1}{2}$A(-Q)**	P, R port (1: One-touch fitting for ø10, 2: One-touch fitting for ø3/8") Includes bushing assembly (SY5000-52-3A) 3 pcs.
3	**End block assembly**	**SY5000-56-1A(-Q)**	For D side (Bushing assembly: Not available for SY5000-52-3A)
4	**End block assembly**	**SY5000-56-1B(-Q)**	For U side (Bushing assembly: Not available for SY5000-52-3A)
5	**Bushing assembly**	**SY5000-52-3A**	
6	**DIN rail**	**VZ1000-11-1-□**	Refer to page 186.

How to Add Additional Valves to the DIN Rail
Valves can be added at any station on the rail.

1 Loosen the manifold base clamping screw ⓐ.

2 Separate the valves at the point where more valves are to be added.

3 Mount the additional valves on the DIN rail as shown in Fig. 1

4 Connect them together while pressing the block assemblies toward each other, and tighten the holding screw ⓐ to fix them to the DIN rail.

⚠Caution
Tightening torque
SY3000: 1 N·m
SY5000: 1.4 N·m

(While lightly holding the blocks after fixing an end block on one side, tighten the other end block for better sealing after no gap between valves is confirmed.)

- **Bushing assembly must be seated properly to each valve block in order to prevent air leaks from occurring.**
- **Refer to the fig. 2 when dismounting the valve from the DIN rail.**

Fig. 1 Manifold mounting procedure

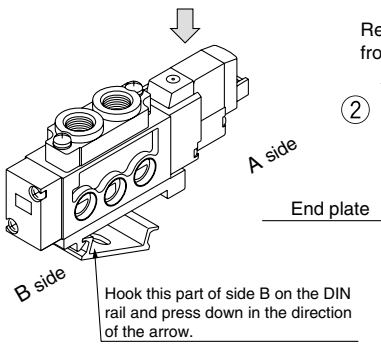
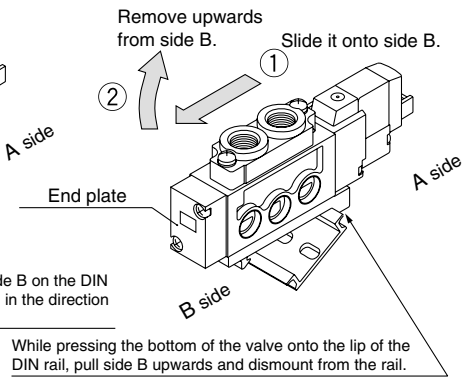


Fig. 2 Manifold dismounting procedure

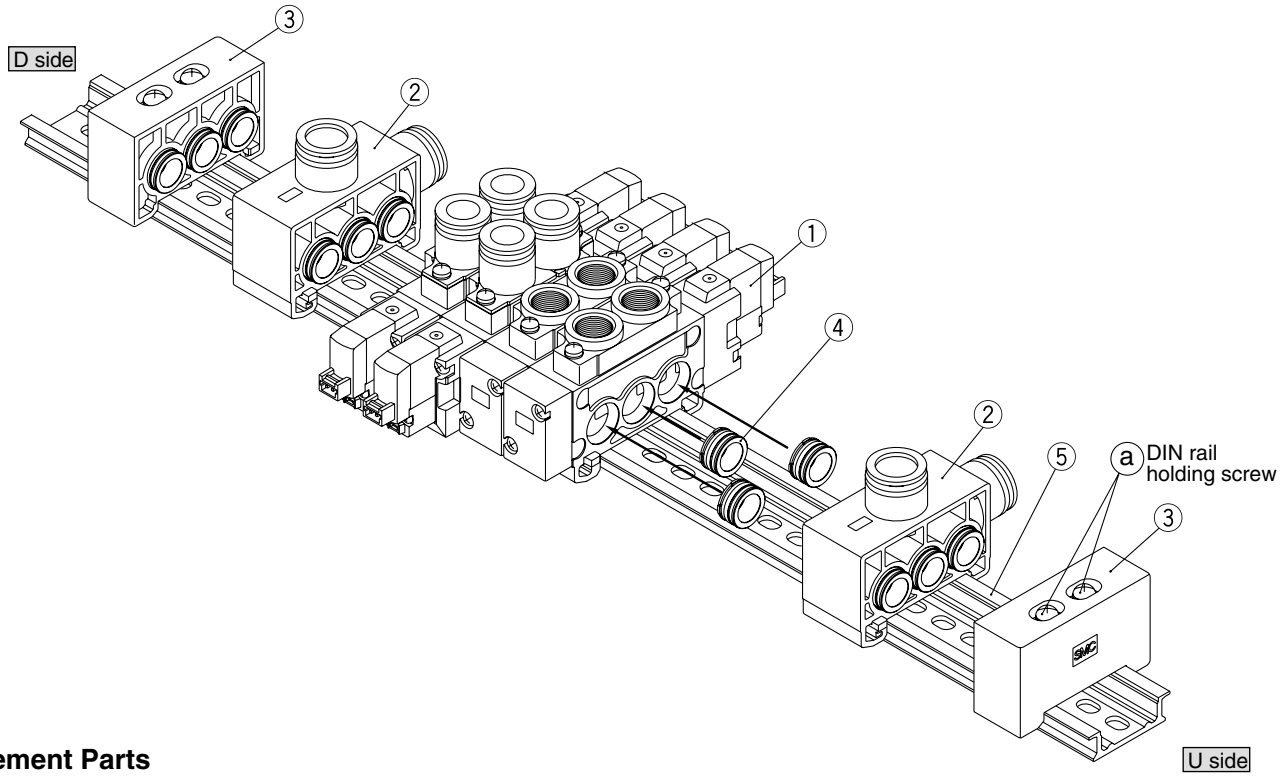


⚠Caution When clamping screw ⓐ of the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there are no gaps between valves and that the end block is firmly secured to the DIN rain in order to ensure air supply without leakage.

DIN Rail Manifold Exploded View

SY7000

Type 60



Replacement Parts

No.	Description	Part no.	Note
1	**Valve**	**SY7□60-□□-□(-Q)**	□ at the end of part number denotes A. B port size: 02, C8, C10, N9, N11. Includes bushing assembly (SY7000-70-1A) 3 pcs.
2	**SUP/EXH block assembly**	**SY7000-75-$\frac{1}{3}$A(-Q)**	
3	**End block assembly**	**SY7000-56-1A(-Q)**	In common for D side and U side (Bushing assembly: Not available for SY7000-70-1A.)
4	**Bushing assembly**	**SY7000-70-1A**	
5	**DIN rail**	**VZ1000-11-4-□**	Refer to page 186.

How to Add Additional Valves to the DIN Rail Valves can be added at any station on the rail.

1 Loosen the rail holding screw ⓐ at both of 2 locations which holds the manifold base either in the U side or D side.

[When removing the end block assembly from the DIN rail, loosen the holding screws for DIN rail at first, then slide it to the edge of the rail.]

2 Separate the valves at the point where more valves are to be added.

3 Mount the additional valves on the DIN rail as shown in Fig. 1.

4 Connect them together while pressing the block assemblies toward each other, and tighten the 2 holding screws ⓐ for DIN rail alternately (2 to 3 times) with the prescribed torque (1.4 N·m) to fix them to the DIN rail.

⚠Caution

Tightening torque

SY7000: 1.4 N·m

(While lightly holding the blocks after fixing an end block on one side, tighten the other end block for better sealing after no gap between valves is confirmed.)

- **Bushing assembly must be seated properly to each valve block in order to prevent air leaks from occurring.**
- **Refer to the fig. 2 when dismounting the valve from the DIN rail.**

Fig. 1 Manifold mounting procedure

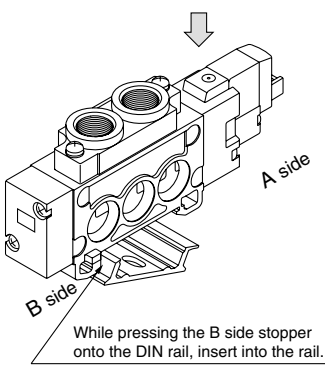
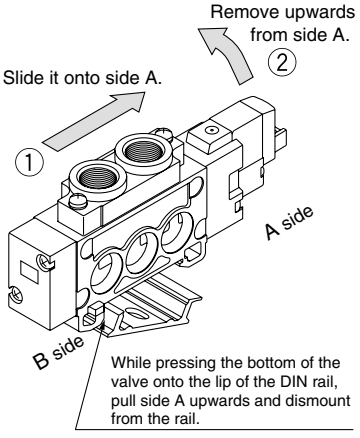


Fig. 2 Manifold dismounting procedure



⚠Caution When clamping screw ⓐ of the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there are no gaps between valves and that the end block is firmly secured to the DIN rain in order to ensure air supply without leakage.

Type 41
Type 42

5 Port Solenoid Valve
Base Mounted Manifold
Bar Stock Type/Individual Wiring

CE

Series SY3000/5000/7000

How to Order Manifold

Type 41/Compact style

SS5Y 5 – 41 – 05 – C8 ☐ – ☐

Manifold series

3	SY3000
5	SY5000

Stations

02	2 stations
⋮	⋮
20	20 stations

∗ This also includes the number of blanking plate assemblies.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

CE-compliant

Nil	—
Q	CE-compliant

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	

Type 42/External pilot capable

SS5Y 5 – 42 – 05 – C8 ☐ – ☐

Manifold series

3	SY3000
5	SY5000
7	SY7000

Stations

02	2 stations
⋮	⋮
20	20 stations

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

A, B port size

Thread piping

Symbol	Port size	Applicable series
01	1/8	SY3000
02	1/4	SY5000
02	1/4	SY7000

CE-compliant

Nil	—
Q	CE-compliant

One-touch fitting (Metric size)

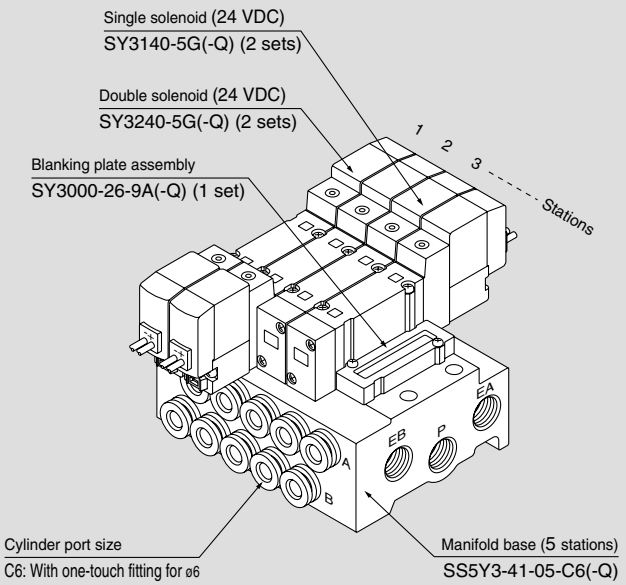
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	
C10	One-touch fitting for ø10	SY7000

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	
N11	One-touch fitting for ø3/8"	SY7000

How to Order Manifold Assembly (Example)

Example



SS5Y3-41-05-C6 ····· 1 set (Type 41, 5-station manifold base part no.)
∗SY3240-5G ····· 2 sets (Double solenoid part no.)
∗SY3140-5G ····· 2 sets (Single solenoid part no.)
∗SY3000-26-9A ····· 1 set (Blanking plate assembly part no)

→ The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

SMC

How to Order Valve

SY [5] [2] **40** [ ] [ ] – [5] [L] [ ] [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot type

Nil	Internal pilot
R	External pilot

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of Type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

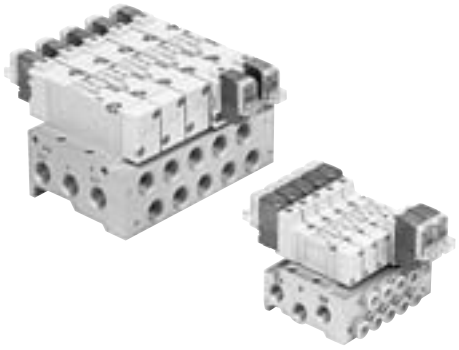
Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm lead **H:** Lead wire length 600 mm	**L:** With lead wire (Length 300 mm) **LN:** Without lead wire **LO:** Without connector	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire **MO:** Without connector	**D:** With connector **DO:** Without connector **Y:** With connector **YO:** Without connector	**WO:** Without connector cable **W□:** With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.



Manifold Specifications

Model		SS5Y3-41(-Q)	SS5Y3-42(-Q)	SS5Y5-41(-Q)	SS5Y5-42(-Q)	SS5Y7-42(-Q)
Applicable valve		SY3□40		SY5□40		SY7□40
Manifold type		Single base/B mount				
P(SUP)/R(EXH)		Common SUP, Common EXH				
Valve stations		2 to 20 stations Note 1)				
A, B port Porting specifications	**Location**	Base				
	Direction	Side				
Port size	**P, EA, EB port**	1/8		1/4		1/4
	A, B port	M5 x 0.8, C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C10 (One-touch fitting for ø10)
Manifold base mass W (g) n: Stations		W = 30n + 50	W = 37n + 63	W = 61n + 101	W = 79n + 127	W = 100n + 151

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) Refer to “Manifold Option” on page 238.

Flow Characteristics

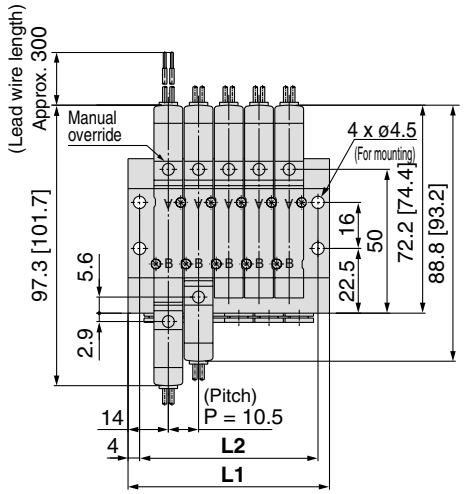
Model	Port size		Flow characteristics					
	1, 5, 3	4, 2	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
	(P, EA, EB)	(A, B)	C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-41(-Q)	1/8	C6	0.75	0.19	0.18	0.81	0.23	0.20
SS5Y3-42(-Q)	1/8	C6	0.75	0.20	0.18	0.82	0.20	0.20
SS5Y5-41(-Q)	1/4	C8	1.8	0.23	0.44	1.9	0.16	0.45
SS5Y5-42(-Q)	1/4	C8	1.9	0.20	0.46	1.9	0.12	0.43
SS5Y7-42(-Q)	1/4	C10	3.0	0.25	0.75	3.0	0.12	0.66

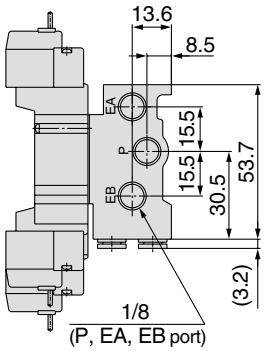
Note) The value is for manifold base with 5 stations and individually operated 2 position type.

SY3000: SS5Y3-41-[Stations]-M5, C4,N3 C6,N7 □

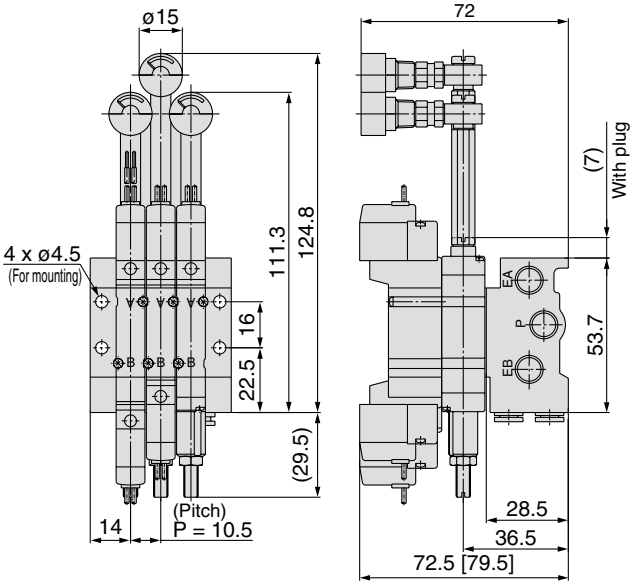
[ ]: AC

Grommet (G)

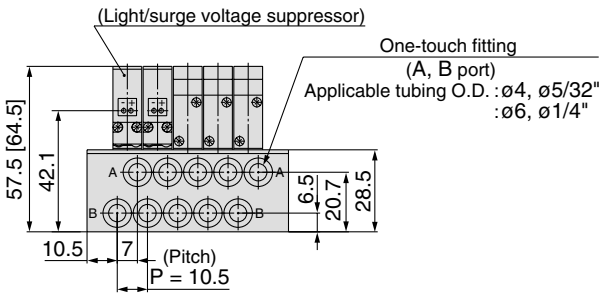




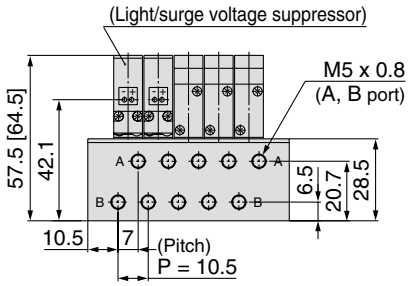
With interface regulator (with gauge)



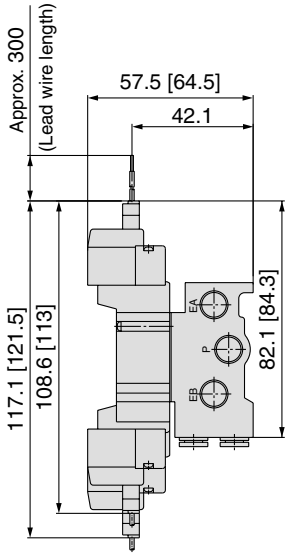
(Station 1) - - - - - - (Station n)



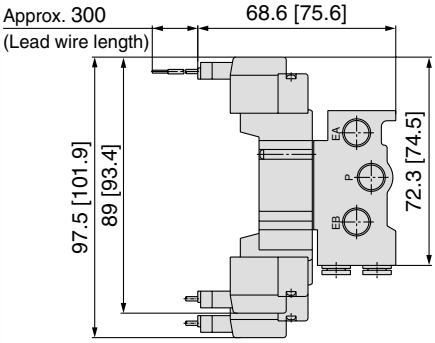
For M5



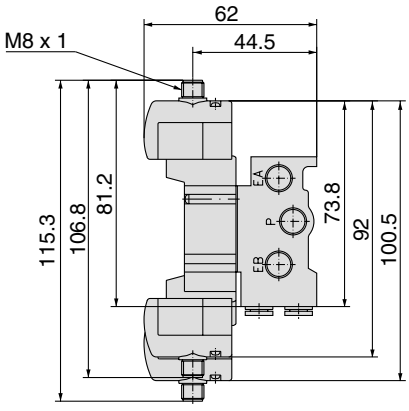
L plug connector (L)



M plug connector (M)



M8 connector (WO)



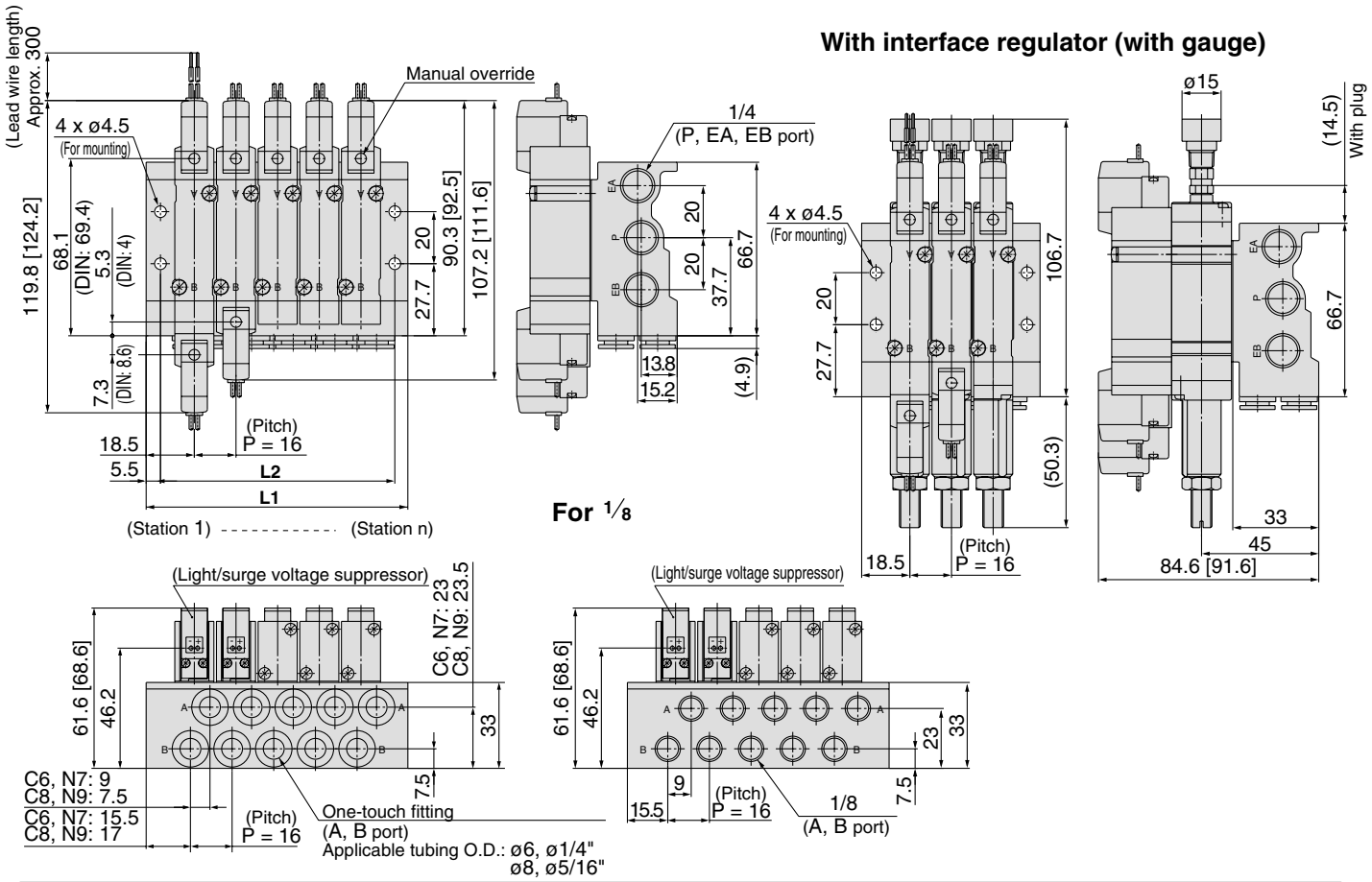
Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L2	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

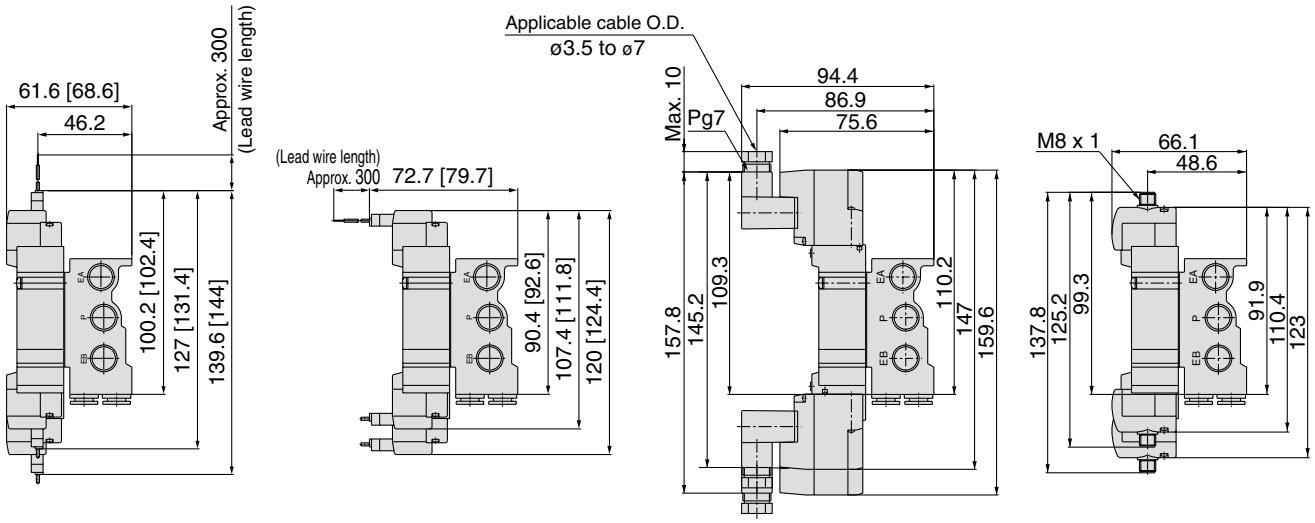
SY5000: SS5Y5-41-Stations-01, C6, N7 / C8, N9 □

[ ]: AC

Grommet (G)



L plug connector (L) M plug connector (M) DIN terminal (D, Y) M8 connector (WO)



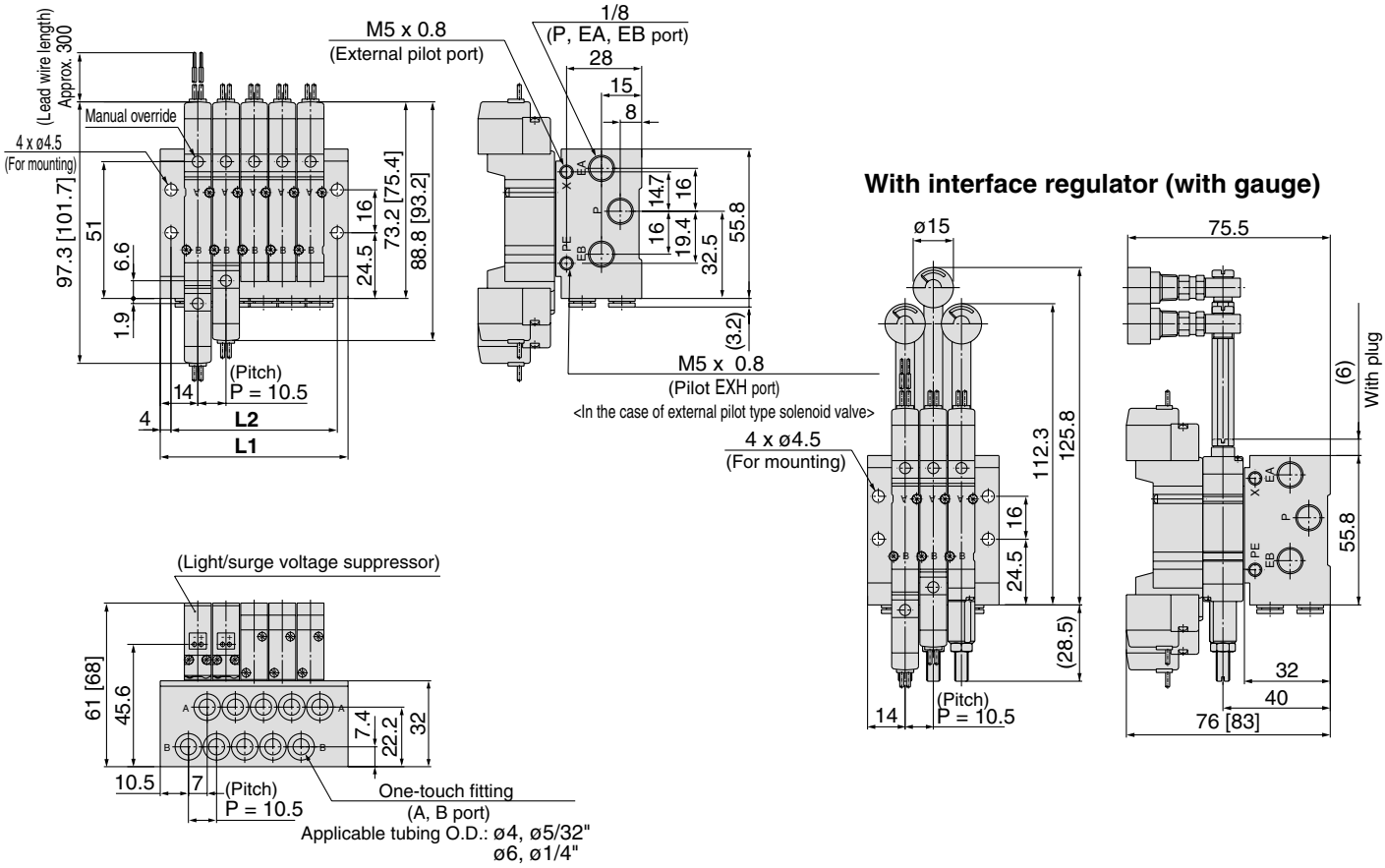
Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	52.5	68.5	84.5	100.5	116.5	132.5	148.5	164.5	180.5	196.5	212.5	228.5	244.5	260.5	276.5	292.5	308.5	324.5	340.5
L2	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330

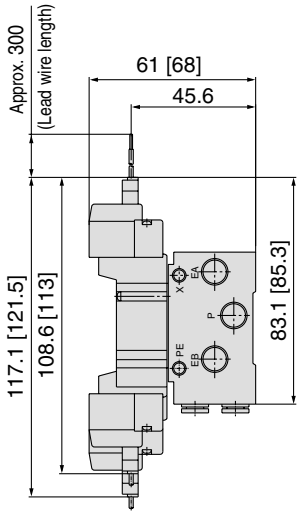
SY3000: SS5Y3-42-[Stations]-[C4, N3 / C6, N7][ ]

[ ]: AC

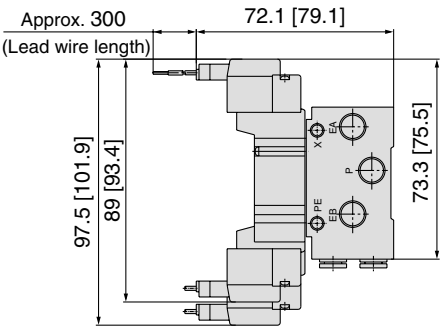
Grommet (G)



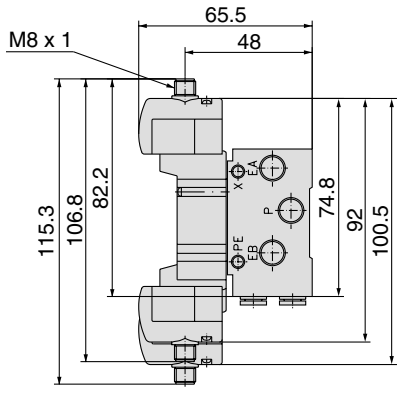
L plug connector (L)



M plug connector (M)



M8 connector (WO)



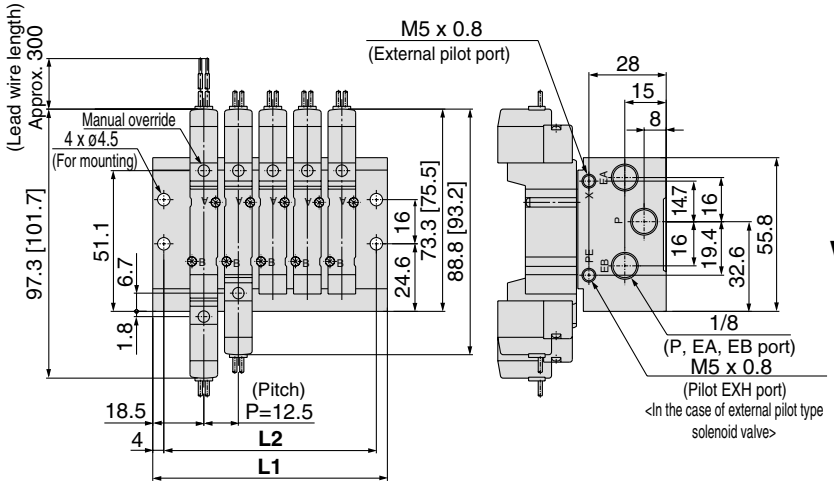
Note) Refer to page 340 for dimensions of connector types.

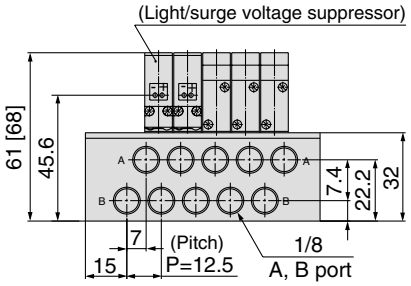
Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	38.5	49	59.5	70	80.5	91	101.5	112	122.5	133	143.5	154	164.5	175	185.5	196	206.5	217	227.5
L2	30.5	41	51.5	62	72.5	83	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5

SY3000: SS5Y3-42-Stations-01□

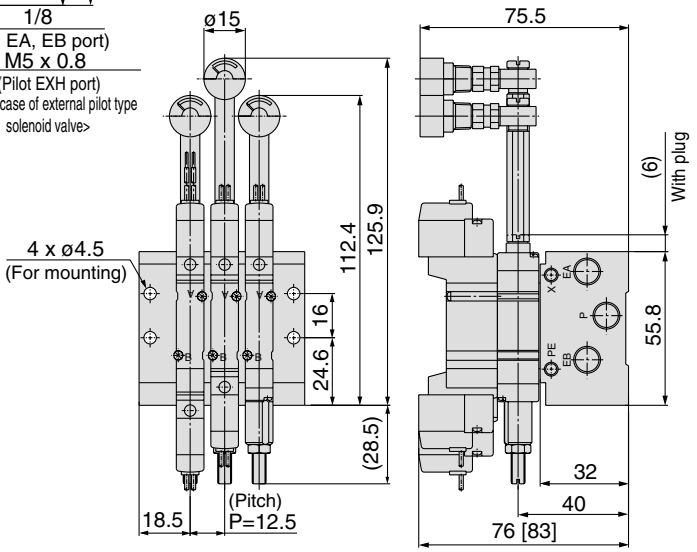
[ ]: AC

Grommet (G)

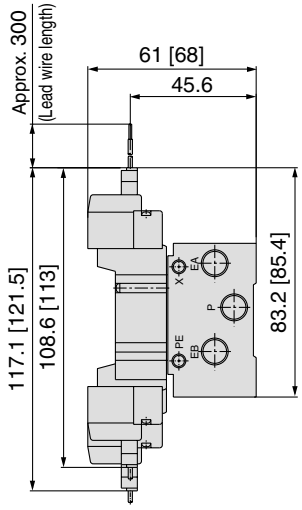




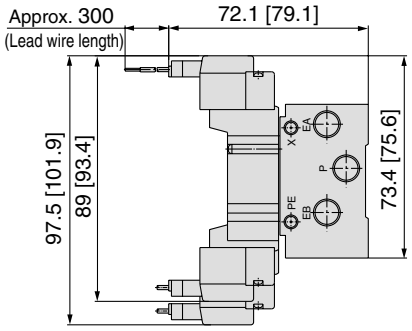
With interface regulator (with gauge)



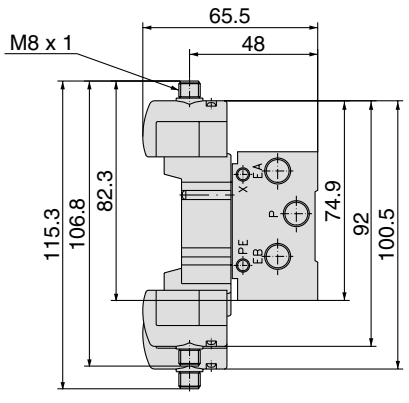
L plug connector (L)



M plug connector (M)



M8 connector (WO)



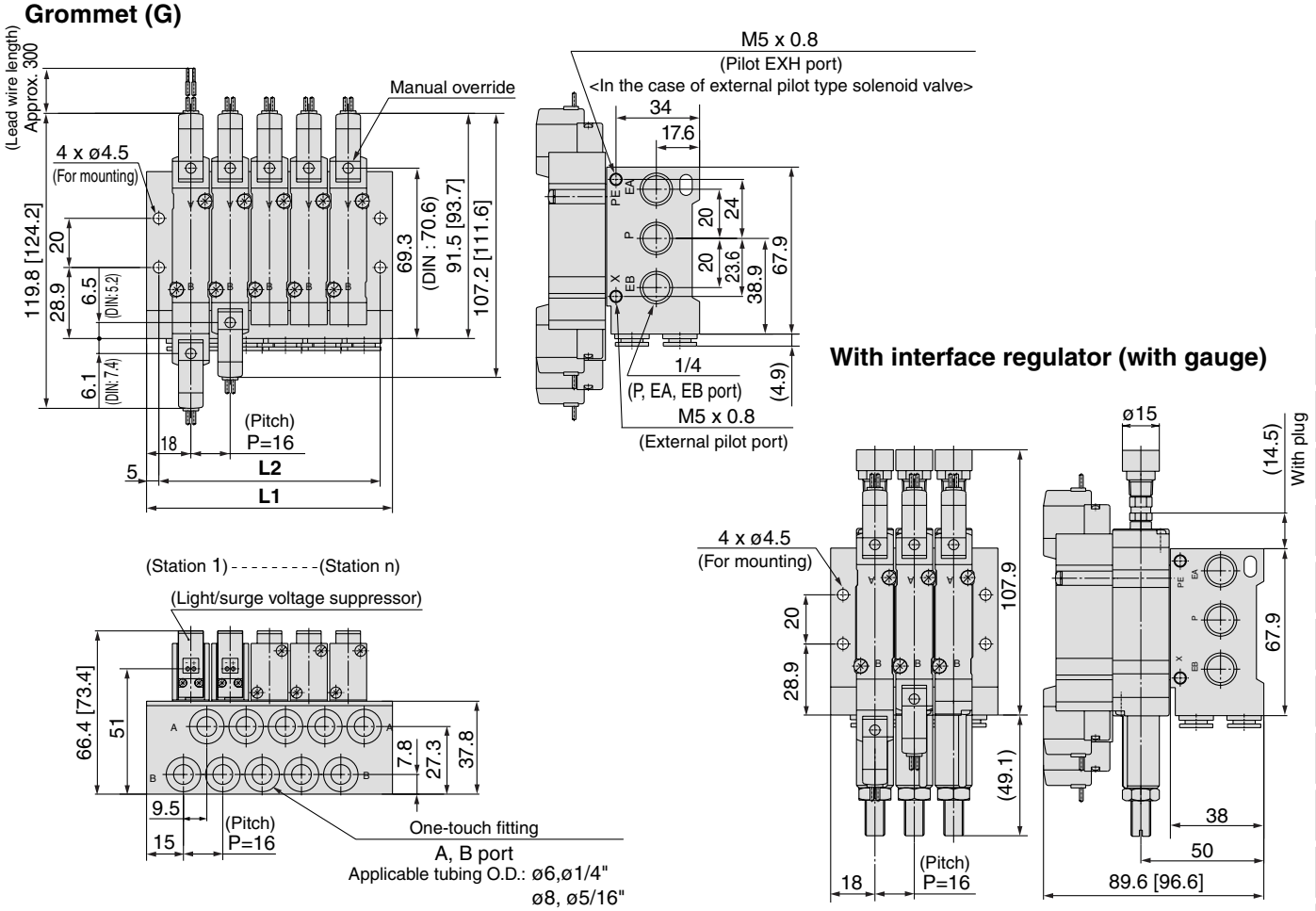
Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	47.5	60	72.5	85	97.5	110	122.5	135	147.5	160	172.5	185	197.5	210	222.5	235	247.5	260	272.5
L2	39.5	52	64.5	77	89.5	102	114.5	127	139.5	152	164.5	177	189.5	202	214.5	227	239.5	252	264.5

SY5000: SS5Y5-42-Stations-C4, N3 C6, N7

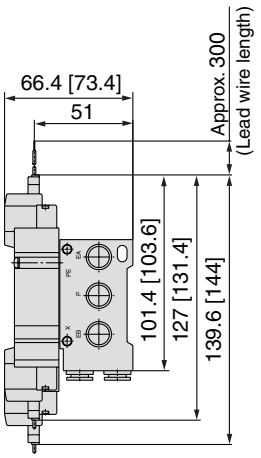
[ ]: AC

Grommet (G)

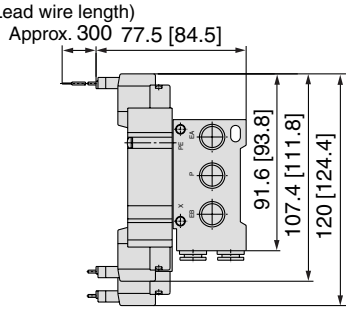


With interface regulator (with gauge)

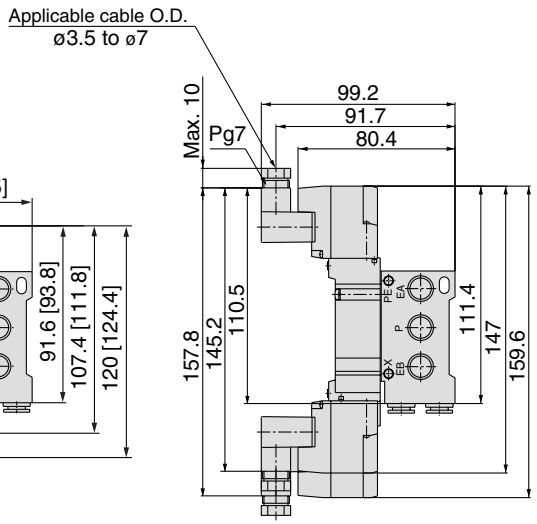
L plug connector (L)



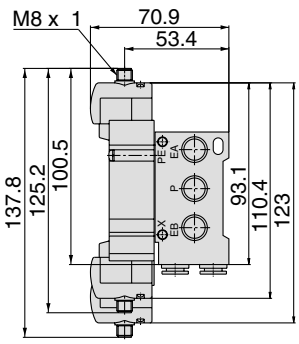
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



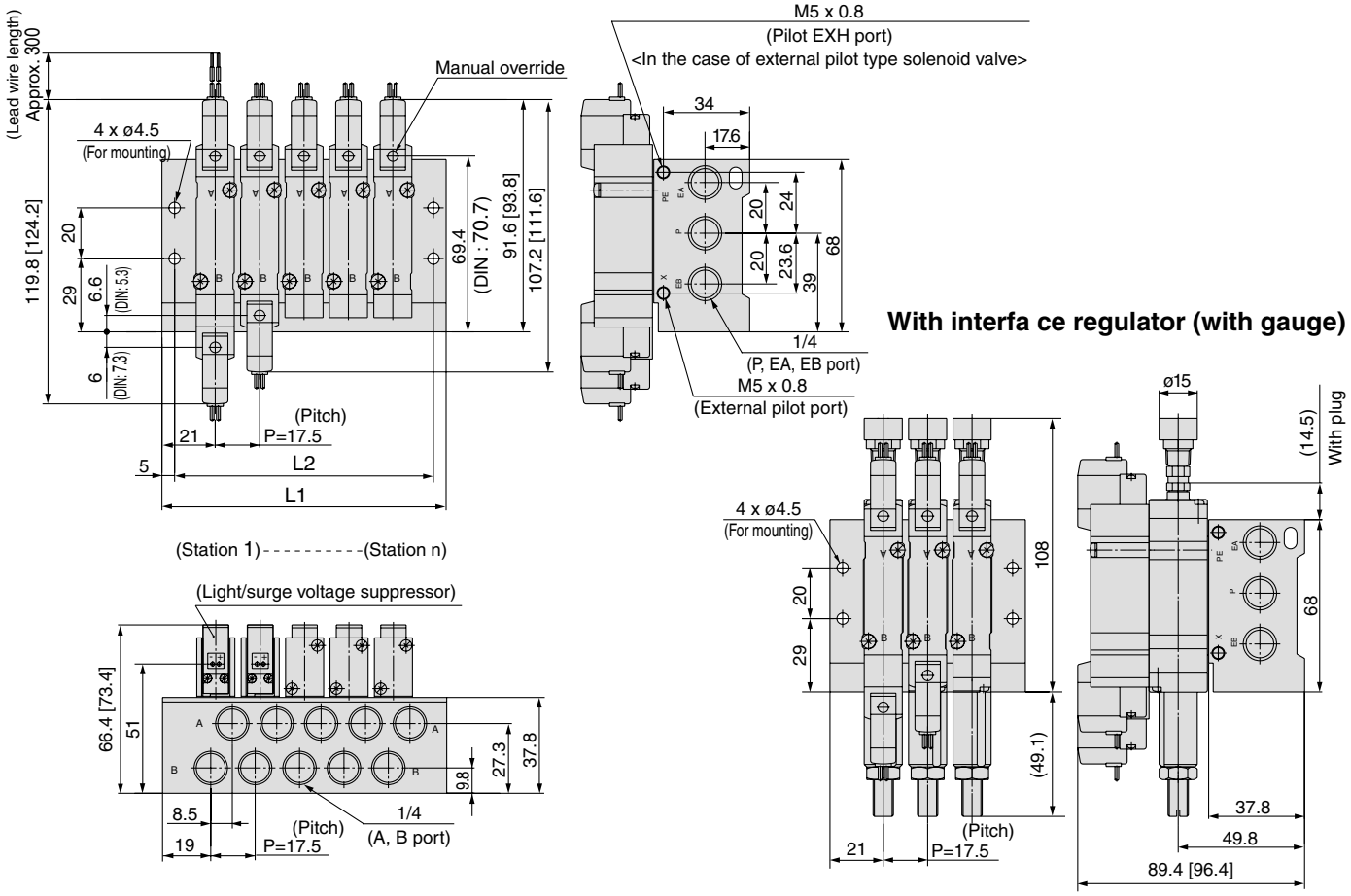
Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340
L2	42	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330

SY5000: SS5Y5-42-[Stations]-02[ ]

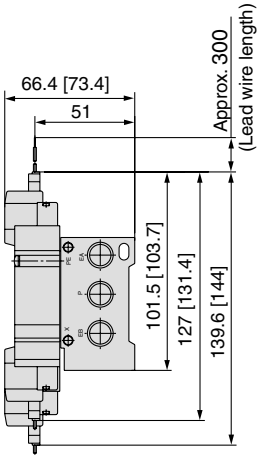
[ ]: AC

Grommet (G)

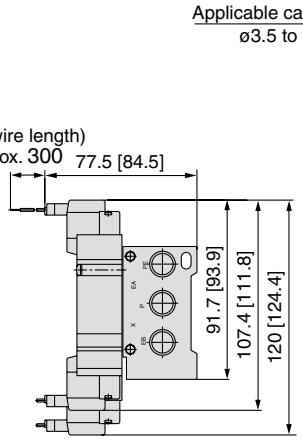


With interfa ce regulator (with gauge)

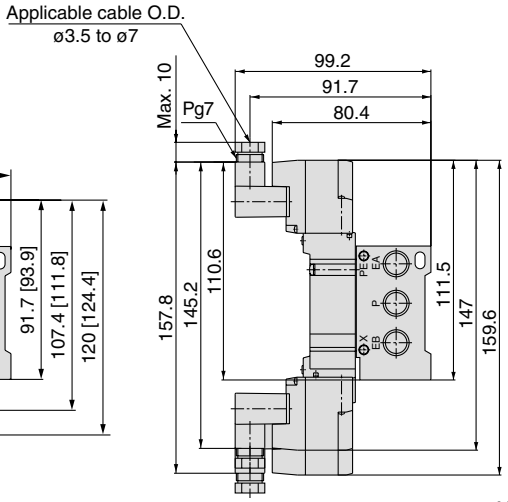
L plug connector (L)



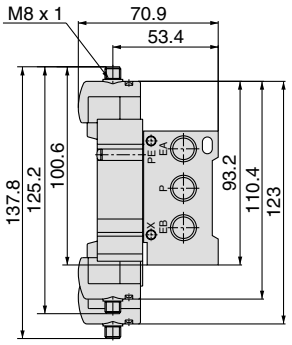
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



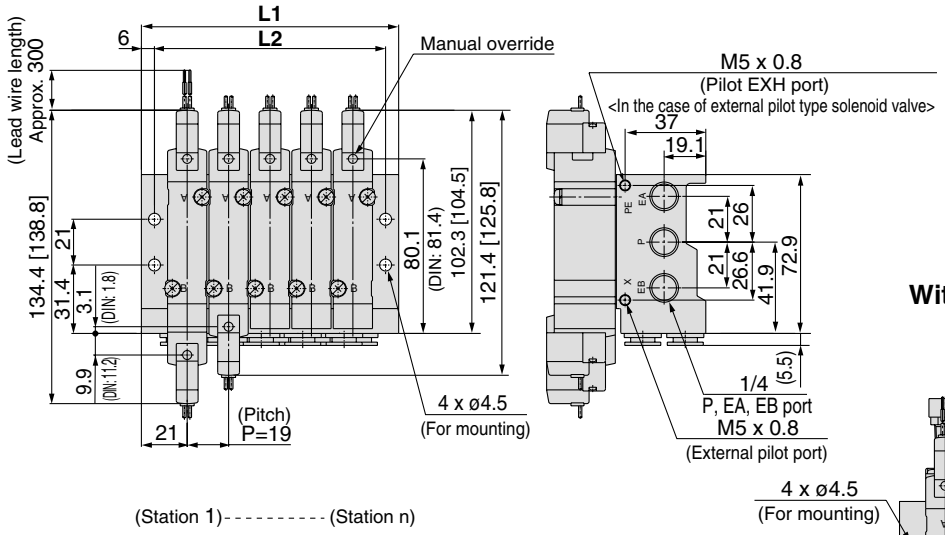
Note) Refer to page 340 for dimensions of connector types.

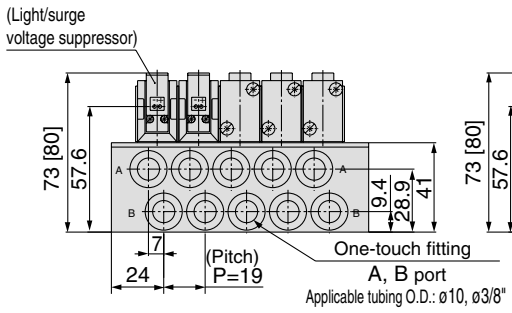
Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	59.5	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5	252	269.5	287	304.5	322	339.5	357	374.5
L2	49.5	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5	242	259.5	277	294.5	312	329.5	347	364.5

SY7000: SS5Y7-42-Stations-02, C10, N11

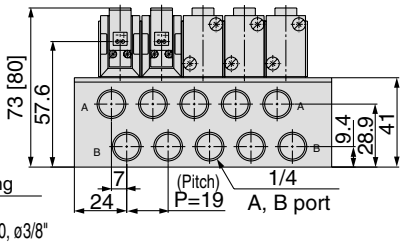
[ ]: AC

Grommet (G)

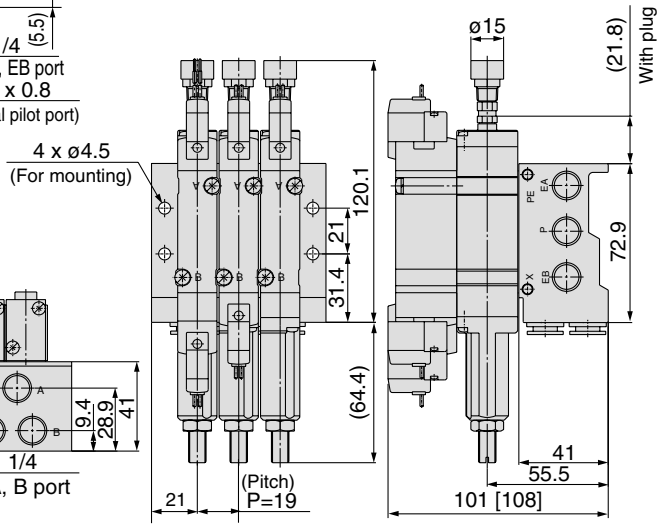




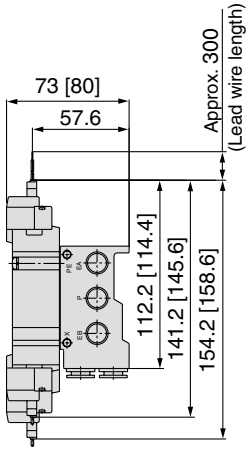
For 1/4



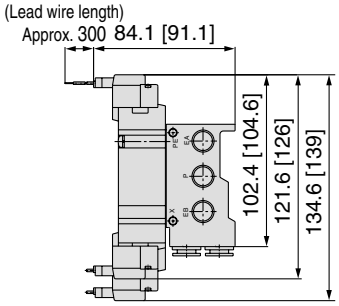
With interface regulator (with gauge)



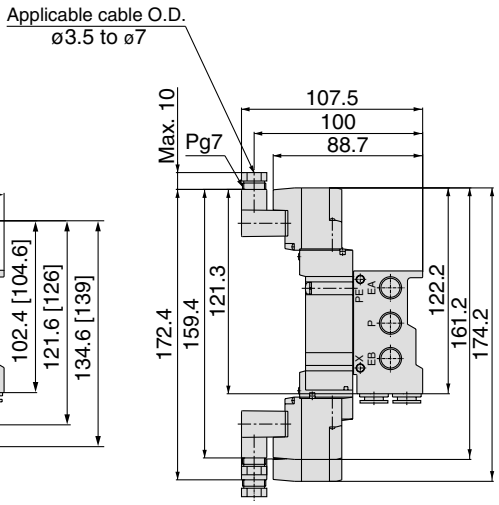
L plug connector (L)



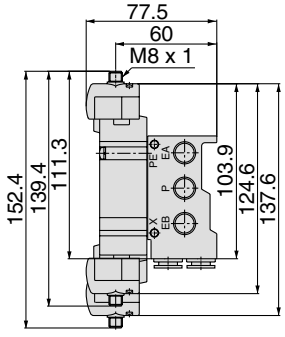
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



Note) Refer to page 340 for dimensions of connector types.

Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 stations
L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

5 Port Solenoid Valve
Base Mounted Manifold
Stacking Type/Individual Wiring

Type 43

Series SY9000

How to Order Manifold

SS5Y 9 – 43 – 05 U □ – C8 □ – □ – □

Manifold series

9	SY9000

Valve stations

Symbol	Stations
02	2 stations
⋮	⋮
20	20 stations

∗ This also includes the number of blanking plate assemblies.

P, R port outlets

Symbol	Port outlet	Applicable stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 20 stations

SUP/EXH block assembly specifications

Symbol	Specifications
Nil	Standard/Internal pilot specification
R	External pilot specification
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Option

Symbol	Mounting
Nil	Direct mounting
D	DIN rail mounting (with DIN rail)
DO	DIN rail mounting (without DIN rail)
D∗	When a longer DIN rail is desired than the specified stations, specify the station number to be required into ∗ mark.

A, B port size

Thread piping

Symbol	Port size
02	1/4
03	3/8

One-touch fitting (Metric size)

Symbol	Port size
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
M	Mixed

One-touch fitting (Inch size)

Symbol	Port size
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
M	Mixed

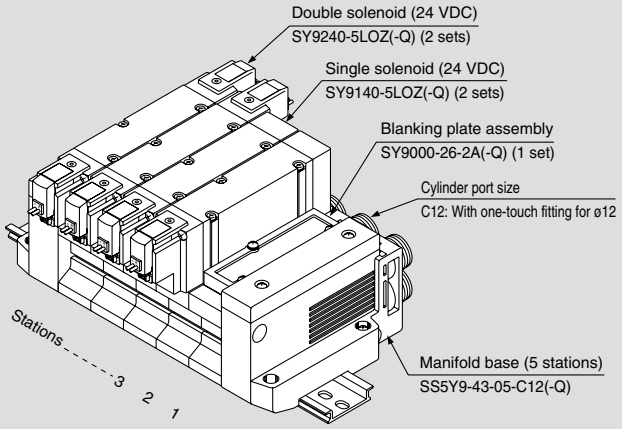
∗ In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

CE-compliant

Nil	—
Q	CE-compliant

How to Order Manifold Assembly (Example)

Example



SS5Y9-43-05B-C12 ··· 1 set (Type 43, 5-station manifold base part no.)
∗ **SY9000-26-2A ····· 1 set (Blanking plate assembly part no.)**
∗ **SY9140-5LOZ ····· 2 sets (Single solenoid part no.)**
∗ **SY9220-5LOZ ····· 2 sets (Double solenoid part no.)**

The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve

SY 9 2 40 □ □ – 5 L □ □ – □ – □

Series

9	SY9000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot type

Nil	Internal pilot
R	External pilot

Coil specifications

Nil	Standard
T	With power saving circuit (24, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of Type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light and surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

24, 12, 6, 5, 3 VDC/ 100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm **H:** Lead wire length 600 mm	**L:** With lead wire (Length 300 mm) **LN:** Without lead wire **LO:** Without connector	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire **MO:** Without connector	**D:** With connector **DO:** Without connector **Y:** With connector **YO:** Without connector	**WO:** Without connector cable **W□:** With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ DIN terminal type "Y" which conforms to EN-175301-803C (former DIN43650C) is also available. For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)



Manifold Specifications

Model			SS5Y9-43(-Q)
Applicable valve			SY9□40
Manifold type			Stacking type
P(SUP)/R(EXH)			Common SUP, Common EXH
Valve stations			2 to 20 stations (1)
A, B port Porting specifications		**Location**	Base
		Direction	Side
Port size	**P, EA, EB port**		C12 (One-touch fitting for ø12)
	A, B port		1/4 3/8 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10) C12 (One-touch fitting for ø12)
Manifold base mass W (g), n: Stations			W = 107n + 330

Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) Refer to "Manifold Option" on page 238.

Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1→4/2 (P→A/B)			4/2→5/3 (A/B→EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y9-43(-Q)	C12	C12	6.4	0.29	1.6	7.3	0.29	1.8

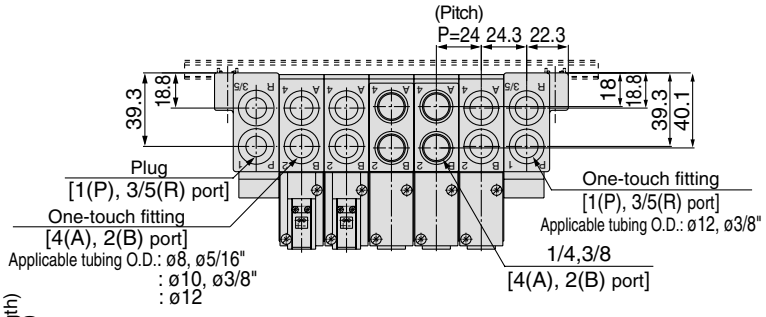
Note) The value is for manifold base with 5 stations and individually operated 2 position type.

SY9000: SS5Y9-43- Stations D ☐ - 02, C8, N9 / 03, C10, N11 / C12 ☐ (-D)

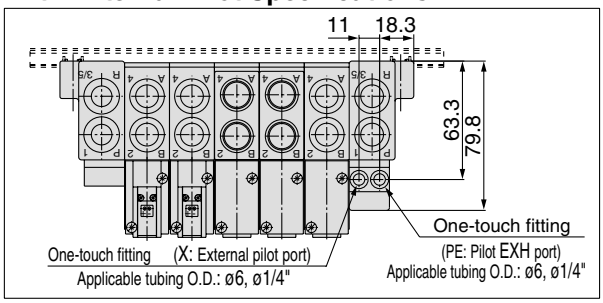
[ ]: AC

Grommet (G)

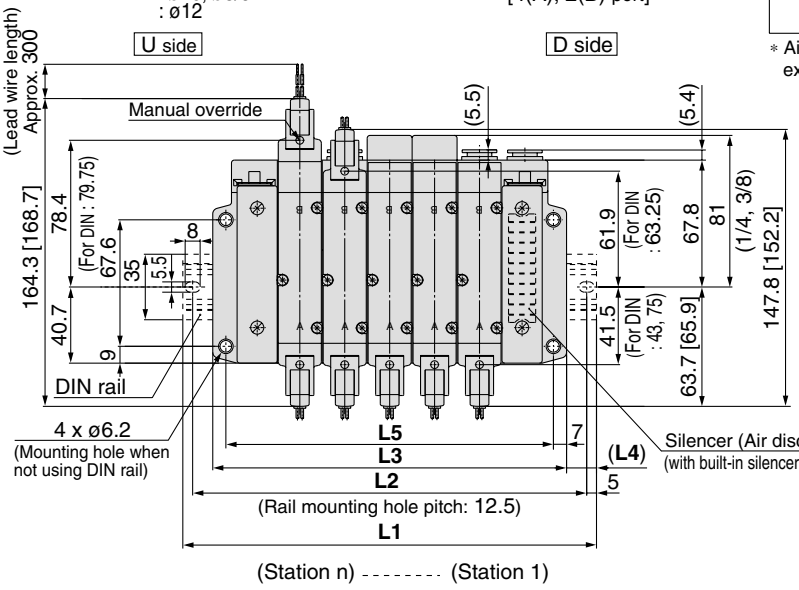
* When P, R port outlets are indicated on the D side, the P, R ports on the opposite side are plugged.

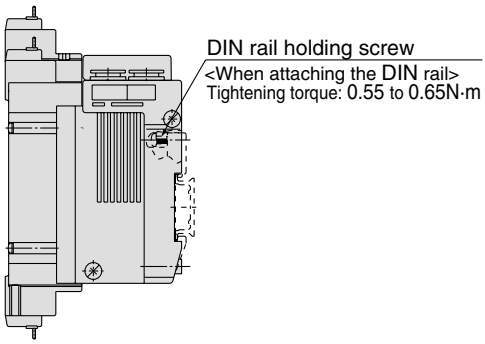


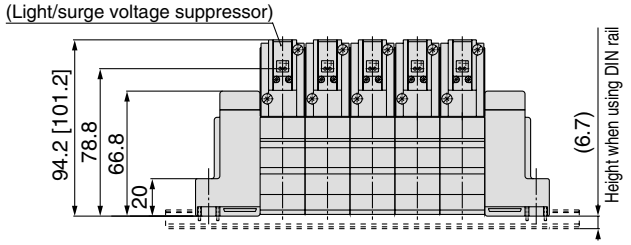
With External Pilot Specifications



* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the D side.

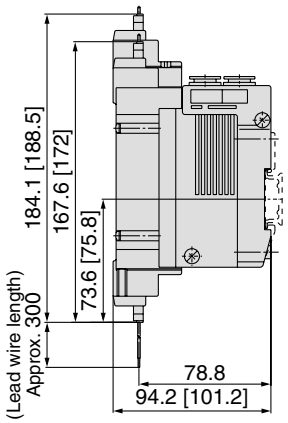




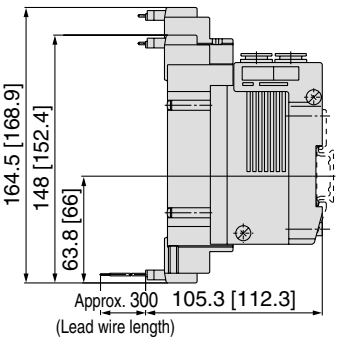


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	198	223	248	260.5	285.5	310.5	335.5
L2	137.5	162.5	187.5	212.5	237.5	250	275	300	325
L3	117	141	165	189	213	237	261	285	309
L4	15.5	16	16.5	17	17.5	12	12.5	13	13.5
L5	103	127	151	175	199	223	247	271	295

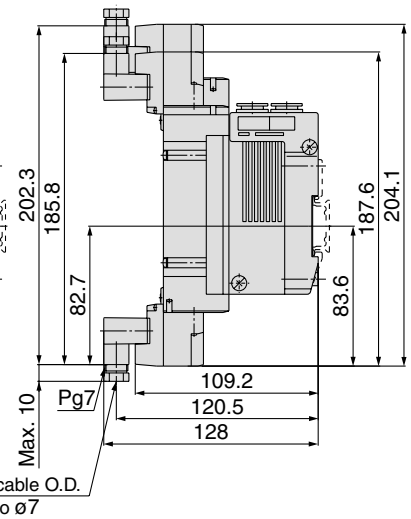
L plug connector (L)



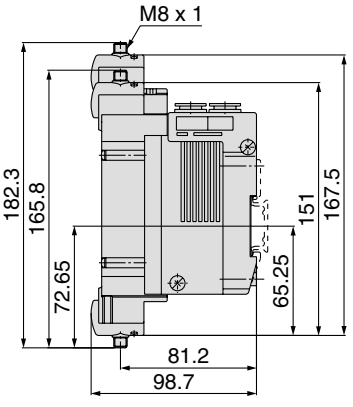
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



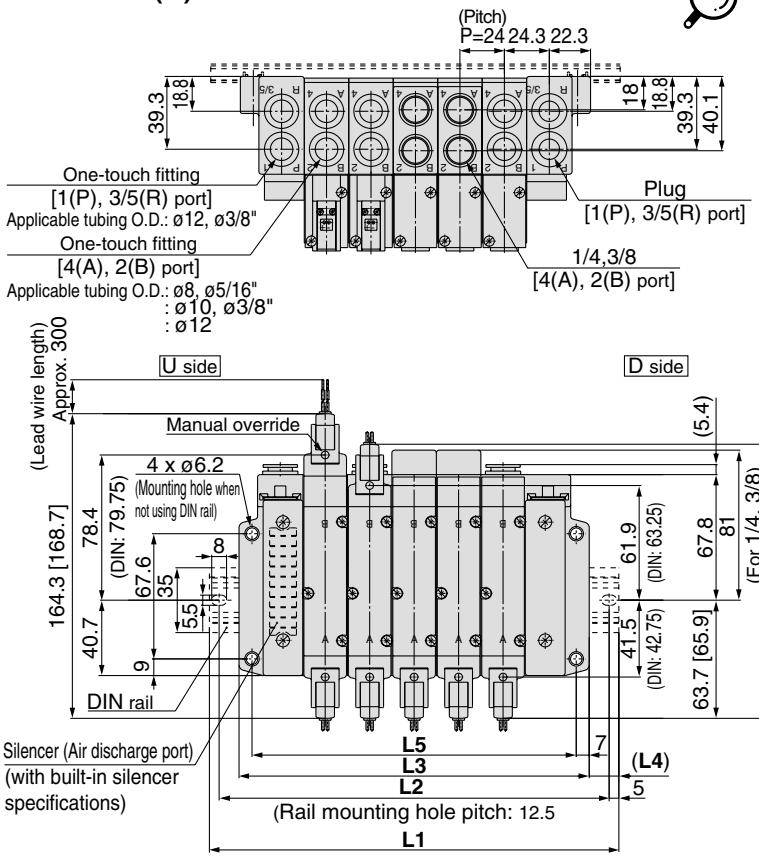
Note) Refer to page 340 for dimensions of connector types.

SY9000: SS5Y9-43- Stations U ☐ -02, C9, N9 / 03, C10, N11, C12 ☐ (-D)

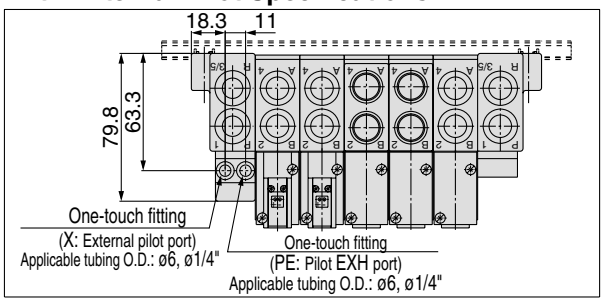
[ ]: AC

Grommet (G)

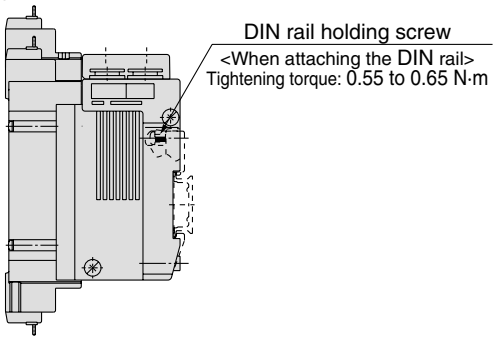
* When P, R port outlets are indicated on the U side, the P, R ports on the opposite side are plugged.

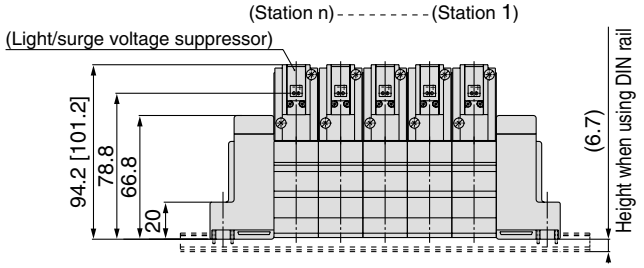


With External Pilot Specifications



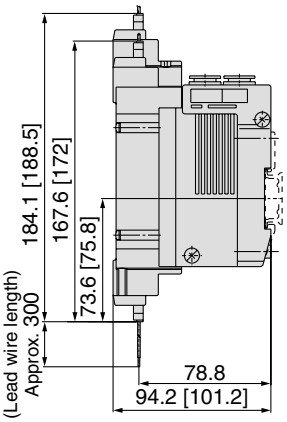
* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the D side.



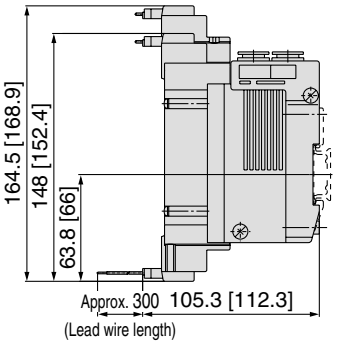


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	198	223	248	260.5	285.5	310.5	335.5
L2	137.5	162.5	187.5	212.5	237.5	250	275	300	325
L3	117	141	165	189	213	237	261	285	309
L4	15.5	16	16.5	17	17.5	12	12.5	13	13.5
L5	103	127	151	175	199	223	247	271	295

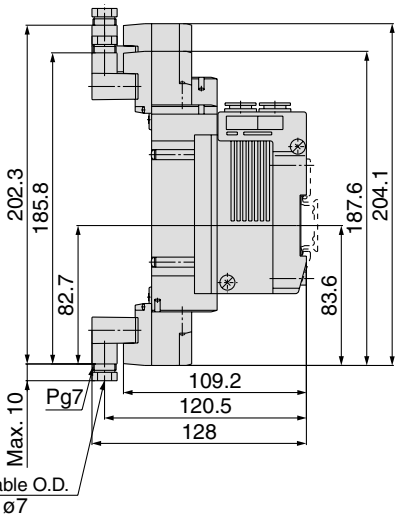
L plug connector (L)



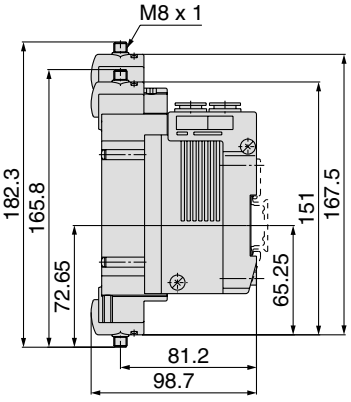
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)

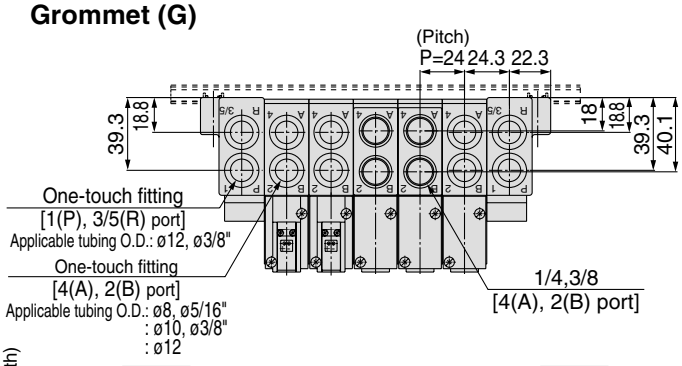


Note) Refer to page 340 for dimensions of connector types.

SY9000: SS5Y9-43-Stations B □ - 02, C8, N9 / 03, C10, N11 / C12 □ (-D)

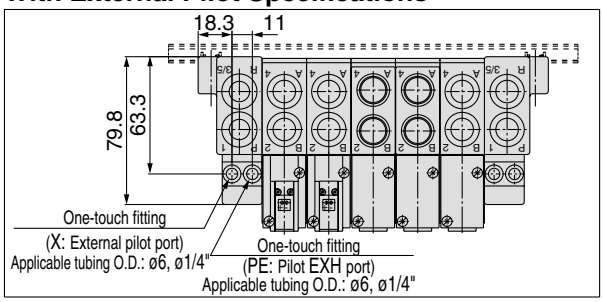
[ ]: AC

Grommet (G)

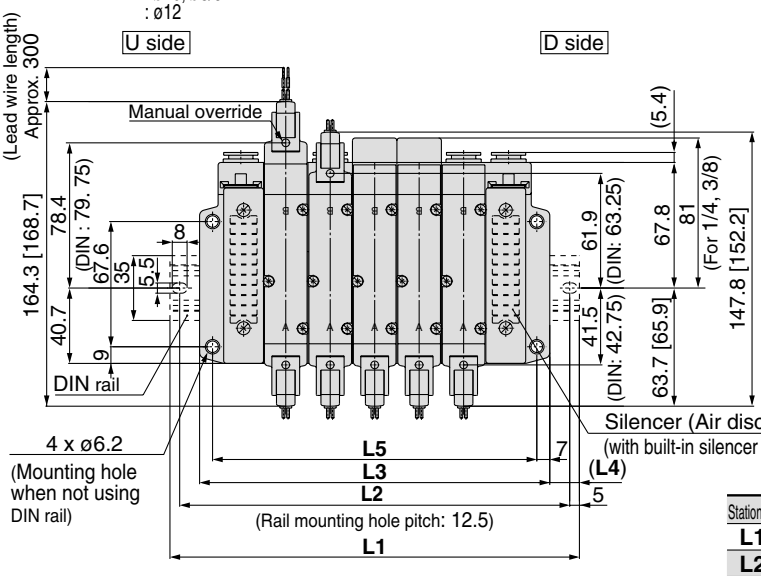


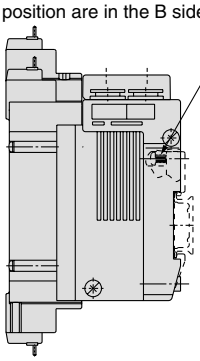
∗ When P, R port outlets are indicated on the B side, the P, R ports on the both sides are in the open state.

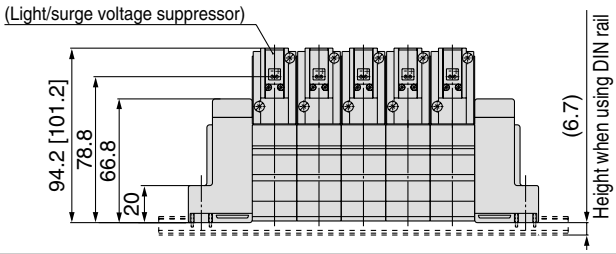
With External Pilot Specifications



∗ Air discharge port on the built-in silencer type and the external pilot's extracting position are in the B side (both sides).



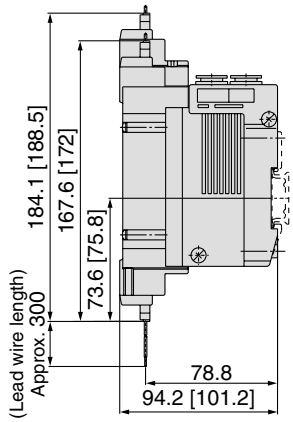




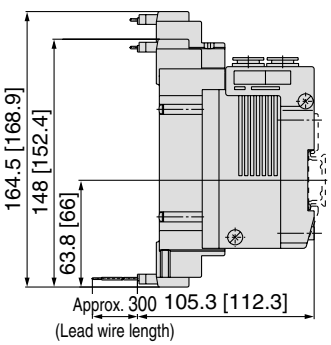
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	198	223	248	260.5	285.5	310.5	335.5
L2	137.5	162.5	187.5	212.5	237.5	250	275	300	325
L3	117	141	165	189	213	237	261	285	309
L4	15.5	16	16.5	17	17.5	12	12.5	13	13.5
L5	103	127	151	175	199	223	247	271	295

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	360.5	385.5	410.5	435.5	460.5	485.5	510.5	535.5	560.5	573
L2	350	375	400	425	450	475	500	525	550	562.5
L3	333	357	381	405	429	453	477	501	525	549
L4	14	14.5	15	15.5	16	16.5	17	17.5	18	12
L5	319	343	367	391	415	439	463	487	511	535

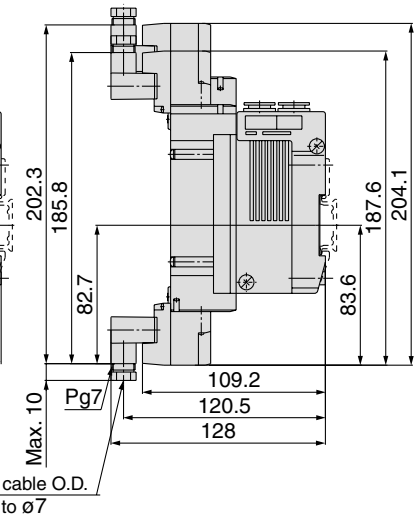
L plug connector (L)



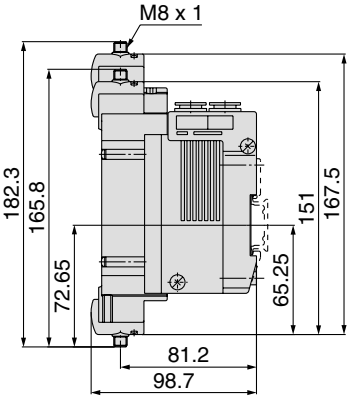
M plug connector (M)



DIN terminal (D, Y)



M8 connector (WO)



Note) Refer to page 340 for dimensions of connector types.

5 Port Solenoid Valve
Base Mounted Manifold
Bar Stock Type/Flat Ribbon Cable

Type 41P
Type 42P

Series SY3000/5000/7000

How to Order Manifold

Type 41P/Compact style

SS5Y 5 – 41P – 05 – C8 ☐ – ☐

Manifold series

3	SY3000
5	SY5000

Stations

03	3 stations
⋮	⋮
12	12 stations

∗ SS5Y3 has 4 to 12 stations.

A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	

Type 42P/Common external pilot capable

SS5Y 5 – 42P – 05 – C8 ☐ – ☐

Manifold series

3	SY3000
5	SY5000
7	SY7000

Stations

03	3 stations
⋮	⋮
12	12 stations

∗ SS5Y3 has 4 to 12 stations.

A, B port size

Thread piping

Symbol	Port size	Applicable series
01	1/8	SY3000
02	1/4	SY5000
02	1/4	SY7000

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

One-touch fitting (Metric size)

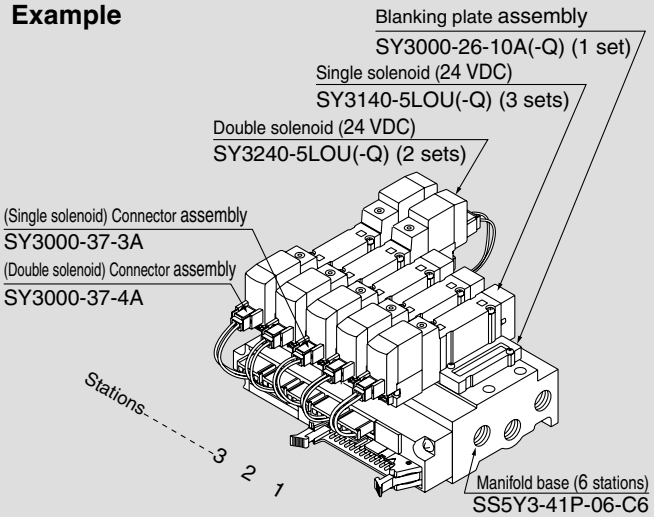
Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	
C10	One-touch fitting for ø10	SY7000

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	
N11	One-touch fitting for ø3/8"	SY7000

How to Order Manifold Assembly (Example)

Example

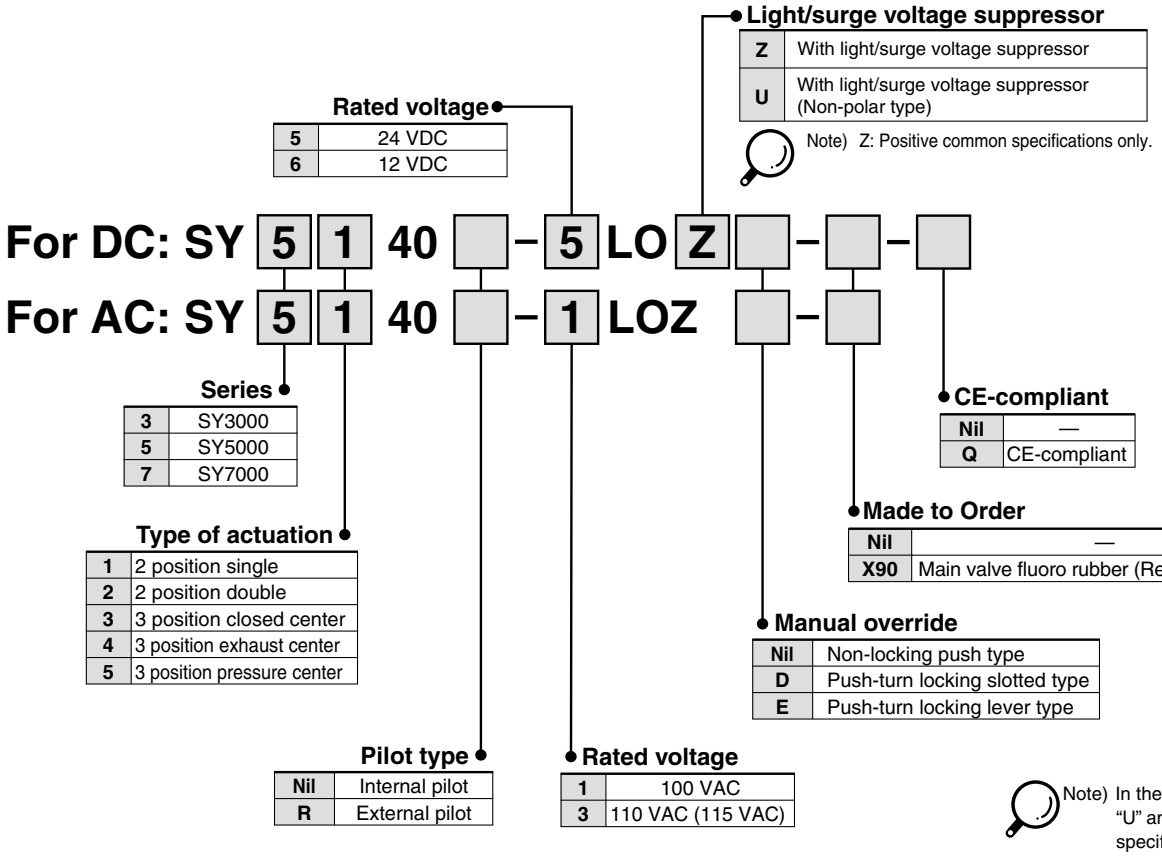


SS5Y3-41P-06-C6 ··· 1 set (Type 41P, 6-station manifold base part no.)
∗ **SX3000-26-10A ····· 1 set (Blanking plate assembly part no)**
∗ **SY3140-5LOU ····· 3 sets (Single solenoid part no.)**
∗ **SY3240-5LOU ····· 2 sets (Double solenoid part no.)**
∗ **SY3000-37-3A ····· 3 sets (Connector assembly part no.)**
∗ **SY3000-37-4A ····· 2 sets (Connector assembly part no.)**

→ The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve



Note) In the case of flat cable type, "U" and "Z" types are for DC specifications and "Z" type is for AC specifications. "Z" type for DC is positive common specification only. For the other combination, please contact SMC.

How to Order Connector Assembly

For 12, 24 VDC

Specifications	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-3A	SY5000-37-3A
Double solenoid, 3 position type	SY3000-37-4A	SY5000-37-4A
Single with spacer assembly	SY5000-37-3A	SY5000-37-5A
Double, 3 position with spacer assembly	SY3000-37-6A	SY5000-37-6A

For 100 VAC

Specifications	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-32A	SY5000-37-15A
Double solenoid, 3 position type	SY3000-37-33A	SY5000-37-16A
Single with spacer assembly	SY5000-37-15A	SY5000-37-17A
Double, 3 position with spacer assembly	SY3000-37-34A	SY5000-37-18A

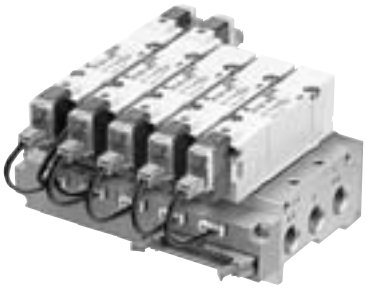
For 100 VAC (115 VAC)

Specifications	For SY3000	For SY5000/7000
For single solenoid	SY3000-37-35A	SY5000-37-19A
Double solenoid, 3 position type	SY3000-37-36A	SY5000-37-20A
Single with spacer assembly	SY5000-37-19A	SY5000-37-21A
Double, 3 position with spacer assembly	SY3000-37-37A	SY5000-37-22A

Flat Ribbon Cable Manifold Specifications

- **Multiple valve wiring is simplified through the use of the flat cable connector.**
- **Clean appearance**

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



Model		SS5Y3-41P(-Q)	SS5Y3-42P(-Q)	SS5Y5-41P(-Q)	SS5Y5-42P(-Q)	SS5Y7-42P(-Q)
Applicable valve		SY3□40		SY5□40		SY7□40
Manifold type		Single base/B mount				
P(SUP)/R(EXH)		Common SUP, Common EXH				
Valve stations		4 to 12 stations (1)		3 to 12 stations Note 1)		
A, B port Porting specifications	Location	Base				
	Direction	Side				
Port size	P, EA, EB port	1/8		1/4		1/4
	A, B port	M5 x 0.8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	1/8 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)	1/4 C10 (One-touch fitting for ø10)
Manifold base mass W (g), n: Stations		W = 39n + 83	W = 48n + 99	W = 67n + 118	W = 88n + 151	W = 109n + 174
Applicable flat ribbon cable connector		Flat ribbon cable connector, Socket: 26 pins MIL type with strain relief, Conforming to MIL-C-83503				
Internal wiring		In common between +COM and –COM (Z type: +COM only).				
Rated voltage Note 4)		12, 24 VDC, 100, 110 VAC				

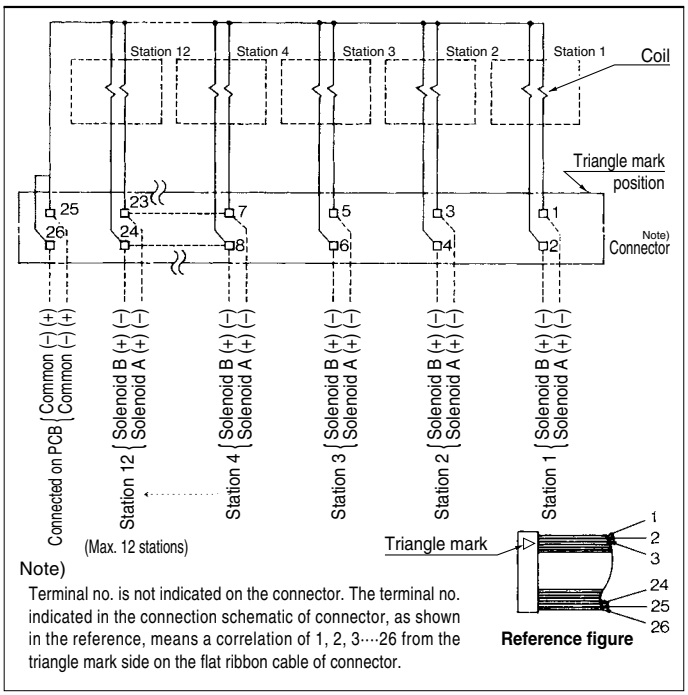
Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.
Note 3) Refer to "Manifold Option" on page 238.
Note 4) CE-compliant: For DC only.

Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-41P	1/8	C6	0.75	0.19	0.18	0.81	0.23	0.20
SS5Y3-42P	1/8	C6	0.75	0.20	0.18	0.82	0.20	0.20
SS5Y5-41P	1/4	C8	1.8	0.23	0.44	1.9	0.16	0.45
SS5Y5-42P	1/4	C8	1.9	0.20	0.46	1.9	0.12	0.43
SS5Y7-42P	1/4	C10	3.0	0.25	0.75	3.0	0.12	0.66

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

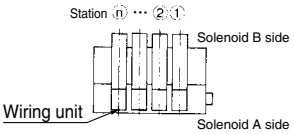
Internal Wiring of Manifold (Non-polar type)



Note)
Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····26 from the triangle mark side on the flat ribbon cable of connector.

Reference figure

- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid A side.
- The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.

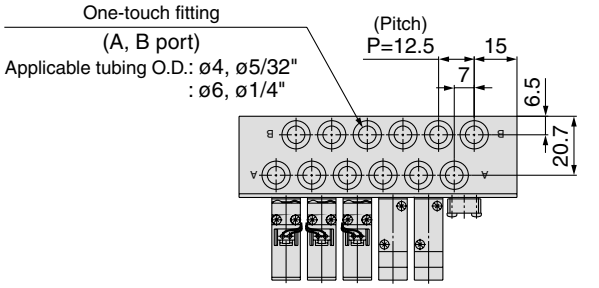


⚠Caution

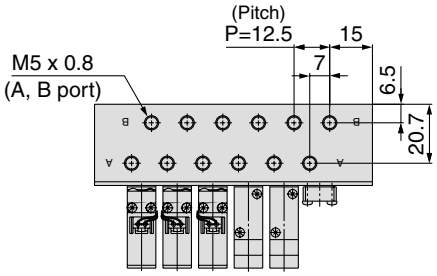
- For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.

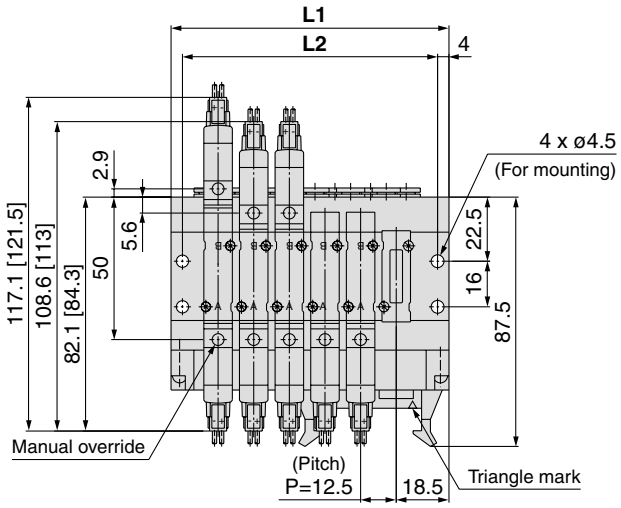
SY3000: SS5Y3-41P- Stations -M5, C4, N3 C6, N7

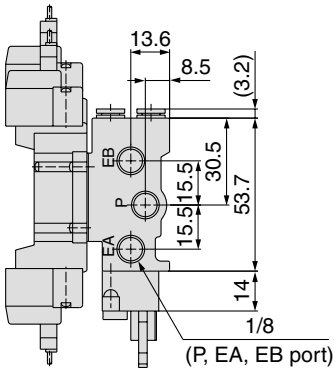
[ ]: AC



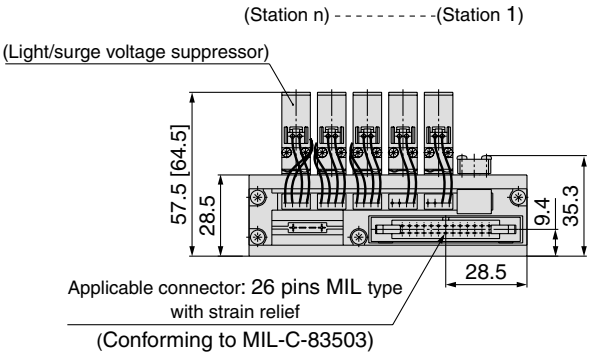
For M5 x 0.8

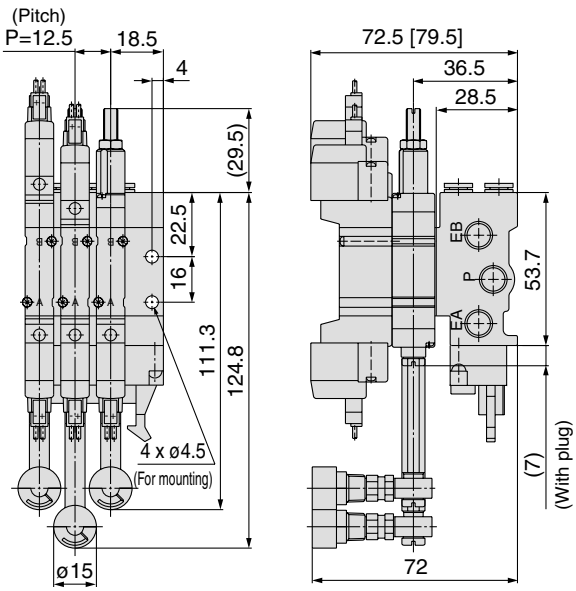






With interface regulator (with gauge)

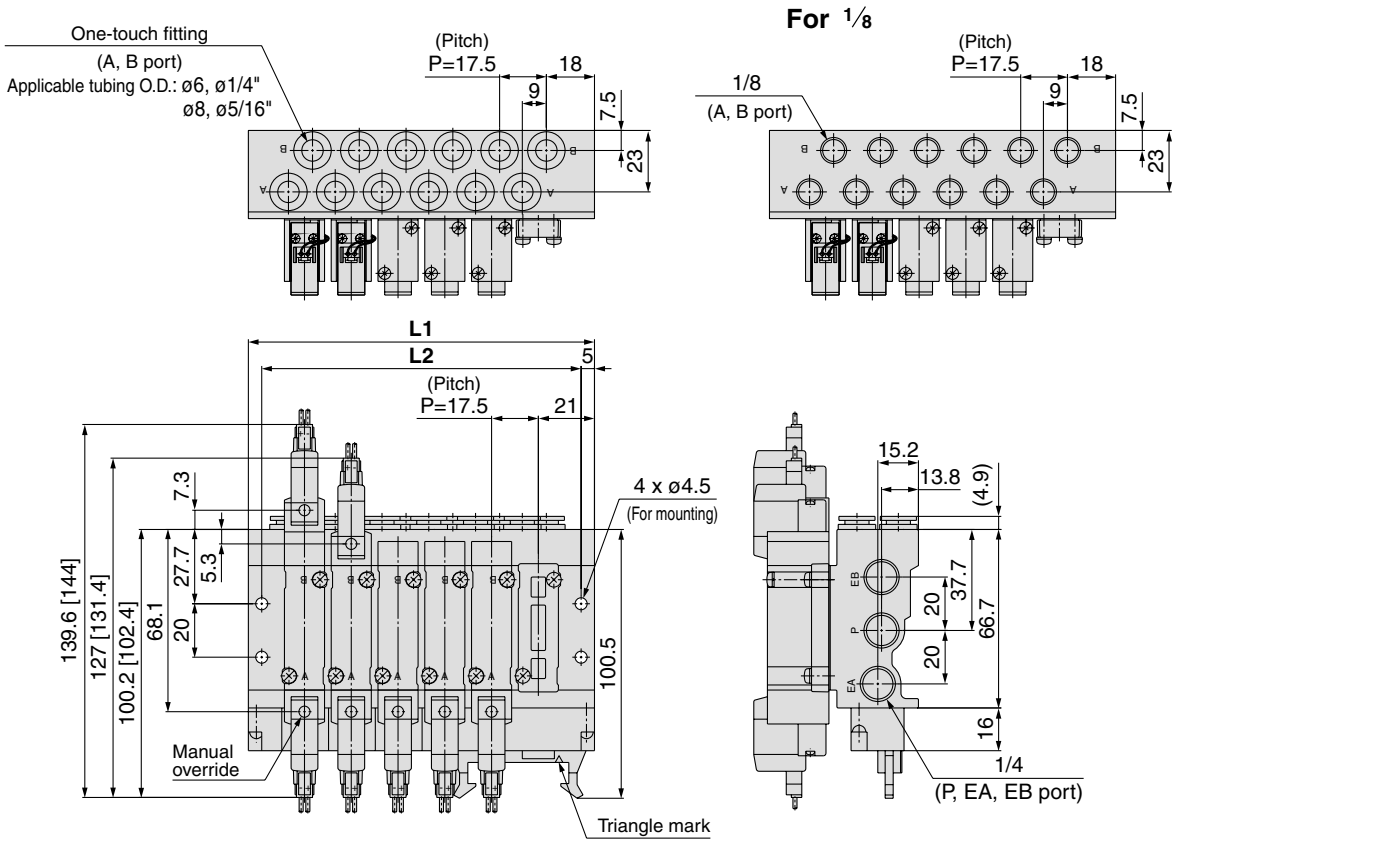


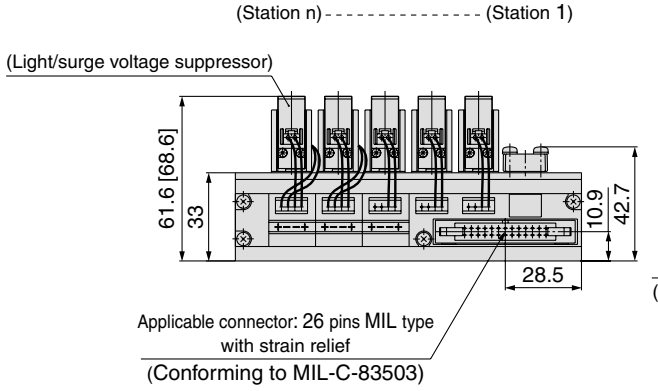


Stations n	4	5	6	7	8	9	10	11	12
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5

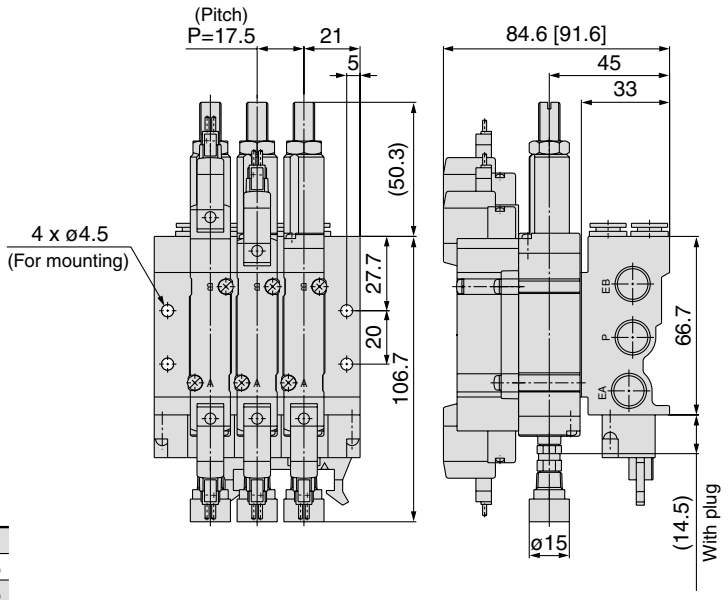
SY5000: SS5Y5-41P-Stations-01, C6,N7 C8,N9

[ ]: AC





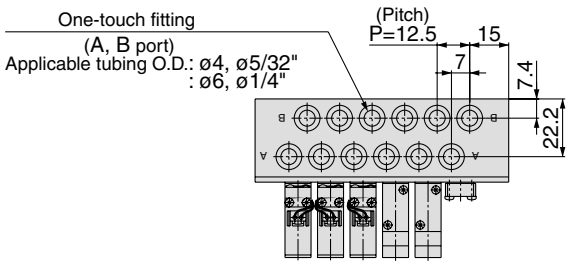
With interface regulator (with gauge)



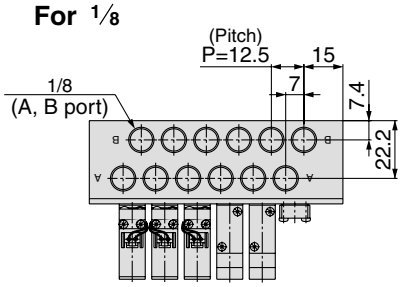
Stations n	3	4	5	6	7	8	9	10	11	12
L1	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5
L2	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5

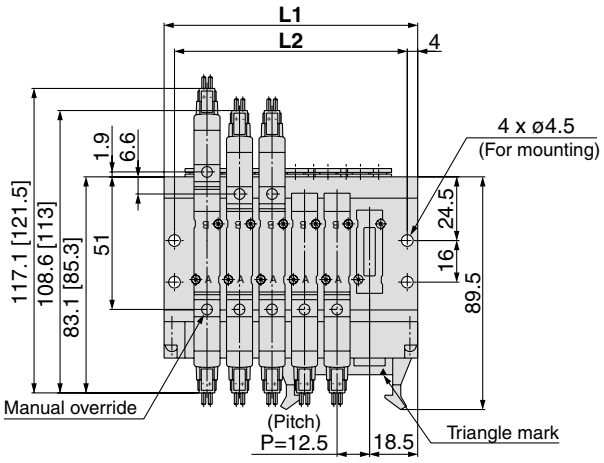
SY3000: SS5Y3-42P- Stations -01, C4, N3 C6, N7 □

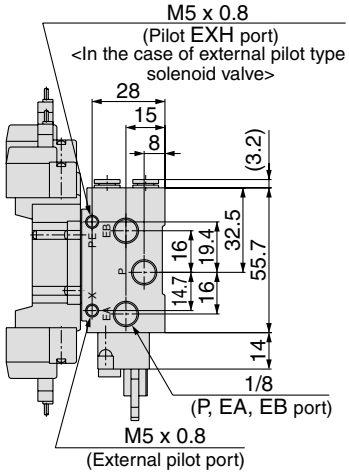
[ ]: AC

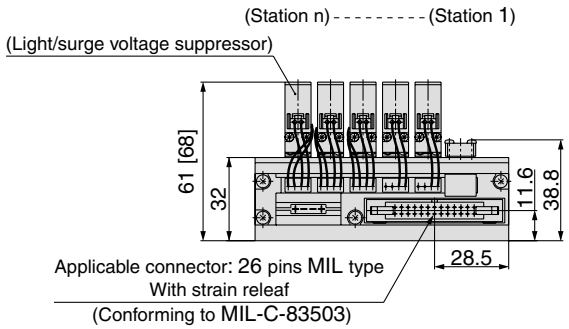


For 1/8

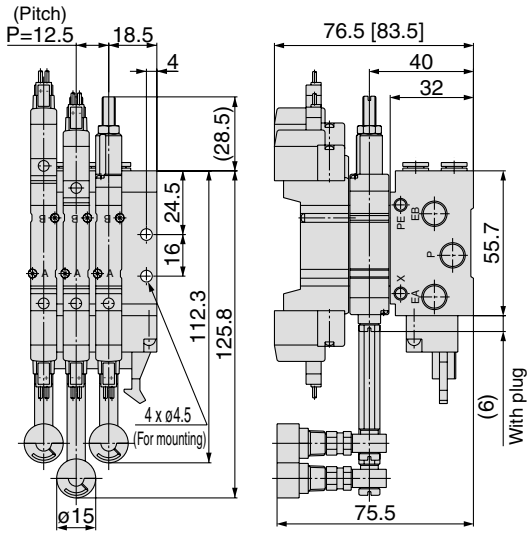








With interface regulator (with gauge)

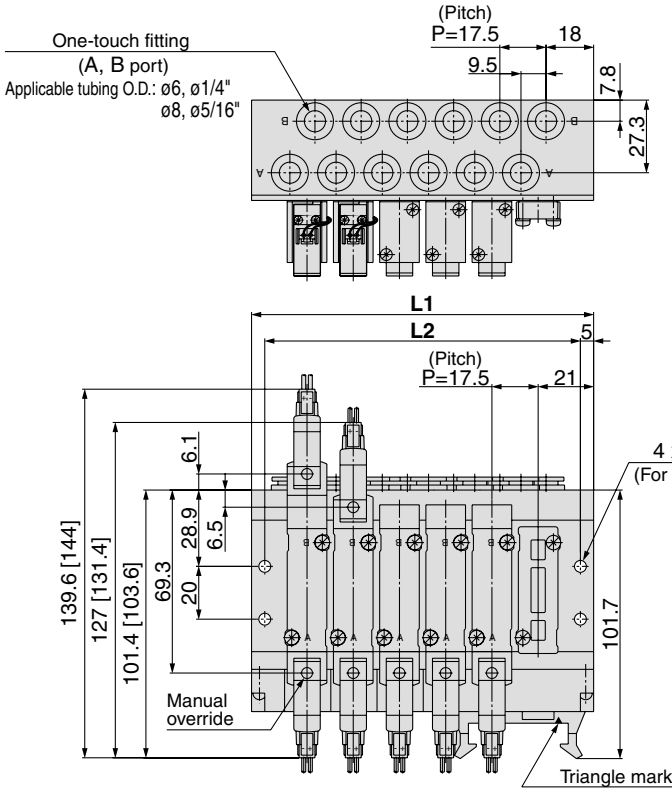


Stations n	4	5	6	7	8	9	10	11	12
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5

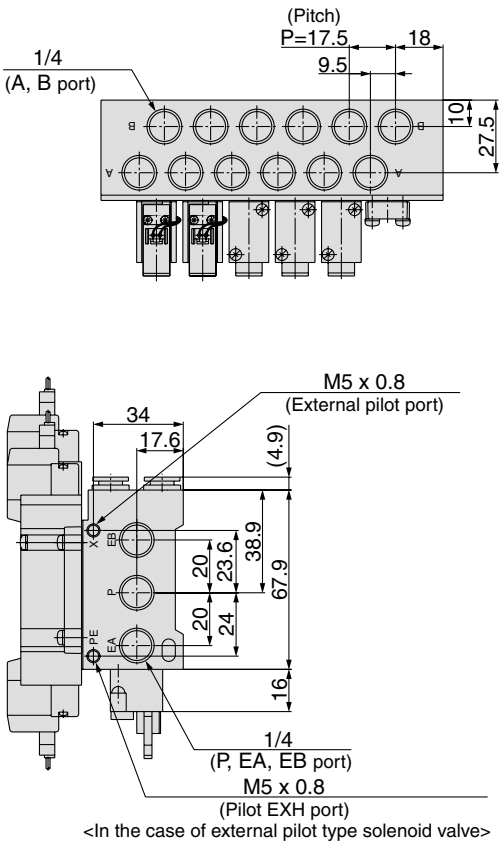
SY5000: SS5Y5-42P- Stations -02, C6, N7 / C8, N9 □

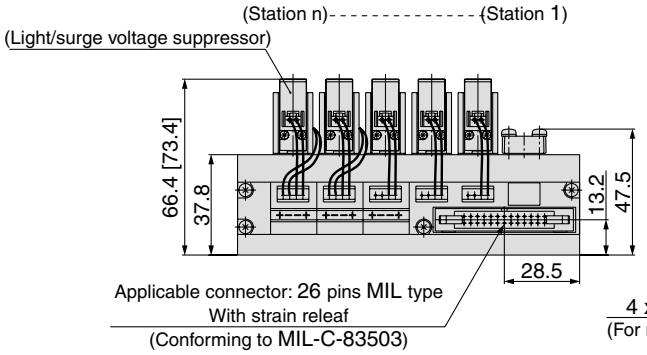
[ ]: AC

Grommet (G)

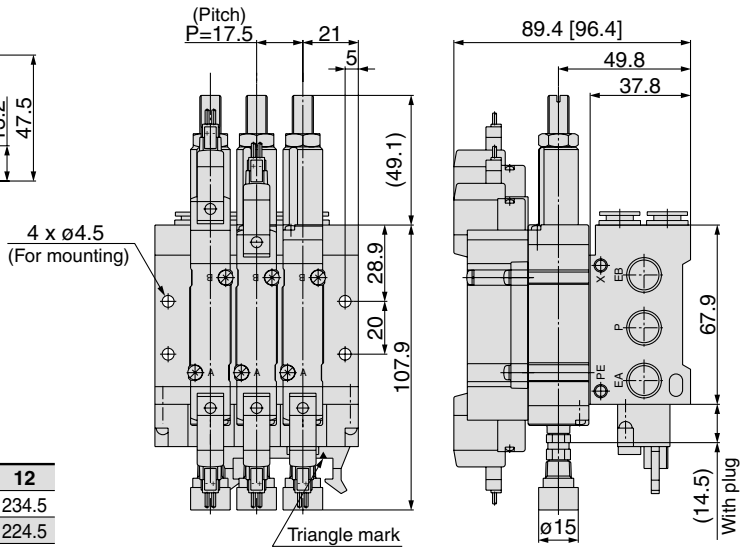


For 1/4





With interface regulator (with gauge)



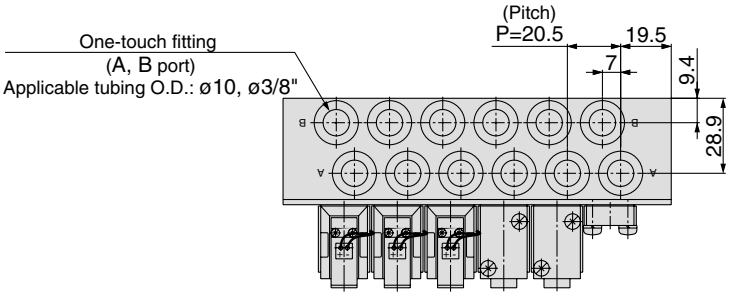
Stations n	3	4	5	6	7	8	9	10	11	12
L1	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5
L2	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5

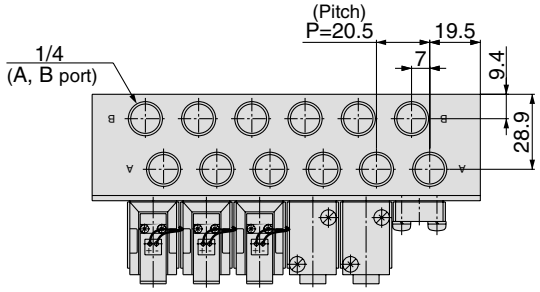
SY7000: SS5Y7-42P- Stations -02, C10, N11

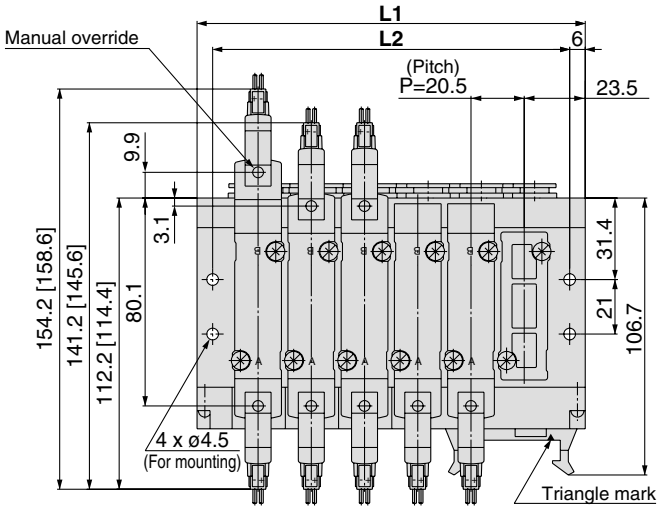
[ ]: AC

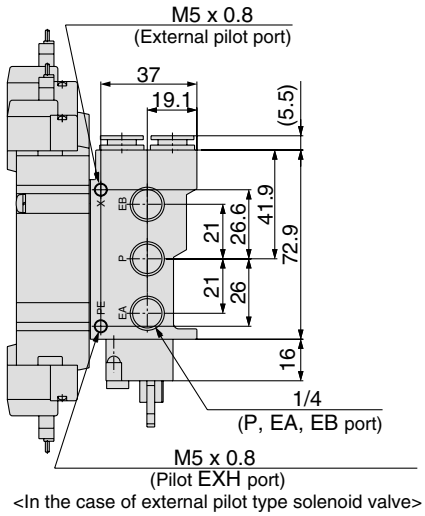
Grommet (G)

For 1/4



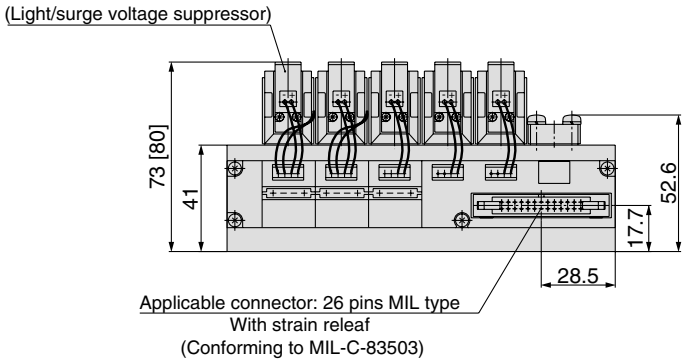




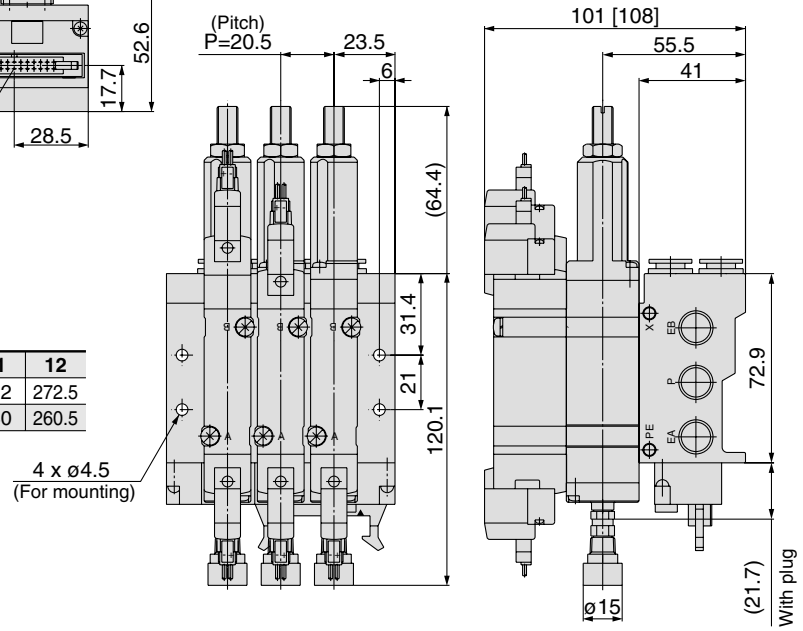


<In the case of external pilot type solenoid valve>

(Station n)----------(Station 1)



With interface regulator (with gauge)



Stations n	3	4	5	6	7	8	9	10	11	12
L1	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5
L2	76	96.5	117	137.5	158	178.5	199	219.5	240	260.5

5 Port Solenoid Valve
Base Mounted Manifold
Stacking Type/Flat Ribbon Cable

Type 43P

Series SY9000

CE

How to Order Manifold

SS5Y9-43P-[05][U][ ]-[C8][ ]-[ ]-[ ]

Manifold series

9	SY9000

Valve stations

Symbol	Stations
04	4 stations
⋮	⋮
12	12 stations

∗ This also includes the number of blanking plate assemblies.

P, R port outlets

Symbol	Port outlet	Applicable stations
U	U side	4 to 10 stations
D	D side	
B	Both sides	4 to 12 stations

SUP/EXH block assembly specifications

Symbol	Specifications
Nil	Standard/Internal pilot specification
R	External pilot specification
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Option

Symbol	Mounting
Nil	Direct mounting
D	DIN rail mounting (with DIN rail)
D0	DIN rail mounting (without DIN rail)
D∗	When a longer DIN rail is desired than the specified stations, specify the station number to be required into ∗ mark.

A, B port size

Thread piping

Symbol	Port size
02	1/4
03	3/8

One-touch fitting (Metric size)

Symbol	Port size
C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
M	Mixed

One-touch fitting (Inch size)

Symbol	Port size
N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
M	Mixed

∗ In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

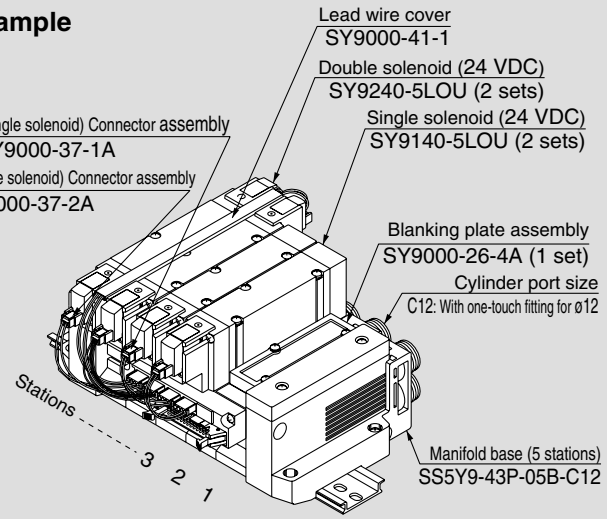
CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

How to Order Manifold Assembly (Example)

Example

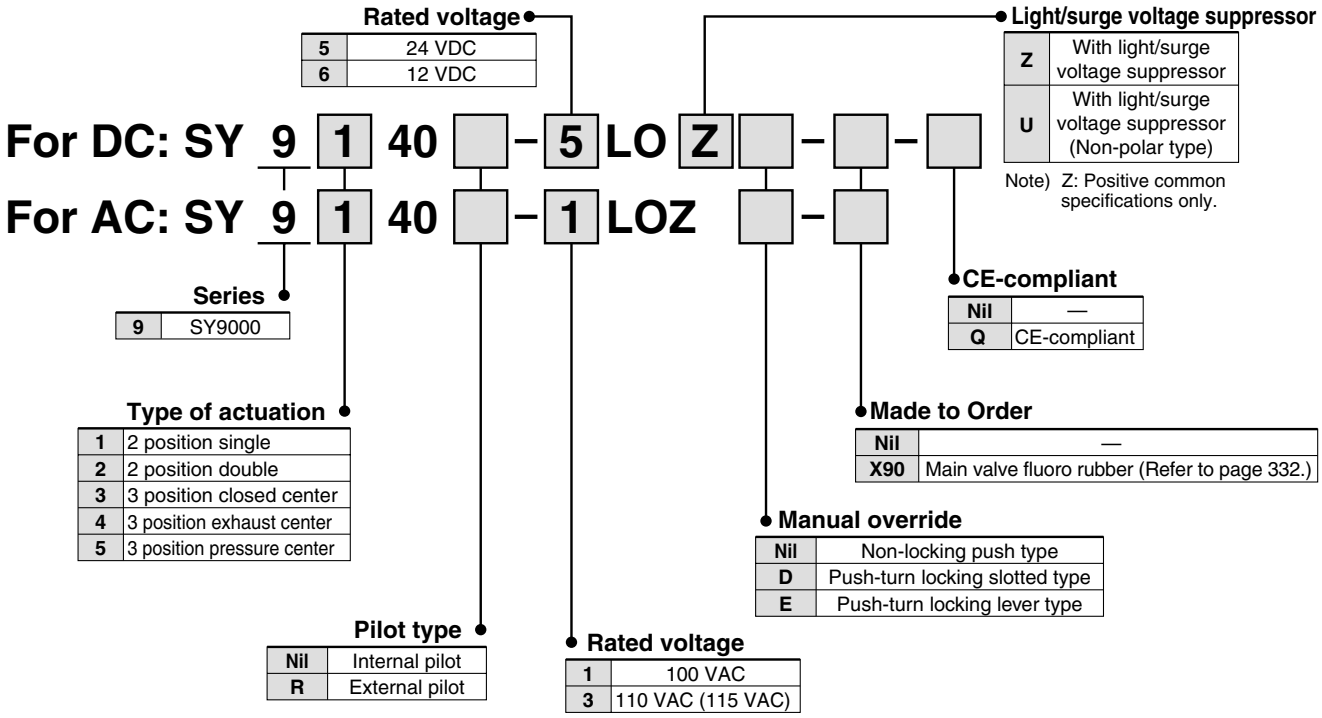


SS5Y9-43P-05B-C12 ·· **1 set (Type 43P, 5-station manifold base part no.)**
∗ **SY9000-26-4A** ····· **1 set (Blanking plate assembly part no.)**
∗ **SY9140-5LOU** ····· **2 sets (Single solenoid part no.)**
∗ **SY9240-5LOU** ····· **2 sets (Double solenoid part no.)**
∗ **SY9000-37-1A** ····· **2 sets (Connector assembly part no.)**
∗ **SY9000-37-2A** ····· **2 sets (Connector assembly part no.)**
∗ **SY9000-41-1** ····· **1 set (Lead wire cover)**

The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

How to Order Valve



Note) In the case of flat cable type, "U" and "Z" types are for DC specifications and "Z" type is for AC specifications. "Z" type for DC is positive common specification only.
For the other combination, please contact SMC.

How to Order Connector Assembly

For 12, 24 VDC

Specifications	For SY9000
For single solenoid	SY9000-37-1A
Double solenoid, 3 position type	SY9000-37-2A
Single with spacer assembly	SY9000-37-3A
Double, 3 position with spacer assembly	SY9000-37-4A

For 100 VAC

Specifications	For SY9000
For single solenoid	SY9000-37-1B
Double solenoid, 3 position type	SY9000-37-2B
Single with spacer assembly	SY9000-37-3B
Double, 3 position with spacer assembly	SY9000-37-4B

For 110 VAC (115 VAC)

Specifications	For SY9000
For single solenoid	SY9000-37-1C
Double solenoid, 3 position type	SY9000-37-2C
Single with spacer assembly	SY9000-37-3C
Double, 3 position with spacer assembly	SY9000-37-4C

- **Multiple valve wiring is simplified through the use of the flat ribbon cable connector.**
- **Clean appearance**

In the case of a flat ribbon cable type, each valve is wired on the print board of manifold base to allow the external wiring to be piped all together with 26 pins MIL connector.



Flat Ribbon Cable Manifold Specifications

Model		SS5Y9-43P
Applicable valve		SY9□40
Manifold type		Stacking type
P (SUP)/R (EXH)		Common SUP, Common EXH
Valve stations		4 to 12 stations Note 1)
A, B port Porting specifications	Location	Base
	Direction	Side
Port size	P, EA, EB port	C12 (One-touch fitting for ø12)
	A, B port	1/4 3/8 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10) C12 (One-touch fitting for ø12)
Manifold base mass W (g) n: Stations		W = 114n + 343
Applicable flat ribbon cable connector		Flat ribbon cable connection, Socket: 26 pins MIL with strain relief, Conforming to MIL-C-83503
Internal wiring		In common between +COM and –COM (Z type: +COM only)
Rated voltage Note 4)		12, 24 VDC, 100, 110 VAC

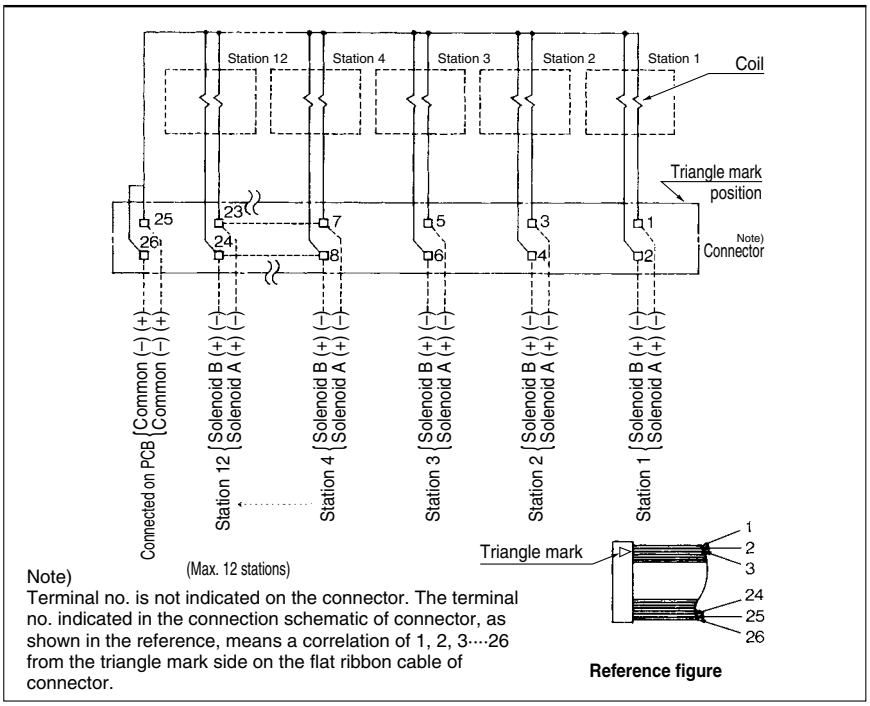
Note 1) For more than 10 stations, supply pressure to P port on both sides and exhaust from EA/EB port on both sides.
Note 2) The withstand voltage specification for the wiring unit section is JIS C 0704, Grade 1 or its equivalent.
Note 3) Refer to "Manifold Option" on page 238.
Note 4) CE-compliant: For DC only.

Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y9-43P	C12	C12	6.4	0.29	1.6	7.3	0.29	1.8

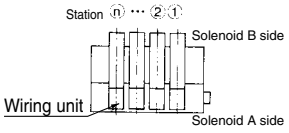
Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Internal Wiring of Manifold (Non-polar type)



Note)
Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····26 from the triangle mark side on the flat ribbon cable of connector.

- For more than 10 stations, both poles of the common should be wired.
- For single solenoid, connect to the solenoid A side.
- The maximum number of stations that can be accommodated is 12. For more stations, please contact SMC.



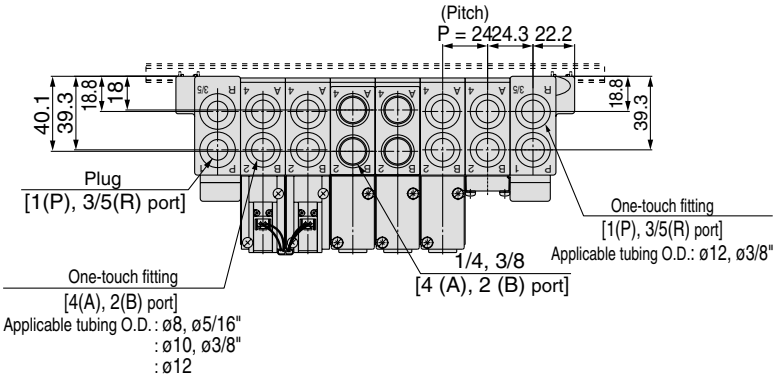
⚠ Caution

- For non-polar (U) valves, the electrical DC connections can be used with either positive and negative COM. For type (Z), only use with positive COM as the valve does not operate correctly when used with negative COM.

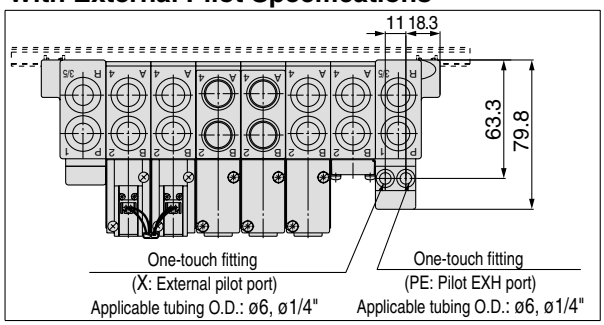
SY9000: SS5Y9-43P-[Stations]D[ ]-[02 C8, N9 / 03 C10, N11 / C12][ ](-D)

[ ]: AC

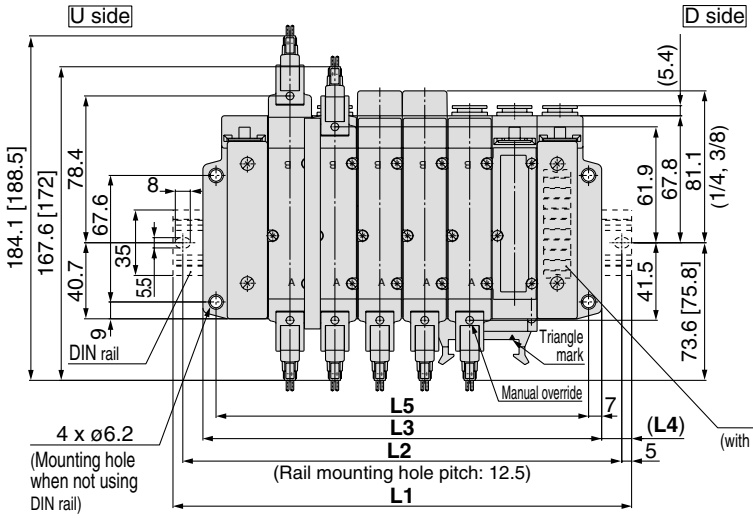
∗ When P, R port outlets are indicated on the D side, the P, R ports on the opposite side are plugged.

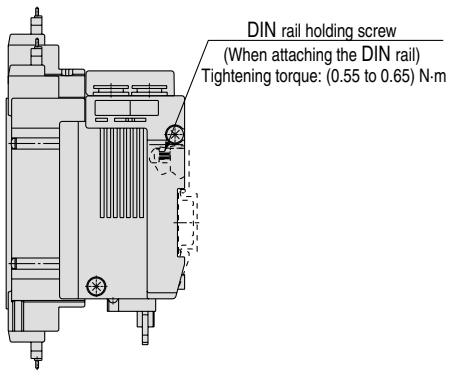


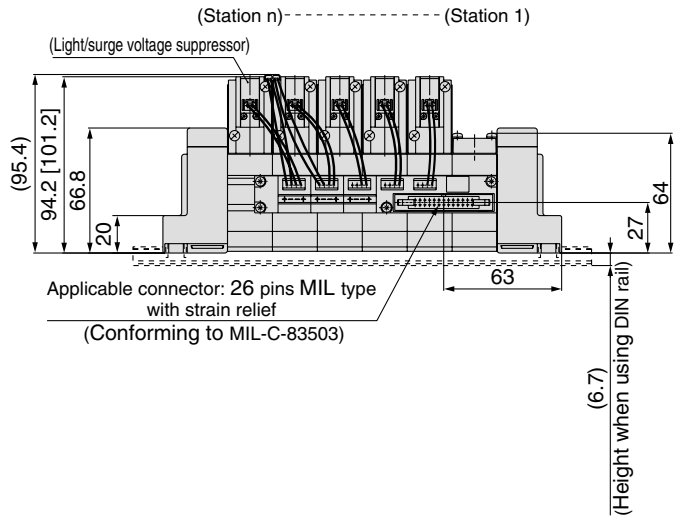
With External Pilot Specifications



∗ Air discharge port on the built-in silencer type and the external pilot's extracting position are in the D side.





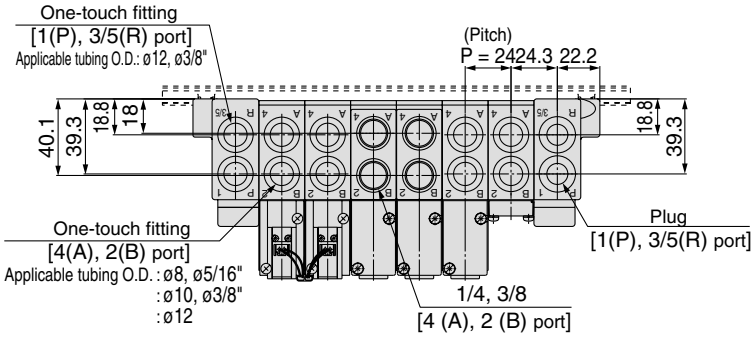


Stations n	4 stations	5	6	7	8	9	10 stations
L1	198	223	248	260.5	285.5	310.5	335.5
L2	187.5	212.5	237.5	250	275	300	325
L3	165	189	213	237	261	285	309
L4	16.5	17	17.5	12	12.5	13	13.5
L5	151	175	199	223	247	271	295

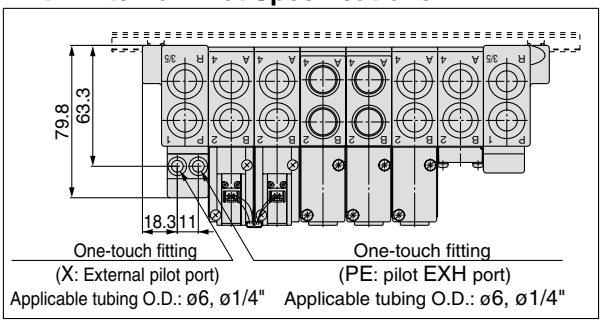
SY9000: SS5Y9-43P- Stations U ☐ -02 C8, N9 / -03 C10, N11 / C12 ☐ (-D)

[ ]: AC

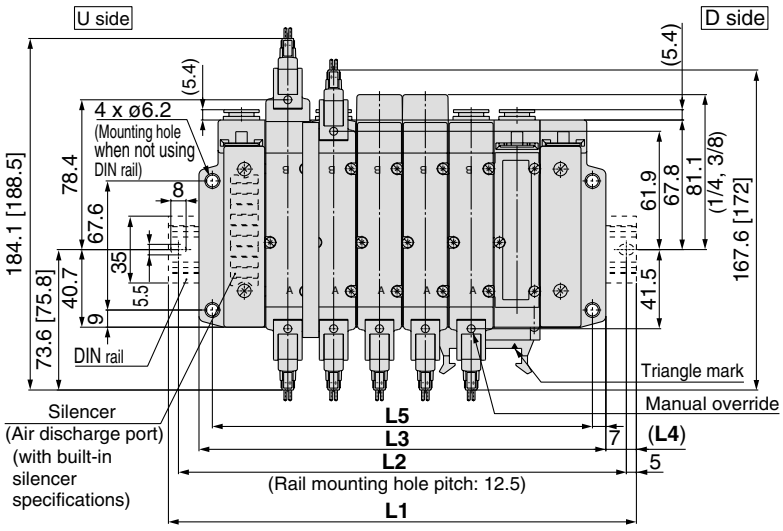
∗ When P, R port outlets are indicated on the U side, the P, R ports on the opposite side are plugged.

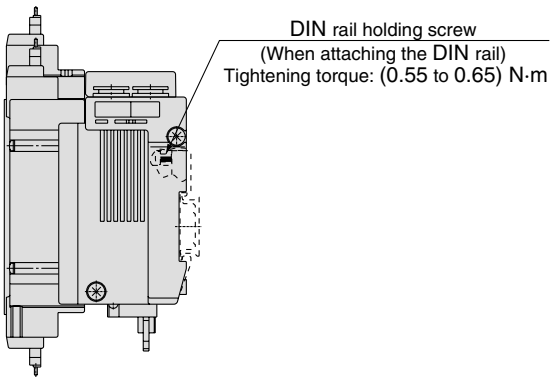


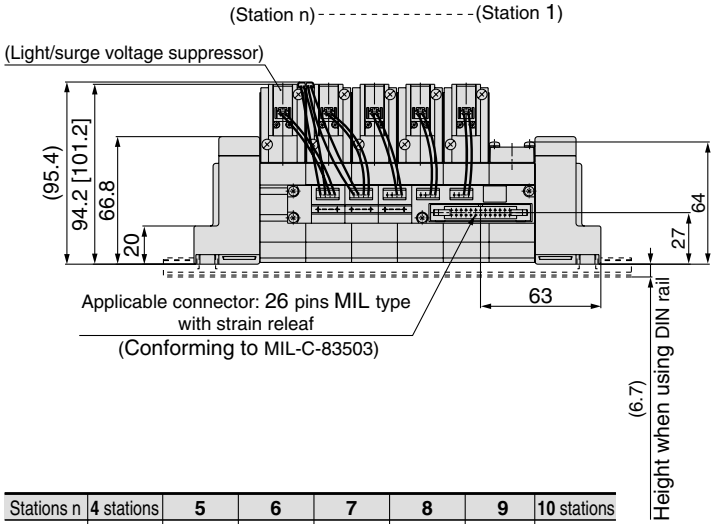
With External Pilot Specifications



∗ Air discharge port on the built-in silencer type and the external pilot's extracting position are in the U side.





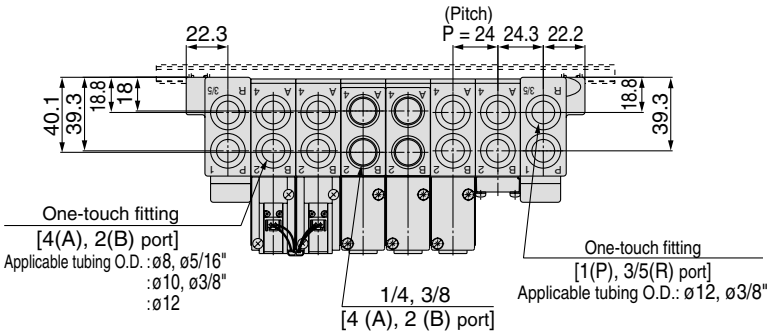


Stations n	4 stations	5	6	7	8	9	10 stations
L1	198	223	248	260.5	285.5	310.5	335.5
L2	187.5	212.5	237.5	250	275	300	325
L3	165	189	213	237	261	285	309
L4	16.5	17	17.5	12	12.5	13	13.5
L5	151	175	199	223	247	271	295

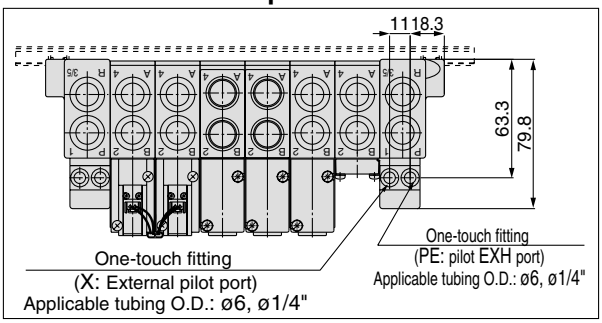
SY9000: SS5Y9-43P- Stations B ☐ -02 C8, N9 / 03 C10, N11 / C12 ☐ (-D)

[ ]: AC

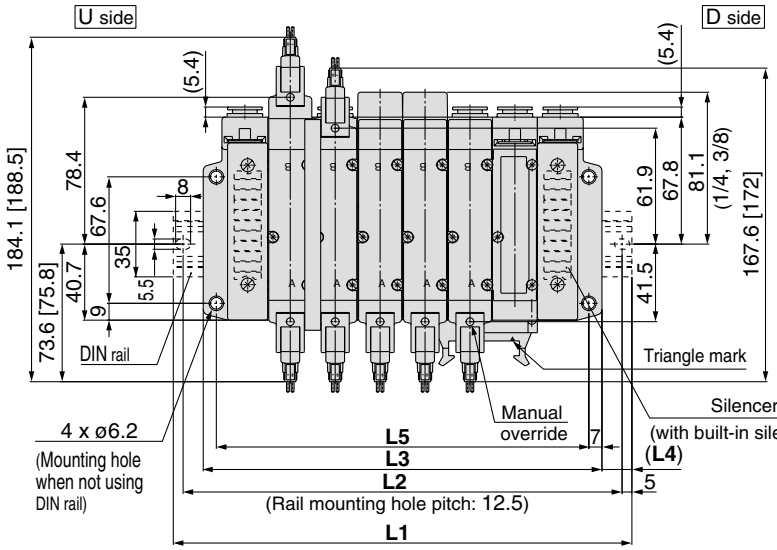
∗ When P, R port outlets are indicated on the B side, the P, R ports on the both sides are in the open state.

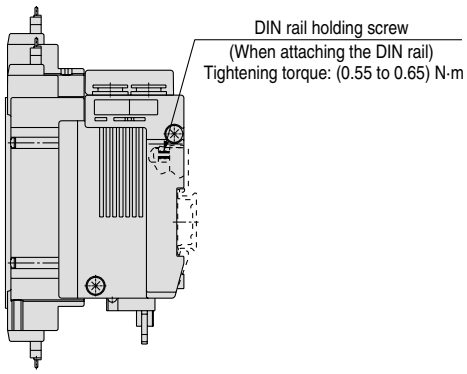


With External Pilot Specifications

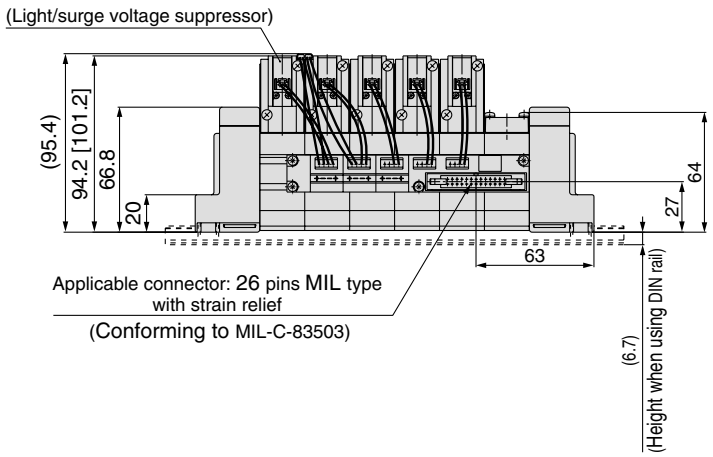


∗ Air discharge port on the built-in silencer type and the external pilot's extracting position are in the B side (both sides).





(Station n) - - - - - - - - - - - - - - - (Station 1)



Stations n	4 stations	5	6	7	8	9	10	11	12 stations
L1	198	223	248	260.5	285.5	310.5	335.5	360.5	385.5
L2	187.5	212.5	237.5	250	275	300	325	350	375
L3	165	189	213	237	261	285	309	333	357
L4	16.5	17	17.5	12	12.5	13	13.5	14	14.5
L5	151	175	199	223	247	271	295	319	343

EX510 Gateway System
Serial Transmission System
Base Mounted Manifold/Integrated Type

Type 42SA

Series SY3000/5000/7000

CE

How to Order Manifold

SS5Y 3 – 42SA □ – 03 – 01 □ – □

Manifold series

3	SY3000
5	SY5000
7	SY7000

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

Valve stations

Symbol	Stations	Note
03	3 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
03	3 stations	Specified layout Note 2) (Compatible with 16 solenoid valves)
⋮	⋮	
16	16 stations	

- SS5Y3 can be set from 4 stations.
- The number of the blanking plate assembly is also included.

Note 1) Double wiring: Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

A, B port size

Thread piping

01	1/8	SY3000
02	1/4	SY5000/7000

One-touch fitting (Metric size)

C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C6	One-touch fitting for ø6	SY5000
C8	One-touch fitting for ø8	
C10	One-touch fitting for ø10	SY7000

One-touch fitting (Inch size)

N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N7	One-touch fitting for ø1/4"	SY5000
N9	One-touch fitting for ø5/16"	
N11	One-touch fitting for ø3/8"	SY7000

CE-compliant

Nil	—
Q	CE-compliant

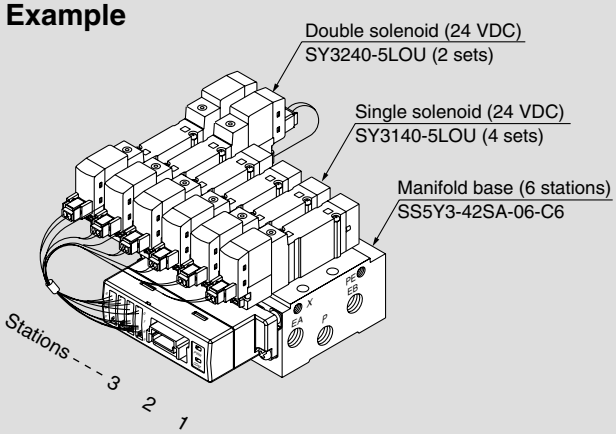
SI unit part no.

Symbol	SI unit specifications	SI unit part no.	Page
Nil	NPN output (+COM.)	EX510-S001	P.1715 to 1717
N	PNP output (–COM.)	EX510-S101	

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

How to Order Manifold Assembly (Example)

Example



SS5Y3-42SA-06-C6 ··1 set (42SA type 6-station manifold part no.)
*** SY3140-5LOU ·····4 sets (Single solenoid part no.)**
*** SY3240-5LOU ·····2 sets (Double solenoid part no.)**

The asterisk denotes the symbol for assembly. Prefix to the part no. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

How to Order Valves

SY 3 1 40 □ – 5 LO Z □ – □ – □

Series

3	SY3000
5	SY5000
7	SY7000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot specifications

Nil	Internal pilot
R	External pilot

Rated voltage: 24 VDC

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	Without light/surge voltage suppressor (non-polar type)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

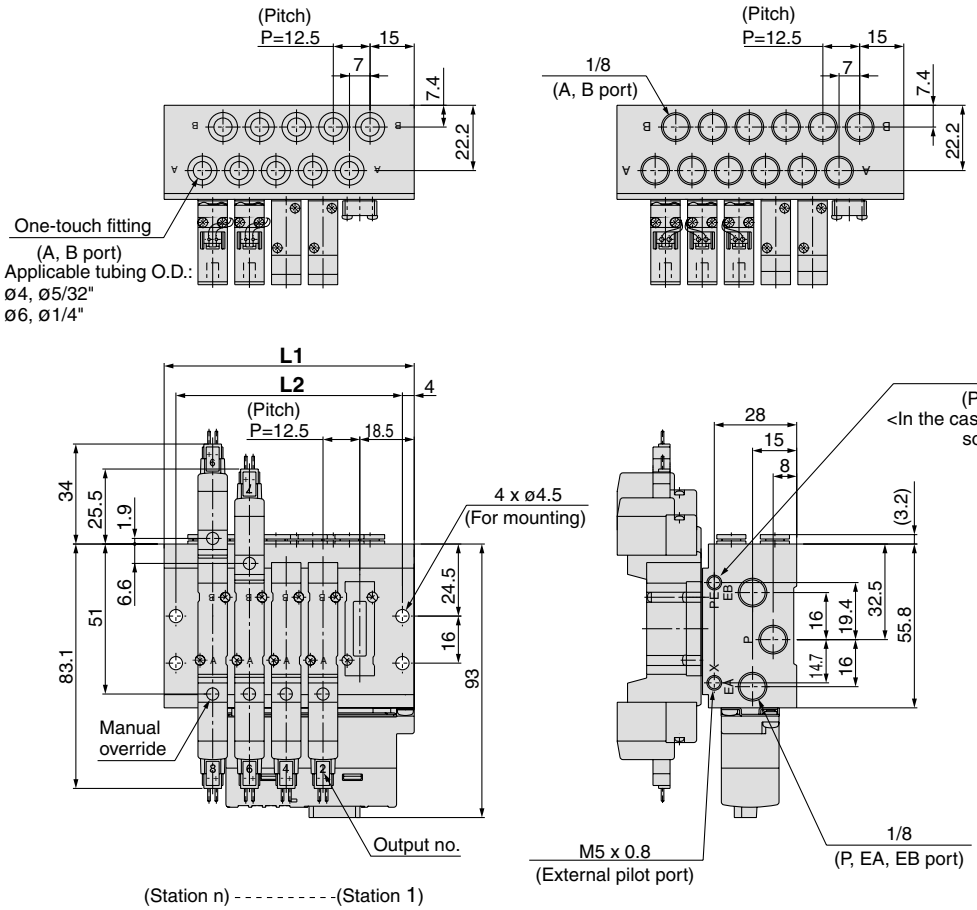
Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

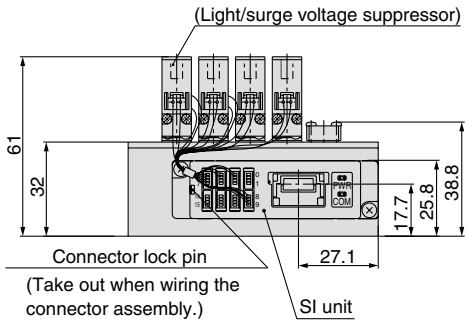
CE-compliant

Nil	—
Q	CE-compliant

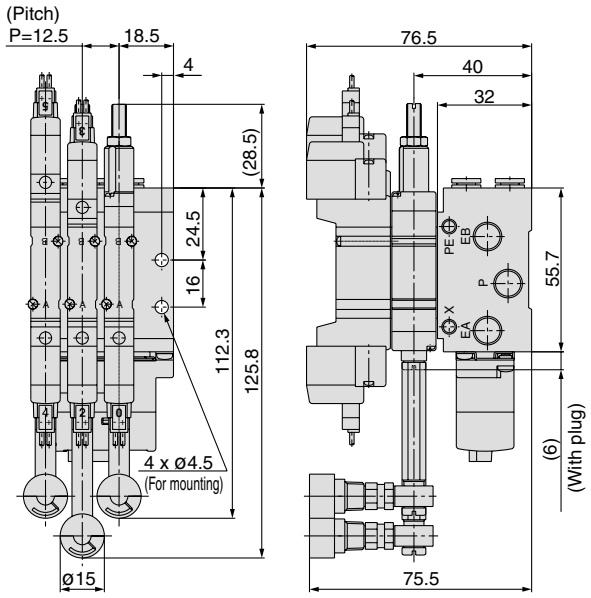
SY3000: SS5Y3-42SA□-Stations-01□, C4, N3 C6, N7

For 1/8



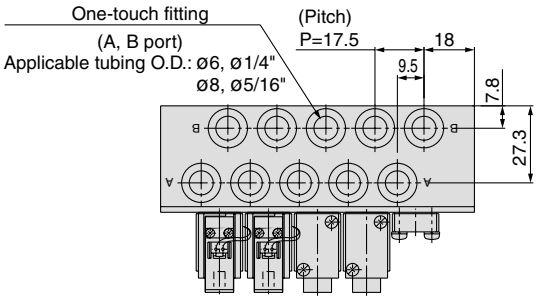


With interface regulator (with gauge)

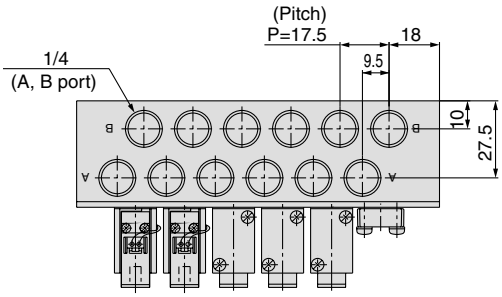


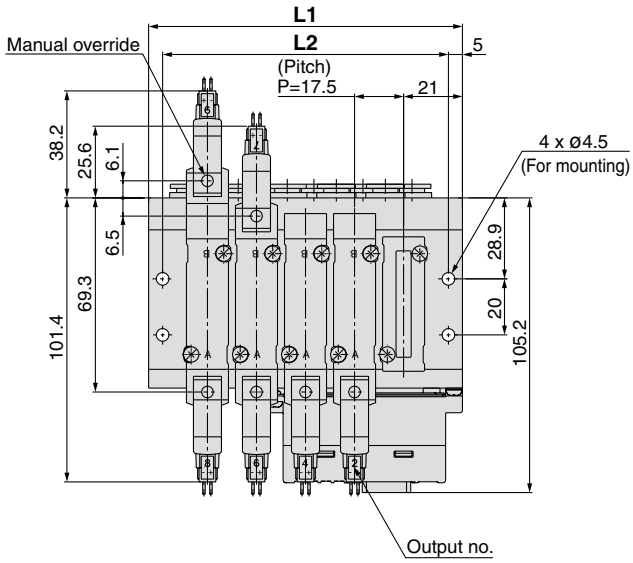
Stations n	4 stations	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	72.5	85	97.5	110	122.5	135	147.5	160	172.5	185	197.5	210	222.5
L2	64.5	77	89.5	102	114.5	127	139.5	152	164.5	177	189.5	202	214.5

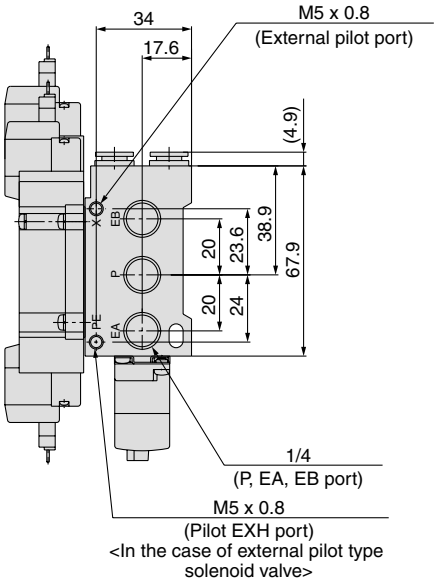
SY5000: SS5Y5-42SA□-Stations-02□, C6, N7 C8, N9

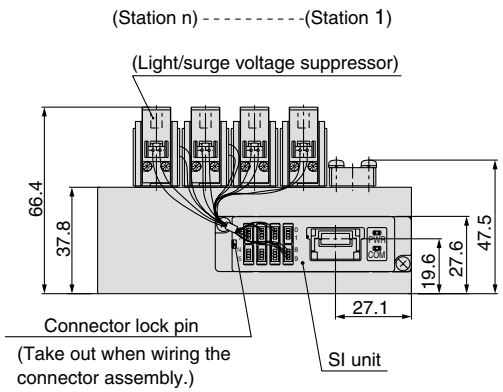


For 1/4

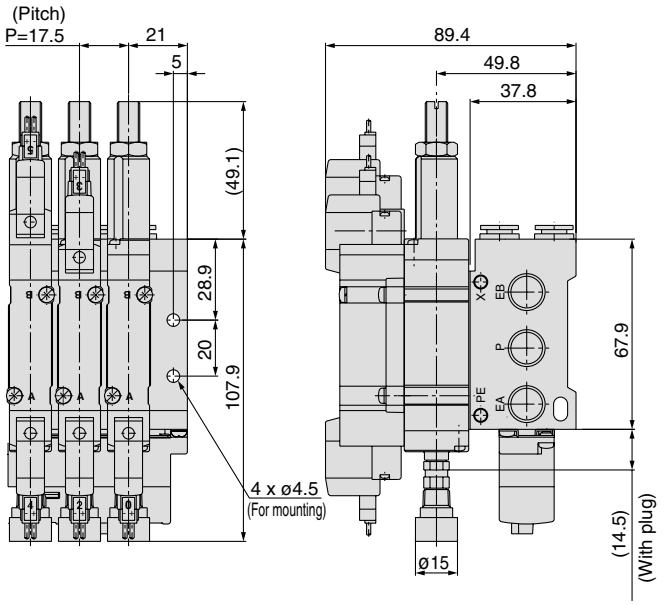






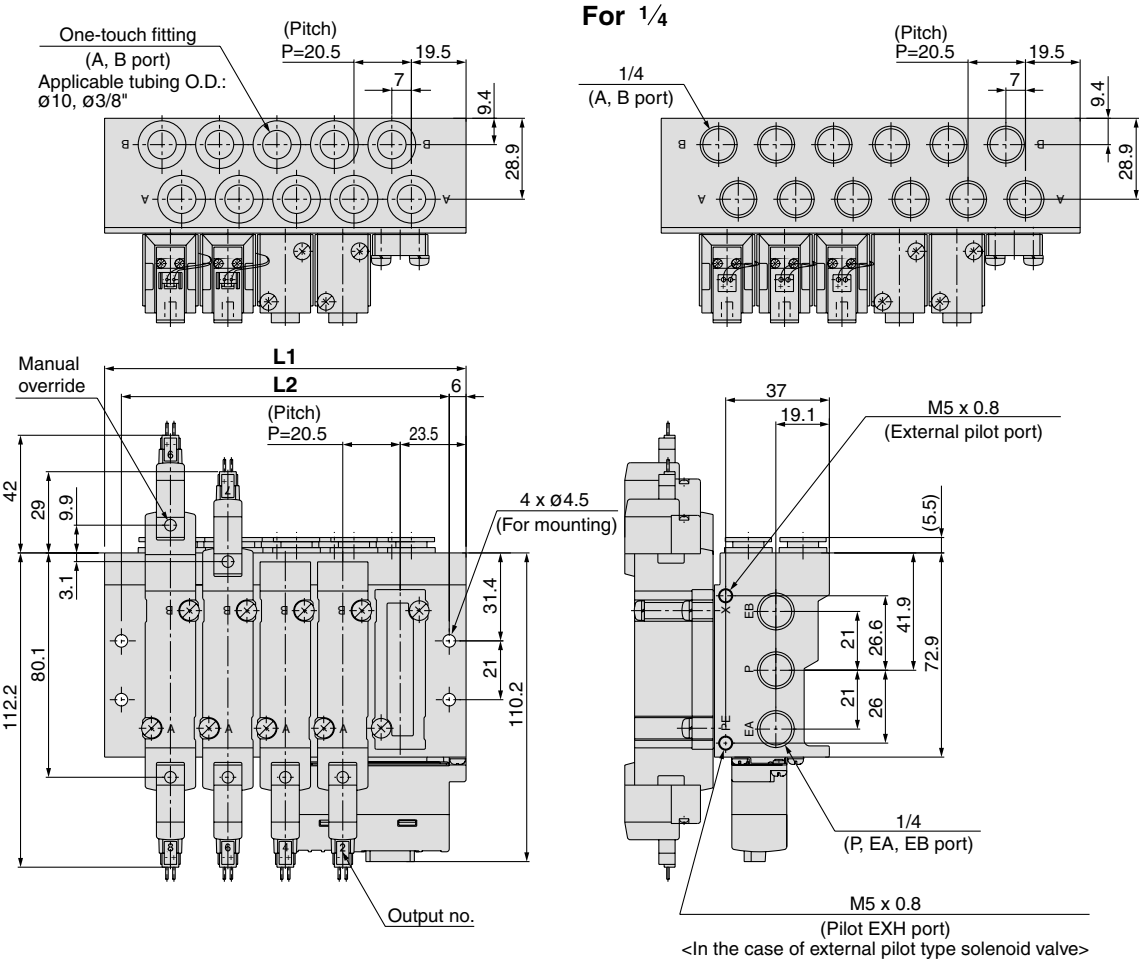


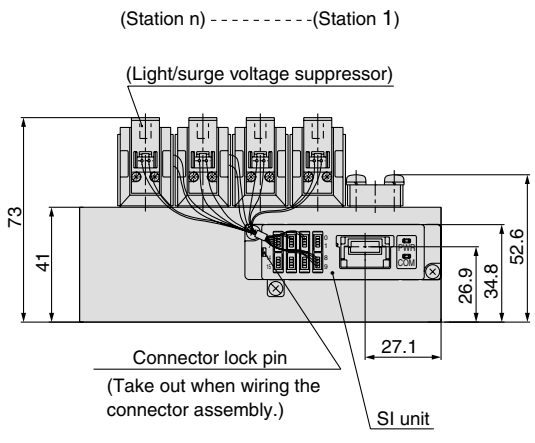
With interface regulator (with gauge)



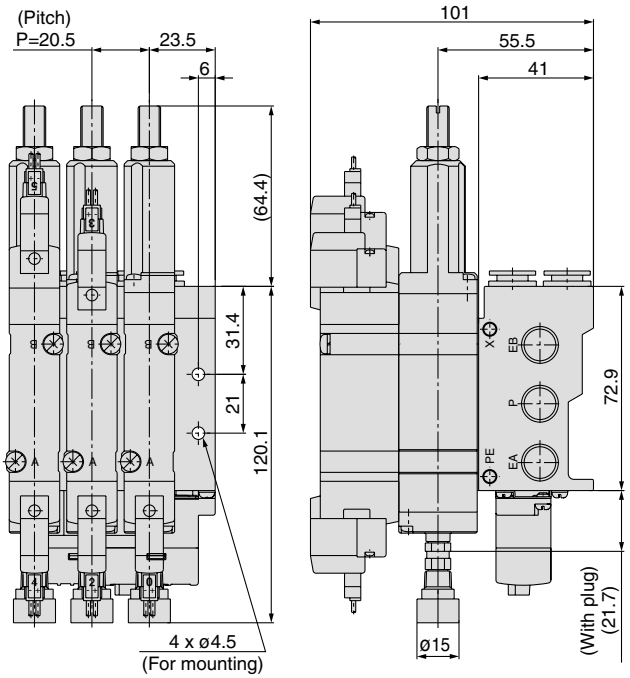
Stations n	3 stations	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	77	94.5	112	129.5	147	164.5	182	199.5	217	234.5	252	269.5	287	304.5
L2	67	84.5	102	119.5	137	154.5	172	189.5	207	224.5	242	259.5	277	294.5

SY7000: SS5Y7-42SA□-Stations-02□, C10, N11





With interface regulator (with gauge)



Stations n	3 stations	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5	293	313.5	334	354.5
L2	76	96.5	117	137.5	158	178.5	199	219.5	240	260.5	281	301.5	322	342.5

EX510 Gateway System
Serial Transmission System
Base Mounted Manifold/Stacking Type

Type 43SA

Series SY9000

CE

How to Order Manifold

SS5Y9 − 43SA □ − 03 U □ − 02 □ − □ − □

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

Valve stations

Symbol	Stations	Note
03	3 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
03	3 stations	Specified layout Note 2) (Compatible with 16 solenoid valves)
⋮	⋮	
16	16 stations	

• The number of the blanking plate assembly is also included.

Note 1) Double wiring: Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

CE-compliant

Nil	—
Q	CE-compliant

Option

Nil	Direct mounting
D	DIN rail mounting (With DIN rail)
DO	DIN rail mounting (Without DIN rail)
D*	When a longer DIN rail is desired than the specified stations, specify the station number to be required into * mark.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

A, B port size
Thread piping

02	1/4
03	3/8

One-touch fitting (Metric size)

C8	One-touch fitting for ø8
C10	One-touch fitting for ø10
C12	One-touch fitting for ø12
M	Mixed

One-touch fitting (Inch size)

N9	One-touch fitting for ø5/16"
N11	One-touch fitting for ø3/8"
M	Mixed

• For the mixed specification, indicate separately on a manifold specification sheet.

SUP/EXH block assembly specifications

Nil	Standard/Internal pilot
R	External pilot
S	Internal pilot, Built-in silencer
RS	External pilot, Built-in silencer

P, R port outlets

U	U side	3 to 10 stations
D	D side	
B	Both sides	3 to 16 stations

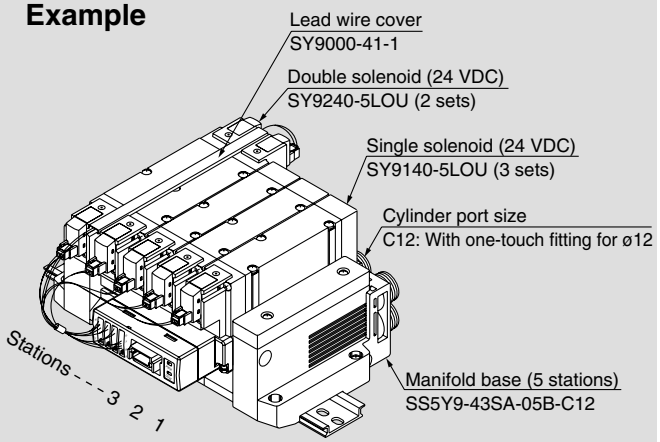
SI unit part no.

Symbol	SI unit specifications	SI unit part no.	Page
Nil	NPN output (+COM.)	EX510-S001	P.1715 to 1717
N	PNP output (–COM.)	EX510-S101	

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

How to Order Manifold Assembly (Order Example)

Example



SS5Y9-43SA-05B-C12 ·· 1 set (43SA type 5-station manifold part no.)
* **SY9140-5LOU ····· 3 sets (Single solenoid part no.)**
* **SY9240-5LOU ····· 2 sets (Double solenoid part no.)**
* **SY9000-41-1 ····· 1 set (Lead wire cover)**

The asterisk denotes the symbol for assembly. Prefix to the part no. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

How to Order Valves

SY9 1 40 □ – 5 LO Z □ – □ – □

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot specifications

Nil	Internal pilot
R	External pilot

Rated voltage: 24 VDC

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	Without light/surge voltage suppressor (non-polar type)

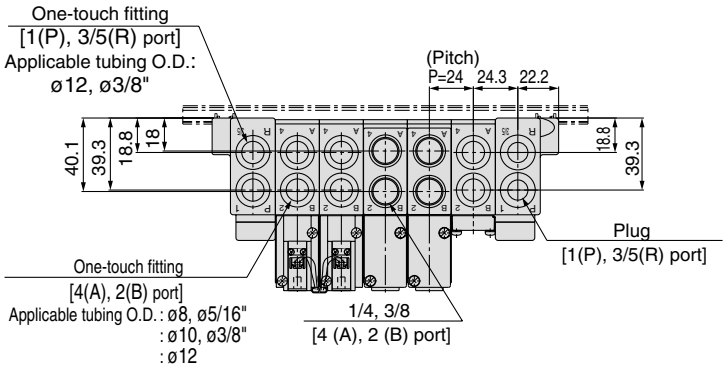
Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

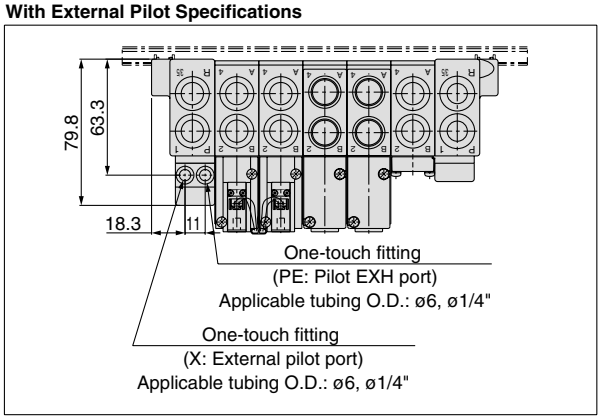
CE-compliant

Nil	—
Q	CE-compliant

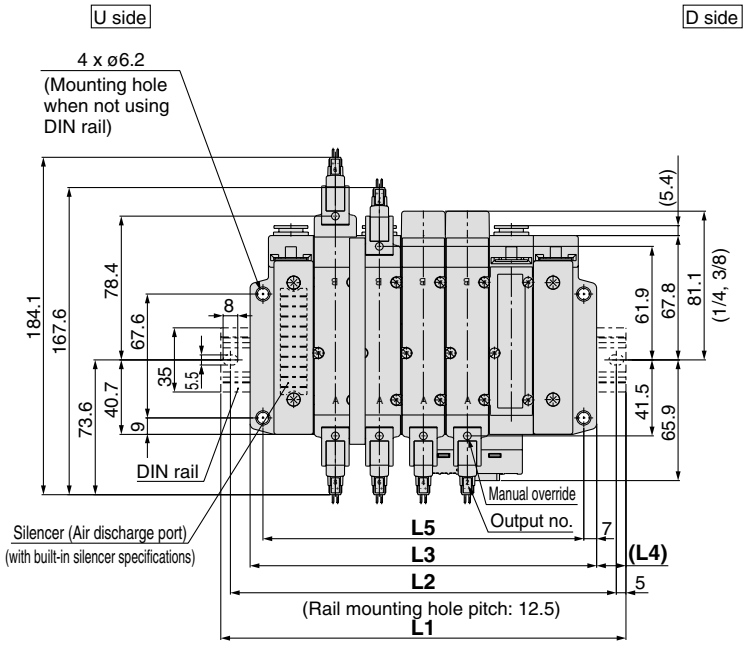
SY9000: SS5Y9-43SA□-Stations U□-□ 02/03 □, C8, N9 / C10, N11 / C12 (-D)

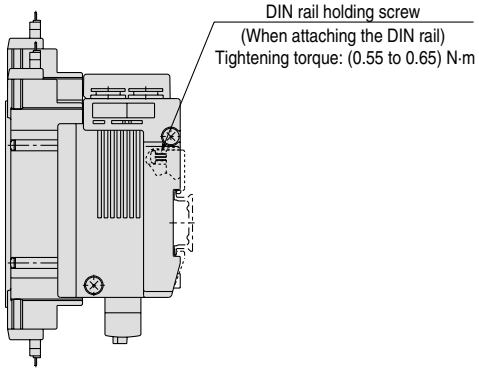


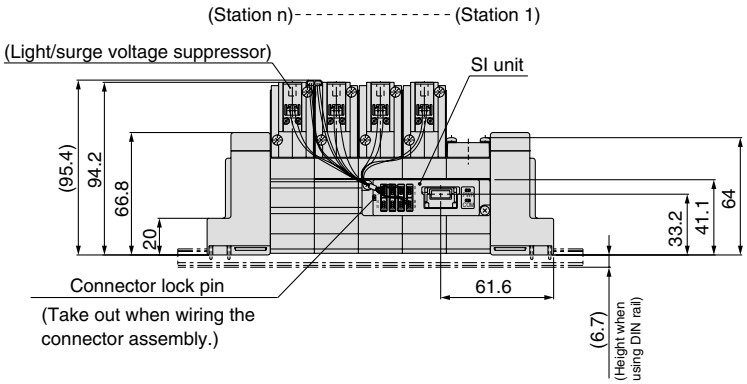
With External Pilot Specifications



* When P, R port outlets are indicated on the D side, the P, R ports on the opposite side are plugged.
* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the U side.

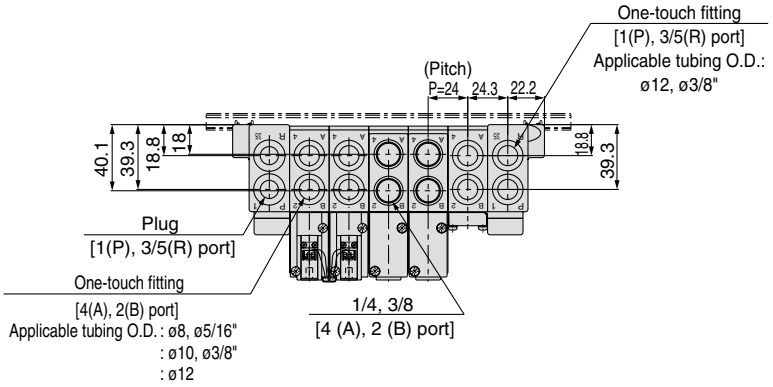




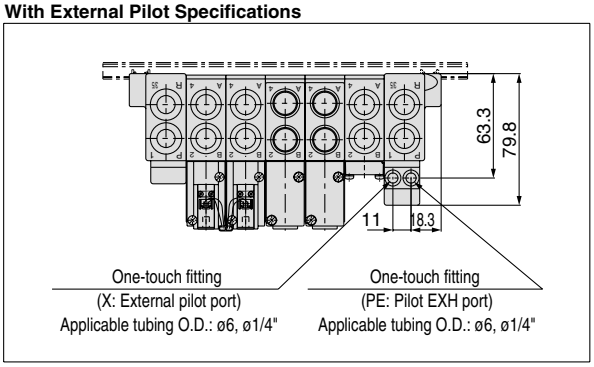


Stations n	**3** stations	**4**	**5**	**6**	**7**	**8**	**9**	**10** stations
L1	173	198	223	248	260.5	285.5	310.5	335.5
L2	162.5	187.5	212.5	237.5	250	275	300	325
L3	141	165	189	213	237	261	285	309
L4	16	16.5	17	17.5	12	12.5	13	13.5
L5	127	151	175	199	223	247	271	295

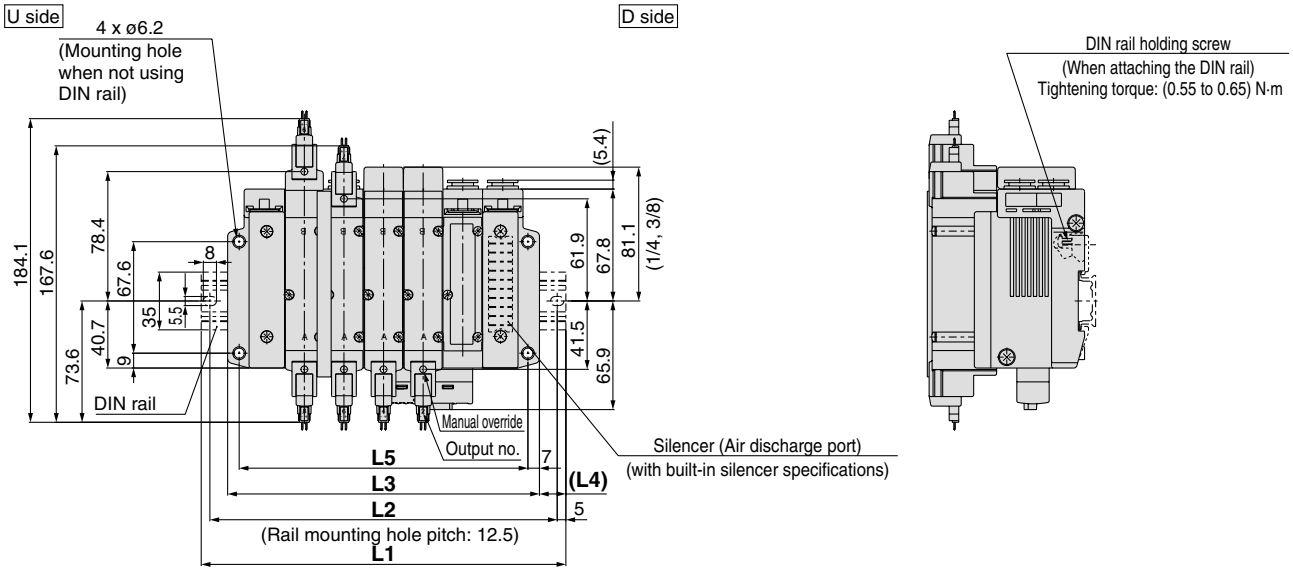
SY9000: SS5Y9-43SA□-Stations D□-□ 02/03 □, C8, N9, C10, N11, C12 (-D)

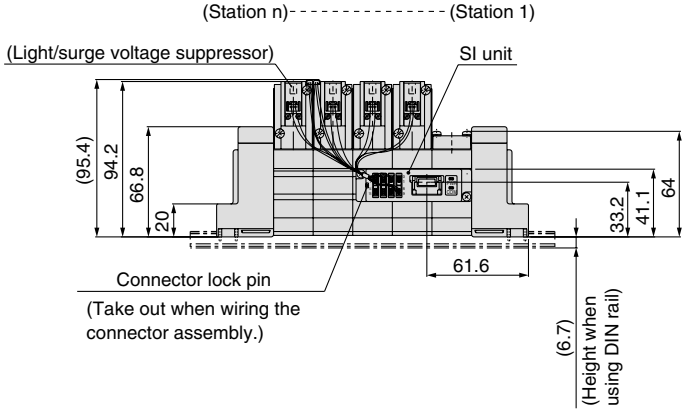


With External Pilot Specifications



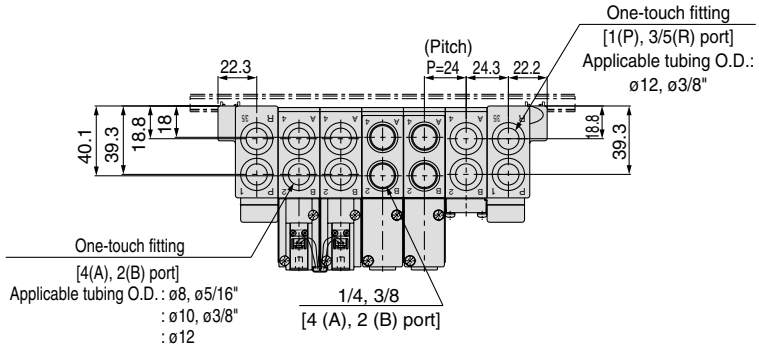
* When P, R port outlets are indicated on the D side, the P, R ports on the opposite side are plugged.
* Air discharge port on the built-in silencer type and the external pilot's extracting position are in the D side.



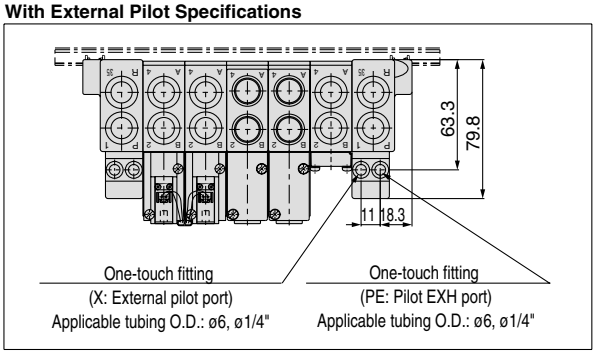


Stations n	3 stations	4	5	6	7	8	9	10 stations
L1	173	198	223	248	260.5	285.5	310.5	335.5
L2	162.5	187.5	212.5	237.5	250	275	300	325
L3	141	165	189	213	237	261	285	309
L4	16	16.5	17	17.5	12	12.5	13	13.5
L5	127	151	175	199	223	247	271	295

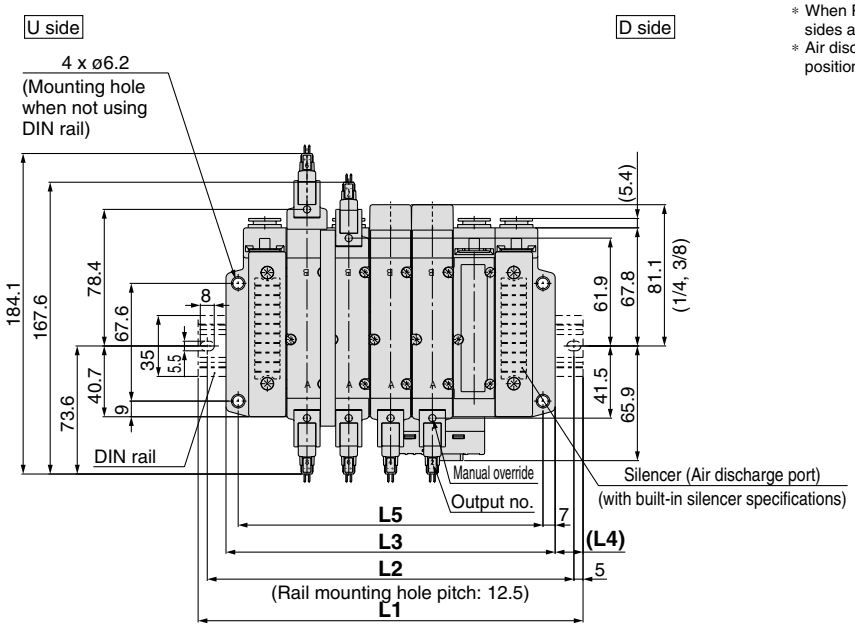
SY9000: SS5Y9-43SA□-Stations B□-□ 02/03 □, C8, N9 C10, N11 C12 (-D)

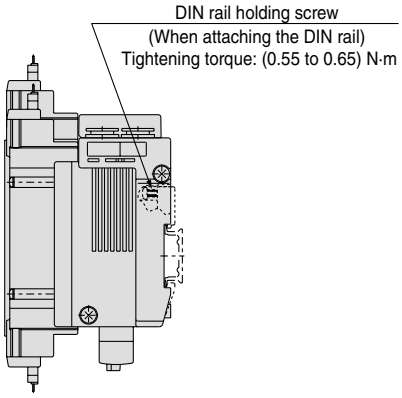


With External Pilot Specifications

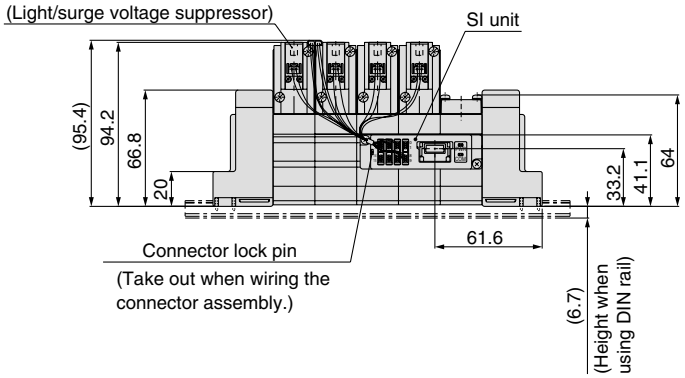


∗ When P, R port outlets are indicated on the B side, the P, R ports on the both sides are in the open state.
∗ Air discharge port on the built-in silencer type and the external pilot's extracting position are in the B side (both sides).





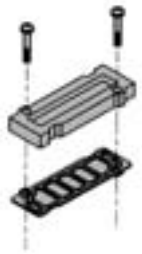
(Station n) - - - - - - - - - - - - - - - (Station 1)



Stations n	3 stations	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	173	198	223	248	260.5	285.5	310.5	335.5	360.5	385.5	410.5	435.5	460.5	485.5
L2	162.5	187.5	212.5	237.5	250	275	300	325	350	375	400	425	450	475
L3	141	165	189	213	237	261	285	309	333	357	381	405	429	453
L4	16	16.5	17	17.5	12	12.5	13	13.5	14	14.5	15	15.5	16	16.5
L5	127	151	175	199	223	247	271	295	319	343	367	391	415	439

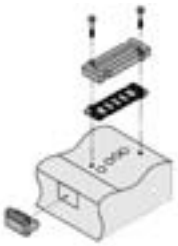
Manifold Option

■ Type 41, 42, 43, 42SA, 43SA Blanking plate assembly



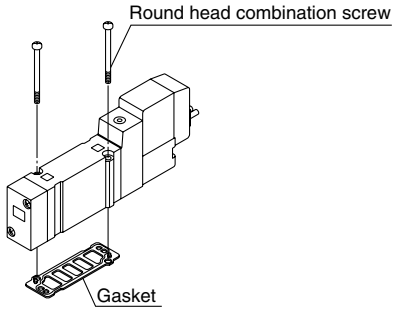
Series	Assembly part no.
SY3000	SY3000-26-9A(-Q)
SY5000	SY5000-26-20A(-Q)
SY7000	SY7000-26-22A(-Q)
SY9000	SY9000-26-2A(-Q)

■ Type 41P, 42P, 43P Blanking plate assembly



Series	Assembly part no.
SY3000	SY3000-26-10A(-Q)
SY5000	SY5000-26-21A(-Q)
SY7000	SY7000-26-23A(-Q)
SY9000	SY9000-26-4A(-Q)

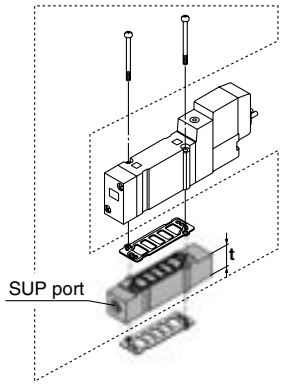
■ Gasket assembly part no.



Series	Gasket assembly part no.
SY3000	SY3000-GS-2
SY5000	SY5000-GS-2(-Q)
SY7000	SY7000-GS-2(-Q)
SY9000	SY9000-GS-2

Note) The gasket assembly includes 10 sets of mounting screws and a gasket.

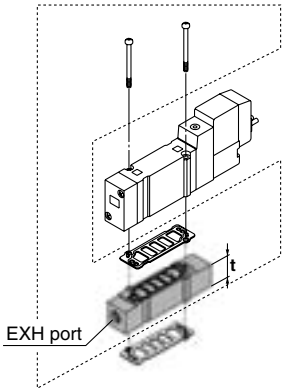
■ Individual SUP spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-38-2A(-Q)	M5 x 0.8	11
SY5000	SY5000-38-16∗A(-Q)	1/8	15
SY7000	SY7000-38-16∗A(-Q)	1/4	18
SY9000	SY9000-38-2∗A(-Q)	1/4	20

Note) • The SUP port of SY3000, 5000 and 7000 may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)
• The end plate side is only available to SY9000.

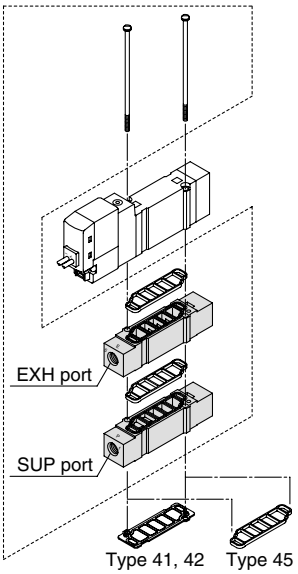
■ Individual EXH spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-39-2A(-Q)	M5 x 0.8	11
SY5000	SY5000-39-16∗A(-Q)	1/8	15
SY7000	SY7000-39-16∗A(-Q)	1/4	18
SY9000	SY9000-39-2∗A(-Q)	1/4	20

Note) In case of 41P, 42P and 43P, for protection of the wiring unit section from drainage, piping at the EA port should be arranged so that it will not be directly exposed to exhaust from the valve.

■ Individual SUP spacer assembly + Individual EXH spacer assembly (Double spacer)



[●: Available ×: Not available —: Nonapplicable manifold]

Series	Individual SUP + Individual EXP Assemble part no.	Port size	Applicable manifold types						
			41	41P	42	42P	45	45-A 45-NA	45∗
SY3000	SY3000-120-2A(-Q)	M5 x 0.8	●	×	●	×	●	×	×
SY5000	SY5000-75-1∗A(-Q)	1/8	●	×	●	×	●	×	×
SY7000	SY7000-73-1∗A(-Q)	1/4	●	×	●	×	—	—	—

Note) The port on a spacer can be directed to the pilot valve side or end plate side. For mounting the port to the pilot valve side, please make sure to connect the ports to protect the pilot valve wiring section from drainage.
The individual SUP spacer and EXH spacer can be mounted either on the upper side or lower side. (The above illustration shows the condition when the product is shipped out from a factory.)

⚠ Caution

Mounting screw tightening torques

M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

∗ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

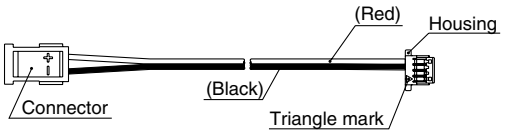
⚠ Warning

When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

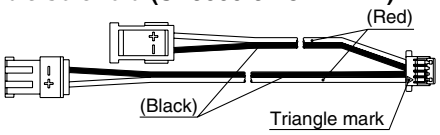
Manifold Option

■ **Connector assembly**

For single solenoid (SY3000-37-81A-□-N)



For double solenoid (SY3000-37-81A-□-□)

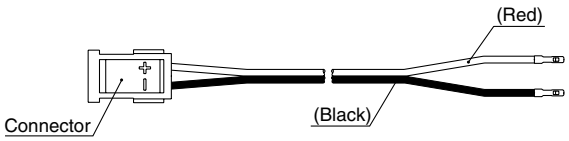


Connector assembly order no. (Can be used for the manifold without a specified layout (8 stations or less))
Integrated type

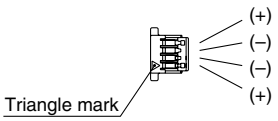
Model	Part no.	Connector mounting position
SS5Y3-42SA	SY3000-37-81A-3-N	Single: For 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: For 1 to 4 stations
	SY3000-37-81A-2-N	Single: For 5 to 8 stations
	SY3000-37-81A-2-4	Double/3 position: For 5 to 8 stations
SS5Y5-42SA	SY3000-37-81A-3-N	Single: For 1 to 8 stations
	SY3000-37-81A-3-6	Double/3 position: For 1 to 8 stations
SS5Y7-42SA	SY3000-37-81A-3-N	Single: For 1 to 4 stations
	SY3000-37-81A-3-6	Double/3 position: For 1 to 4 stations
	SY3000-37-81A-4-N	Single: For 5 to 8 stations
	SY3000-37-81A-4-7	Double/3 position: For 5 to 8 stations

Note) The above is for the station addition or maintenance. When ordering a connector assembly separately, a number would not be printed on the connector.

■ **Connector assembly**
SY3000-37-80A-□



■ **Housing (8 pcs./set)**
SY3000-44-3A



Connector assembly order no. (Can be used for the manifold with a specified layout)

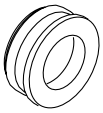
Model	Part no.	Connector mounting position	
SS5Y3-42SA	SY3000-37-80A-3	For A side	For 1 to 8 stations
	SY3000-37-80A-6	For B side	
	SY3000-37-80A-4	For A side	For 9 to 16 stations
	SY3000-37-80A-7	For B side	
SS5Y5-42SA	SY3000-37-80A-3	For A side	For 1 to 8 stations
	SY3000-37-80A-6	For B side	
	SY3000-37-80A-7	For A side	For 9 to 16 stations
	SY3000-37-80A-9	For B side	
SS5Y7-42SA	SY3000-37-80A-4	For A side	For 1 to 8 stations
	SY3000-37-80A-7	For B side	
	SY3000-37-80A-8	For A side	For 9 to 16 stations
	SY3000-37-80A-11	For B side	
SS5Y9-43SA	SY3000-37-80A-6	For A side	For 1 to 8 stations
	SY3000-37-80A-11	For B side	
	SY3000-37-80A-9	For A side	For 9 to 12 stations
	SY3000-37-80A-14	For B side	
	SY3000-37-80A-13	For A side	For 13 to 16 stations
	SY3000-37-80A-18	For B side	

Note 1) The above is for station addition or maintenance. When ordering a connector assembly separately, a number will not be printed on the connector.
Note 2) After inserting the connector assembly into the housing, be sure to confirm that the lead wire will not come off by lightly pulling the wire. Furthermore, do not reuse the lead wire after it has been inserted and removed.
Note 3) Wiring is set longer than the actual wiring distance.

Manifold Option

▪ SUP blocking disk (For SY9000)

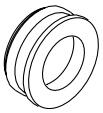
By installing a SUP blocking disk in the pressure supply passage of a manifold base, it is possible to supply two or more different high and low pressures to one manifold.



Series	No.
SY9000	SY9000-57-1A

▪ EXH blocking disk (For SY9000)

By installing an EXH blocking disk in the exhaust passage of a manifold base, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)



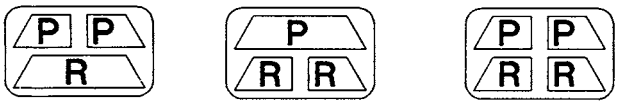
Series	No.
SY9000	SY9000-57-1A

▪ Label for block disk (For SY9000)

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

VZ3000-123-1A

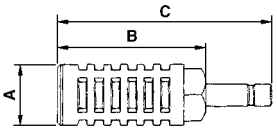
Label for SUP block disk Label for EXH block disk Label for SUP/EXH block disk



Note) When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

▪ Silencer with One-touch fitting (For SY9000)

The silencer plugs directly into the One-touch fittings of the manifold R (exhaust) port.



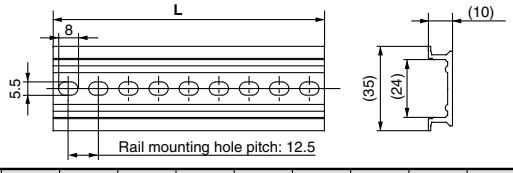
For Series	Model	Effective area	A	B	C
SY9000 (ø12)	AN300-KM12	41 mm²	ø25	70	98

▪ DIN Rail Dimensions/Mass for SY9000

VZ1000 – 11 – 4 – □

● **Refer to L dimensions**

∗ Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.

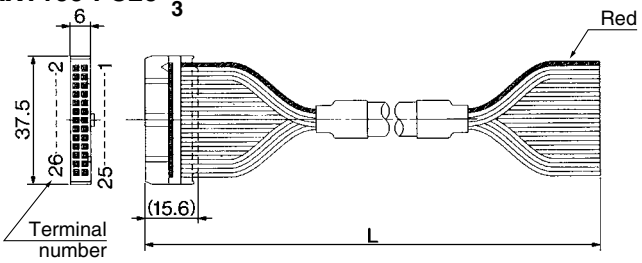


No.	0	1	2	3	4	5	6	7	8	9
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Mass (g)	24.8	28	31.1	34.3	37.4	40.6	43.8	46.9	50.1	53.3
No.	10	11	12	13	14	15	16	17	18	19
L Dimension	223	235.5	248	260.5	273	285.5	298	310.5	323	335.5
Mass (g)	56.4	59.6	62.7	65.9	69.1	72.2	75.4	78.6	81.7	84.9
No.	20	21	22	23	24	25	26	27	28	29
L Dimension	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5
Mass (g)	88	91.2	94.4	97.5	100.7	103.9	107	110.2	113.3	116.5

Note) • Refer to page 338 for DIN rail.
• Refer to **L1** dimension on pages 211 to 213, 225 to 227 and 235 to 237 for lengths that correspond to the number of manifold stations.

▪ Cable assembly

AXT100-FC26- $\frac{1}{3}$



Connector Assembly for Flat Ribbon Cables

Cable length (L)	Ass'y part no.	Note
1.5m	AXT100-FC26-1	Cable 26 core x 28 AWG
3m	AXT100-FC26-2	
5m	AXT100-FC26-3	

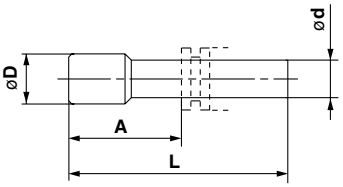
∗ For other commercial connectors, use a 26 pins with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- Hirose Electric Company
- Japan Aviation Electronics Industry, Ltd.
- Sumitomo 3M Limited
- J.S.T. Mfg. Co., Ltd.
- Fujitsu Limited

▪ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ød	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
12	**KQ2P-12**	24	44.5	14
1/8"	**KQ2P-01**	16	31.5	5
5/32"	**KQ2P-03**	16	32	6
1/4"	**KQ2P-07**	18	35	8.5
5/16"	**KQ2P-09**	20.5	39	10
3/8"	**KQ2P-11**	22	43	11.5

Manifold Option

▪ How to Order Interface Regulator

Series SY3000

ARBY3000 – 05 – P – 2

Pressure gauge connection port

05	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

Note) In the case of Series ARBY3000 with a pressure gauge when mounting on the manifold, use caution that the part numbers are different between the odd no. stations and the even no. stations to avoid gauges from interfering from each others.

Series SY5000

ARBY5000 – 00 – P – 2

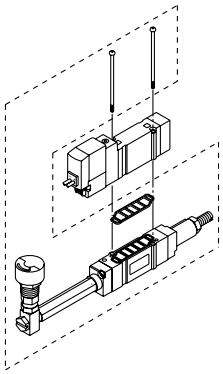
Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

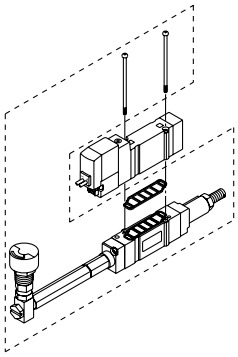
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

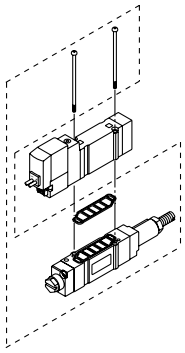
ARBY3000-05-□-2
(For odd number stations)



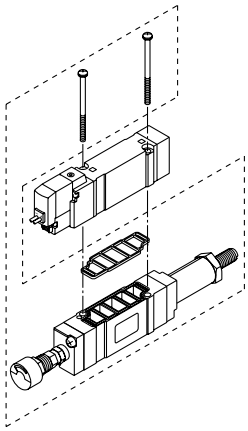
ARBY3000-06-□-2
(For even number stations)



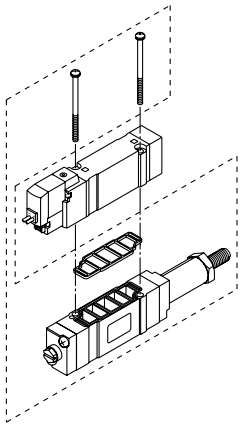
ARBY3000-M1-□-2



ARBY5000-00-□-2



ARBY5000-M1-□-2



Series SY7000

ARBY7000 – 00 – P – 2

Pressure gauge connection port

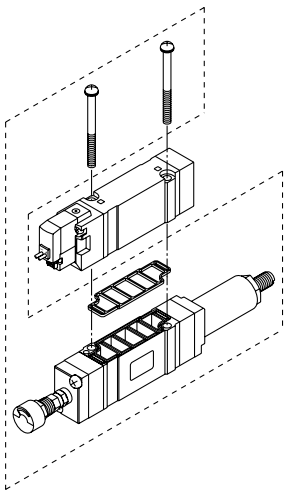
00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

Regulating port

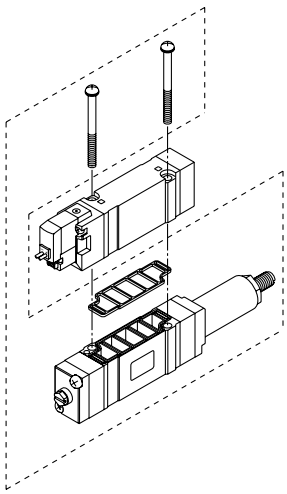
P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

Note) ARBY is not CE-compliant.

ARBY7000-00-□-2



ARBY7000-M1-□-2



Accessory

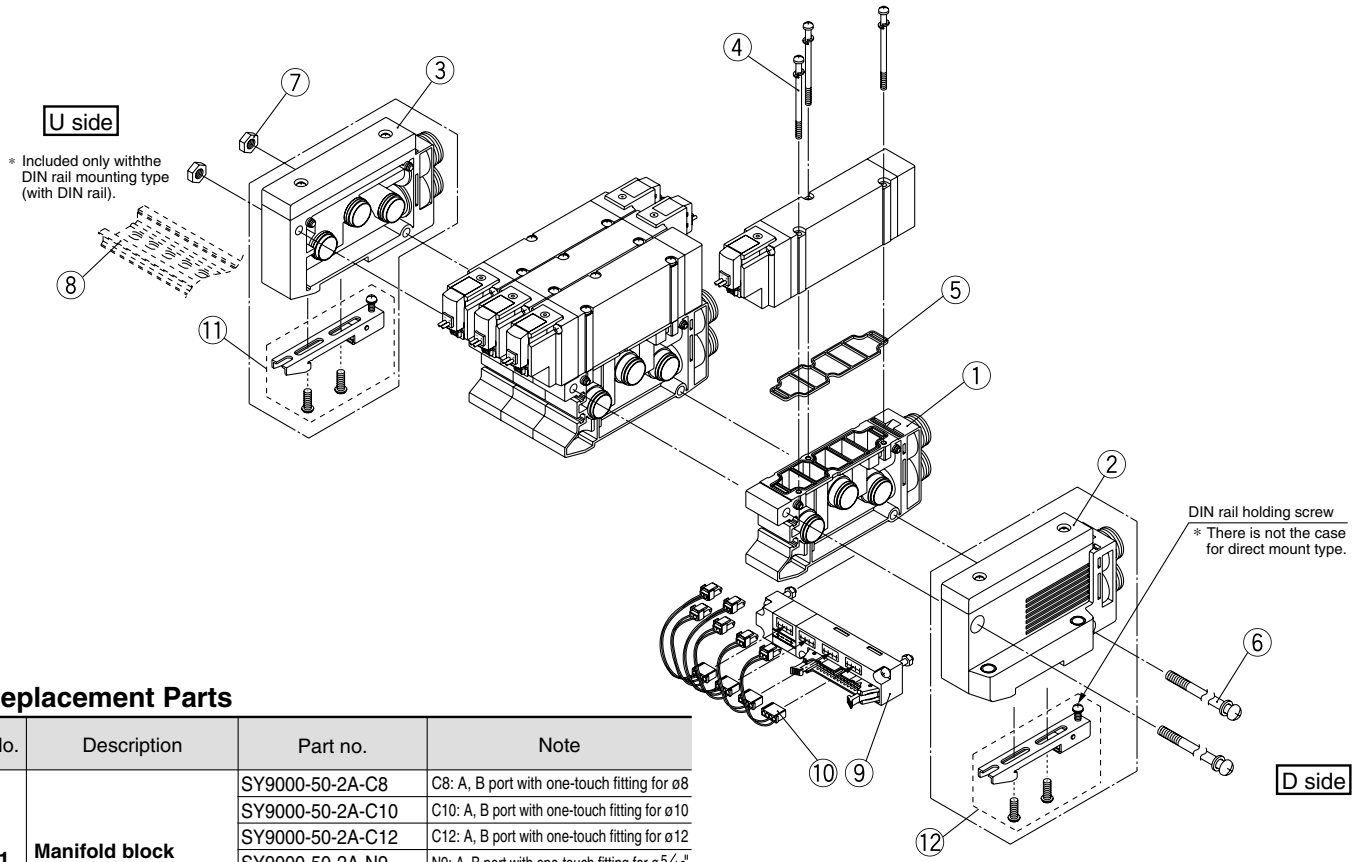
Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2 x 36)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6
ARBY7000	M4 x 57, Matt nickel plated	SX7000-57-4

⚠ Caution

Mounting screw tightening torques

M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

Base Mounted Manifold Exploded View

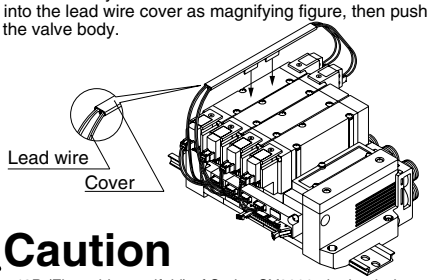


Replacement Parts

No.	Description	Part no.	Note
1	Manifold block assembly	SY9000-50-2A-C8	C8: A, B port with one-touch fitting for ø8
		SY9000-50-2A-C10	C10: A, B port with one-touch fitting for ø10
		SY9000-50-2A-C12	C12: A, B port with one-touch fitting for ø12
		SY9000-50-2A-N9	N9: A, B port with one-touch fitting for ø5/16"
		SY9000-50-2A-N11	N11: A, B port with one-touch fitting for ø3/8"
		SY9000-50-2A-02*	02: A, B port 1/4 (* thread type)
		SY9000-50-2A-03*	03: A, B port 3/8 (* thread type)
4	Round head combination screw	SY9000-18-2	M3 x 42, Matt nickel plated
5	Gasket	SY9000-11-2	
6	Tension bolt	SY9000-23-□	□ at the end of part number corresponds with the number of manifold station. Specify the same number as the number of stations.
7	Hexagon nut	SY9000-25-1	
8	DIN rail	VZ1000-11-4-□	Refer to page 240.
9	Wiring unit assembly	SY9000-36-□A	□ at the end of part number corresponds with the number of manifold station. Specify the same number as the number of stations (4 to 12 stations)
10	Connecter assembly	SY9000-37-□□	Refer to page 223.
11	Lead wire cover	SY9000-41-1	
12	Clamp sub assembly	SY9000-30-1A	Included only with the DIN rail mounting type.

⑪ How to assemble lead wire cover

Lead wire cover is only usable for double solenoid valves. Lead wire is inserted into the lead wire cover as magnifying figure, then push it until it touches the valve body.



⚠Caution

For type 43P (Flat cable manifold) of Series SY9000, the lead wire cover is attached for bundling the lead wires for each solenoid. In case such as adding double solenoid valve, etc., order separately lead wire cover as well.

② SUP/EXH block assembly no. (D side mounting)

• Direct mount type: **SY9000-70-□A-□**

• DIN rail mount type: **SY9000-72-□A-□**

P, R port

C12	One-touch fitting for ø12
N11	One-touch fitting for ø3/8"
00	Plug

Specifications

1	Internal pilot type
3	External pilot type
4	Internal pilot / Built-in silencer type
5	External pilot / Built-in silencer type

③ SUP/EXH block assembly no. (U side mounting)

• Direct mount type: **SY9000-71-□A-□**

• DIN rail mount type: **SY9000-73-□A-□**

P, R port

C12	One-touch fitting for ø12
N11	One-touch fitting for ø3/8"
00	Plug

Specifications

1	Internal pilot type
3	External pilot type
4	Internal pilot / Built-in silencer type
5	External pilot / Built-in silencer type

How to Increase Manifold Bases (Series SY9000 only) Manifold case can be added at any location.

When a type 43 manifold base is added, tension bolts as well as manifold block assembly will be required. Order the tension bolt suitable for the stations after a station was increased (decreased), since the length of a tension bolt differs by the number of stations. (For changing the number of stations for a type 43P manifold, wiring unit for the stations and lead assembly will be required.)

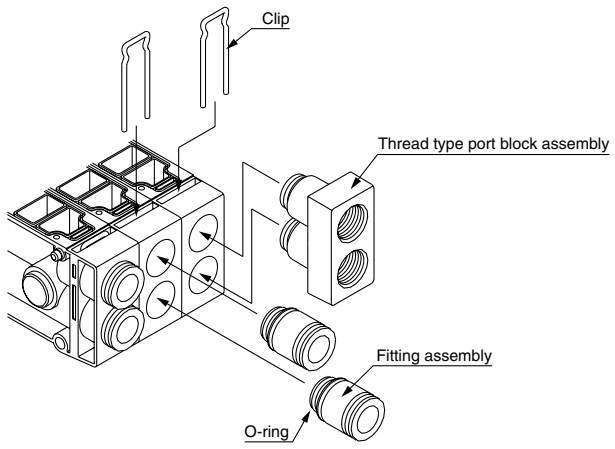
1. Loosen the tension bolts connecting the manifold base, and pull out both of 2 tension bolts.
   (When equipped with a DIN rail, loosen one DIN rail holding screw on either U side or D side.)
2. Separate the blocks at the location where station expansion is desired.
3. Mount additional manifold block assembly.
4. Press block-to-block so that there's no gap. After connection, insert a tension bold for desired stations and then tighten it.
   ⚠ **Caution** (Tightening torque: 2.9 N·m)
   (When equipped with a DIN rail, be sure to tighten the DIN rail holding screws after tightening the tension bolts. Tightening torque: 1.4 N·m)

⚠ Caution

1. Be sure to shut off the power and air supplies before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
2. When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate.
3. By adding wiring unit assembly to type 43 manifold, it can be changed to type 43P manifold, too.

How to Replace A, B Port Fitting Assembly

By replacing manifold block fitting assemblies or the threaded port block assembly of a type 43(P) manifold, the port size of the A and B ports can be changed. To replace these parts, remove the clip with a flat head screwdriver after the valve has been removed. Insert the fitting assemblies or threaded port block assembly, and then reinsert the clip so that it does not protrude from the manifold block.



Fitting Assembly Part No.

Port size	No.	Note
One-touch fitting assembly for ø8	VVQ4000-50B-C8	
One-touch fitting assembly for ø10	VVQ4000-50B-C10	
One-touch fitting assembly for ø12	VVQ4000-50B-C12	
One-touch fitting for ø 5/16"	VVQ4000-50B-N9	
One-touch fitting for ø 3/8"	VVQ4000-50B-N11	
1/4 threaded type port block assembly	SY9000-58A-02∗	–∗ at the end of part number denotes the thread type.
3/8 threaded type port block assembly	SY9000-58A-03∗	–∗ at the end of part number denotes the thread type.
Plug assembly	SY9000-62-1A	

Note 1) Be careful to avoid damage or contamination of O-rings, as this can cause air leakage.
Note 2) Although replacing One-touch fittings of P, R port is also possible, use caution to the cases, etc. in which solenoid valves are often used at the same time by using the smaller sized fittings than the standard size (ø12). Because there may not be able to supply or exhaust air sufficiently in comparison with the valve performances. Besides, although fittings used for A, B port are the same, it is not possible to use the threaded type port block assembly.

5 Port Solenoid Valve
Base Mounted Manifold
Stacking Type/DIN Rail Mounted/Individual Wiring

Type 45

Series SY3000/5000

How to Order Manifold

SS5Y 3 - 45 - 05 U - C6 - □ - □

Series

3	SY3000
5	SY5000

Valve stations

02	2 stations
⋮	⋮
20	20 stations

SUP/EXH block assembly mounting position

Symbol	Mounting position	Applicable no. of stations
U	U side	2 to 10 stations
D	D side	
B	(Both sides)	2 to 20 stations
M*	Special specifications	

* For special specifications, indicate separately by the manifold specification sheet.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

CE-compliant

Nil	—
Q	CE-compliant

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

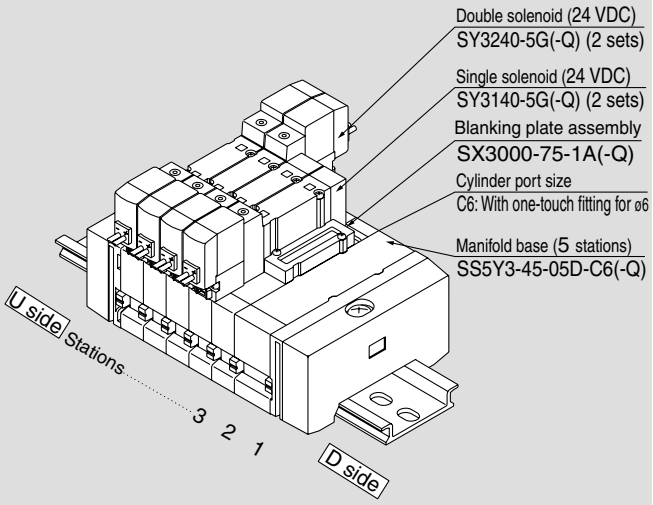
Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/4"	
M	Mixed	
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/4"	
N9	One-touch fitting for ø 5/16"	
M	Mixed	

* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

Refer to pages 324 to 328 for external pilot specifications and built-in silencer.

How to Order Manifold Assembly (Example)

Example



SS5Y3-45-05D-C6 ···· 1 set (Type 45, 5-station manifold base part no.)
***SX3000-75-1A ····· 1 set (Blanking plate assembly part no.)**
***SY3140-5G ····· 2 sets (Single solenoid part no.)**
***SY3240-5G ····· 2 sets (Double solenoid part no.)**

The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

How to Order Valve

SY [5] [2] **40** [ ] – [5] [L] [ ] [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Coil specifications

Nil	Standard
T	With power saving circuit (24, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

AC (Hz) 50/60

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.
∗ D and DO only available for SY5000.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm **H:** Lead wire length 600 mm	**L:** With lead wire (Length 300 mm) **LN:** Without lead wire **LO:** Without connector	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire **MO:** Without connector	**(SY5000)** **D:** With connector **DO:** Without connector **Y:** With connector **YO:** Without connector	**WO:** Without connector cable **W□:** With connector cable Note 1)

∗ LN, MN type: with 2 sockets.
∗ D and DO only available for SY5000.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). Refer to page 336 for details.
∗ Refer to page 339 for connector cable of M8 connector.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light and surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

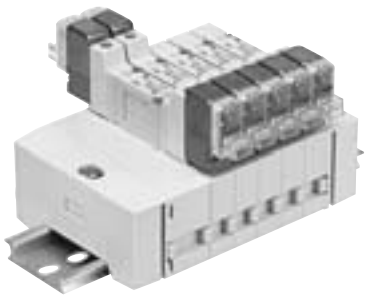
Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

When ordering valve as a single unit, gaskets for the stacking base type are not included. Order them separately, if necessary. (Refer to page 254 for details.)



Manifold Specifications

Model		SS5Y3-45(-Q)	SS5Y5-45(-Q)
Applicable valve		SY3□40	SY5□40
Manifold type		Stacking type/DIN rail mounted	
P (SUP)/R (EXH)		Common SUP, Common EXH	
Valve stations		2 to 20 stations Note 1)	
A, B port Porting specifications	**Location**	Base	
	Direction	Side	
Port size	**P, R port**	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)
	A, B port	C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)
Manifold base mass W (g), n: Stations		2 to 10 stations: W = 22n + 118 11 to 20 stations: W = 22n + 140	2 to 10 stations: W = 47n + 156 11 to 20 stations: W = 47n + 190

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.

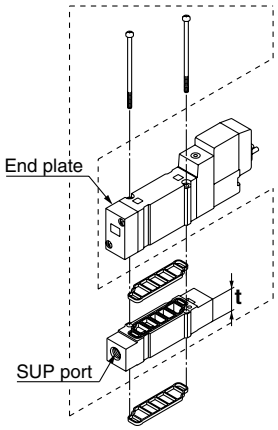
Flow Characteristics

Model	Port size		Flow characteristics					
	1 ,5 ,3 (P ,EA ,EB)	4 ,2 (A ,B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-45	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Manifold Option

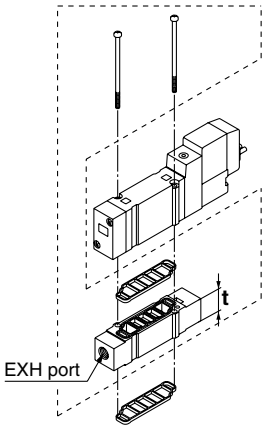
▪Individual SUP spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-38-2A(-Q)	M5 x 0.8	11
SY5000	SY5000-38-16∗A(-Q)	1/8	15

Note) The SUP port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)

▪Individual EXH spacer assembly



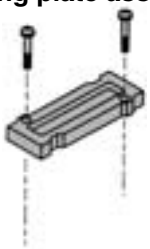
Series	Assembly part no.	Port size	t
SY3000	SY3000-39-2A(-Q)	M5 x 0.8	11
SY5000	SY5000-39-16∗A(-Q)	1/8	15

Note) The EXH port may be either on the lead wire side or on the end plate side.

∗ **Thread type**

Nil	Rc
F	G
N	NPT
T	NPTF

▪Blanking plate assembly



Series	Assembly part no.
SY3000	SX3000-75-1A(-Q)
SY5000	SX5000-76-5A(-Q)

⚠ Caution

Mounting screw tightening torques

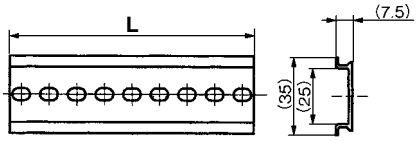
M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

▪Dimensions/DIN rail

VZ1000 – 11 – 1 – □

● Refer to L dimensions

∗ Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.



No.	0	1	2	3	4	5	6	7	8	9	10
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223
No.	11	12	13	14	15	16	17	18	19	20	21
L Dimension	235.5	248	260.5	273	285.5	298	310.5	323	335.5	348	360.5
No.	22	23	24	25	26	27	28	29	30	31	32
L Dimension	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498
No.	33	34	35	36	37	38	39	40	41	42	43
L Dimension	510.5	523	535.5	548	560.5	573	585.5	598	610.5	623	635.5
No.	44	45	46	47	48	49	50	51	52	53	54
L Dimension	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773
No.	55	56	57	58	59	60	61	62	63	64	65
L Dimension	785.5	798	810.5	823	835.5	848	860.5	873	885.5	898	910.5

No.	66	67	68	69	70	71
L Dimension	923	935.5	948	960.5	973	985.5

∗ Refer to L1 dimension on pages starting with pages 250 to 253 for lengths that correspond to the number of manifold stations.

▪SUP blocking disk

By installing a SUP blocking disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

▪EXH blocking disk

By installing an EXH blocking disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)



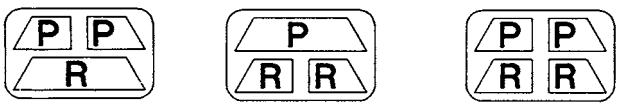
Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

▪Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH blocking disk(s) to show their location. (3 pcs. each)

VZ3000-123-1A

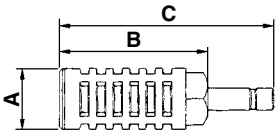
Label for SUP block disk | Label for EXH block disk | Label for SUP/EXH block disk



Note) When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

▪Silencer with One-touch fitting

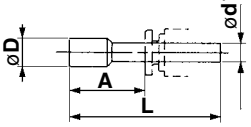
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	A	B	C
For SY3000 (ø8)	AN203-KM8	14 mm²	ø16	26	51
For SY5000 (ø10)	AN200-KM10	26 mm²	ø22	53.8	80.8
	AN300-KM10	30 mm²	ø25	70	97

▪Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ød	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
1/8"	**KQ2P-01**	16	31.5	5
5/32"	**KQ2P-03**	16	32	6
1/4"	**KQ2P-07**	18	35	8.5
5/16"	**KQ2P-09**	20.5	39	10

Manifold Option

▪ How to Order Interface Regulator (SY3000, 5000 only)

Series SY3000

ARBY3000 − 05 − P − 2

Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

Pressure gauge connection port

05	Pressure gauge (G15-10-01) [for odd number station]
06	Pressure gauge (G15-10-01) [for even number station]
M1	Plug (M-5P)

∗ In the case of Series ARBY3000 with a pressure gauge when mounting on the manifold, use caution that the part numbers are different between the odd no. stations and the even no.

Series SY5000

ARBY5000 − 00 − P − 2

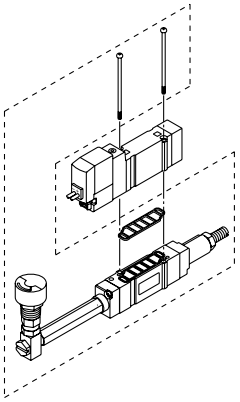
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

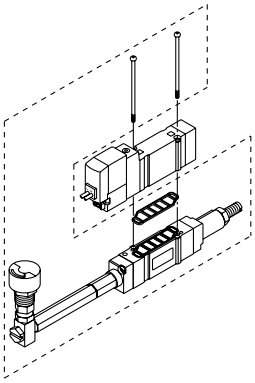
Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

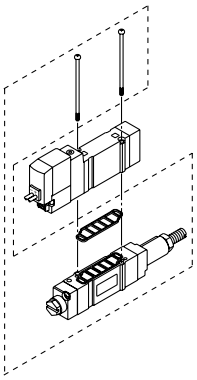
ARBY3000-05-□-2
(For mounting odd number stations)



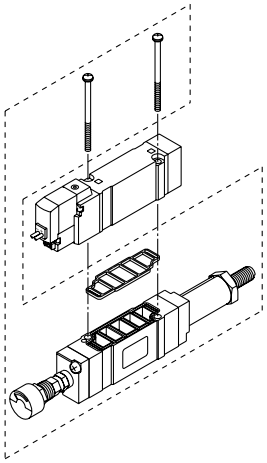
ARBY3000-06-□-2
(For mounting even number stations)



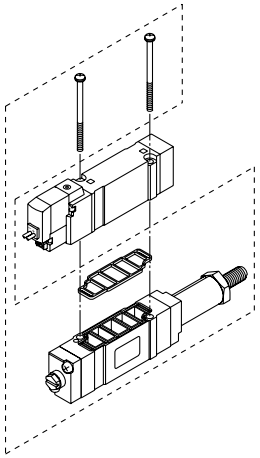
ARBY3000-M1-□-2



ARBY5000-00-□-2



ARBY5000-M1-□-2



Note) ARBY is not CE-compliant.

Accessory

Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2 x 36)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6

⚠ Caution

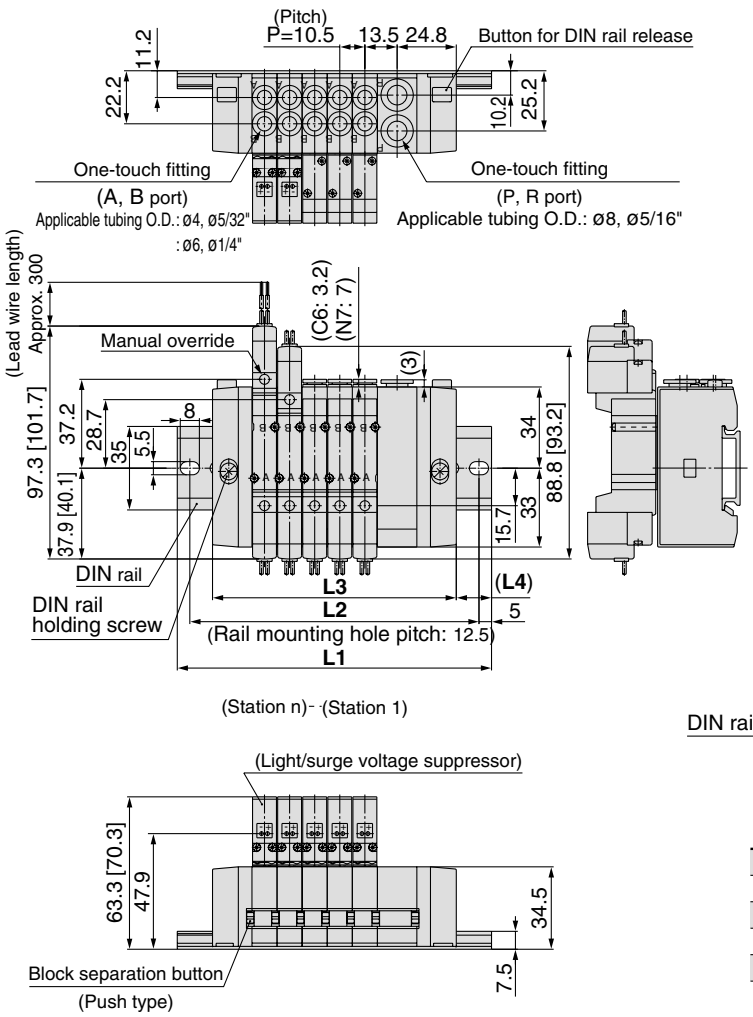
Mounting screw tightening torques

M2: 0.17 N·m
M3: 0.8 N·m

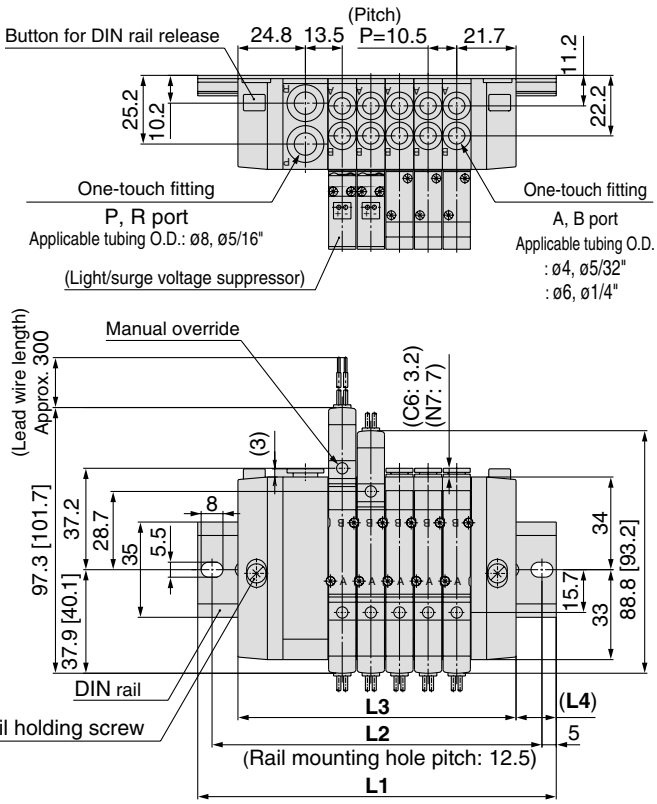
Dimensions: Series SY3000

[ ]: AC

SS5Y3-45- Stations D- C4, N3 / C6, N7

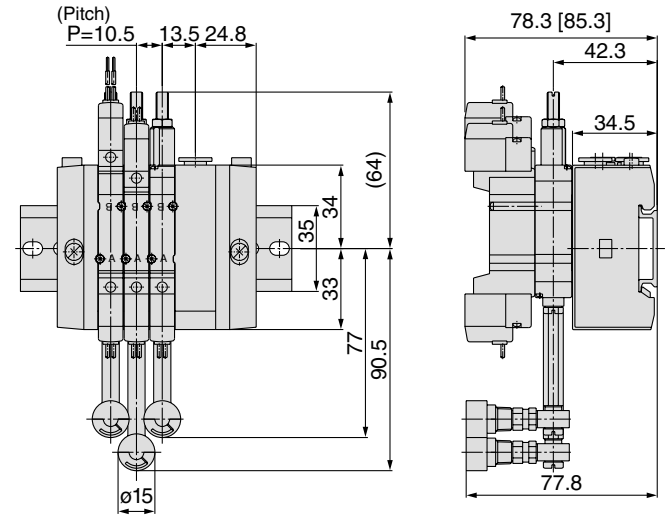


SS5Y3-45- Stations U- C4, N3 / C6, N7



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	98	110.5	123	135.5	148	148	160.5	173	185.5
L2	87.5	100	112.5	125	137.5	137.5	150	162.5	175
L3	70.5	81	91.5	102	112.5	123	133.5	144	154.5
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

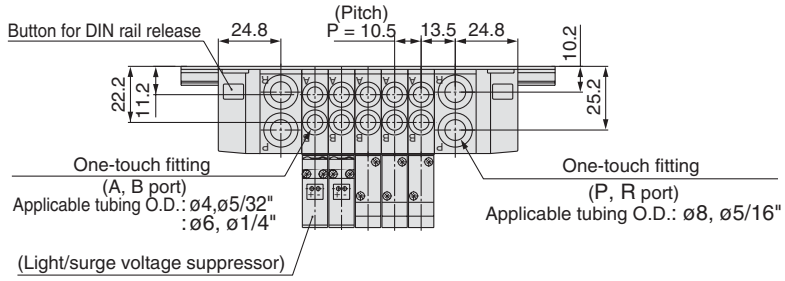
With interface regulator (with gauge)

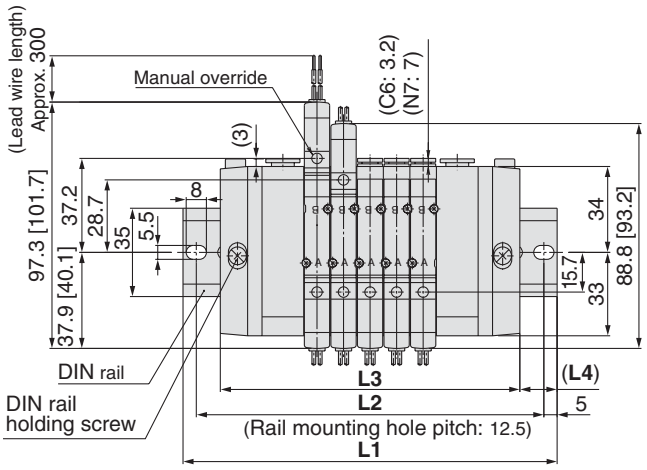


Dimensions: Series SY3000

[ ]: AC

SS5Y3-45- Stations B- C4, N3 C6, N7



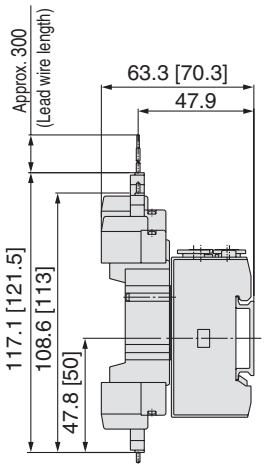


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	110.5	123	135.5	148	160.5	173	185.5	185.5	198
L2	100	112.5	125	137.5	150	162.5	175	175	187.5
L3	87	97.5	108	118.5	129	139.5	150	160.5	171
L4	11.5	12.5	13.5	14.5	15.5	16.5	17.5	12.5	13.5

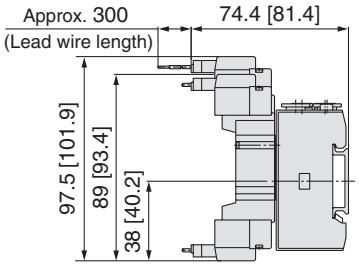
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	210.5	223	235.5	248	248	260.5	273	285.5	298	310.5
L2	200	212.5	225	237.5	237.5	250	262.5	275	287.5	300
L3	181.5	192	202.5	213	223.5	234	244.5	255	265.5	276
L4	14.5	15.5	16.5	17.5	12	13	14	15	16	17

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	98	110.5	123	135.5	148	148	160.5	173	185.5
L2	87.5	100	112.5	125	137.5	137.5	150	162.5	175
L3	70.5	81	91.5	102	112.5	123	133.5	144	154.5
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

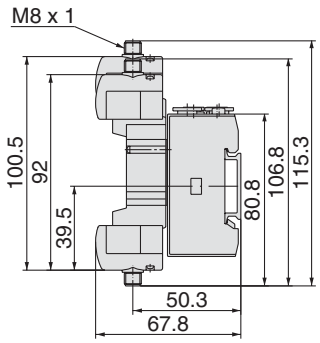
L plug connector



M plug connector



M8 connector (WO)

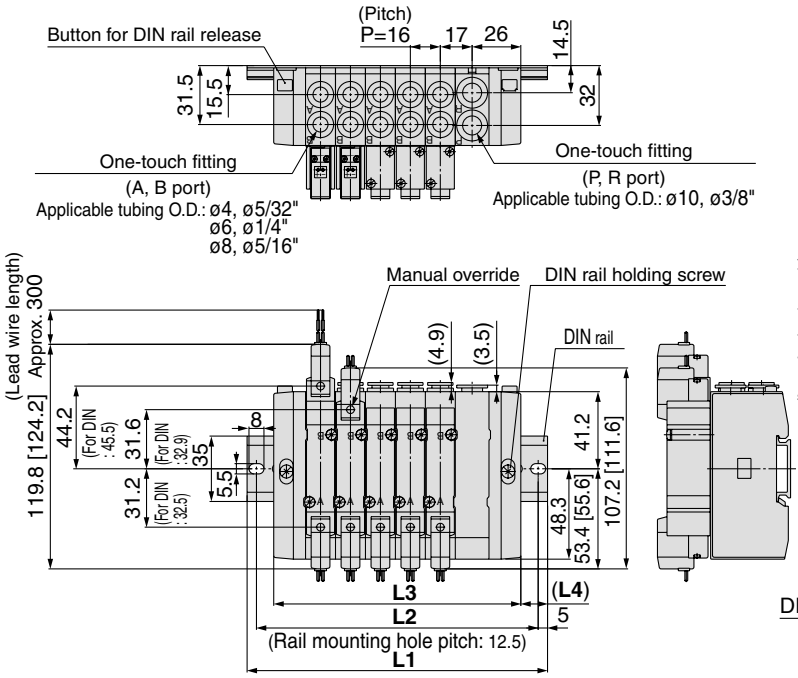


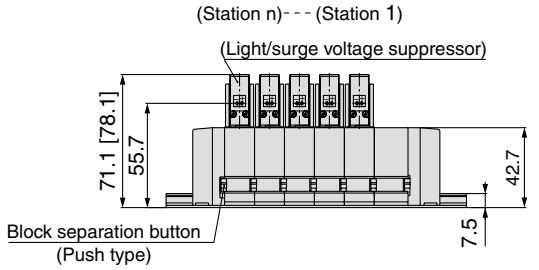
Note) Refer to page 340 for dimensions of connector types.

Dimensions: Series SY5000

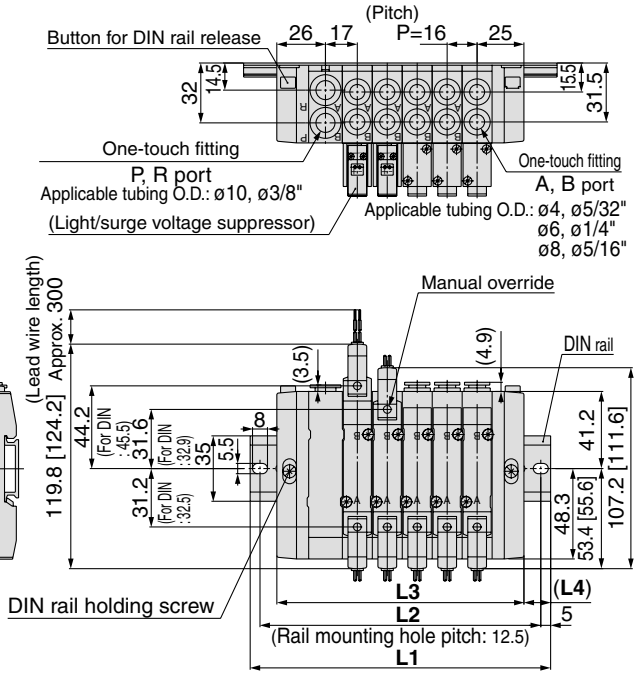
[ ]: AC

SS5Y5-45-Stations D- C4, N3 / C6, N7 / C8, N9



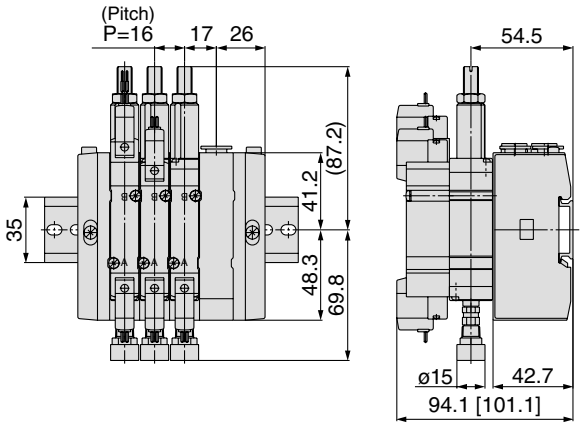


SS5Y5-45-Stations U- C4, N3 / C6, N7 / C8, N9



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	110.5	135.5	148	160.5	173	198	210.5	223	235.5
L2	100	125	137.5	150	162.5	187.5	200	212.5	225
L3	84	100	116	132	148	164	180	196	212
L4	13	17.5	16	14	12.5	17	15	13.5	11.5

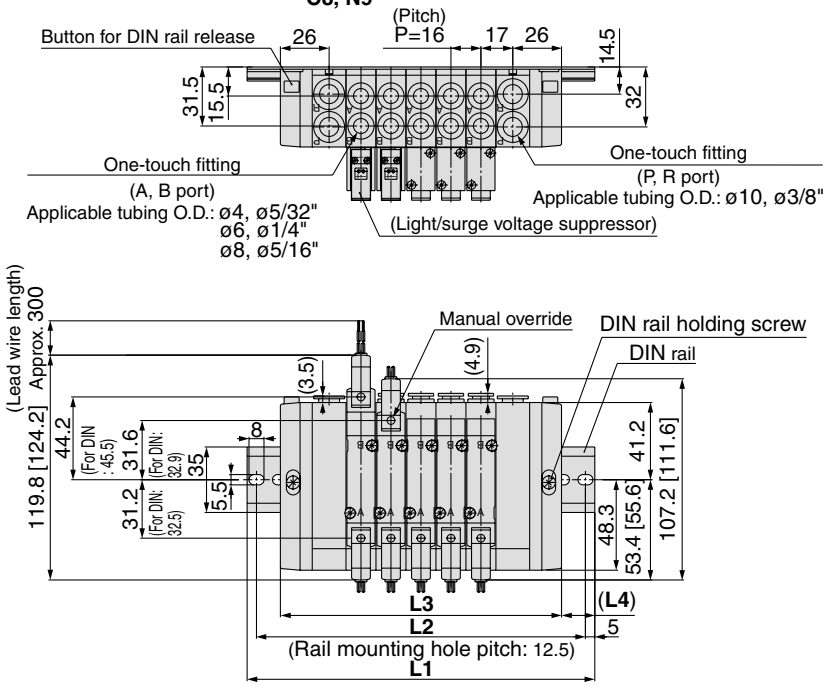
With interface regulator (with gauge)



Dimensions: Series SY5000

[ ]: AC

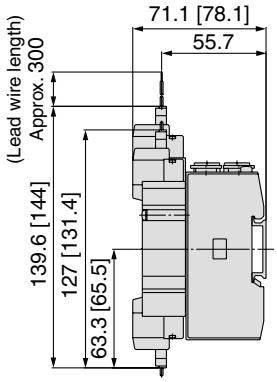
SS5Y3-45- Stations **B-** C4, N3 / C6, N7 / C8, N9



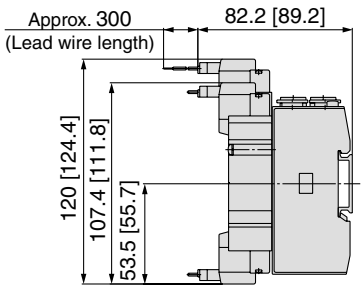
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	223	248	260.5
L2	125	137.5	150	175	187.5	200	212.5	237.5	250
L3	102	118	134	150	166	182	198	214	230
L4	16.5	15	13	17.5	16	14	12.5	17	15

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	273	285.5	310.5	323	335.5	360.5	373	385.5	398	423
L2	262.5	275	300	312.5	325	350	362.5	375	387.5	412.5
L3	246	262	278	294	310	326	342	358	374	390
L4	13.5	11.5	16	14.5	12.5	17	15.5	13.5	12	16.5

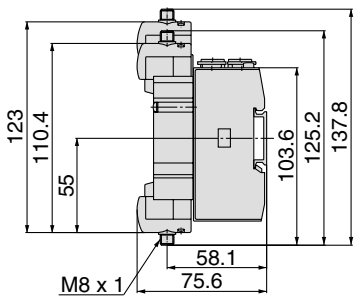
L plug connector



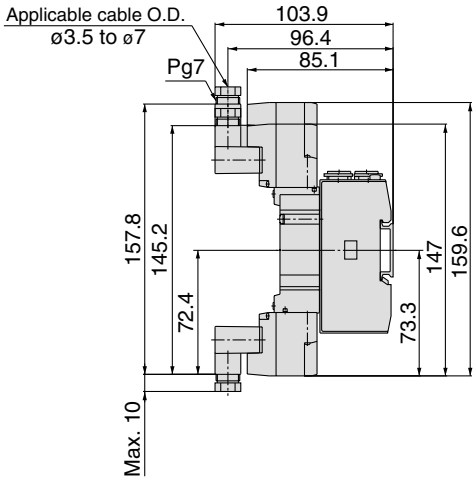
M plug connector



M8 connector (WO)



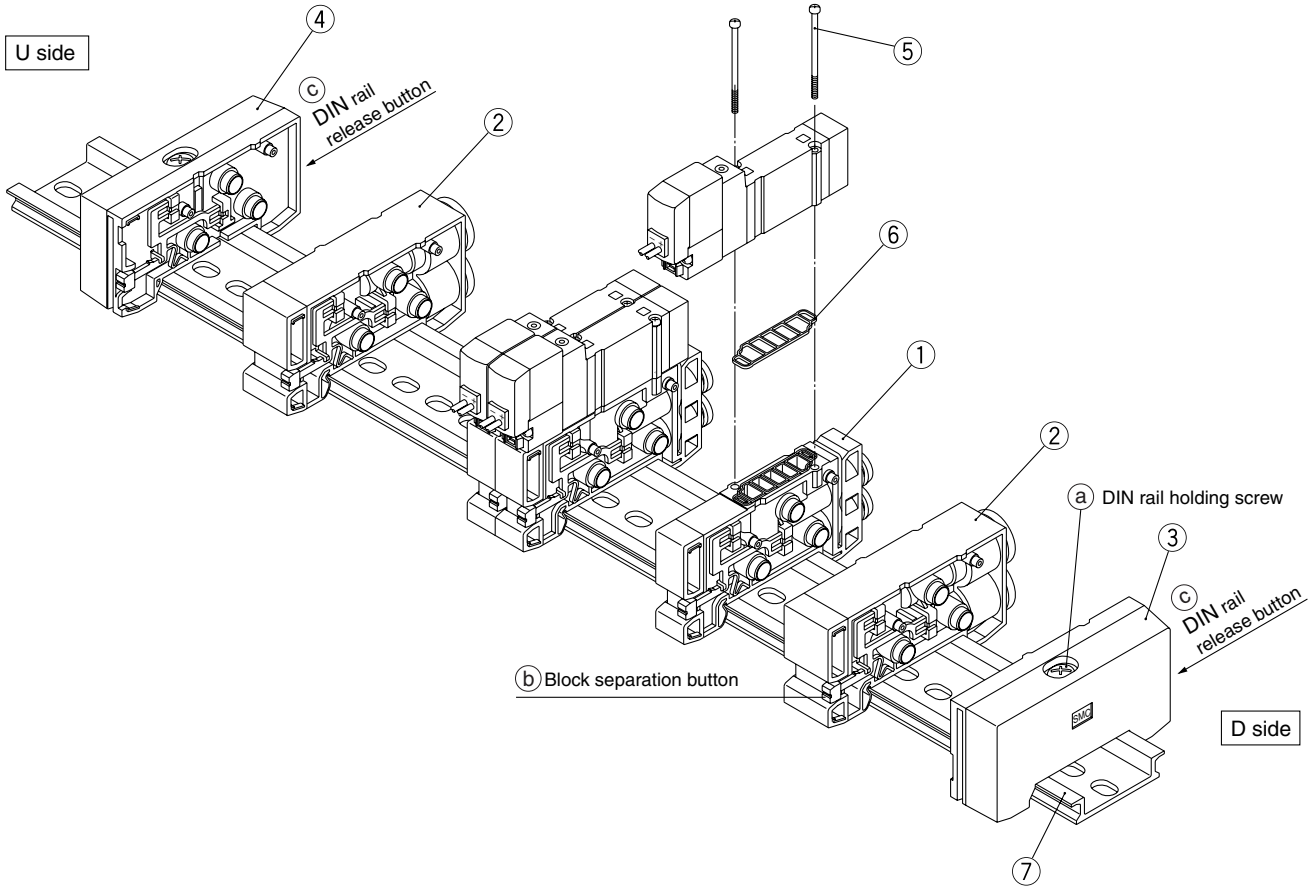
DIN terminal (D, Y)



Note) Refer to page 340 for dimensions of connector types.

DIN Rail Manifold Exploded View

Type 45



Replacement Parts

No.	Description	Part no.		Note
		SY3000	**SY5000**	
1	**Manifold block assembly**	SX3000-50-1A-□□(-Q)	SX5000-50-1A-□□(-Q)	□□: SY3000 (Metric size) C4: With one-touch fitting for ø4 (Inch size) N3: With one-touch fitting for ø5/32" C6: With one-touch fitting for ø6 N7: With one-touch fitting for ø1/4" SY5000 (Metric size) C4: With one-touch fitting for ø4 (Inch size) N3: With one-touch fitting for ø5/32" C6: With one-touch fitting for ø6 N7: With one-touch fitting for ø1/4" C8: With one-touch fitting for ø8 N9: With one-touch fitting for ø5/16" (Gasket 6 is supplied as an accessory.)
2	**SUP/EXH block assembly**	(Metric size) SX3000-51-1A (Inch size) SX3000-51-15A	(Metric size) SX3000-51-1A (Inch size) SX5000-51-15A	P, R port SY3000 (Metric size) With one-touch fitting for ø8 (Inch size) With one-touch fitting for ø5/16" P, R port SY5000 (Metric size) With one-touch fitting for ø10 (Inch size) With one-touch fitting for ø3/8"
3	**End block assembly R**	SX3000-52-1A(-Q)	SX5000-52-1A(-Q)	For D side
4	**End block assembly L**	SX3000-53-1A(-Q)	SX5000-53-1A(-Q)	For U side
5	**Round head combination screw**	SY3000-23-4	M3 x 26 (Matt nickel plated)	
6	**Gasket**	SX3000-57-4	SX5000-57-6	
7	**DIN rail**	VZ1000-11-1-□		Refer to page 247.

DIN Rail Manifold Exploded View

How to Increase Manifold Bases
Station expansion is possible at any position.

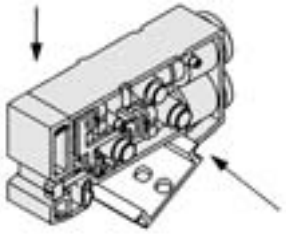
1. Loosen DIN rail holding screw ⓐ fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons ⓒ, at two locations, separate the manifold base from the DIN rail.)
2. Press manifold block assembly dividing button ⓑ, that are at the location where manifold bases are to be added, until button ⓑ locks, and then separate the block assemblies.
3. Mount additional manifold block assembly on the DIN rail as shown in the figure 1.
4. Press the block assemblies until a click sound is produced, and tighten the DIN rail holding screw ⓐ to fix them to the DIN rail.
   ⚠**Caution** (Tightening torque: 1.4 N·m)
   (While lightly holding the blocks after fixing an end block on one side, tighten the other end block for for better sealing.)

⚠Caution

Note 1) When there are 10 or fewer manifold block assemblies, and more are added to make a total of 11 or more, a supply/exhaust block assembly must also be added.

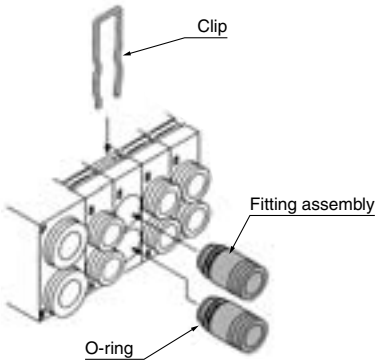
Note 2) When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate. Before supplying air, confirm that there are no gaps, etc. between blocks, and that manifold blocks are securely fastened to the DIN rail. Then supply air and confirm that there is no air leakage before operating.

Fig. (1) Block mounting procedure



Hook the DIN rail here and press down in the direction of the arrow until a click sound is heard.

How to Change Fitting Assembly



Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.
After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

Fitting Assembly Part No.

Metric size

SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY5000	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

Inch size

SY3000	One-touch fitting for ø5/32"	VVQ1000-50A-N3
	One-touch fitting for ø1/4"	VVQ1000-50A-N7
SY5000	One-touch fitting for ø5/32"	VVQ1000-51A-N3
	One-touch fitting for ø1/4"	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	VVQ1000-51A-N9

Note 1) P and R ports cannot be changed.
Note 2) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.

5 Port Solenoid Valve
Base Mounted Manifold
Stacking Type/DIN Rail Mounted/Connector Box

Type 45-A/NA

Series SY3000/5000

How to Order Manifold

SS5Y 3 -45- A U -05 D -C6- □ -□

Series

3	SY3000
5	SY5000

Specifications

Symbol	Specifications
A	With connector box (+COM spec.)
NA	With connector box (–COM spec.)

The style of attached lead wire assembly is different.

Connector box mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Applicable up to 16 solenoid valves.
⋮	⋮	
16	16 stations	

SUP/EXH block assembly mounting position

Symbol	Mounting position	Applicable stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 16 stations
M*	Special specifications	

* For special specifications, indicate separately by the manifold specification sheet.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

A/B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

* In the case of mixed specifications, indicate separately on the manifold specification sheet.

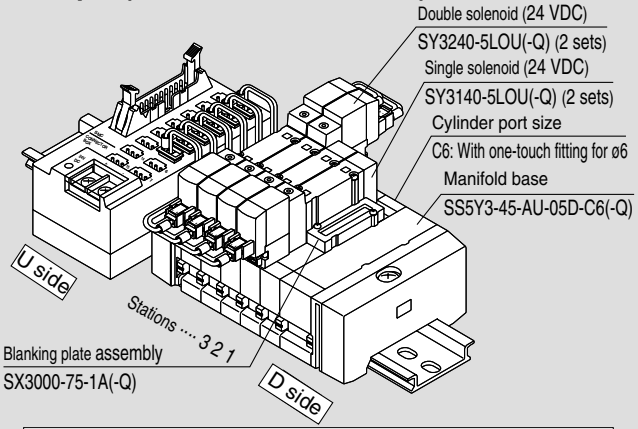
CE-compliant

Nil	—
Q	CE-compliant

Refer to pages 324 to 328 for external pilot specifications and built-in silencer.

How to Order Manifold Assembly (Example)

Example (SY3000, +COM, U side)



SS5Y3-45-AU-05D-C6 ····· **1 set (Type 45, 5-station manifold base part no.)**
* **SX3000-75-1A** ····· **1 set (Blanking plate assembly part no.)**
* **SY3140-5LOU** ····· **2 sets (Single solenoid part no.)**
* **SY3240-5LOU** ····· **2 sets (Double solenoid part no.)**

The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of connector box. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.
SS5Y$^{3}_{5}$-45-A$^{U}_{D}$-□ □-C□ is assembled with solenoid valve and lead wire assembly when shipping. When ordering manifold only (without valves/wires/options), refer to how to order on page 244 and list the connector box (VZ3000-106-1A) and the rail stopper (TXE1-SMC) below the manifold to allow for the connector box mounting at U side. (Be sure to order DIN rail 3 station longer than number of the manifold stations.) In this case, please note that dimensions, L1 and L2 on pages 260 and 261 may vary slightly.) For other components, refer to page 262.

How to Order Valve

SY 5 2 40-5 LOU □ -□ -□

Series

3	SY3000
5	SY5000

Rated voltage

5	24 VDC

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

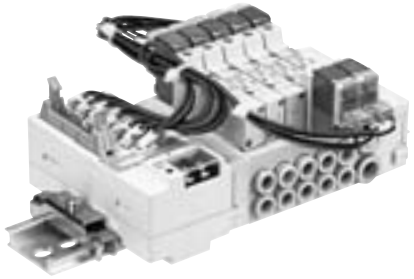
Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

When ordering valve as a single unit, gaskets for the stacking base type are not included. Order them separately, if necessary. (Refer to page 262 for details.)



Manifold Specifications

Model		SS5Y3-45-A/NA-(Q)	SS5Y5-45-A/NA-(Q)
Applicable valve		SY3□40	SY5□40
Manifold type		Stacking type/DIN rail mounted	
P (SUP)/R (EXH)		Common SUP, Common EXH	
Valve stations		2 to 16 stations Note 1, 2)	
A, B port Porting specifications	Location	Base	
	Direction	Side	
Port size	P, R port	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)
	A, B port	C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)
Manifold base mass W (g) n: Stations		2 to 10 stations: W = 26n + 207 11 to 20 stations: W = 26n + 229	2 to 10 stations: W = 52n + 245 11 to 16 stations: W = 52n + 279
Applicable flat ribbon cable connector		Flat ribbon cable connector Socket: 20 pins MIL type with strain relief conforming to MIL-C-83503	
Wiring specifications		+COM specifications (Type 45-A), –COM specifications (Type 45-NA)	

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.
Note 2) There is a limit depending on the number of solenoids. Refer to "How to Order".

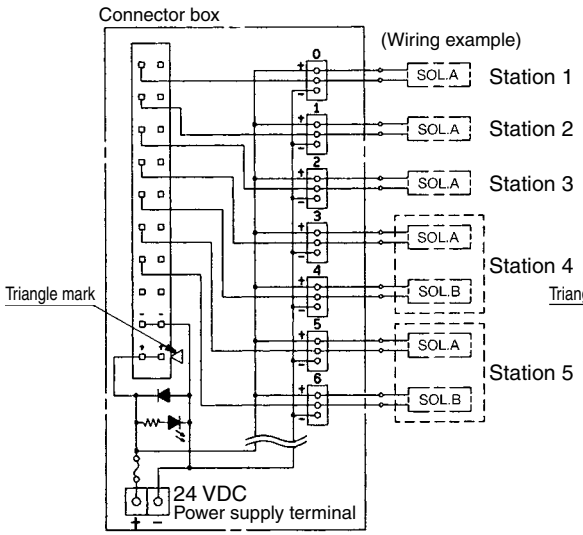
Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-45-□	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45-□	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

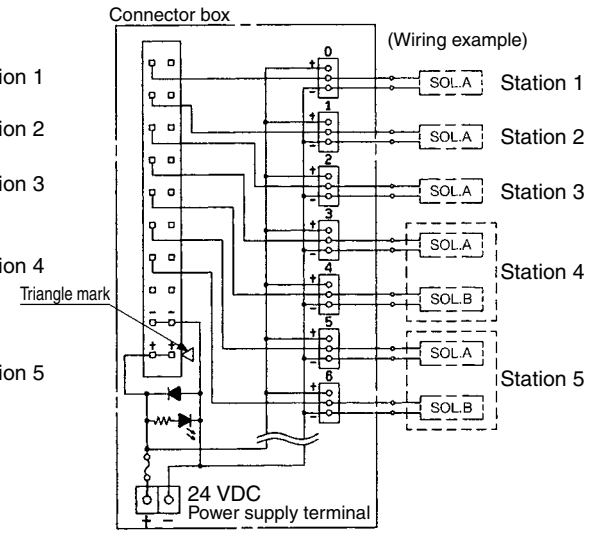
Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Manifold Wiring Diagram (Circuit diagram for the reference layout)

+COM electric circuit diagram

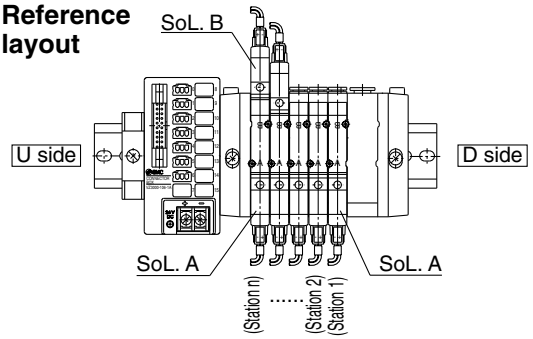


–COM electric circuit diagram



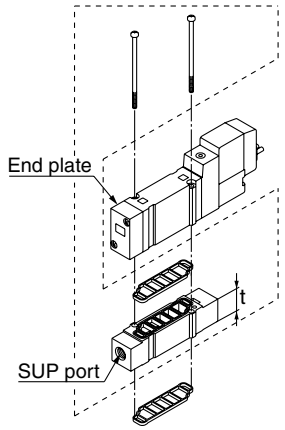
- Connector box for +COM allows transmission until G71-OD16, manufactured by OMRON Corp., to be connected directly for serial transmission. Additionally, it can also be used for the PC wiring system.
- When an external power source must be supplied to the manifold, correct polarity must be observed, otherwise damage to PLC is possible.
- The wiring of solenoid valves, corresponds with the labeled connector box 0 to 15 from D side.
- If valves other than non-polar type are used, this may cause malfunction.

Reference layout



Manifold Option

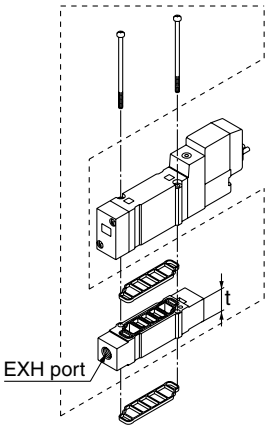
▪ Individual SUP spacer assembly



Series	Assembly part no.	Port size	t
SY3000	SY3000-38-2A(-Q)	M5 x 0.8	11
SY5000	SY5000-38-16∗A(-Q)	1/8	15

Note) The SUP port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)

▪ Individual EXH spacer assembly



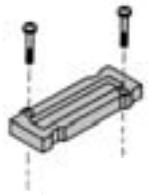
Series	Assembly part no.	Port size	t
SY3000	SY3000-39-2A(-Q)	M5 x 0.8	11
SY5000	SY5000-39-16∗A(-Q)	1/8	15

Note) The EXH port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)

∗ Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

▪ Blanking plate assembly



Series	Assembly part no.
SY3000	SX3000-75-1A(-Q)
SY5000	SX5000-76-5A(-Q)

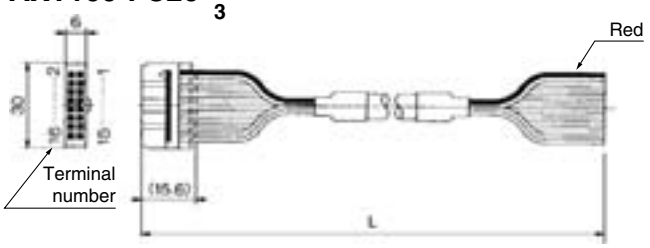
⚠ Caution

Mounting screw tightening torques

M2: 0.16 N·m
M3: 0.8 N·m
M4: 1.4 N·m

▪ Cable assembly

AXT100-FC20- 1 / 3



Connector Assembly for Flat Ribbon Cables

Cable length (**L**)	Assembly part no.	Note
1.5 m	AXT100-FC20-1	Cable 20 core x 22 AWG
3 m	AXT100-FC20-2	
5 m	AXT100-FC20-3	

∗ For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

Connector manufacturers' example

- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

▪ SUP blocking disk

By installing a SUP blocking disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

▪ EXH blocking disk

By installing an EXH blocking disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

▪ Label for block disk

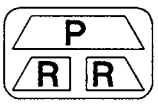
The labels shown below are used on manifold stations containing SUP/EXH blocking disk(s) to show their location. (3 pcs. each)

VZ3000-123-1A

Label for SUP block disk



Label for EXH block disk



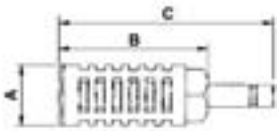
Label for SUP/EXH block disk



Note) When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

▪ Silencer with One-touch fitting

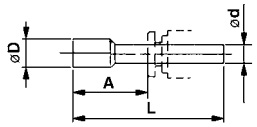
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	A	B	C
For SY3000 (ø8)	AN203-KM8	14 mm²	ø16	26	51
For SY5000 (ø10)	AN200-KM10	26 mm²	ø22	53.8	80.8
	AN300-KM10	30 mm²	ø25	70	97

▪ Plug (white)

These are inserted in unused cylinder ports 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
1/8"	**KQ2P-01**	16	31.5	5
5/32"	**KQ2P-03**	16	32	6
1/4"	**KQ2P-07**	18	35	8.5
5/16"	**KQ2P-09**	20.5	39	10

⚠ Warning

When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

Manifold Option

▪ How to Order Interface regulator (SY3000, 5000 only)

Series SY3000

ARBY3000 − 05 − P − 2

Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

Pressure gauge connection port

05	Pressure gauge (G15-10-01) [for odd number station]
06	Pressure gauge (G15-10-01) [for even number station]
M1	Plug (M-5P)

* In the case of Series ARBY3000 with a pressure gauge when mounting on the manifold, use caution that the part numbers are different between the odd no. stations and the even no. stations to avoid gauges from interfering from each others.

Series SY5000

ARBY5000 − 00 − P − 2

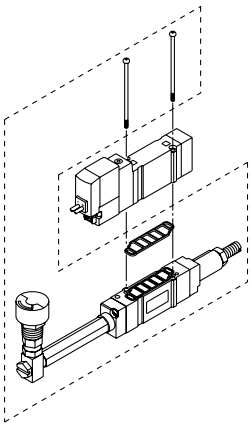
Regulating port

P	P port
A1	A port (P controlled type, A port regulation)
B1	B port (P controlled type, B port regulation)

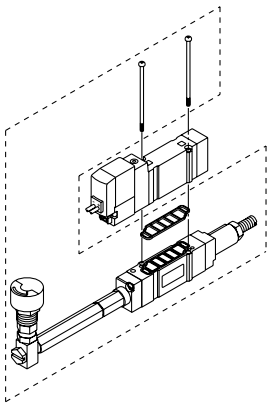
Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

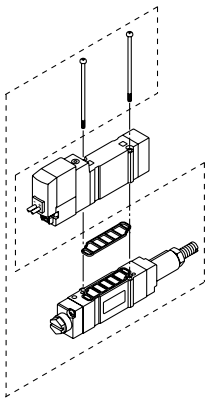
ARBY3000-05-□-2
(For odd number stations)



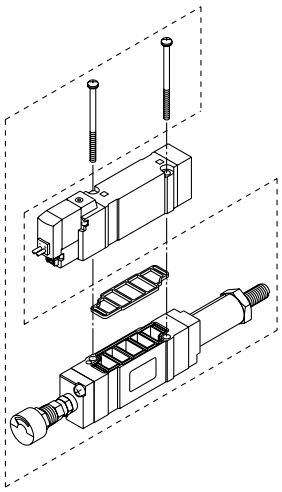
ARBY3000-06-□-2
(For even number stations)



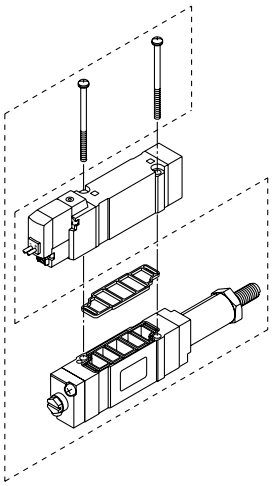
ARBY3000-M1-□-2



ARBY5000-00-□-2



ARBY5000-M1-□-2



Note) ARBY is not CE-compliant.

Accessory

Series	Round head combination screw	Gasket
ARBY3000	SY3000-23-10 (M2 x 36)	SX3000-57-4
ARBY5000	M3 x 48.5, Matt nickel plated	SX5000-57-6

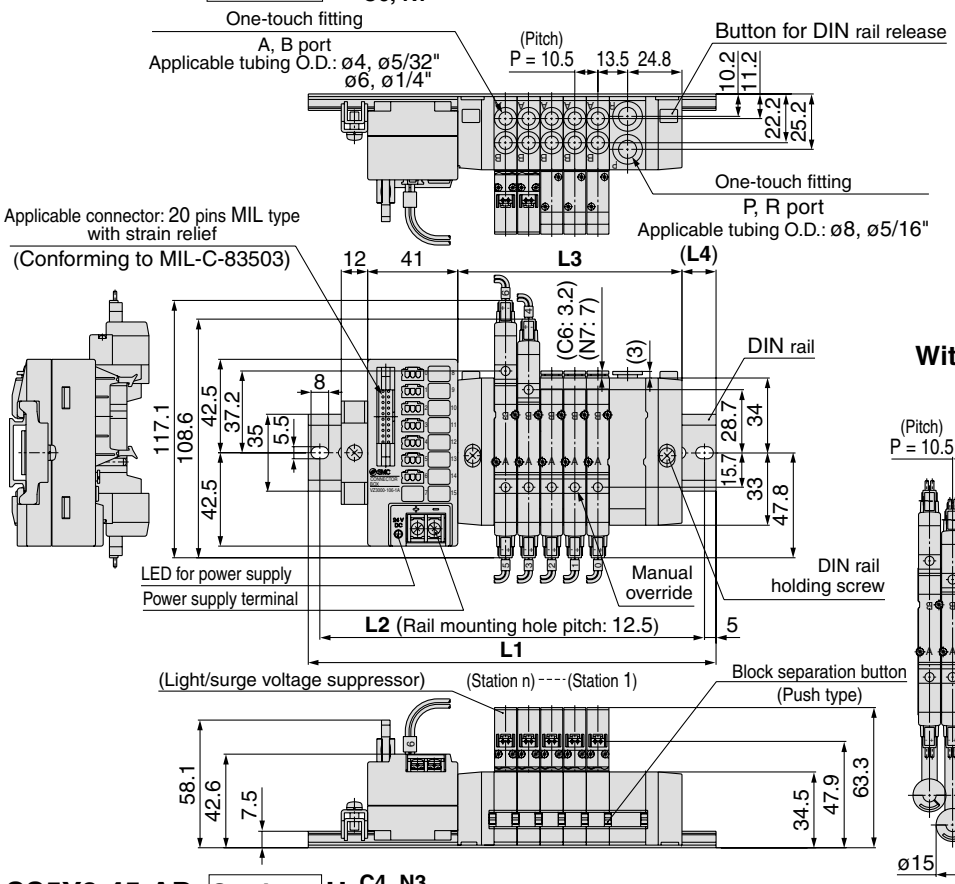
⚠ Caution

Mounting screw tightening torques

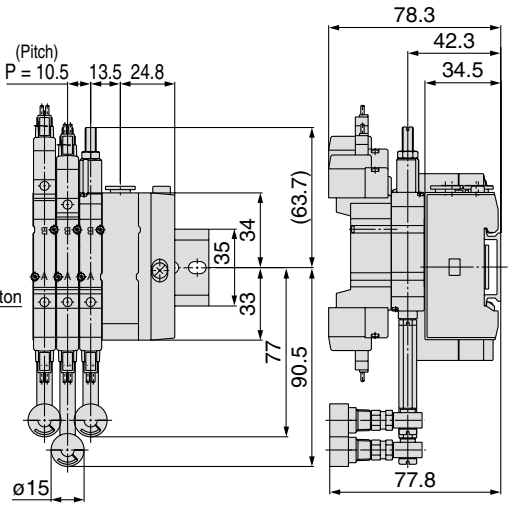
M2: 0.16 N·m
M3: 0.8 N·m

Dimensions: Series SY3000

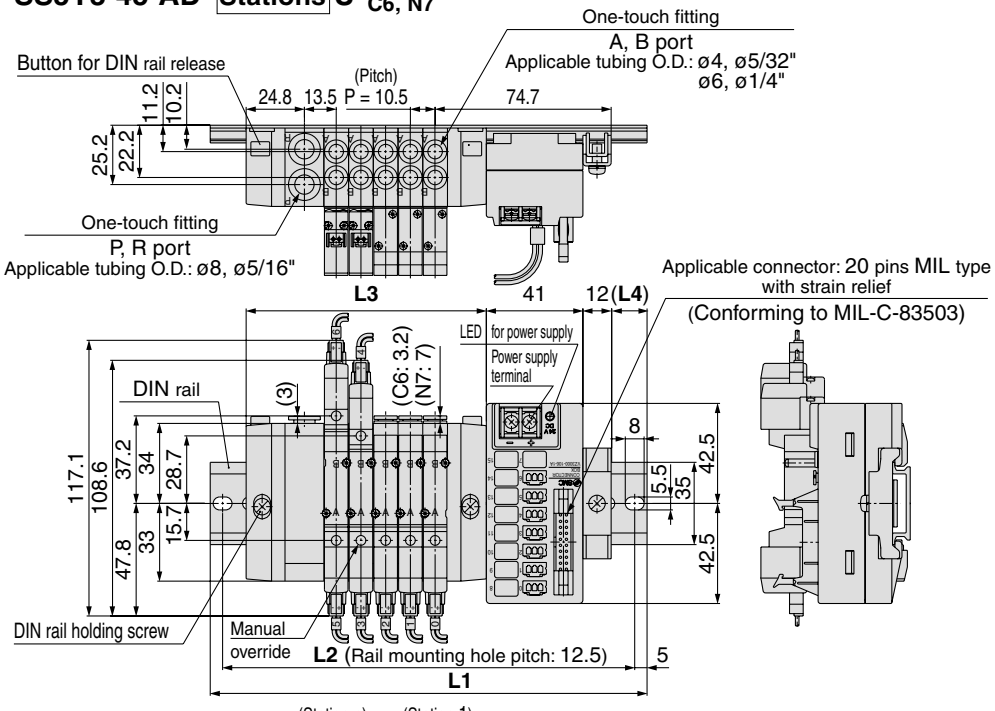
SS5Y3-45-AU-Stations D-C4, N3 C6, N7

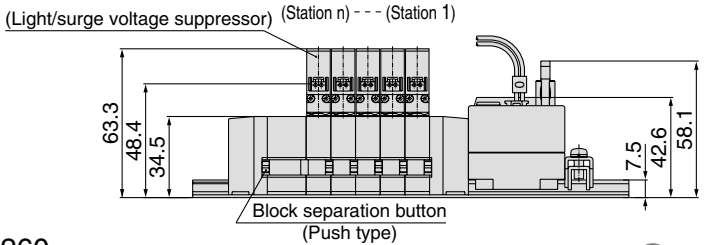


With interface regulator (with gauge)



SS5Y3-45-AD-Stations U-C4, N3 C6, N7



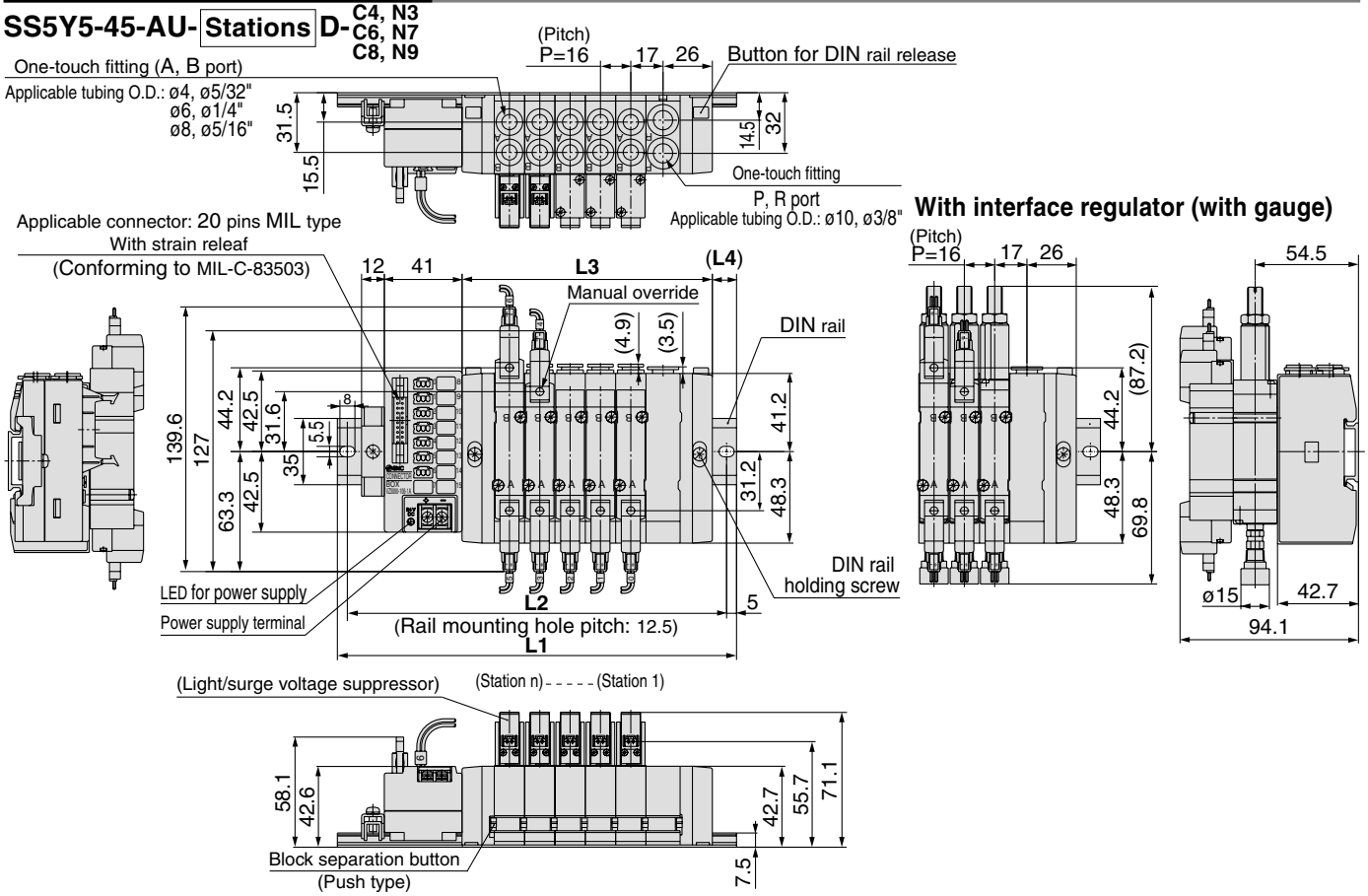


Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	148	160.5	173	185.5	198	210.5	210.5	223	235.5	260.5	273	285.5	298	310.5	310.5
L2	137.5	150	162.5	175	187.5	200	200	212.5	225	250	262.5	275	287.5	300	300
L3	70.5	81	91.5	102	112.5	123	133.5	144	154.5	181.5	192	202.5	213	223.5	234
L4	12	13	14	15	16	17	12	13	14	13	14	15	16	17	11.5

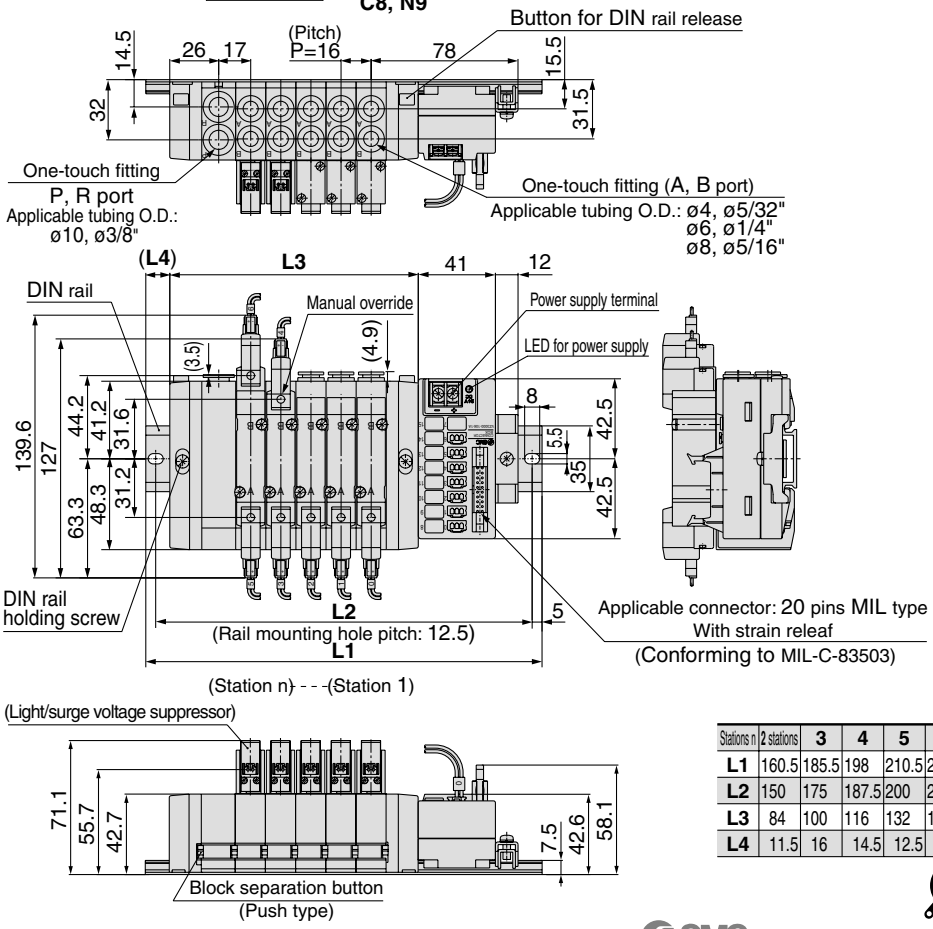
* Two SUP/EXH blocks are provided for models with 11 stations or more.

Dimensions: Series SY5000

SS5Y5-45-AU-Stations D-C4, N3 C6, N7 C8, N9



SS5Y5-45-AD-Stations U-C4, N3 C6, N7 C8, N9

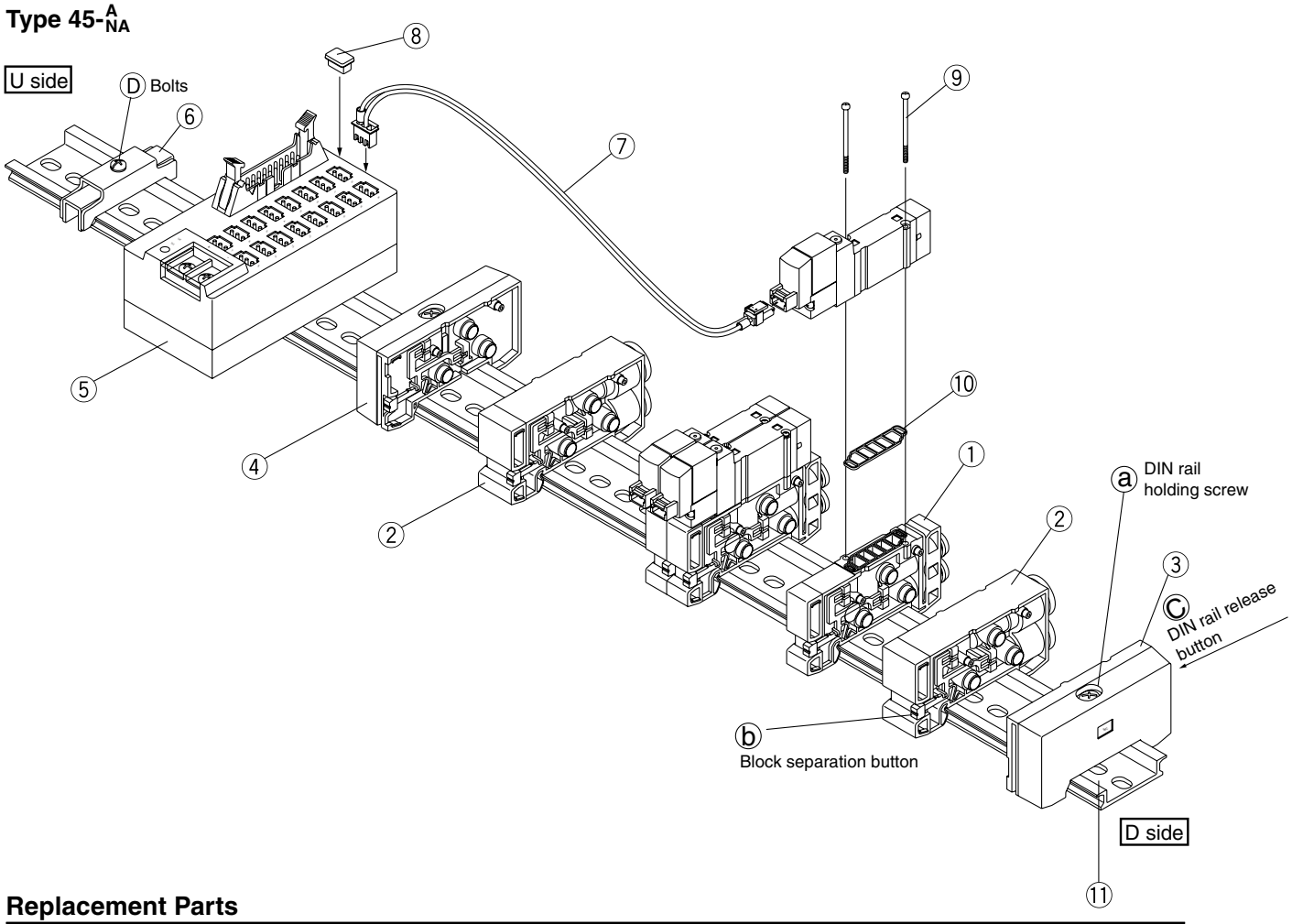


Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	160.5	185.5	198	210.5	235.5	248	260.5	273	298	323	348	360.5	373	398	410.5
L2	150	175	187.5	200	225	237.5	250	262.5	287.5	312.5	337.5	350	362.5	387.5	400
L3	84	100	116	132	148	164	180	196	212	246	262	278	294	310	326
L4	11.5	16	14.5	12.5	17	15.5	13.5	12	16.5	12	16.5	14.5	13	17.5	15.5

* Two SUP/EXH blocks are provided for models with 11 stations or more.

DIN Rail Manifold Exploded View

Type 45-A/NA



Replacement Parts

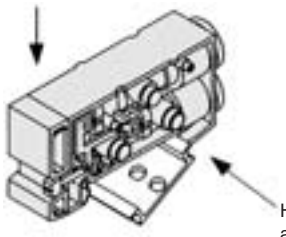
No.	Description	Part no.		Note
		SY3000	**SY5000**	
1	**Manifold block assembly**	SX3000-50-1A-□□(-Q)	SX5000-50-1A-□□(-Q)	•SY3000 (Metric size) (Inch size) C4: With one-touch fitting for ø4 N3: With one-touch fitting for ø5/32" C6: With one-touch fitting for ø6 N7: With one-touch fitting for ø1/4" •SY5000 (Metric size) (Inch size) C4: With one-touch fitting for ø4 N3: With one-touch fitting for ø5/32" C6: With one-touch fitting for ø6 N7: With one-touch fitting for ø1/4" C8: With one-touch fitting for ø8 N9: With one-touch fitting for ø5/16" (Gasket 10 is supplied as an accessory.)
2	**SUP/EXH block assembly**	(Metric size) SX3000-51-1A (Inch size) SX3000-51-15A	(Metric size) SX3000-51-1A (Inch size) SX5000-51-15A	P, R port SY3000 (Metric size) With one-touch fitting for ø8 (Inch size) With one-touch fitting for ø5/16" P, R port SY5000 (Metric size) With one-touch fitting for ø10 (Inch size) With one-touch fitting for ø3/8"
3	**End block assembly R**	SX3000-52-1A(-Q)	SX5000-52-1A(-Q)	For D side
4	**End block assembly L**	SX3000-53-1A(-Q)	SX5000-53-1A(-Q)	For U side
5	**Connector box**	VZ3000-106-1A		For 24 VDC only
6	**Rail stopper**	TXE1-SMC		Made by Kasuga Electric Works
7	**Connecter assembly**	SY3000-43-1A-□	SY3000-43-2A-□	+COM Type D, 2 to 8 stations Type U, 9 to 16 stations
		SY3000-43-2A-□	SY3000-43-3A-□	+COM Type D, 9 to 16 stations Type U, 2 to 8 stations
		SY3000-43-1NA-□	SY3000-43-2NA-□	–COM Type D, 2 to 8 stations Type U, 9 to 16 stations
		SY3000-43-2NA-□	SY3000-43-3NA-□	–COM Type D, 9 to 16 stations Type U, 2 to 8 stations
8	**Dust cap**	VZ3000-63-2		
9	**Round head combination screw**	SY3000-23-4	M3 x 26, Matt nickel plated	
10	**Gasket**	SX3000-57-4	SX5000-57-6	
11	**DIN rail**	VZ1000-11-1-□		Refer to page 247.

How to Increase Manifold Bases

Station expansion is possible at any position.

1. Loosen DIN rail holding screw ⓐ fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons ⓒ, at two locations, separate the manifold base from the DIN rail.)
2. Press manifold block assembly dividing button ⓑ, that are at the location where manifold bases are to be added, until button ⓑ locks, and then separate the block assemblies.
3. Mount additional manifold block assembly on the DIN rail as shown in the figure 1.
4. Press the block assemblies until a click sound is produced, and tighten the DIN rail holding screw ⓐ to fix them to the DIN rail.
   ⚠**Caution** (Tightening torque: 1.4 N·m)
   (While lightly holding the blocks after fixing an end block on one side, tighten the other end block for for better sealing.)
5. Untighten the rail stopper bolt Ⓓ to demount the connector box from the DIN rail, and when remounting it, tighten the bolt while pressing it against the rail.

Fig. (1) Block mounting procedure



⚠Caution

Note 1) When there are 10 or fewer manifold block assemblies, and more are added to make a total of 11 or more, a supply/exhaust block assembly must also be added.

Note 2) When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate. Before supplying air, confirm that there are no gaps, etc. between blocks, and that manifold blocks are securely fastened to the DIN rail. Then supply air and confirm that there is no air leakage before operating.

Note 3) One connector assembly is necessary for one solenoid.
When a number is necessary for the connector assembly mark tube, suffix the number to the part no. (0 to 15 are provided as mark tube numbers.)
Ex) +COM spec.: D type for 2 to 8 stations: No. 10
SY3000-43-1A-10

How to Change Fitting Assembly

Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.
After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

Fitting Assembly Part No.

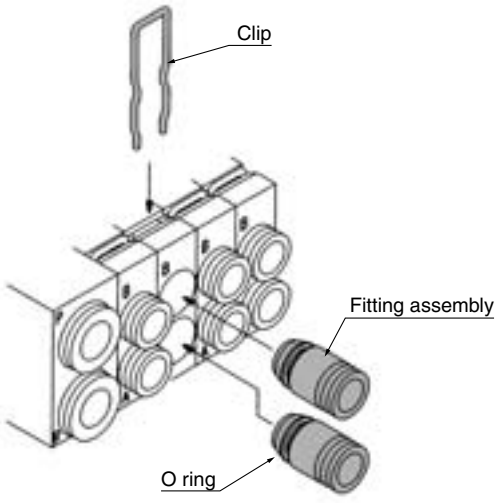
Metric size

SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY5000	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

Inch size

SY3000	One-touch fitting for ø5/32"	VVQ1000-50A-N3
	One-touch fitting for ø1/4"	VVQ1000-50A-N7
SY5000	One-touch fitting for ø5/32"	VVQ1000-51A-N3
	One-touch fitting for ø1/4"	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	VVQ1000-51A-N9

Note 1) P and R ports cannot be changed.
Note 2) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.



EX510 Gateway System
Serial Transmission System
Base Mounted Manifold/Stacking Type

Type 45S6A

Series SY3000/5000

How to Order Manifold

SS5Y 3 – 45S6A □ U – 02 U □ – C4 – □ – □

Manifold series

3	SY3000
5	SY5000

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

SI unit mounting position

U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring Note 1)
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout Note 2) (Compatible with 16 solenoid valves)
⋮	⋮	
16	16 stations	

• The number of the blanking plate assembly is also included.

Note 1) Double wiring: Use of a single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

Note 2) Specified layout: Indicate wiring specifications on the manifold specification sheet. (Note that double and 3 position valves cannot be used where single solenoid wiring has been specified.)

A, B port size

One-touch fitting (Metric size)

C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

• For the mixed specification, indicate separately on a manifold specification sheet.

Pilot specifications

Nil	Internal pilot
S	Internal pilot/built-in silencer
R	External pilot
RS	External pilot/built-in silencer

SUP/EXH block assembly mounting position

U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 16 stations
M	Special specifications*	

*For the special specifications, indicate separately on a manifold specification sheet.

Option

When a DIN rail that is longer than the specified stations is desired, specify the required station number. (Max. 20 stations)

CE-compliant

Nil	—
Q	CE-compliant

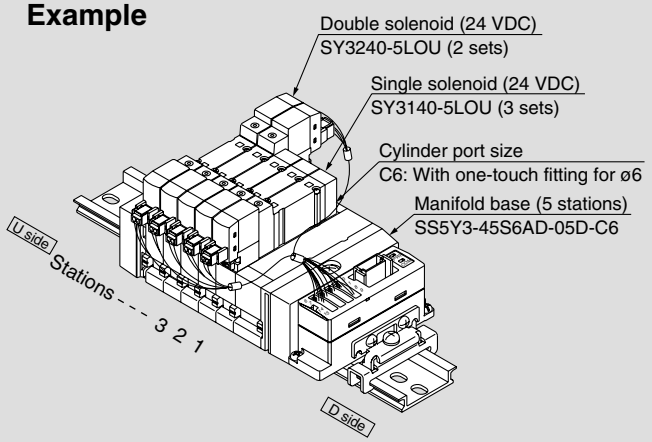
SI unit part no.

Symbol	SI unit specifications	SI unit part no.	Page
Nil	NPN output (+COM.)	EX510-S001	P.1715 to 1717
N	PNP output (–COM.)	EX510-S101	

For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

How to Order Manifold Assembly (Order Example)

Example



SS5Y3-45S6AD-05D-C6 ·· 1 set (45S6A type 5-station manifold part no.)
*** SY3140-5LOU ····· 3 sets (Single solenoid part no.)**
*** SY3240-5LOU ····· 2 sets (Double solenoid part no.)**
→ The asterisk denotes the symbol for assembly. Prefix to the part no. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number.
When entry of part numbers becomes complicated, indicate by the manifold specification sheet. For a manifold for an EX510, the length of the lead wire for a connector assembly depends on the number of stations. Therefore, the manifold assembly is shipped with the valves (including blanking plates) and connector assembly mounted on it, as the standard specification. Be sure to specify the part nos. of the solenoid valves to be mounted.

SMC

How to Order Valves

SY 3 1 40 □ – 5 LO Z □ – □ – □

Series

3	SY3000
5	SY5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot specifications

Nil	Internal pilot
R	External pilot

Rated voltage: 24 VDC

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	Without light/surge voltage suppressor (non-polar type)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

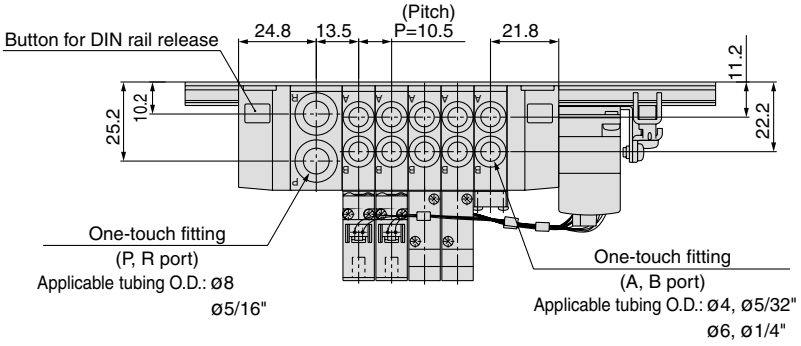
Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

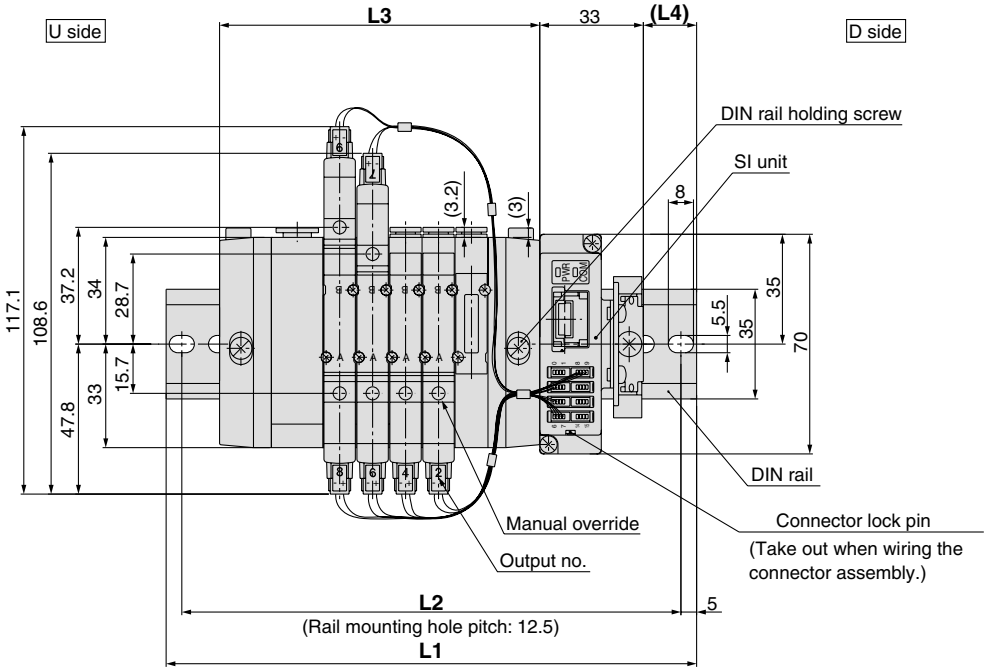
CE-compliant

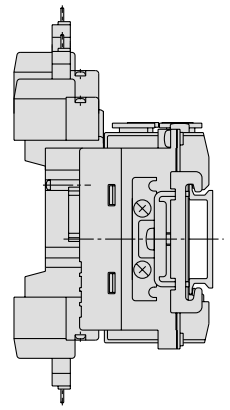
Nil	—
Q	CE-compliant

When ordering valve as a single unit, gaskets for the stacking base type are not included. Order them separately, if necessary. (Refer to page 262 for details.)

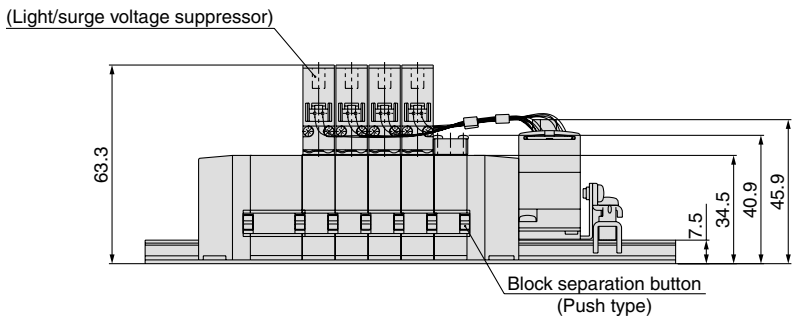
SY3000: SS5Y3-45S6A ☐ D- Stations U- C4, N3 / C6, N7





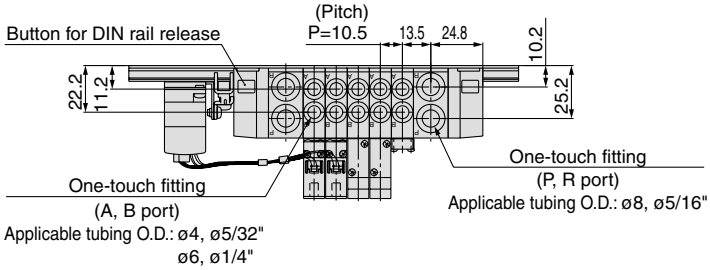


(Station n)- - - (Station 1)

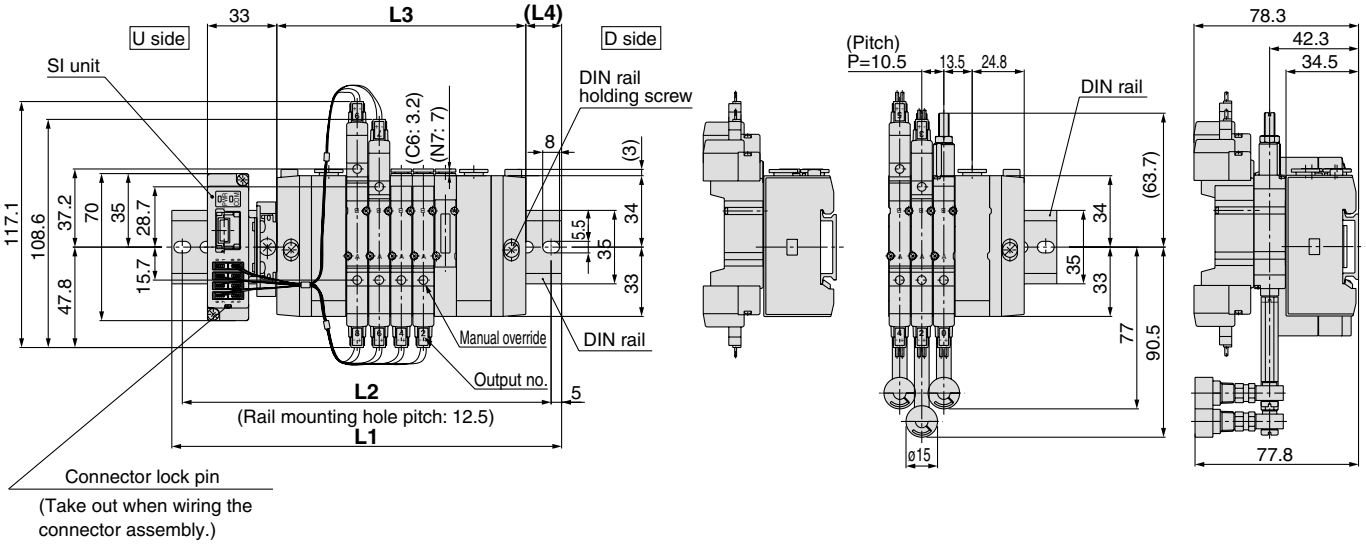


Stations n	**2** stations	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10** stations
L1	135.5	148	148	160.5	173	185.5	198	210.5	223
L2	125	137.5	137.5	150	162.5	175	187.5	200	212.5
L3	70.5	81	91.5	102	112.5	123	133.5	144	154.5
L4	16	17	12	13	14	15	16	17	18

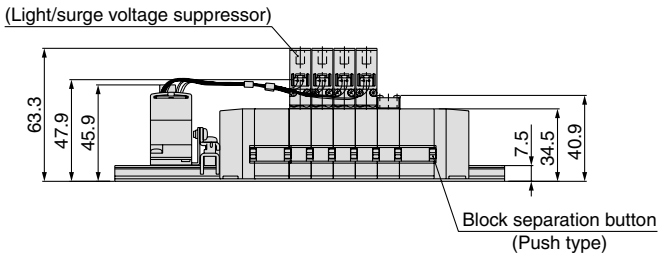
SY3000: SS5Y3-45S6A□U-Stations B-C4, N3 / C6, N7



With interface regulator (with gauge)

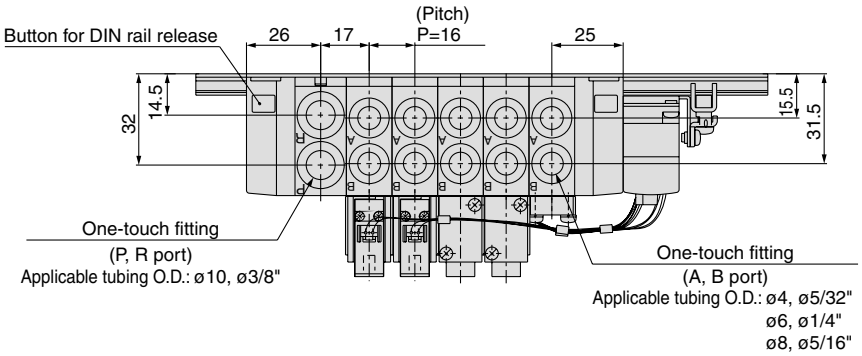


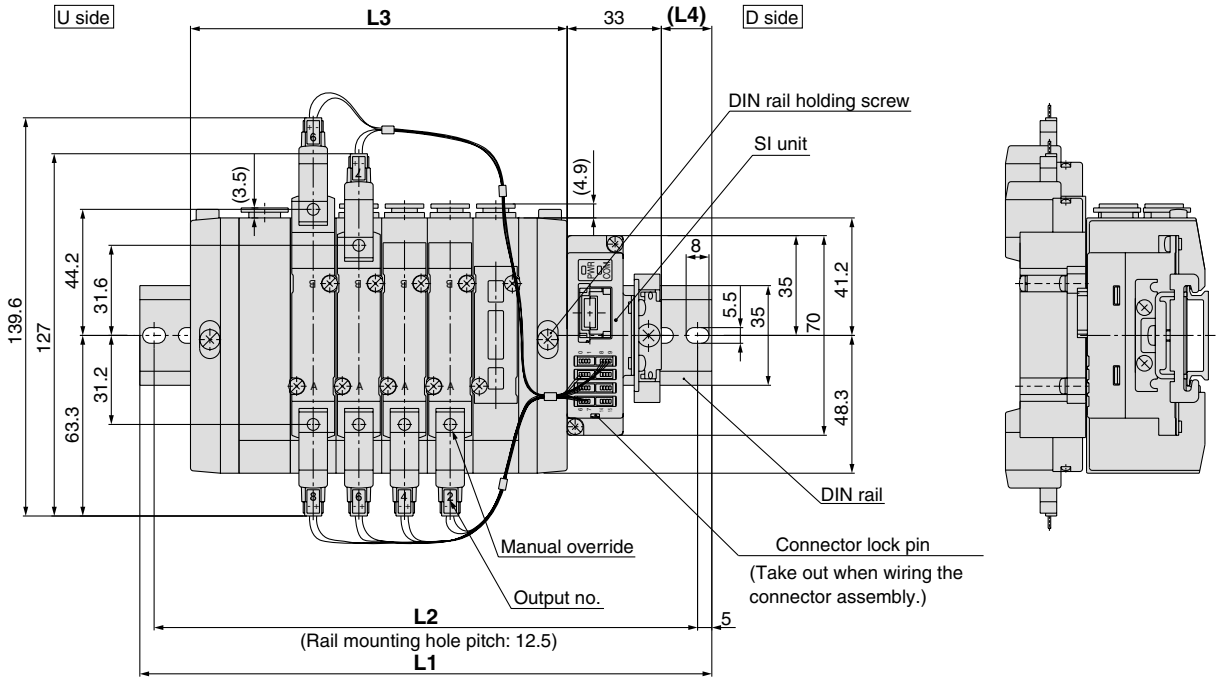
(Station n)- - - (Station 1)

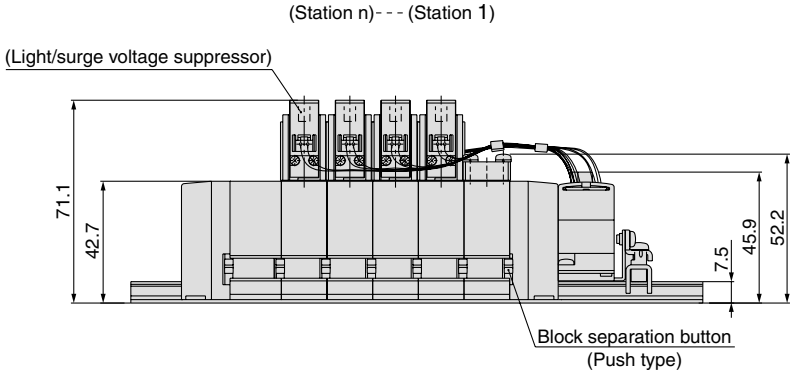


Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	260.5	260.5	273	285.5	298
L2	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	250	250	262.5	275	287.5
L3	87	97.5	108	118.5	129	139.5	150	160.5	171	181.5	192	202.5	213	223.5	234
L4	14	15	16	17	12	13	14	15	16	17	18	12.5	13.5	14.5	15.5

SY5000: SS5Y5-45S6A ☐ D- Stations U- C4, N3 / C6, N7 / C8, N9

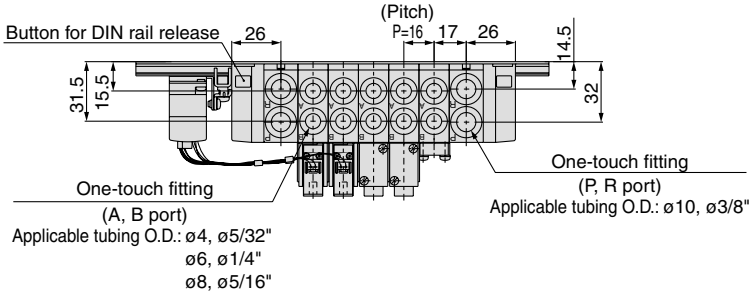


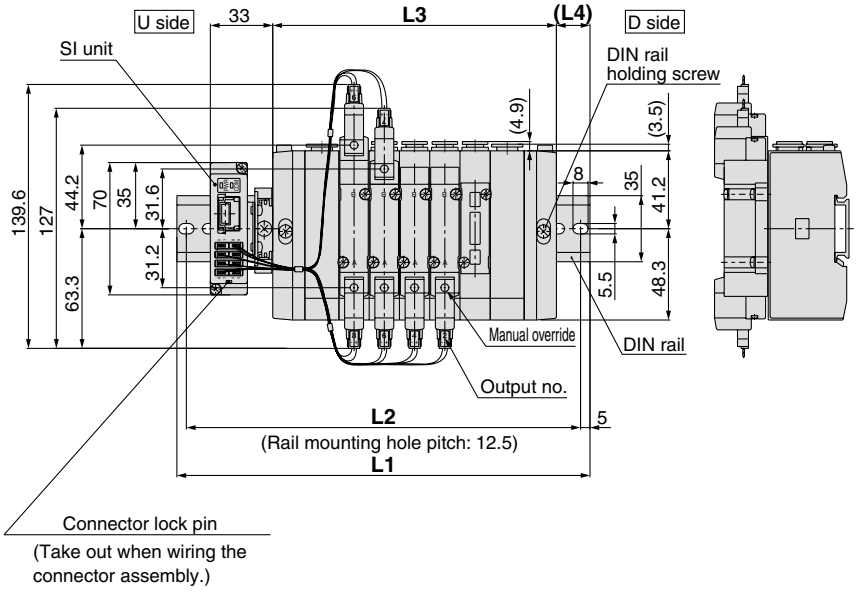




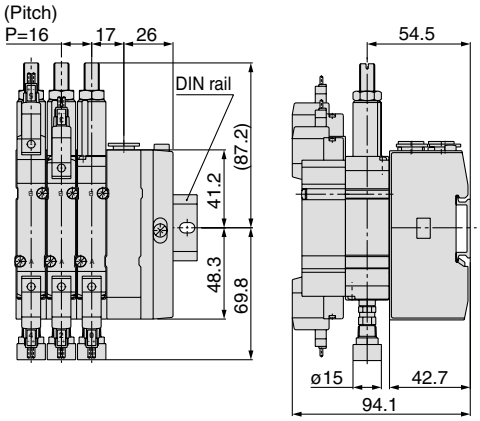
Stations n	**2** stations	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10** stations
L1	148	160.5	173	198	210.5	223	248	260.5	273
L2	137.5	150	162.5	187.5	200	212.5	237.5	250	262.5
L3	84	100	116	132	148	164	180	196	212
L4	15.5	14	12	16.5	15	13	17.5	16	14

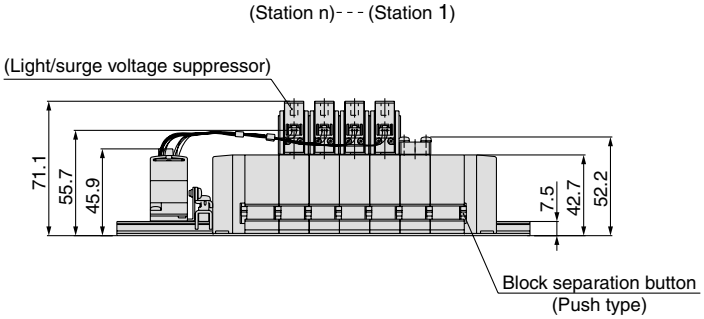
SY5000: SS5Y5-45S6A ☐ U- Stations B- C4, N3 / C6, N7 / C8, N9





With interface regulator (with gauge)

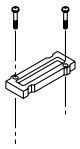




Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	160.5	185.5	198	210.5	223	248	260.5	273	298	310.5	323	335.5	360.5	373	385.5
L2	150	175	187.5	200	212.5	237.5	250	262.5	287.5	300	312.5	325	350	362.5	375
L3	102	118	134	150	166	182	198	214	230	246	262	278	294	310	326
L4	13	17.5	15.5	14	12	16.5	15	13	17.5	16	14	12.5	17	15	13.5

Manifold Option

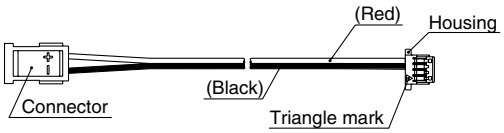
■ For type SS5Y$^{3}_{5}$-45S6A
Blanking plate assembly



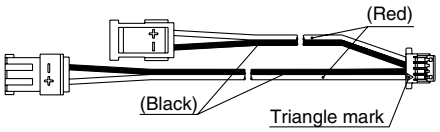
(The shape varies depending on the series.)

Model	Blanking plate assembly part no.
SS5Y3-45S6A	SX3000-75-1A(-Q)
SS5Y5-45S6A	SX5000-76-5A(-Q)

■ Connector assembly
For single solenoid (SY3000-37-81A-□-N)



For double solenoid (SY3000-37-81A-□-□)

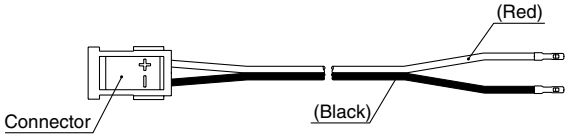


Connector assembly order no. (Can be used for the manifold without a specified layout (8 stations or less))
Integrated type

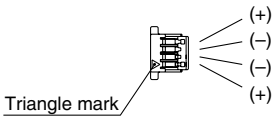
Model	Part no.	Connector mounting position
SS5Y3-45S6A	SY3000-37-81A-3-N	Starting from the SI unit side: From unit 1 to unit 4
	SY3000-37-81A-3-3	Starting from the SI unit side: From unit 5 to unit 8
	SY3000-37-81A-4-N	Starting from the SI unit side: From unit 9 to unit 12
	SY3000-37-81A-4-4	Starting from the SI unit side: From unit 13 to unit 16
SS5Y5-45S6A	SY3000-37-81A-4-N	Starting from the SI unit side: From unit 1 to unit 4
	SY3000-37-81A-4-4	Starting from the SI unit side: From unit 5 to unit 8
	SY3000-37-81A-6-N	Starting from the SI unit side: From unit 9 to unit 12
	SY3000-37-81A-6-6	Starting from the SI unit side: From unit 13 to unit 16
SS5Y9-$^{23}_{43}$SA	SY3000-37-81A-4-N	Single : For 1 to 4 stations
	SY3000-37-81A-4-9	Double/3 position : For 1 to 4 stations
	SY3000-37-81A-6-N	Single : For 5 to 8 stations
	SY3000-37-81A-6-11	Double/3 position : For 5 to 8 stations

Note) The above is for the station addition or maintenance. When ordering a connector assembly separately, a number would not be printed on the connector.

■ Connector assembly
SY3000-37-80A-□



■ Housing (8 pcs./set)
SY3000-44-3A



Connector assembly order no. (Can be used for the manifold with a specified layout)

Model	Part no.	Connector mounting position
SS5Y3-45S6A	SY3000-37-80A-3	Starting from the SI unit side: From unit 1 to unit 4
	SY3000-37-80A-4	Starting from the SI unit side: From unit 5 to unit 8
	SY3000-37-80A-6	Starting from the SI unit side: From unit 9 to unit 12
	SY3000-37-80A-7	Starting from the SI unit side: From unit 13 to unit 16
SS5Y5-45S6A	SY3000-37-80A-4	Starting from the SI unit side: From unit 1 to unit 4
	SY3000-37-80A-6	Starting from the SI unit side: From unit 5 to unit 8
	SY3000-37-80A-8	Starting from the SI unit side: From unit 9 to unit 12
	SY3000-37-80A-10	Starting from the SI unit side: From unit 13 to unit 16

Note 1) The above is for station addition or maintenance. When ordering a connector assembly separately, a number will not be printed on the connector.
Note 2) After inserting the connector assembly into the housing, be sure to confirm that the lead wire will not come off by lightly pulling the wire. Furthermore, do not reuse the lead wire after it has been inserted and removed.
Note 3) Wiring is set longer than the actual wiring distance.

5 Port Solenoid Valve
Base Mounted Manifold
Stacking Type/DIN Rail Mounted/Plug-in

Type 45□

Series SY3000/5000

How to Order Manifold

Type 45F (D-sub connector, 25 pins)

SS5Y 3 - 45 □ F D - 05 U - C4 - □ - □ - □

Series

3	SY3000
5	SY5000

Common specifications

Nil	Positive common
N	Negative common

Connector mounting position

Symbol	Mounting position
U	U side
D	D side

Voltage

Nil	24 VDC
12V	12 VDC

Valve stations

Symbol	Stations	Note
02	2 stations	Single wining spec. (Applicable up to 20 solenoid valves.)
⋮	⋮	
20	20 stations	

∗ This also includes the number of blanking plate assemblies.
∗ Two stations are necessary for the double, 3 position (Dual body type).

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	(Both sides)	2 to 20 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

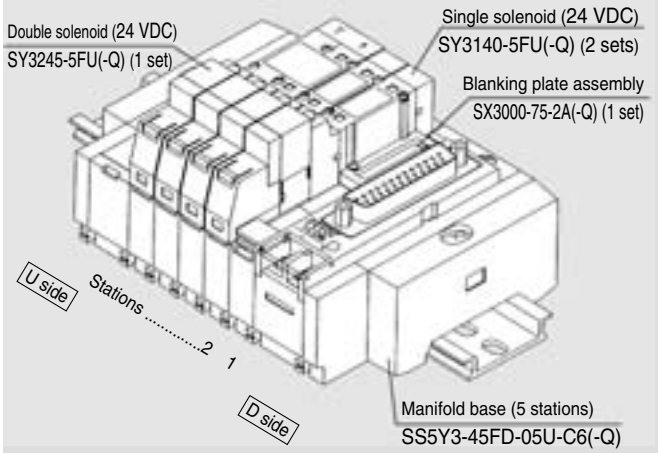
CE-compliant

Nil	—
Q	CE-compliant

Refer to pages 324 to 328 for external pilot specifications and built-in silencer.

How to Order Manifold Assembly (Example)

Example (Type 45F/D-sub connector (25 pin))



SS5Y3-45FD-05U-C6 ·· 1 set (Type 45F, D-sub connector 5-station manifold base part no.)
∗ **SX3000-75-2A ····· 1 set (Blanking plate assembly part no)**
∗ **SY3140-5FU ····· 2 sets (Single solenoid part no.)**
∗ **SY3245-5FU ····· 1 set (Double solenoid part no.)**

The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

- The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of connector box.
- When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.

How to Order Valve (Type 45F, 45P□, 45T, 45T1)

2 position single **SY 3 1 40 – 5 FU □ – □ – □**

Double, 3 position **SY 3 2 45 – 5 FU □ – □ – □**

Series

3	SY3000
5	SY5000

Type of actuation

2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Rated voltage

5	24 VDC
6	12 VDC

Dual body type (Double, 3 position)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

When ordering plug-in type valve as a single unit, gaskets are not included. Order them separately, if necessary. (Refer to page 300 for details.)

How to Order Manifold

Type 45P□ (Flat ribbon cable)

SS5Y 3 - 45 □ P □ D - 05 U - C4 - □ - □ - □

Series

3	SY3000
5	SY5000

Common specifications

Nil	Positive common
N	Negative common

Connector poles

Symbol	Poles	Stations
Nil	26	2 to 20 stations
G	20	2 to 16 stations
H	10	2 to 8 stations

Connector mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations (Blanking plate assemblies are included.)

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	Both sides	2 to 20 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification sheet.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

Voltage

Nil	24 VDC
12V	12 VDC

CE-compliant

Nil	—
Q	CE-compliant

26 pins (P) connector

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 20 solenoid valves.)
⋮	⋮	
20	20 stations	

20 pins (PG) connector

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 16 solenoid valves.)
⋮	⋮	
16	16 stations	

10 pins (PH) connector

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 8 solenoid valves)
⋮	⋮	
08	8 stations	

• Two stations are necessary for the double, 3 position (Dual body type).

Type 45T (9 pins terminal block)

SS5Y 3 - 45T D - 05 U - C4 - □ - □

Series

3	SY3000
5	SY5000

Terminal block mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 8 solenoid valves)
⋮	⋮	
08	8 stations	

∗ This also includes the number of blanking plate assemblies.
∗ Two stations are necessary for the double, 3 position (Dual body type).

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 8 stations
D	D side	2 to 8 stations
B	Both sides	2 to 8 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification sheet.

Note) The terminal block (45T□) manifold has no common polarity. It can be used for both positive and negative common.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

CE-compliant

Nil	—
Q	CE-compliant

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications (M), indicate separately on the manifold

Type 45T1 (18 pins terminal block)

SS5Y 3 - 45T1 D - 15 B - C4 - □ - □

Series

3	SY3000
5	SY5000

Terminal block mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Single wining spec. (Applicable up to 17 solenoid valves.)
⋮	⋮	
17	17 stations	

∗ This also includes the number of blanking plate assemblies.
∗ Two stations are necessary for the double, 3 position (Dual body type).

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	Both sides	2 to 17 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification sheet.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

CE-compliant

Nil	—
Q	CE-compliant

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications (M), indicate separately on the manifold

How to Order Manifold

Type 45G (Flat ribbon cable, PC Wiring System compatible)

SS5Y 3 - 45G D - 05 U □ - C4 - □ - □

Series

3	SY3000
5	SY5000

Connector mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 16 solenoid valves.)
⋮	⋮	
16	16 stations	

∗ Two stations are necessary for the double, 3 position (Dual body type).
∗ This also includes the number of blanking plate assemblies.

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	Both sides	2 to 16 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification sheet.

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

SUP/EXH block assembly specifications

Symbol	Specifications
Nil	Internal pilot specifications
R	External pilot specifications
S	Internal pilot / Built-in silencer
RS	External pilot / Built-in silencer

CE-compliant

Nil	—
Q	CE-compliant

How to Order Valve

2 position single **SY 3 1 4 0 □ – 5 FU □ – □ – □**

Double, 3 position **SY 3 2 4 5 □ – 5 FU □ – □ – □**

Series

3	SY3000
5	SY5000

Type of actuation

2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Rated voltage

5	24 VDC

Pilot type

Nil	Inernal pilot
R	External pilot

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

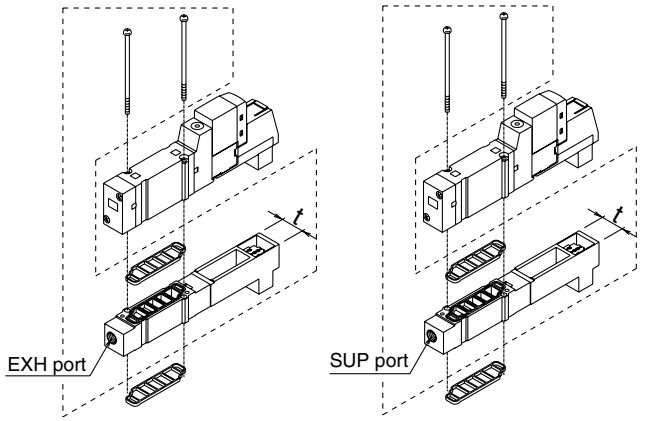
Nil	—
Q	CE-compliant

Dual body type (Double, 3 position)

When ordering plug-in type valve as a single unit, gaskets are not included. Order them separately, if necessary. (Refer to page 300 for details.)

Manifold Option

■ **Individual EXH spacer assembly** ■ **Individual SUP spacer assembly**

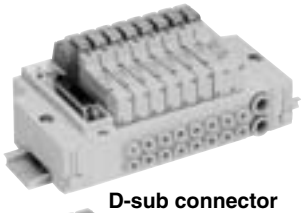


Series	Assembly part no.	Port no.	t
SY3000	SY3000-39-3A(-Q)	M5 x 0.8	11
SY5000	SY5000-39-17A(-Q)	1/8	15

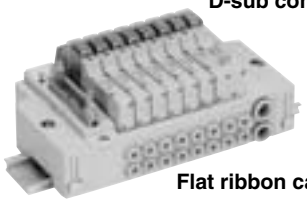
Note) Please be careful because the dual body type (double solenoid, 3-position) requires two pieces. In this case, the exhaust is performed in the direction of the arrow mark indicated on the valve surface.

Series	Assembly part no.	Port no.	t
SY3000	SY3000-38-3A(-Q)	M5 x 0.8	11
SY5000	SY5000-38-17A(-Q)	1/8	15

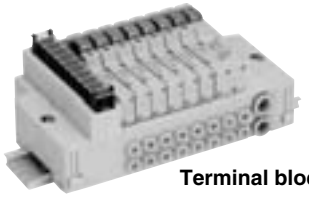
Note) Please be careful because the dual body type (double solenoid, 3-position) requires two pieces. In this case, both supply ports require the piping.



D-sub connector



Flat ribbon cable



Terminal block

Manifold Specifications

Model			D-sub connector Type 45F	Flat ribbon cable Type 45PI			Terminal block		Flat ribbon cable PC wiring system compatible
				Type 45P	Type 45PG	Type 45PH	Type 45T	Type 45T1	Type 45G
Manifold			Plug-in						
P (SUP)/R (EXH)			Common SUP, Common EXH						
Valve stations Note 1, 2)			2 to 20 stations		2 to 16 stations	2 to 8 stations		2 to 17 stations	2 to 16 stations
A, B port Porting specifications		Location	Base						
		Direction	Side						
Port size	P, R port	SY3000	C8 (One-touch fitting for ø8)						
		SY5000	C10 (One-touch fitting for ø10)						
	A, B port	SY3000	C4 (One-touch fitting for ø4)/C6 (One-touch fitting for ø6)						
		SY5000	C4 (One-touch fitting for ø4)/C6 (One-touch fitting for ø6)/C8 (One-touch fitting for ø8)						
Applicable connector			D-sub connector Complies with MIL-C-24308 JIS-X-5101	Flat ribbon cable connector Socket: 26 pins MIL type with strain relief Conforming to MIL-C-83503	Flat ribbon cable connector Socket: 20 pins MIL type with strain relief Conforming to MIL-C-83503	Flat ribbon cable connector Socket: 10 pins MIL type with strain relief Conforming to MIL-C-83503	Terminal block (M3) 9 pins	Terminal block (M3) 18 pins	Flat ribbon cable connector Socket: 20 pins MIL type with strain relief Conforming to MIL-C-83503
Internal wiring			+COM (Type 45□), –COM (Type 45N□)				In common between +COM and –COM.		+ COM
Manifold base mass w (g) n: Stations (D-sub connector)		SY3000	2 to 10 stations: W = 26n + 172 11 to 20 stations: W = 26n + 199						
		SY5000	2 to 10 stations: W = 54n + 227 11 to 20 stations: W = 52n + 264						

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.
Note 2) There is a limit depending on the number of solenoids. Refer to "How to Order".

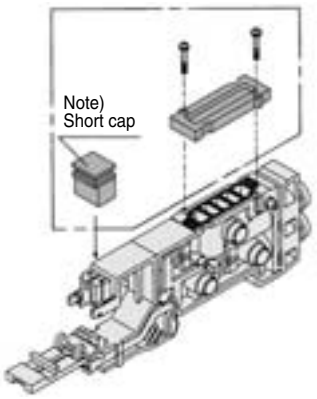
Flow Characteristics

Model	Port size		Flow characteristics					
	1 ,5 ,3 (P ,EA ,EB)	4 ,2 (A ,B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm³/(s·bar))	b	Cv	C (dm³/(s·bar))	b	Cv
SS5Y3-45□	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45□	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

Note) The value is for manifold base with 5 stations and individually operated 2 position type.

Manifold Option

▪ Blanking plate assembly



Series	Assembly part no.
SY3000	SX3000-75-2A(-Q)
SY5000	SX5000-76-6A(-Q)

Note) • When mounting blanking plate, be sure to mount a short cap.
• Two stations are necessary for the double, 3 position (Dual body type).

▪ SUP blocking disk

By installing a SUP blocking disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

▪ EXH blocking disk

By installing an EXH blocking disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two blocking disks are needed to divide both exhausts.)

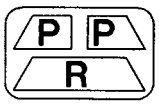


Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

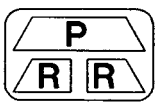
▪ Label for block disk

The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)
VZ3000-123-1A (In common with SY3000, 5000)

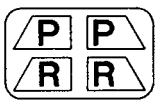
Label for SUP block disk



Label for EXH block disk



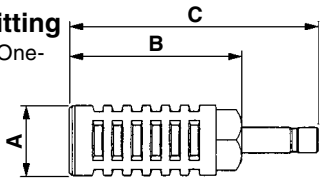
Label for SUP/EXH block disk



Note) When a block disk is concurrently ordered by specifying on the manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

▪ Silencer with One-touch fitting

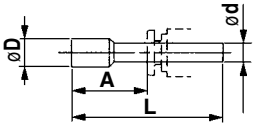
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	A	B	C
For SY3000 (ø8)	AN203-KM8	14 mm²	ø16	26	51
For SY5000 (ø10)	AN200-KM10	26 mm²	ø22	53.8	80.2
	AN300-KM10	30 mm²	ø25	70	97

▪ Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



Dimensions

Applicable fittings size ød	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
1/8"	**KQ2P-01**	16	31.5	5
5/32"	**KQ2P-03**	16	32	6
1/4"	**KQ2P-07**	18	35	8.5
5/16"	**KQ2P-09**	20.5	39	10

⚠ Caution

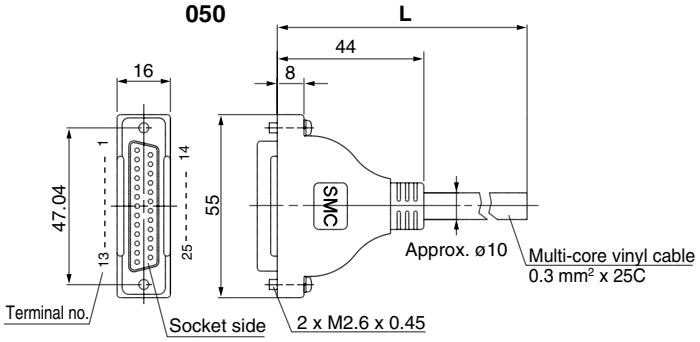
Mounting screw tightening torques

M2: 0.17 N·m
M3: 0.8 N·m
M4: 1.4 N·m

Manifold Option

▪ D-sub connector (25 pins)/Cable assembly

AXT100-DS25- 015 / 030 / 050



D-sub connector cable

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-DS25-015	Cable 25 core x 24 AWG
3 m	AXT100-DS25-030	
5 m	AXT100-DS25-050	

∗ When a commercially available connector is required, use a 25 pin female connector conforming to MIL-C24308.

Electric characteristics

Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

Note) The min. bending radius of D-sub cable assembly is 20 mm.

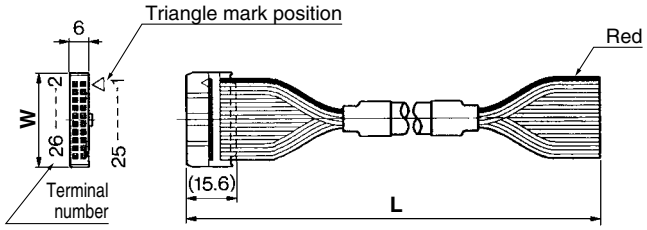
D-sub connector cable assembly Terminal numbers

Terminal no.	Lead wire color	Dot marking
1	Black	None
2	Brown	None
3	Red	None
4	Orange	None
5	Yellow	None
6	Pink	None
7	Blue	None
8	Purple	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Purple	None
18	Gray	None
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Gray	Red
24	Black	White
25	White	None

Connector manufacturers' example
- Hirose Electric Co., Ltd.
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

▪ Flat Ribbon Cable Connector/Cable assembly

AXT100-FC□- 1 to 3



Flat Ribbon Cable Assembly

Cable length (L)	10 pins	20 pins	26 pins
1.5 m	AXT100-FC10-1	AXT100-FC20-1	AXT100-FC26-1
3 m	AXT100-FC10-2	AXT100-FC20-2	AXT100-FC26-2
5 m	AXT100-FC10-3	AXT100-FC20-3	AXT100-FC26-3
Connector width (W)	17.2	30	37.5

∗ For other commercial connectors, use a type with strain relief that conform to MIL-C-83503.

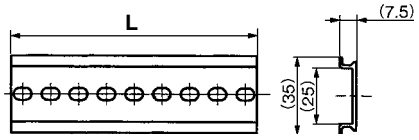
Connector manufacturers' example
- Hirose Electric Co., Ltd.
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd.
- J.S.T. Mfg. Co., Ltd.

▪ Dimensions/DIN rail

VZ1000-11-1-□

● Refer to L dimensions

∗ Fill in □ with an appropriate no. listed on the table of DIN rail dimensions shown below.



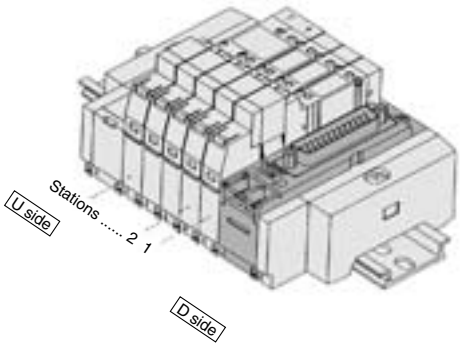
No.	0	1	2	3	4	5	6	7	8	9	10
L Dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223
No.	11	12	13	14	15	16	17	18	19	20	21
L Dimension	235.5	248	260.5	273	285.5	298	310.5	323	335.5	348	360.5
No.	22	23	24	25	26	27	28	29	30	31	32
L Dimension	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498
No.	33	34	35	36	37	38	39	40	41	42	43
L Dimension	510.5	523	535.5	548	560.5	573	585.5	598	610.5	623	635.5
No.	44	45	46	47	48	49	50	51	52	53	54
L Dimension	648	660.5	673	685.5	698	710.5	723	735.5	748	760.5	773
No.	55	56	57	58	59	60	61	62	63	64	65
L Dimension	785.5	798	810.5	823	835.5	848	860.5	873	885.5	898	910.5
No.	66	67	68	69	70	71					
L Dimension	923	935.5	948	960.5	973	985.5					

∗ Refer to L1 dimension on pages starting with pages 282 to 299 for lengths that correspond to the number of manifold stations.

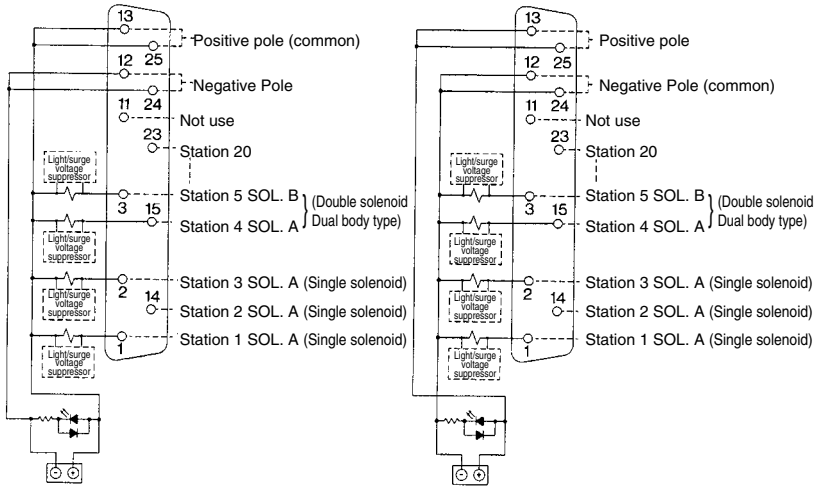
Manifold Internal Wiring

45(N)F/D-sub Connector

A D-sub connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.



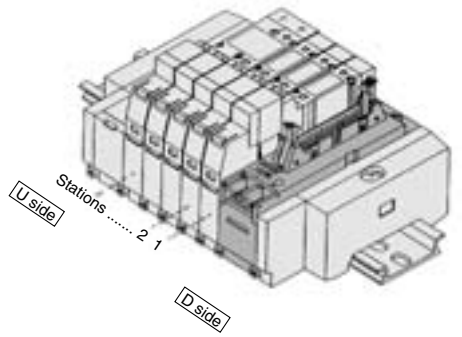
<For positive common (45F)> **<For negative common (45NF)>**



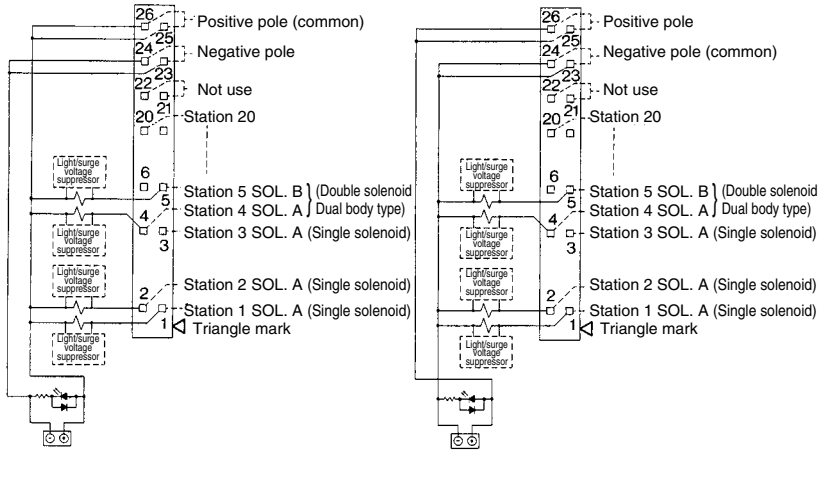
- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 20 manifold stations, with up to 20 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

Type 45(N)P/Flat Ribbon Cable (26 pins)

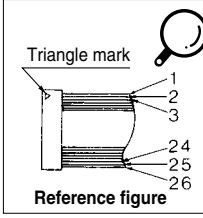
A flat ribbon cable connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.



<For positive common (45P)> **<For negative common (45NP)>**



- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 20 manifold stations, with up to 20 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.



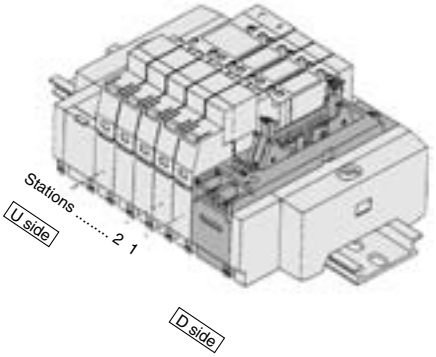
Reference figure

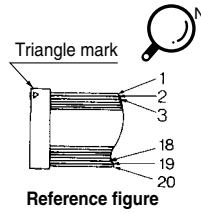
Note)
Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3···26 from the triangle mark side on the flat ribbon cable of connector.

Manifold Internal Wiring

Type 45(N)PG/Flat Ribbon Cable (20 pins)

A flat ribbon cable connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.

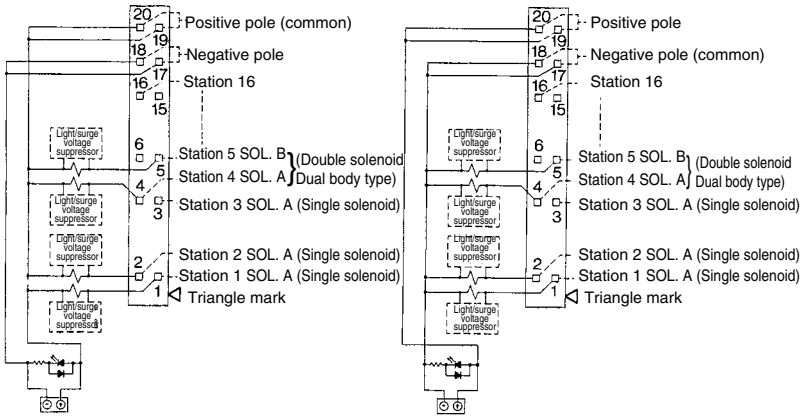




Reference figure

Note) Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····20 from the triangle mark side on the flat ribbon cable of connector.

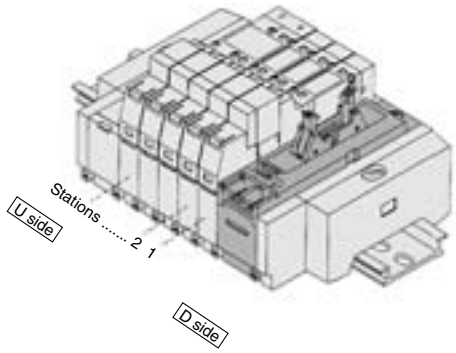
<For positive common (45PG)> **<For negative common (45NPG)>**

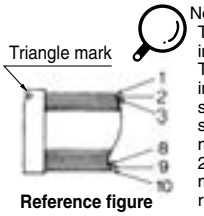


- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 16 manifold stations, with up to 16 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

Type 45(N)PH/Flat Ribbon Cable (10 pins)

A flat ribbon cable connector used for electric wiring reduces labor during wiring operation. Connectors conforming to MIL are used for interchangeability.

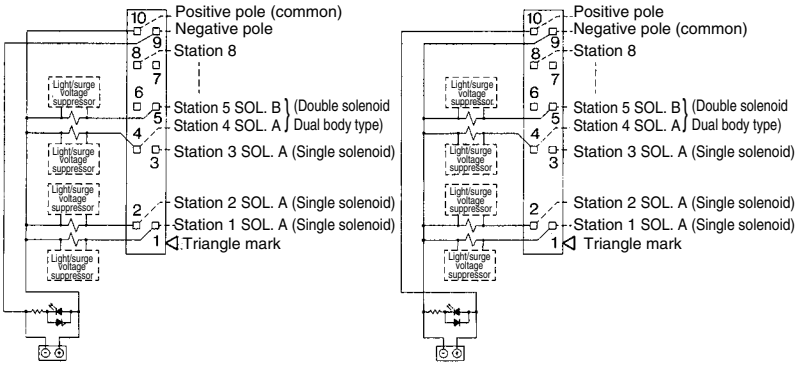




Reference figure

Note) Terminal no. is not indicated on the connector. The terminal no. indicated in the connection schematic of connector, as shown in the reference, means a correlation of 1, 2, 3····10 from the triangle mark side on the flat ribbon cable of connector.

<For positive common (45PH)> **<For negative common (45NPH)>**

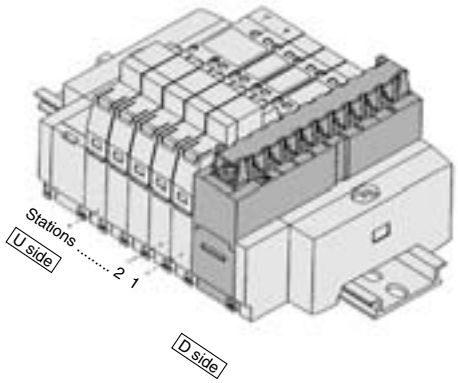


- The power source terminal is used for connecting to an external power source.
- The maximum number of stations that can be accommodated is 8 manifold stations, with up to 8 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

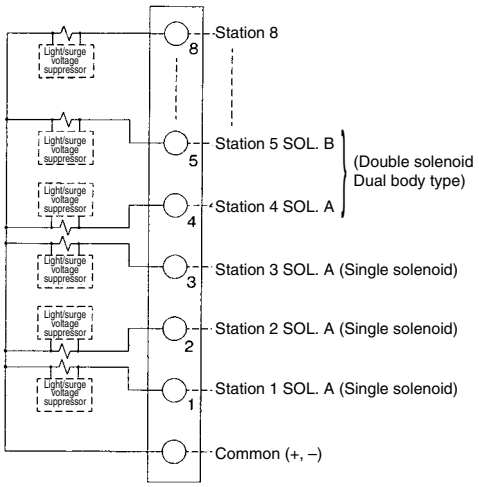
Manifold Internal Wiring

Type 45T/Terminal Block

A terminal block style permits direct cable connection without treatment of lead wires.

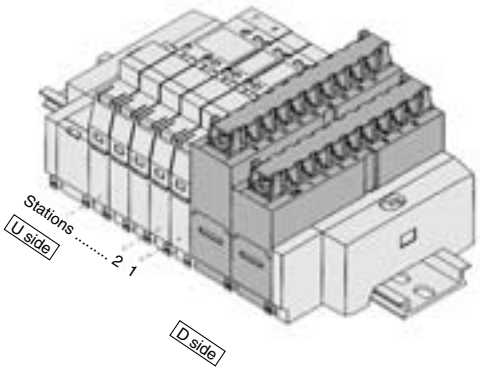


(45T)

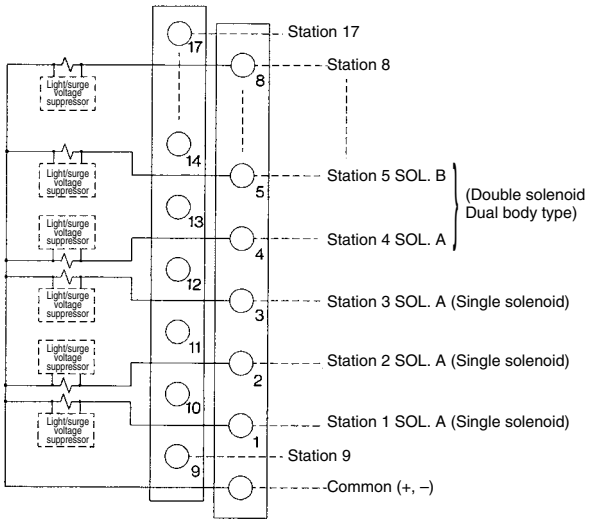


- The maximum number of stations that can be accommodated is 8 manifold stations, with up to 8 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.
- There is no polarity in the COM wiring. Supply positive power for +COM spec. and negative power for –COM spec.

Type 45T1/Terminal Block



(45T1)

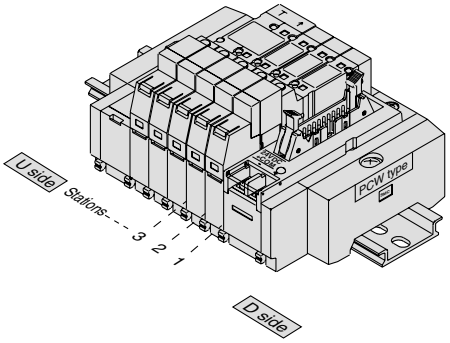


- The maximum number of stations that can be accommodated is 17 manifold stations, with up to 17 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.
- There is no polarity in the COM wiring. Supply positive power for +COM spec. and negative power for –COM spec.

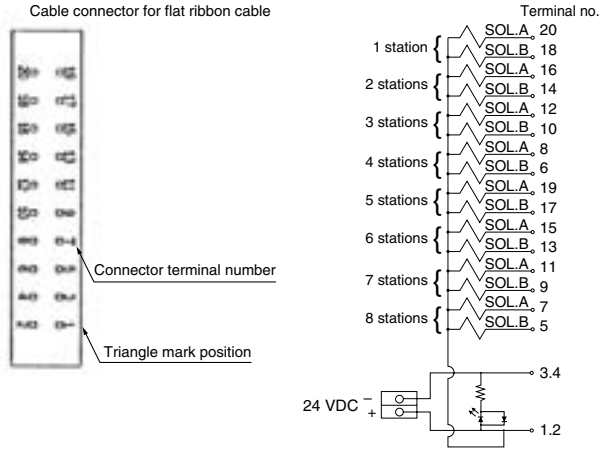
Manifold Internal Wiring

Type 45G Flat Ribbon Cable (PC Wiring System compatible)

It's the manifold for 20 pins flat ribbon cable connector which is compliant for PC wiring system.



Electric circuit diagram
(Below wiring is the case of all double solenoid connections.)



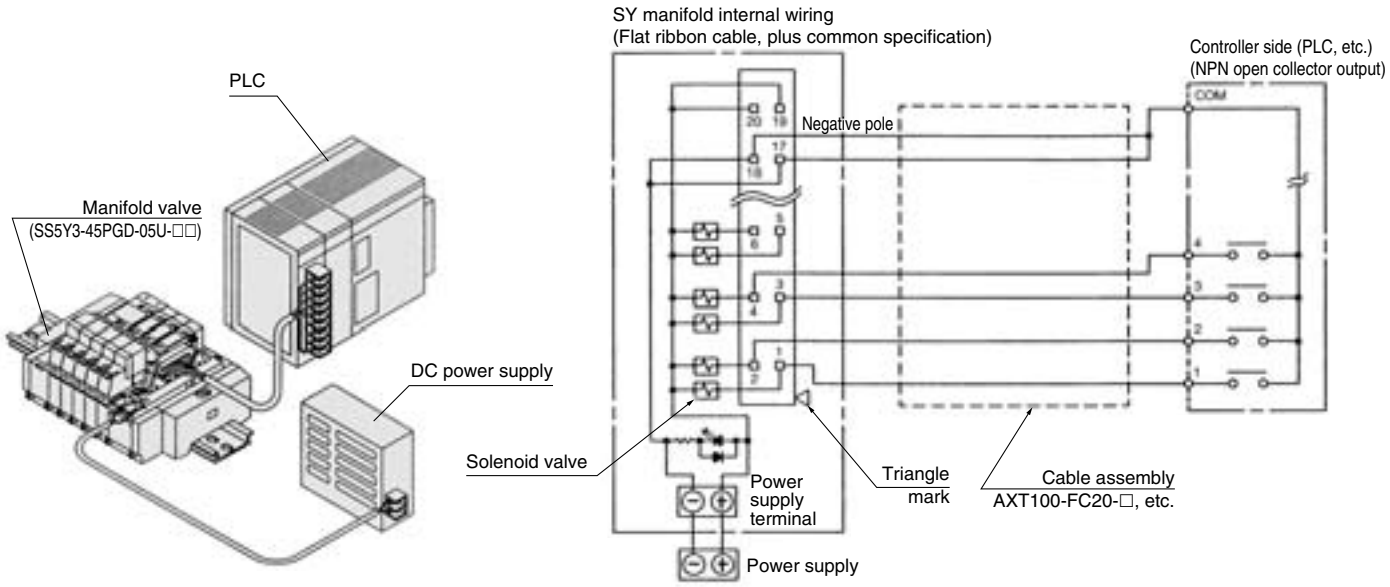
- The maximum number of stations that can be accommodated is 16 manifold stations, with up to 16 solenoids. (For more stations, please contact SMC.)
- Regardless of the connector mounting position, stations are to be counted from D side as the 1st one.

(For details about the PC wiring system, refer to catalog CAT.E02-20 separately.)

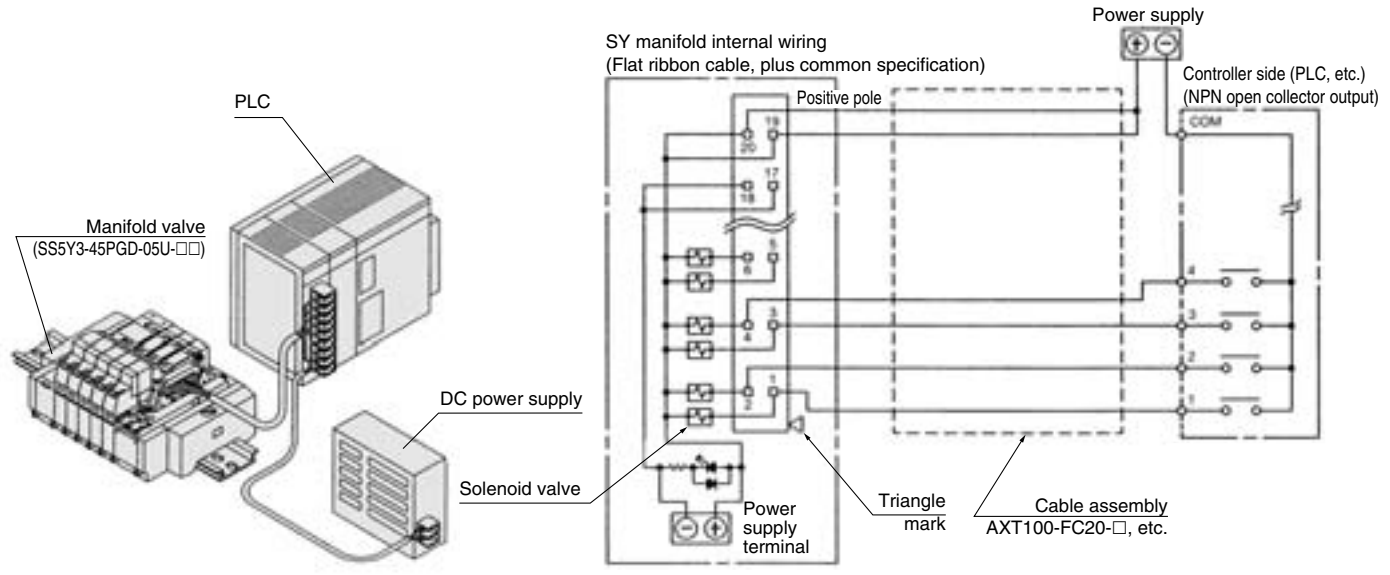
How to Connect SS5Y□-45□ (Plug-in)

Power terminal is equipped with plug-in manifold of Series SY as standard.
Power terminal enables the power supply to valve from either of manifold or controller side.
The wiring examples should be used for reference when wiring is performed.

1. Wiring example when using manifold power supply terminals



2. Wiring example when not using manifold power supply terminals (Power is supplied to the controller side or along the wiring, etc.)

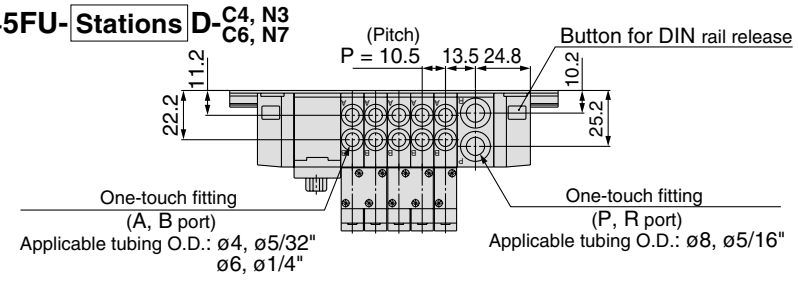


⚠Caution

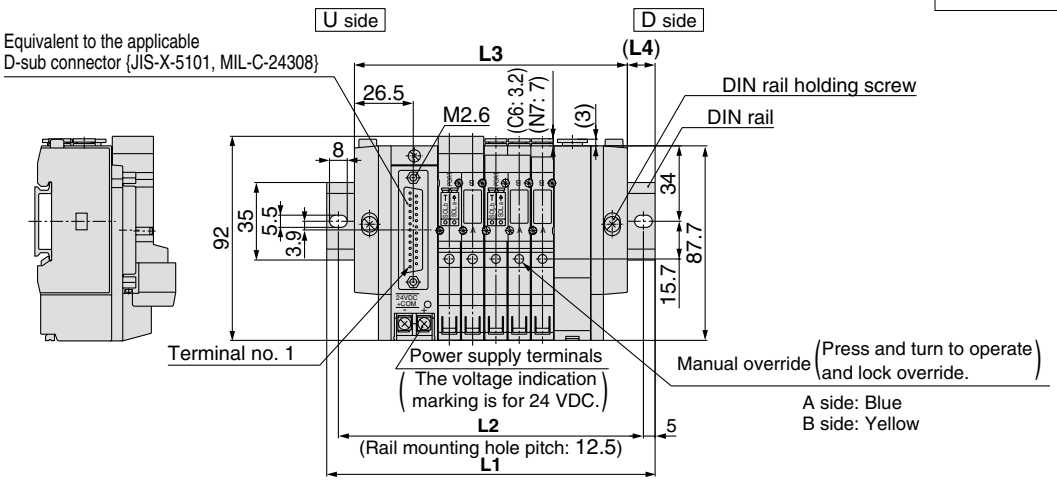
- Single wire, COM position, etc. of PLC are different from each manufacturer. When connecting with PLC, read the specifications carefully and understand the electrical circuit. Poor wiring could cause damage to PLC, power source, etc. as well as manifold and valve.

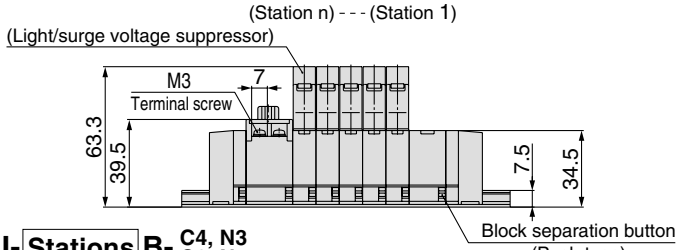
SY3000: D-sub Connector/Plug-in

SS5Y3-45FU-[Stations]D-C4, N3 / C6, N7



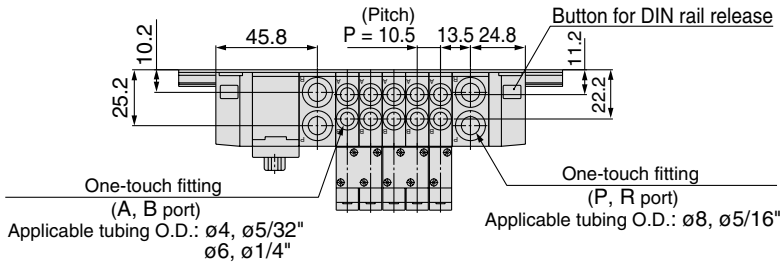
Note) The **L1** to **L4** dimensions of **SS5Y3-45FU-[Stations]U-C4, N3 / C6, N7** are identical to those of SS5Y3-45FU-[Stations]D-C4, N3 / C6, N7.

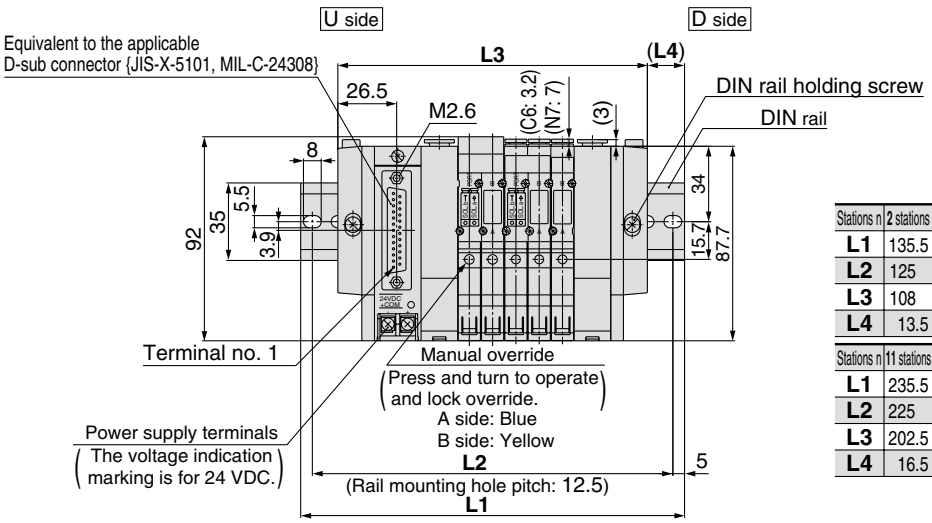




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5

SS5Y3-45FU-[Stations]B-C4, N3 / C6, N7



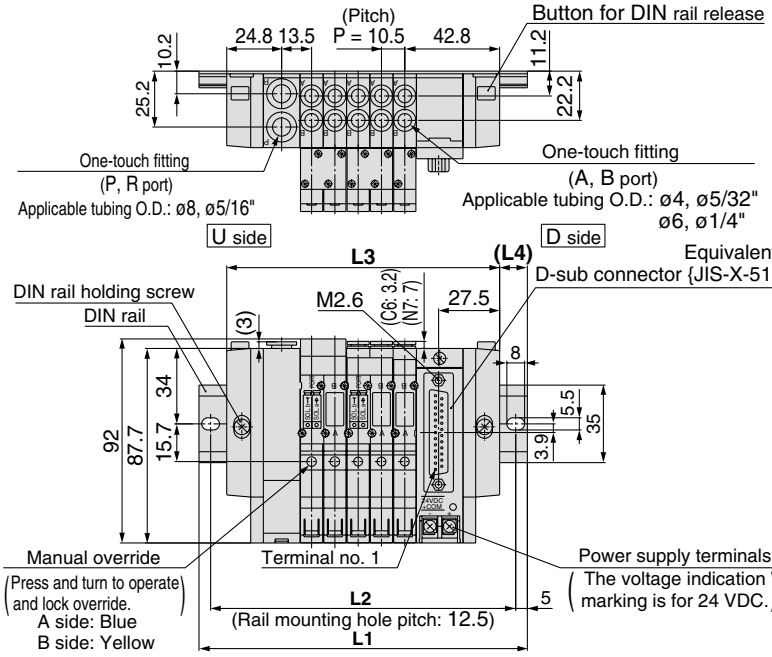


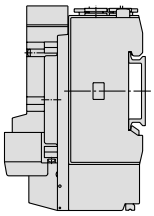
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	173	185.5	185.5	198	210.5	223
L2	125	137.5	150	162.5	175	175	187.5	200	212.5
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323
L2	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5
L3	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L4	16.5	17.5	12	13	14	15	16	17	12	13

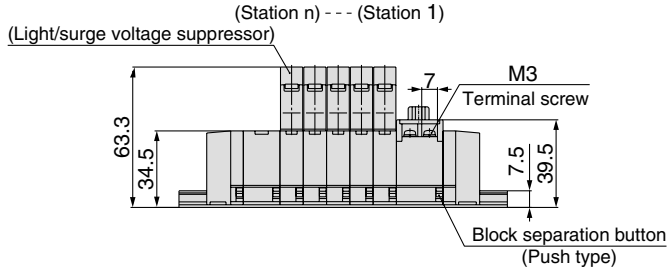
SY3000: D-sub Connector/Plug-in

SS5Y3-45FD-[Stations]U-C4, N3 / C6, N7



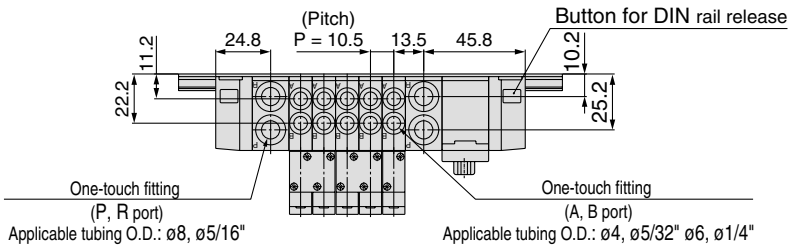


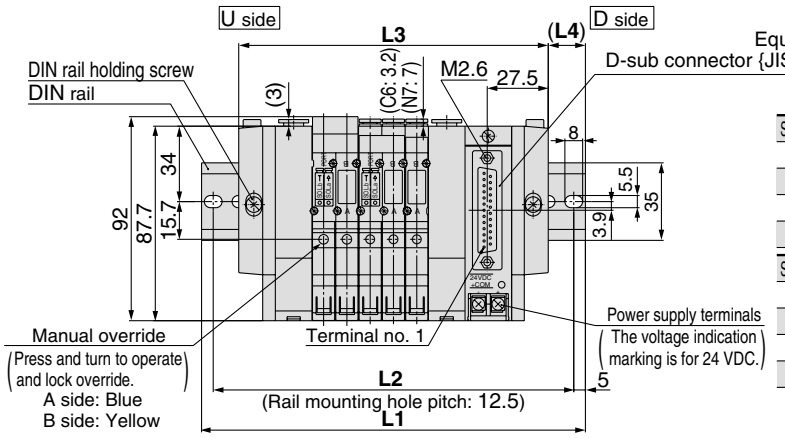
Note) The **L1** to **L4** dimensions of **SS5Y3-45FD-[Stations]D-C4, N3 / C6, N7** are identical to those of SS5Y3-45FD-[Stations]U-C4,N3 / C6,N7.



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5

SS5Y3-45FD-[Stations]B-C4,N3 / C6,N7



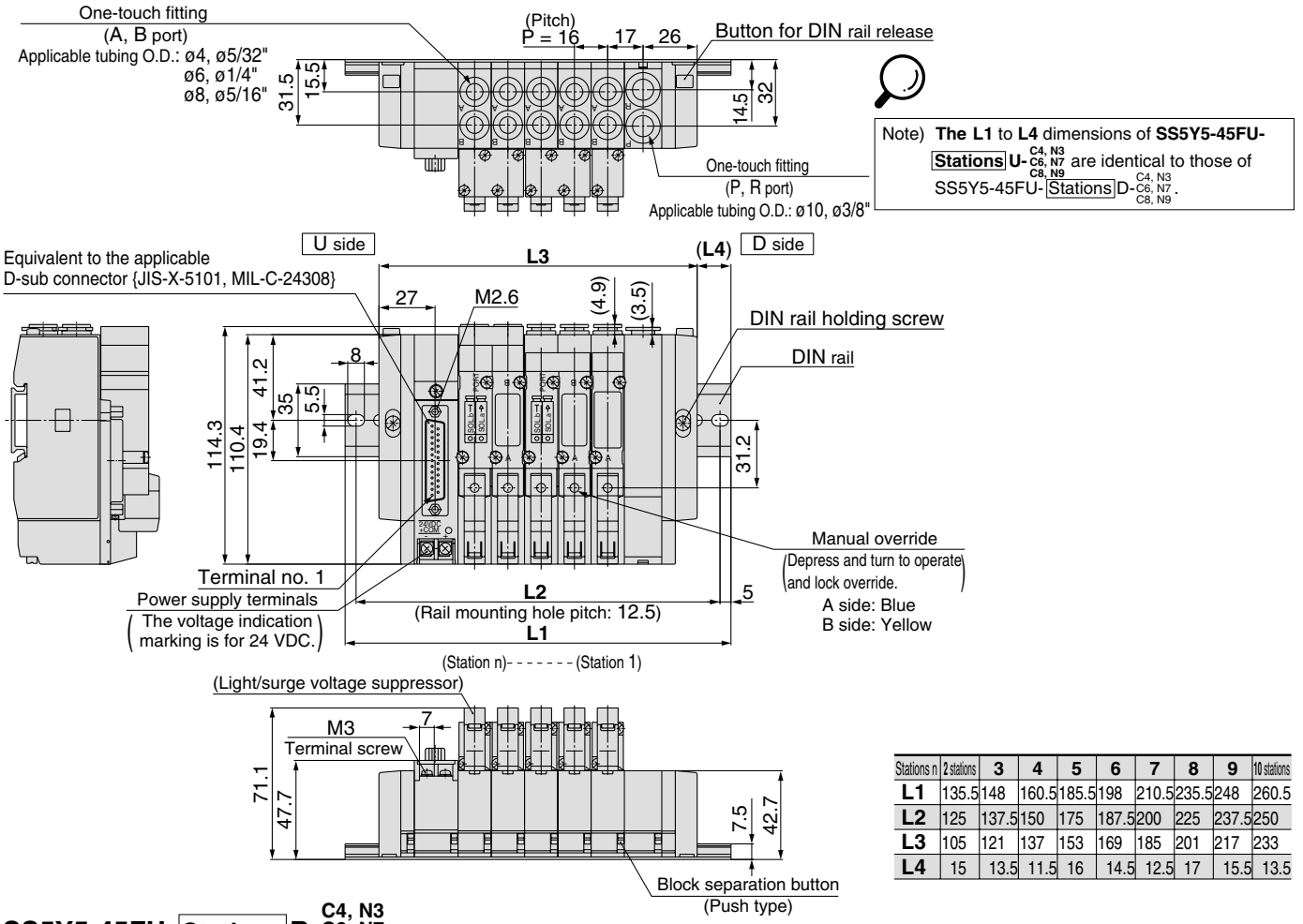


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	173	185.5	185.5	198	210.5	223
L2	125	137.5	150	162.5	175	175	187.5	200	212.5
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323
L2	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5
L3	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L4	16.5	17.5	12	13	14	15	16	17	12	13

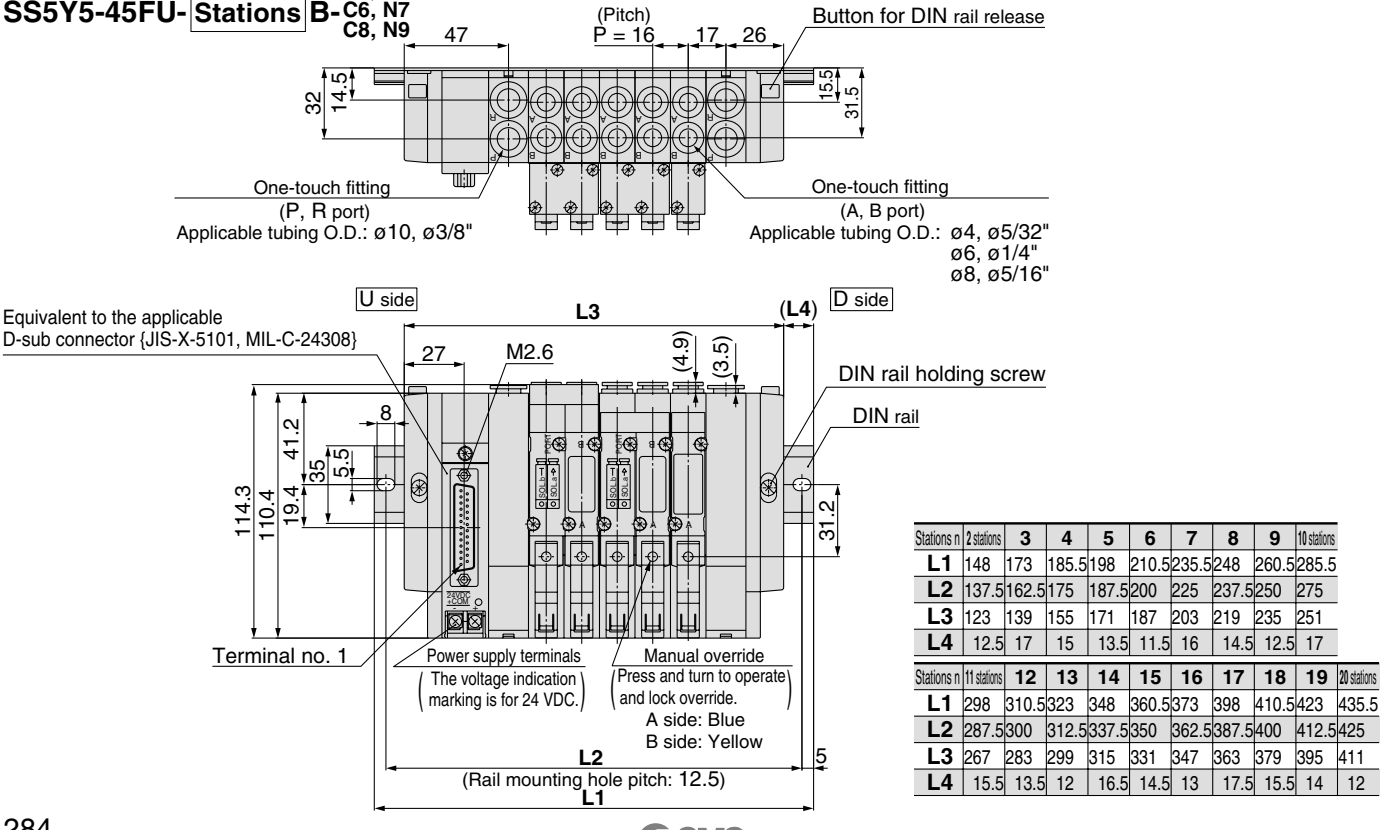
SY5000: D-sub Connector/Plug-in

SS5Y5-45FU-[Stations]D-C4, N3 C6, N7 C8, N9



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

SS5Y5-45FU-[Stations]B-C4, N3 C6, N7 C8, N9

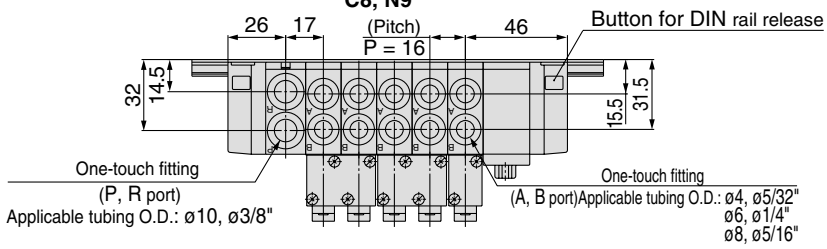


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

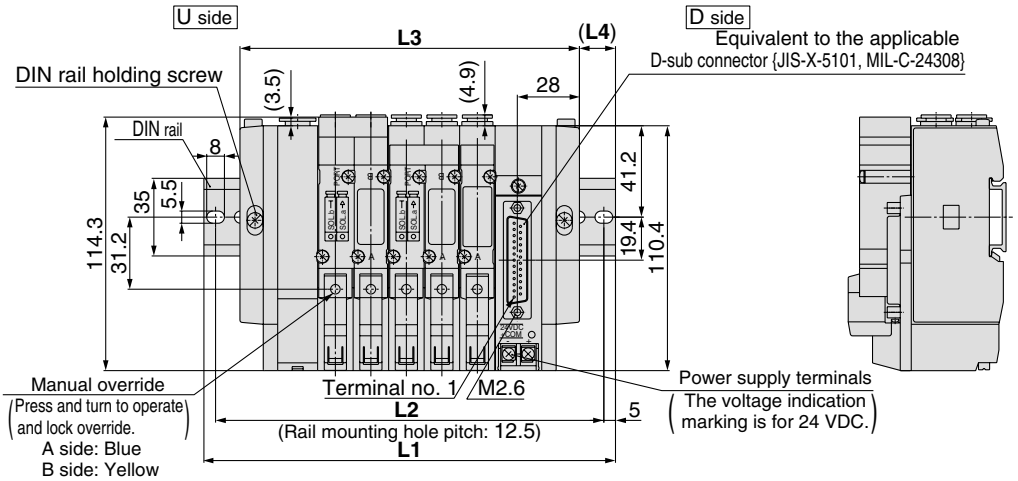
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	298	310.5	323	348	360.5	373	398	410.5	423	435.5
L2	287.5	300	312.5	337.5	350	362.5	387.5	400	412.5	425
L3	267	283	299	315	331	347	363	379	395	411
L4	15.5	13.5	12	16.5	14.5	13	17.5	15.5	14	12

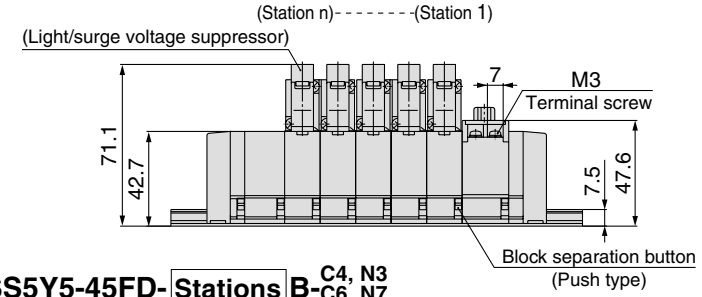
SY5000: D-sub Connector/Plug-in

SS5Y5-45FD-[Stations]U-C4, N3 C6, N7 C8, N9



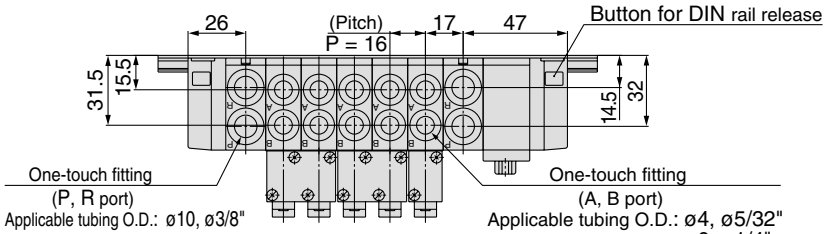
Note) **The L1** to **L4** dimensions of **SS5Y5-45FD-[Stations]D-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45FD-[Stations]U-C4, N3 C6, N7 C8, N9.

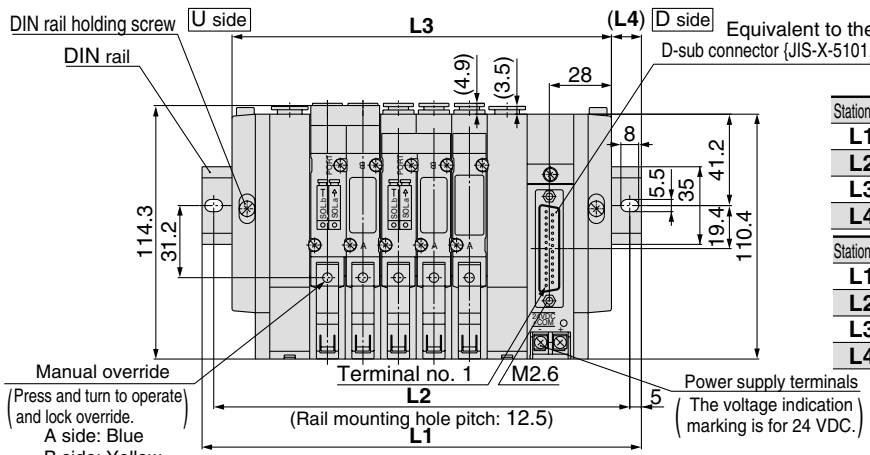




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

SS5Y5-45FD-[Stations]B-C4, N3 C6, N7 C8, N9



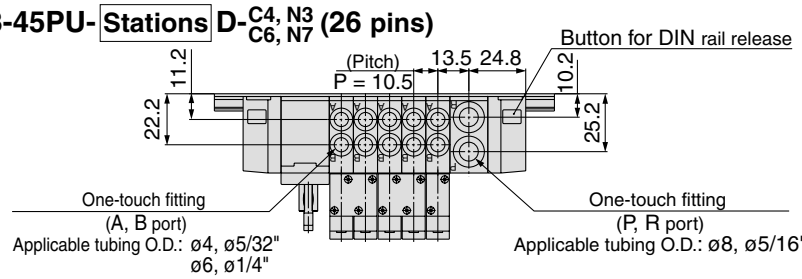


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

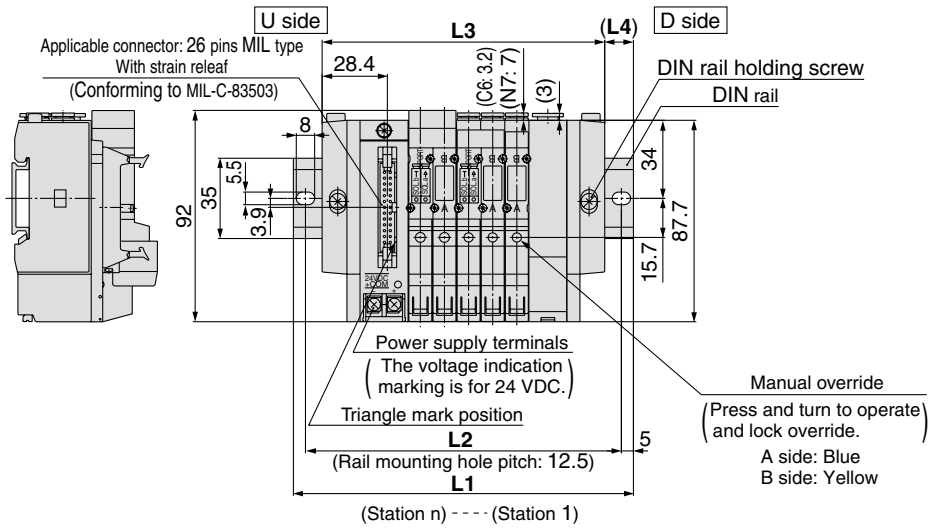
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	298	310.5	323	348	360.5	373	398	410.5	423	435.5
L2	287.5	300	312.5	337.5	350	362.5	387.5	400	412.5	425
L3	267	283	299	315	331	347	363	379	395	411
L4	15.5	13.5	12	16.5	14.5	13	17.5	15.5	14	12

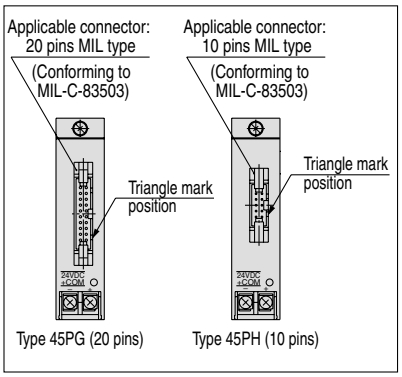
SY3000: Flat Ribbon Cable/Plug-in

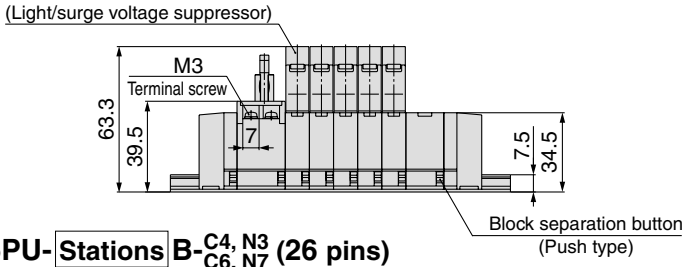
SS5Y3-45PU-[Stations]D-$^{C4, N3}_{C6, N7}$ (26 pins)



Note) **The L1** to **L4** dimensions of **SS5Y3-45P□U-[Stations]U-$^{C4, N3}_{C6, N7}$** are identical to those of SS5Y3-45PIU-[Stations]D-$^{C4, N3}_{C6, N7}$.

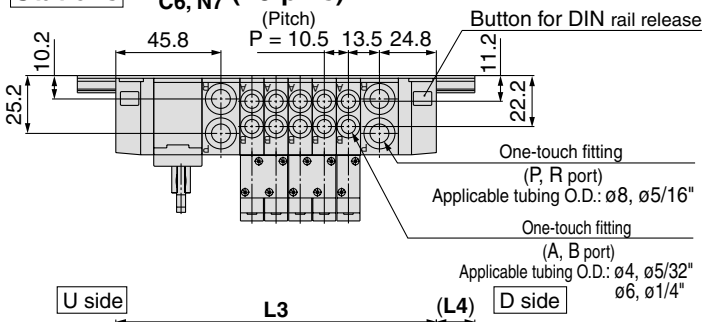


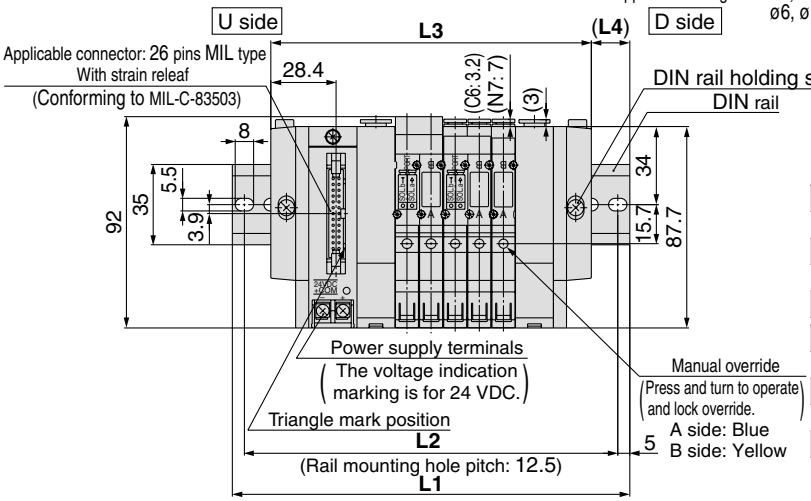




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5

SS5Y3-45PU-[Stations]B-$^{C4, N3}_{C6, N7}$ (26 pins)



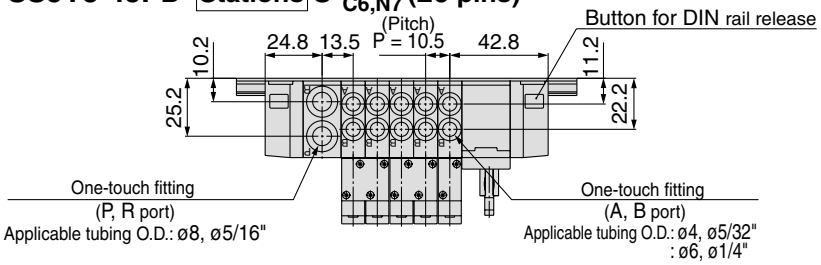


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	173	185.5	185.5	198	210.5	223
L2	125	137.5	150	162.5	175	175	187.5	200	212.5
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

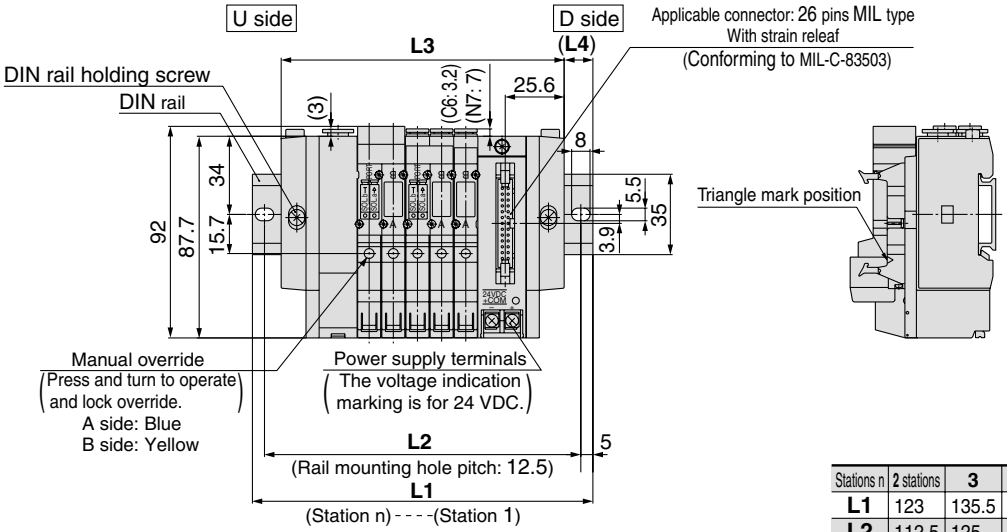
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323
L2	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5
L3	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L4	16.5	17.5	12	13	14	15	16	17	12	13

SY3000: Flat Ribbon Cable/Plug-in

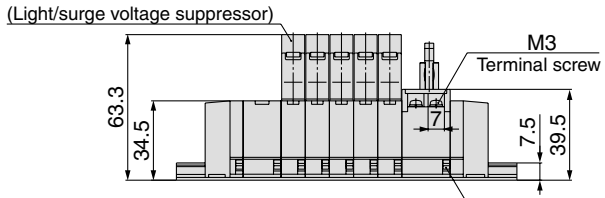
SS5Y3-45PD-[Stations]U-C4,N3 C6,N7 (26 pins)



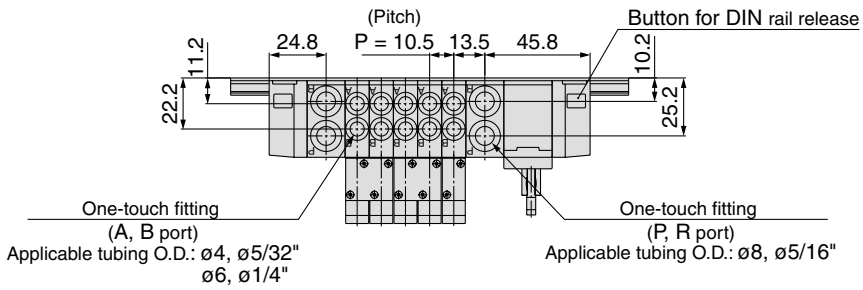
Note) The **L1** to **L4** dimensions of **SS5Y3-45P□D-[Stations]D-C4, N3 C6, N7** are identical to those of SS5Y3-45P□D-[Stations]U-C4, N3 C6, N7.

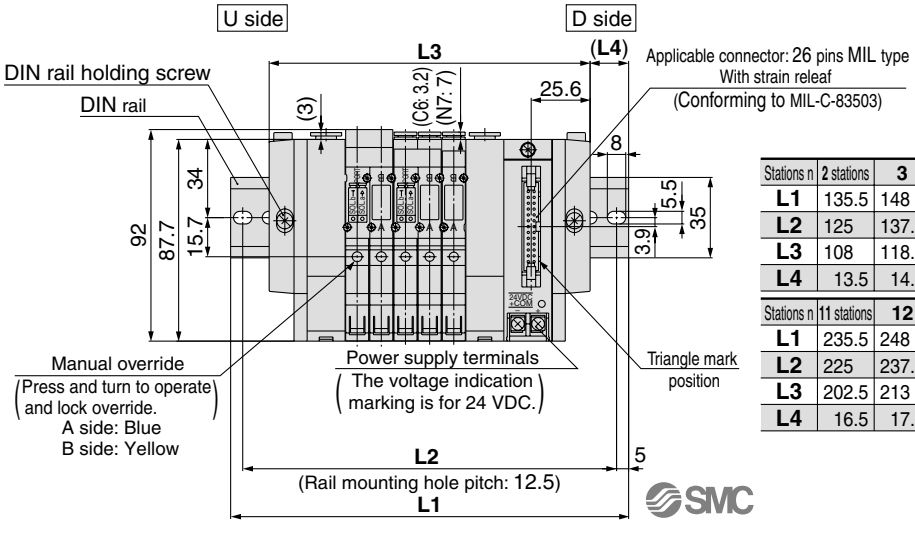


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5



SS5Y3-45PD-[Stations]B-C4,N3 C6,N7 (26 pins)



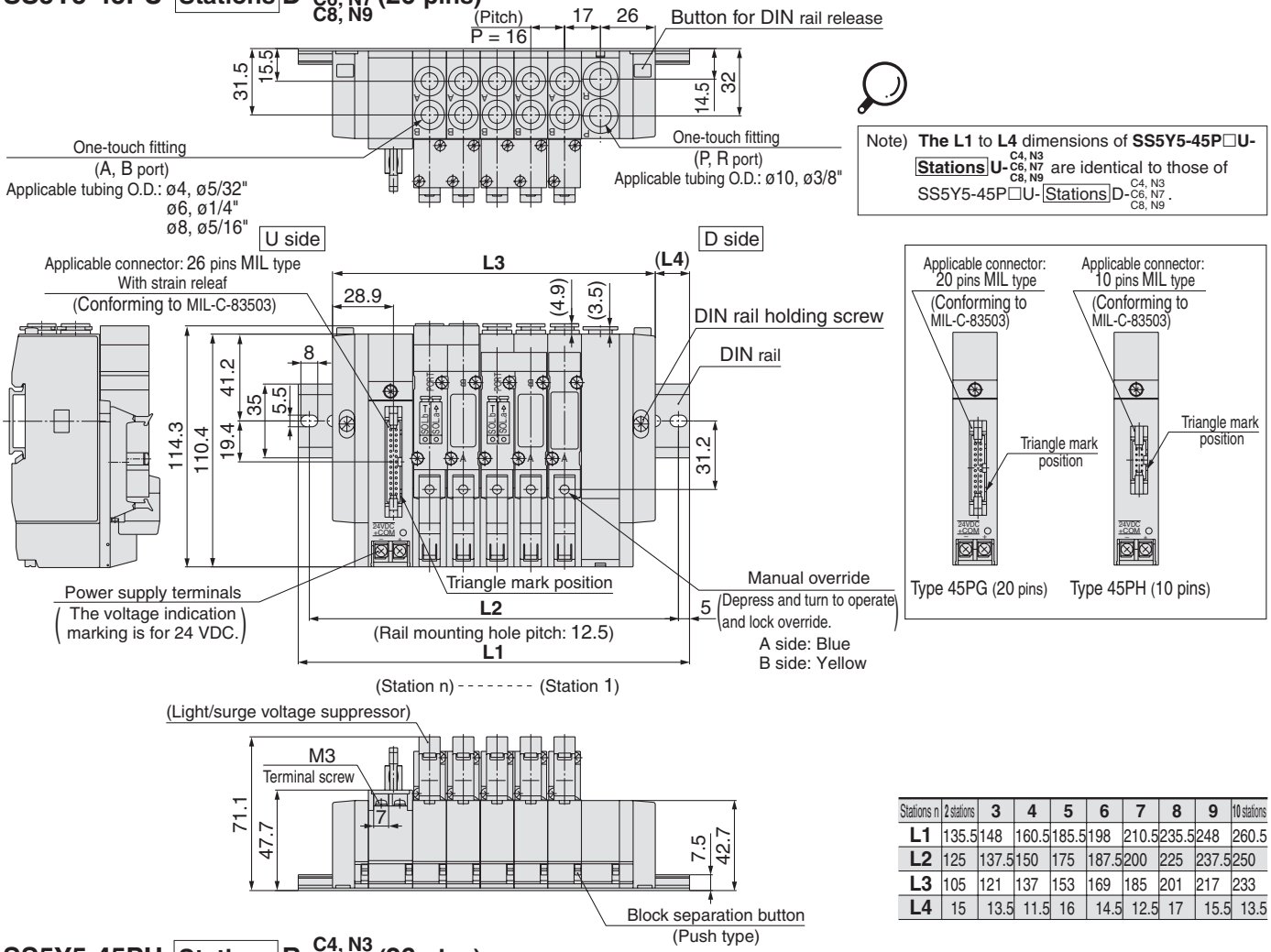


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	173	185.5	185.5	198	210.5	223
L2	125	137.5	150	162.5	175	175	187.5	200	212.5
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	235.5	248	248	260.5	273	285.5	298	310.5	310.5	323
L2	225	237.5	237.5	250	262.5	275	287.5	300	300	312.5
L3	202.5	213	223.5	234	244.5	255	265.5	276	286.5	297
L4	16.5	17.5	12	13	14	15	16	17	12	13

SY5000: Flat Ribbon Cable/Plug-in

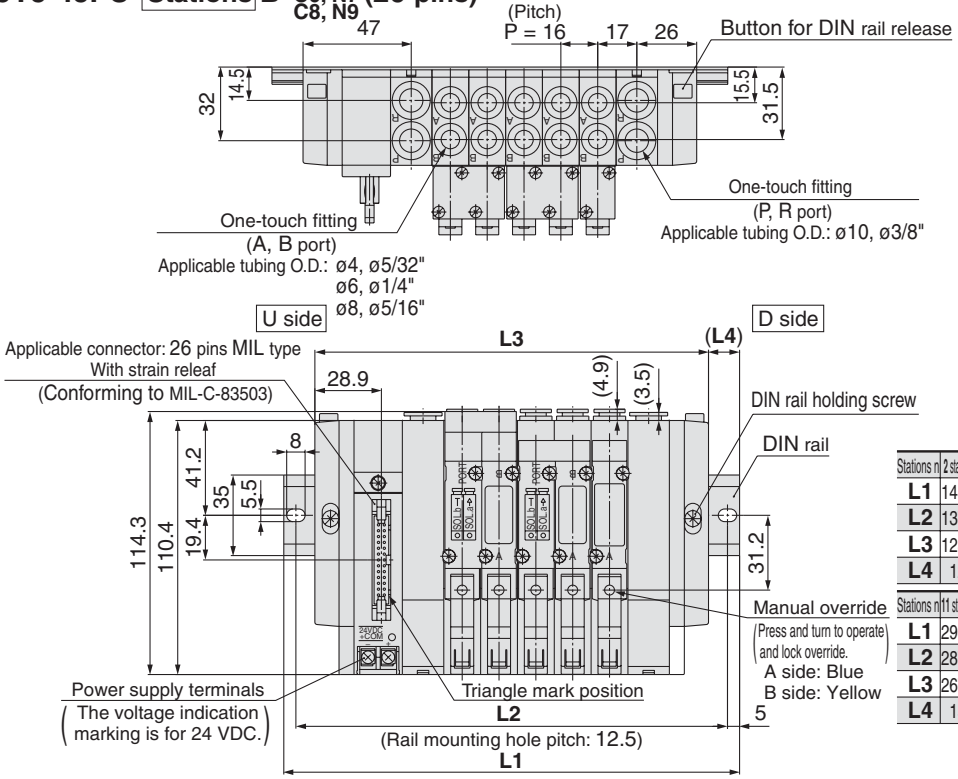
SS5Y5-45PU-[Stations]D-[C4, N3 / C6, N7 / C8, N9] (26 pins)



Note) **The L1 to L4 dimensions of SS5Y5-45P□U-[Stations]U-[C4, N3 / C6, N7 / C8, N9]** are identical to those of SS5Y5-45P□U-[Stations]D-[C4, N3 / C6, N7 / C8, N9].

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

SS5Y5-45PU-[Stations]B-[C4, N3 / C6, N7 / C8, N9] (26 pins)

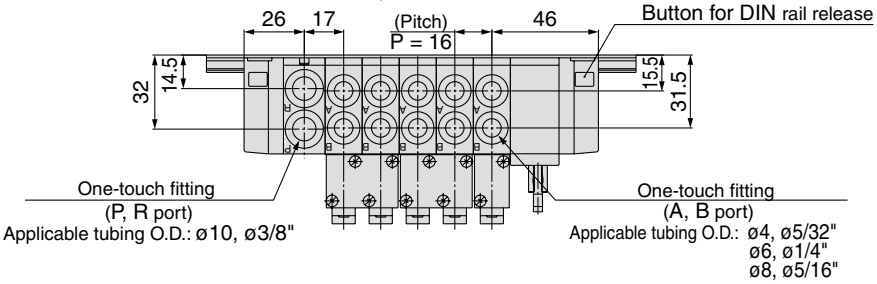


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

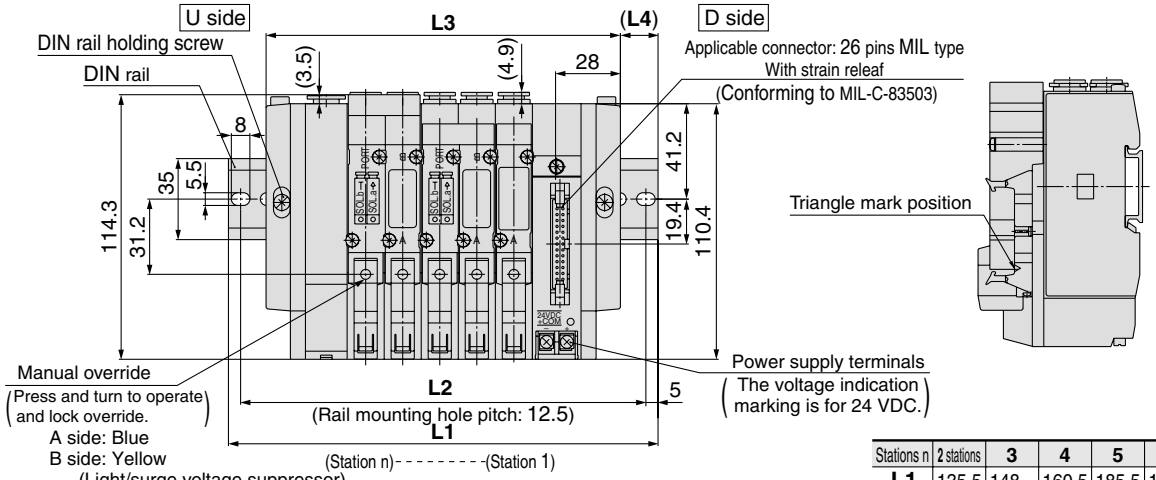
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	298	310.5	323	348	360.5	373	398	410.5	423	435.5
L2	287.5	300	312.5	337.5	350	362.5	387.5	400	412.5	425
L3	267	283	299	315	331	347	363	379	395	411
L4	15.5	13.5	12	16.5	14.5	13	17.5	15.5	14	12

SY5000: Flat Ribbon Cable/Plug-in

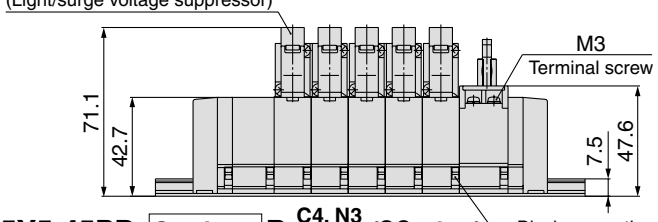
SS5Y5-45PD-[Stations]U-[C4, N3 / C6, N7 / C8, N9] (26 pins)



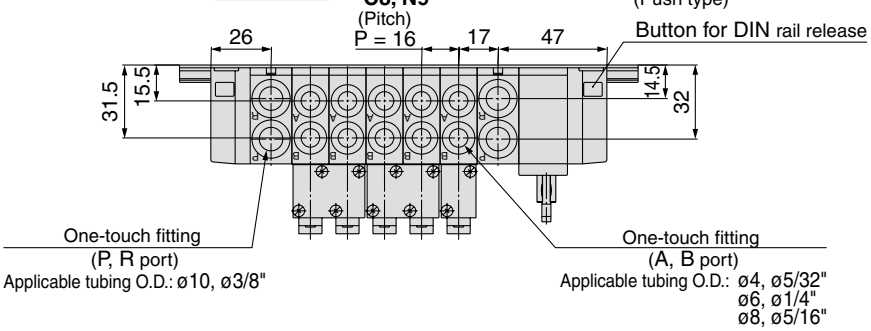
Note) **The L1** to **L4** dimensions of **SS5Y5-45P□D-[Stations]D-[C4, N3 / C6, N7 / C8, N9]** are identical to those of SS5Y3-45P□D-[Stations]U-[C4, N3 / C6, N7 / C8, N9].

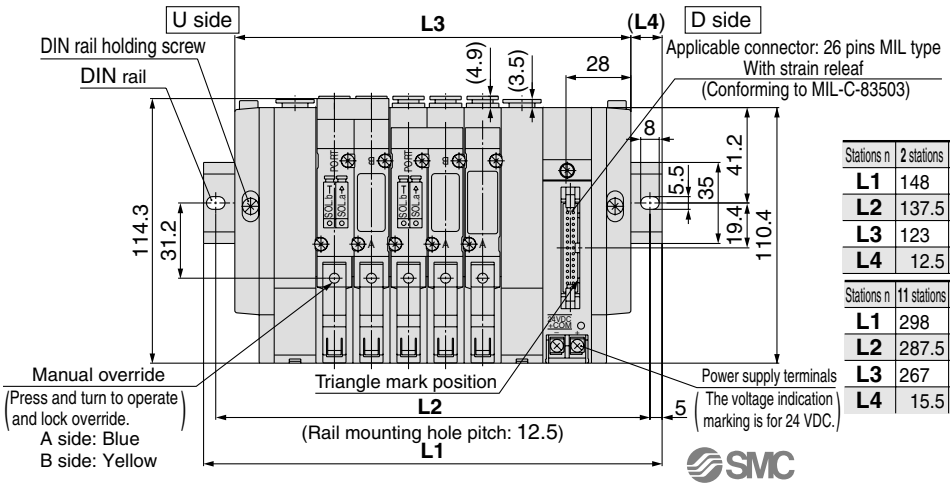


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5



SS5Y5-45PD-[Stations]B-[C4, N3 / C6, N7 / C8, N9] (26 pins)



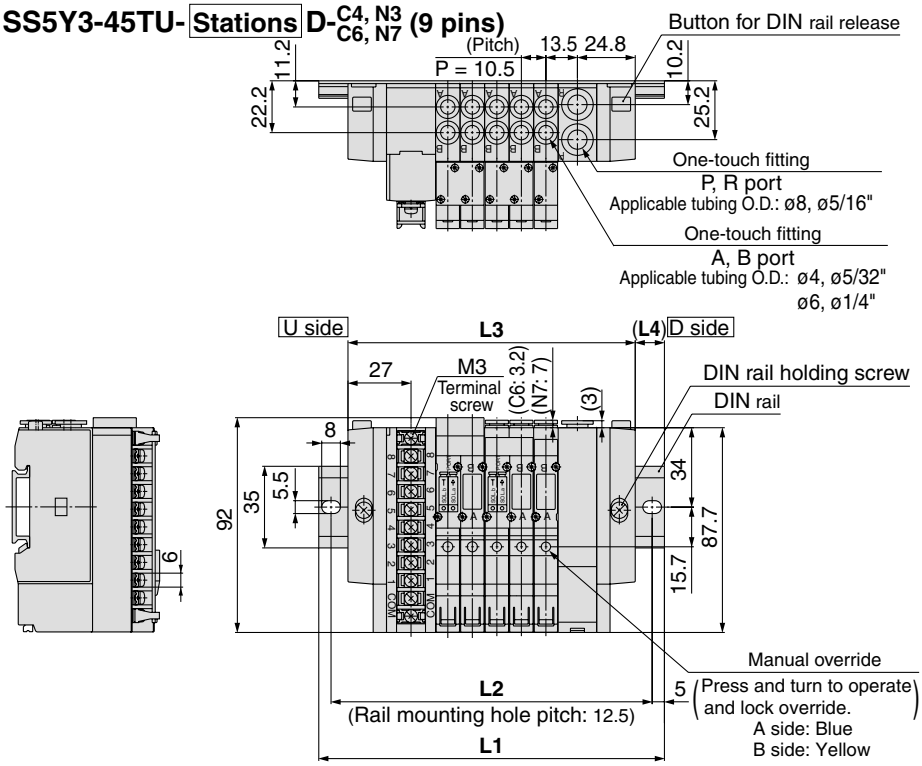


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

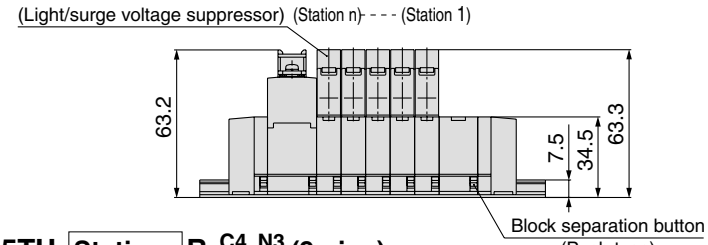
Stations n	11 stations	12	13	14	15	16	17	18	19	20 stations
L1	298	310.5	323	348	360.5	373	398	410.5	423	435.5
L2	287.5	300	312.5	337.5	350	362.5	387.5	400	412.5	425
L3	267	283	299	315	331	347	363	379	395	411
L4	15.5	13.5	12	16.5	14.5	13	17.5	15.5	14	12

SY3000: 9 Pins Terminal Block/Plug-in

SS5Y3-45TU-[Stations] D-[C4, N3 / C6, N7] (9 pins)

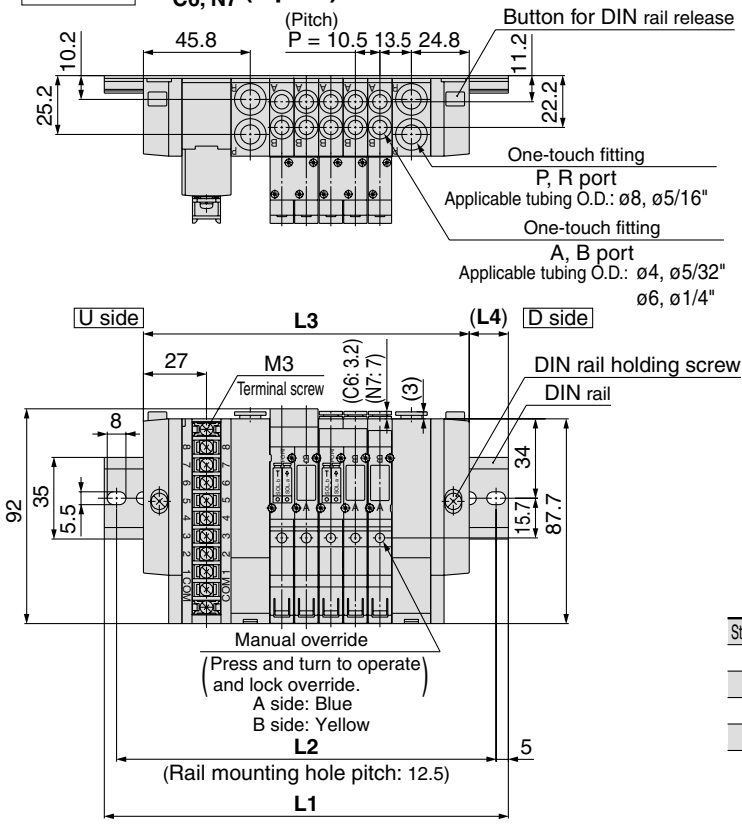


Note) The **L1** to **L4** dimensions of **SS5Y3-45TU-[Stations]U-[C4, N3 / C6, N7]**, **SS5Y3-45TD-[Stations]U-[C4, N3 / C6, N7]**, **SS5Y3-45TD-[Stations]D-[C4, N3 / C6, N7]** are identical those of SS5Y3-45TU-[Stations]D-[C4, N3 / C6, N7].



Stations n	2 stations	3	4	5	6	7	8 stations
L1	123	135.5	148	148	160.5	173	185.5
L2	112.5	125	137.5	137.5	150	162.5	175
L3	91.5	102	112.5	123	133.5	144	154.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5

SS5Y3-45TU-[Stations] B-[C4, N3 / C6, N7] (9 pins)

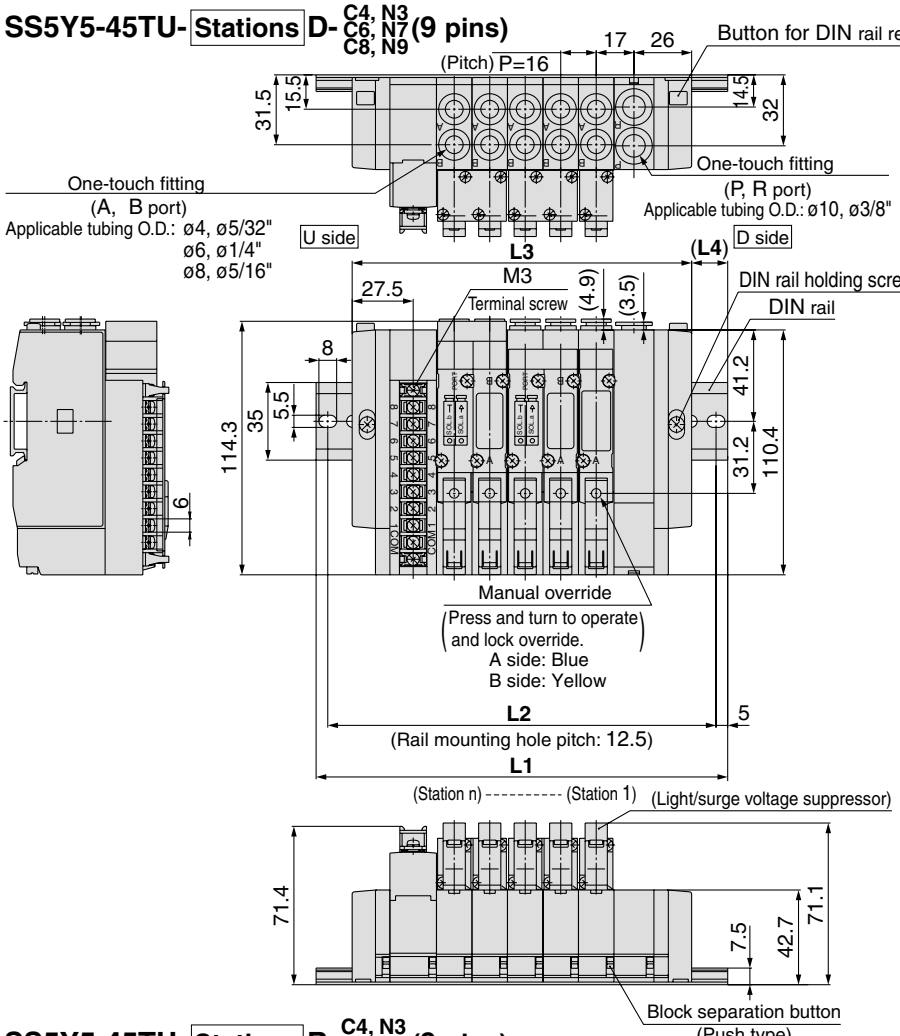


Note) The **L1** to **L4** dimensions of **SS5Y3-45TD-[Stations]B-[C4, N3 / C6, N7]** are identical to those of SS5Y3-45TU-[Stations]B-[C4, N3 / C6, N7].

Stations n	2 stations	3	4	5	6	7	8 stations
L1	135.5	148	160.5	173	185.5	185.5	198
L2	125	137.5	150	162.5	175	175	187.5
L3	108	118.5	129	139.5	150	160.5	171
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5

SY5000: 9 Pins Terminal Block/Plug-in

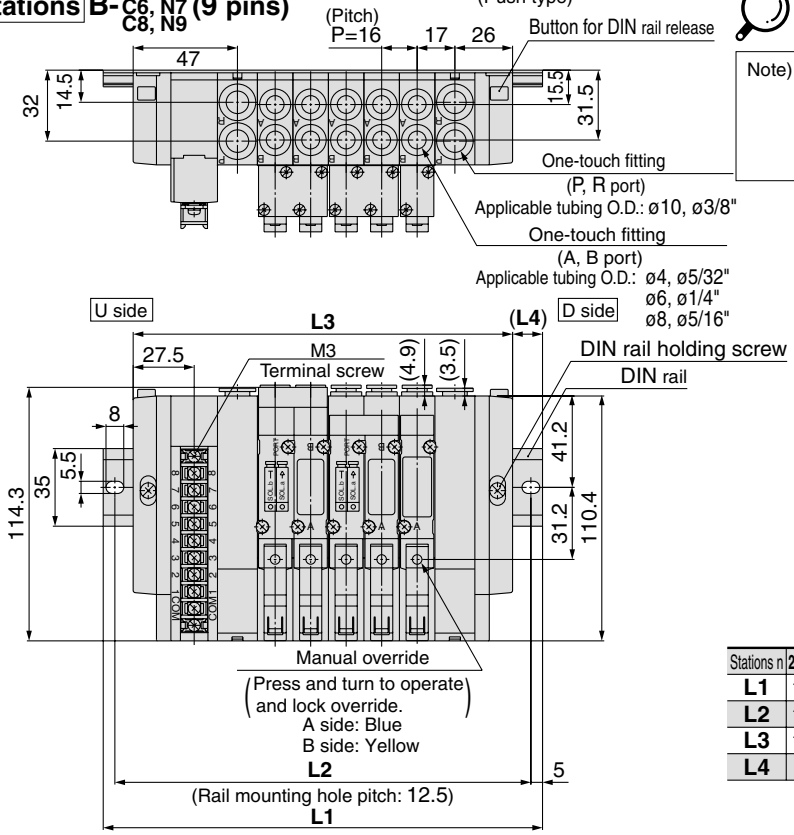
SS5Y5-45TU-[Stations]D-C4, N3 C6, N7 C8, N9 (9 pins)



Note) The **L1** to **L4** dimensions of **SS5Y5-45TU-[Stations]U-C4, N3 C6, N7 C8, N9**, **SS5Y5-45TD-[Stations]U-C4, N3 C6, N7, C8, N9** **SS5Y5-45TD-[Stations]D-C4, N3 C6, N7 C8, N9** are identical those of SS5Y5-45TU-[Stations]D-C4, N3 C6, N7, C8, N9

Stations n	2 stations	3	4	5	6	7	8 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5
L2	125	137.5	150	175	187.5	200	225
L3	105	121	137	153	169	185	201
L4	15	13.5	11.5	16	14.5	12.5	17

SS5Y5-45TU-[Stations]B-C4, N3 C6, N7 C8, N9 (9 pins)

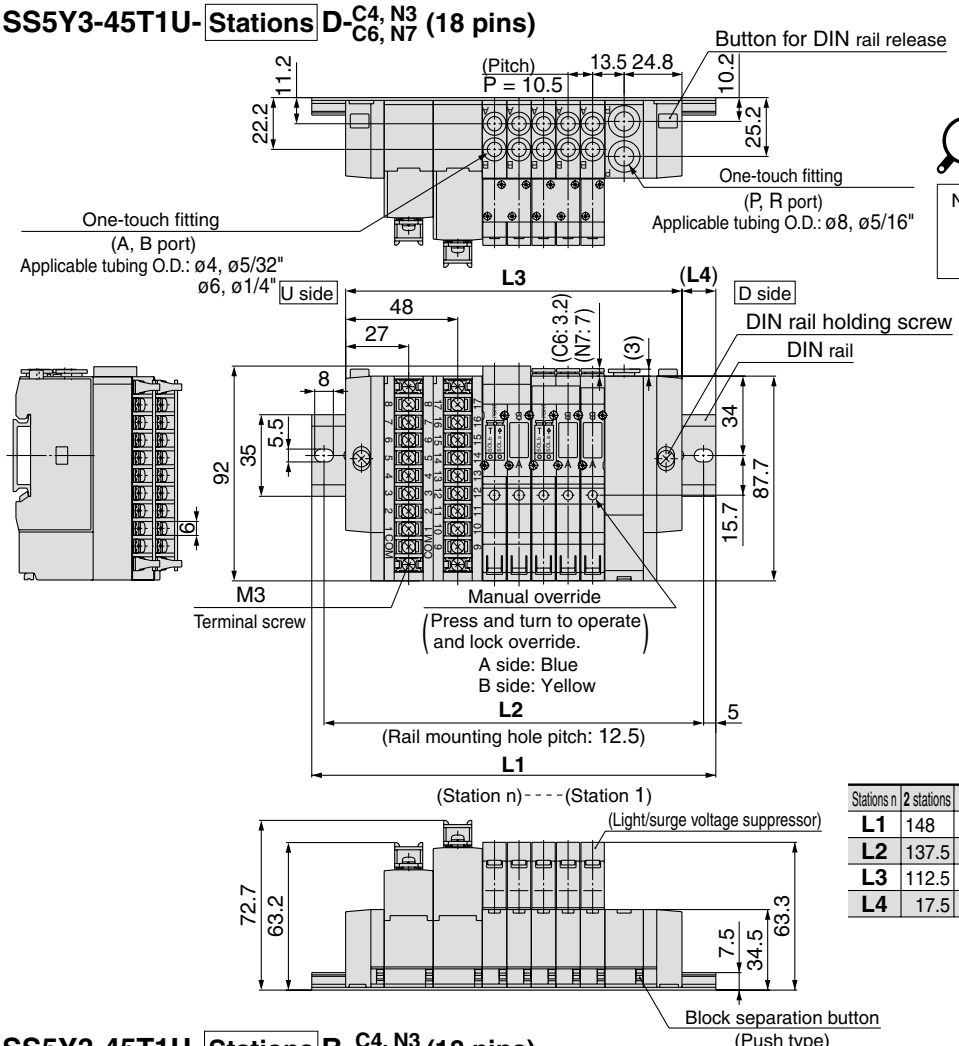


Note) **The L1** to **L4** dimensions of **SS5Y5-45TD-[Stations]B-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45TU-[Stations]B-C4, N3 C6, N7, C8, N9

Stations n	2 stations	3	4	5	6	7	8 stations
L1	148	173	185.5	198	210.5	235.5	248
L2	137.5	162.5	175	187.5	200	225	237.5
L3	123	139	155	171	187	203	219
L4	12.5	17	15	13.5	11.5	16	14.5

SY3000: 18 Pins Terminal Block/Plug-in

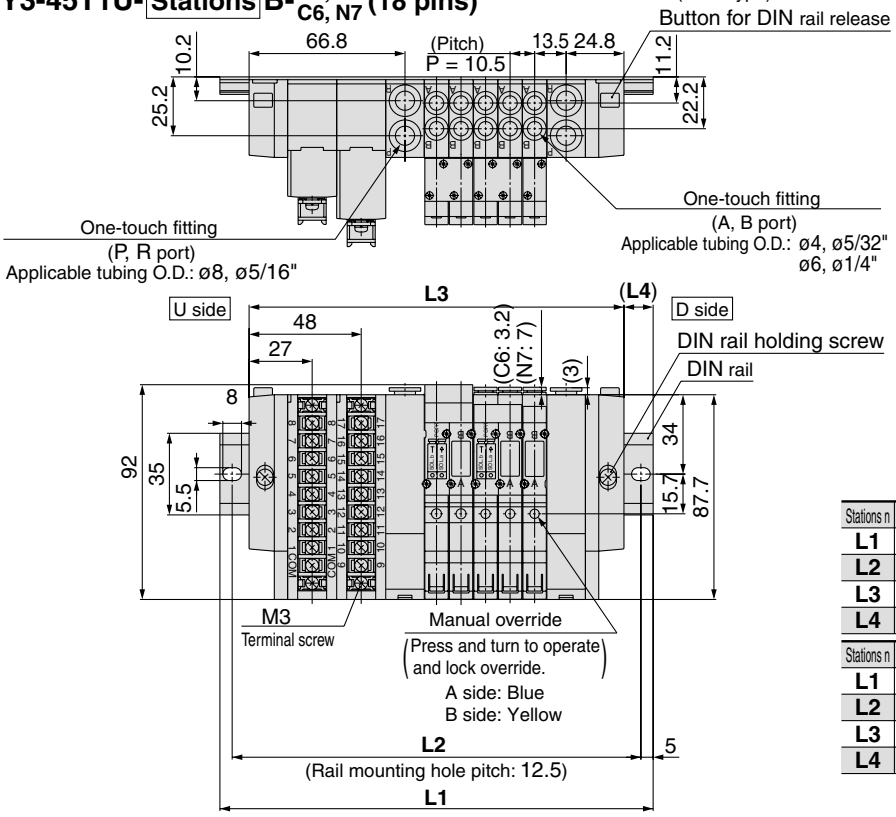
SS5Y3-45T1U-[Stations]D-C4, N3 C6, N7 (18 pins)



Note) The **L1** to **L4** dimensions of **SS5Y3-45T1U-[Stations]U-C4, N3 C6, N7** are identical to those of SS5Y3-45T1U-[Stations]D-C4, N3 C6, N7.

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	148	160.5	173	185.5	198	210.5	210.5	223
L2	137.5	137.5	150	162.5	175	187.5	200	200	212.5
L3	112.5	123	133.5	144	154.5	165	175.5	186	196.5
L4	17.5	12.5	13.5	14.5	15.5	16.5	17.5	12	13

SS5Y3-45T1U-[Stations]B-C4, N3 C6, N7 (18 pins)

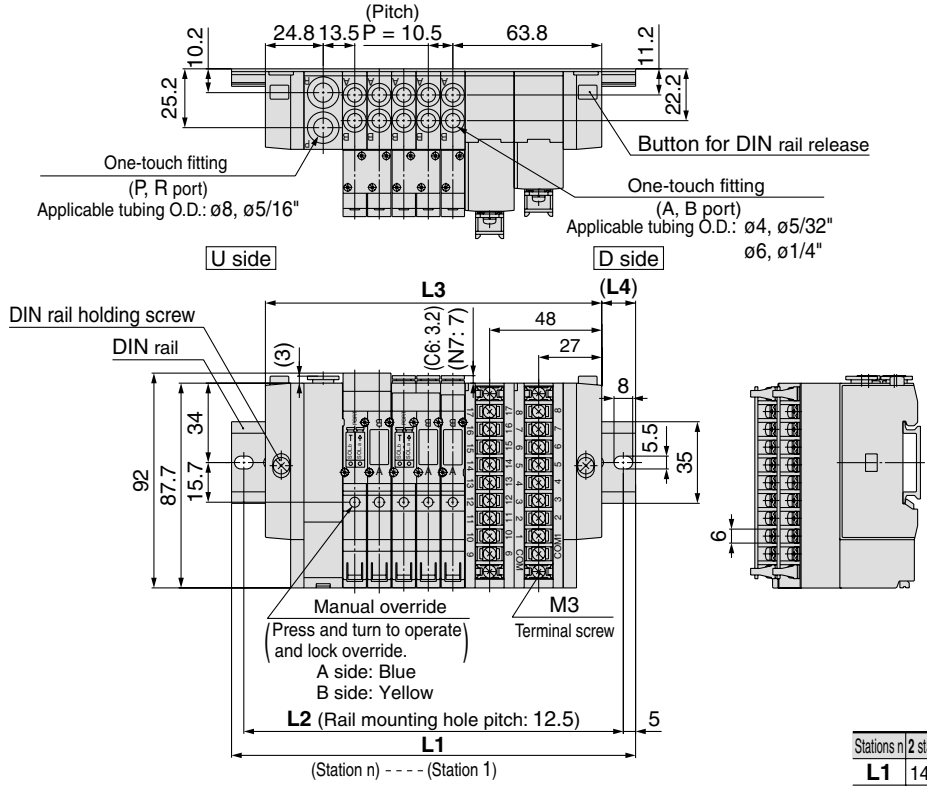


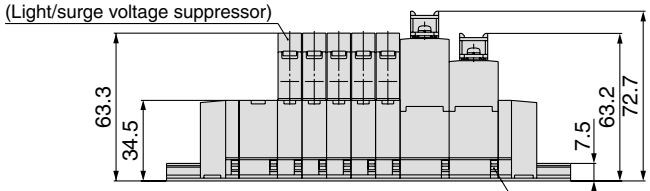
Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	160.5	173	185.5	185.5	198	210.5	223	235.5
L2	150	162.5	175	175	187.5	200	212.5	225
L3	129	139.5	150	160.5	171	181.5	192	202.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5

Stations n	10 stations	11	12	13	14	15	16	17 stations
L1	248	248	260.5	273	285.5	298	310.5	310.5
L2	237.5	237.5	250	262.5	275	287.5	300	300
L3	213	223.5	234	244.5	255	265.5	276	286.5
L4	17.5	12	13	14	15	16	17	12

SY3000: 9 Pins Terminal Block/Plug-in

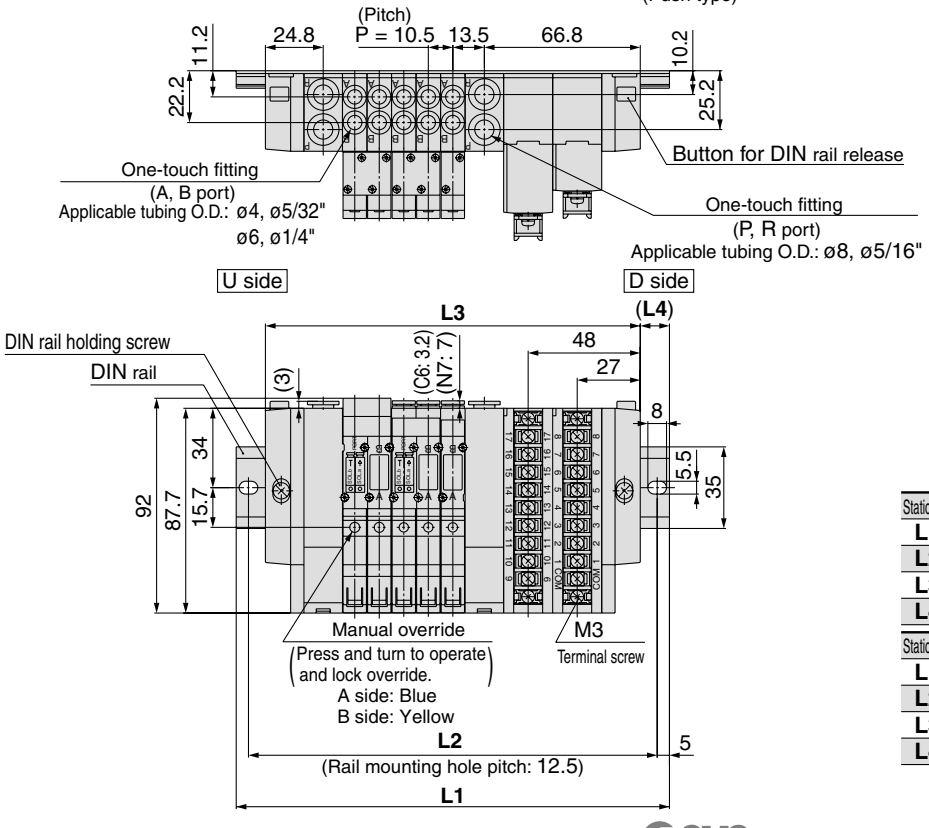
SS5Y3-45T1D-[Stations]U-C4, N3 C6, N7 (18 pins)





Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	148	160.5	173	185.5	198	210.5	210.5	223
L2	137.5	137.5	150	162.5	175	187.5	200	200	212.5
L3	112.5	123	133.5	144	154.5	165	175.5	186	196.5
L4	17.5	12.5	13.5	14.5	15.5	16.5	17.5	12	13

SS5Y3-45T1D-[Stations]B-C4, N3 C6, N7 (18 pins)



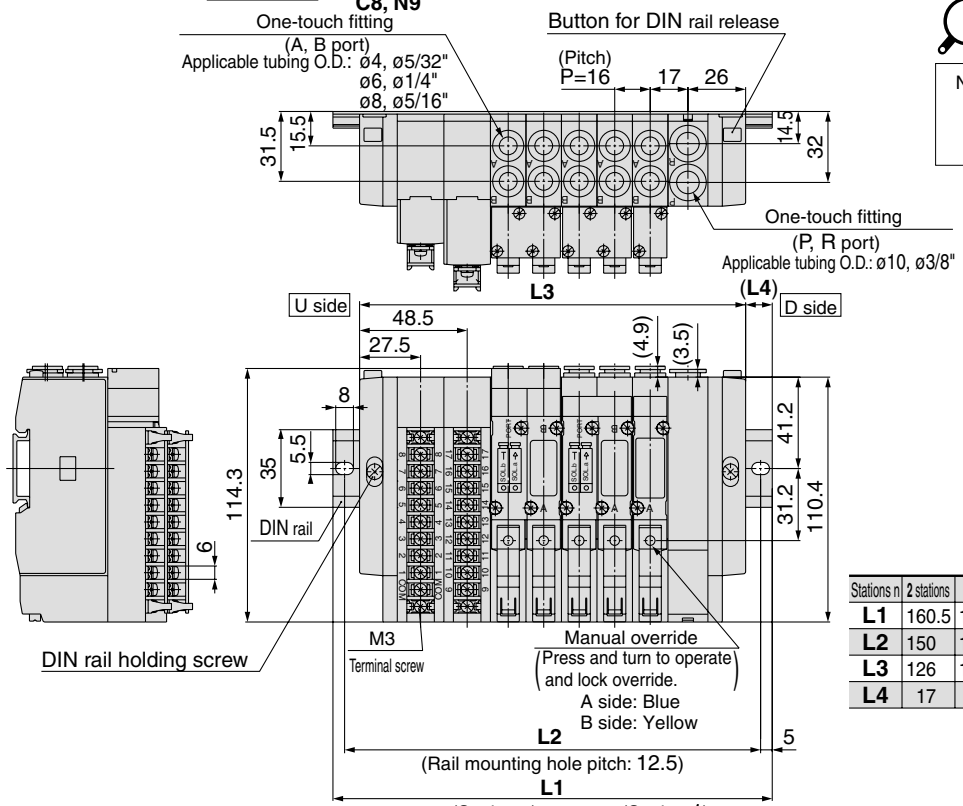
Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	160.5	173	185.5	185.5	198	210.5	223	235.5
L2	150	162.5	175	175	187.5	200	212.5	225
L3	129	139.5	150	160.5	171	181.5	192	202.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5

Stations n	10 stations	11	12	13	14	15	16	17 stations
L1	248	248	260.5	273	285.5	298	310.5	310.5
L2	237.5	237.5	250	262.5	275	287.5	300	300
L3	213	223.5	234	244.5	255	265.5	276	286.5
L4	17.5	12	13	14	15	16	17	12

Note) The **L1** to **L4** dimensions of **SS5Y3-45T1D-[Stations]D-C4, N3 C6, N7** are identical to those of SS5Y3-45T1D-[Stations]U-C4, N3 C6, N7.

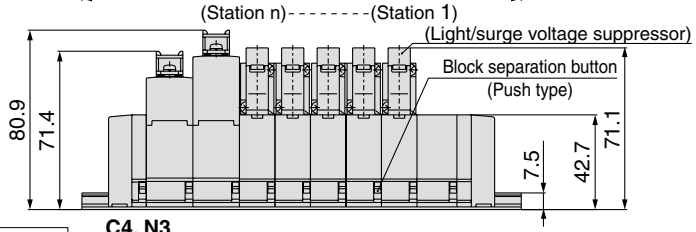
SY5000: 18 Pins Terminal Block/Plug-in

SS5Y5-45T1U-[Stations]D-C4, N3 C6, N7 C8, N9 (18 pins)

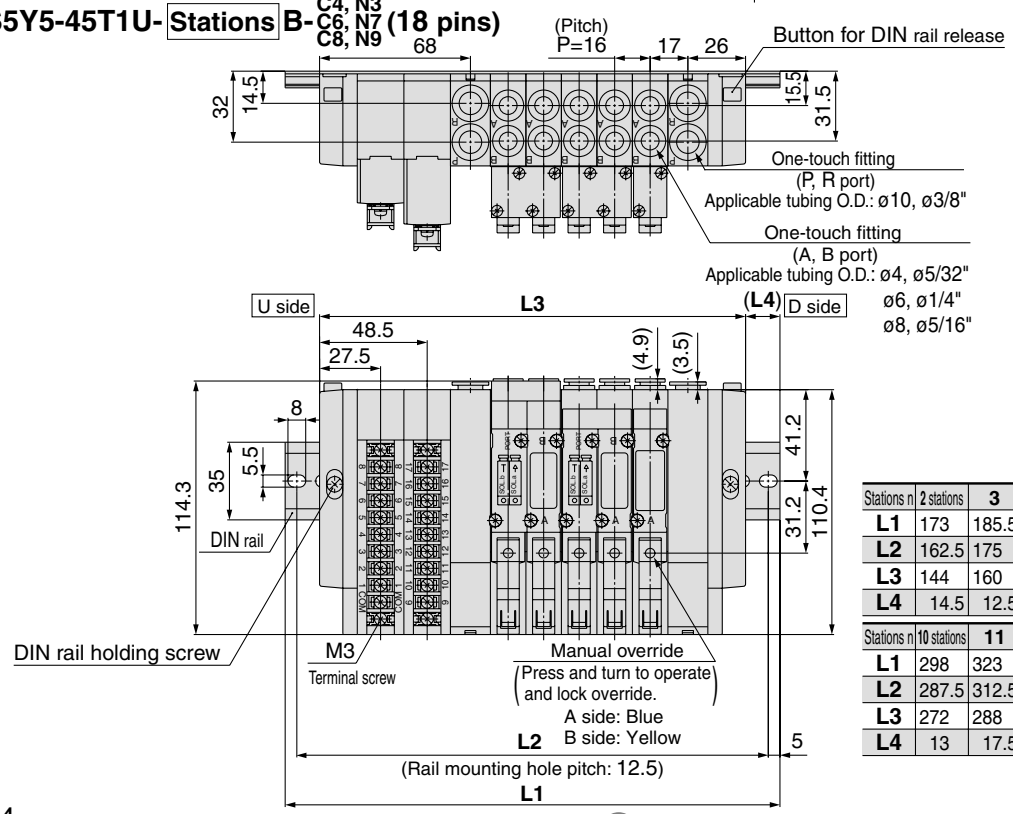


Note) The **L1** to **L4** dimensions of **SS5Y5-45T1U-[Stations]U-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45T1U-[Stations]D-C4, N3 C6, N7 C8, N9.

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	160.5	173	185.5	198	223	235.5	248	273	285.5
L2	150	162.5	175	187.5	212.5	225	237.5	262.5	275
L3	126	142	158	174	190	206	222	238	254
L4	17	15.5	13.5	12	16.5	14.5	13	17.5	15.5



SS5Y5-45T1U-[Stations]B-C4, N3 C6, N7 C8, N9 (18 pins)

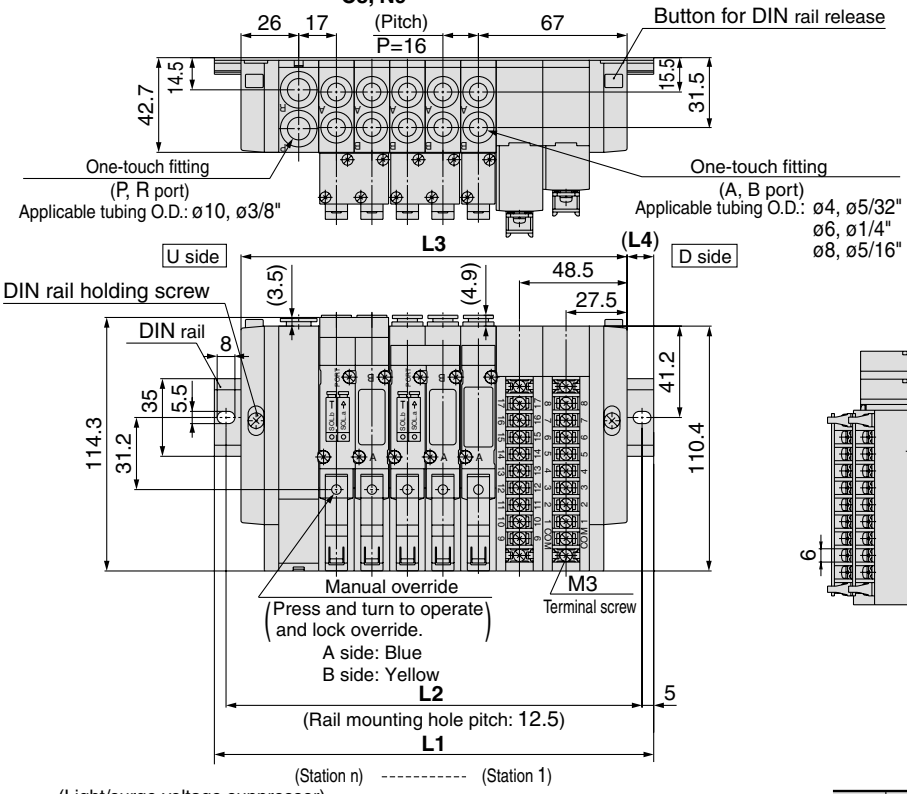


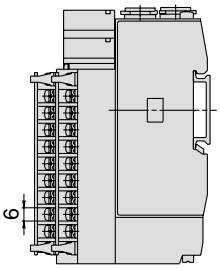
Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	173	185.5	210.5	223	235.5	248	273	285.5
L2	162.5	175	200	212.5	225	237.5	262.5	275
L3	144	160	176	192	208	224	240	256
L4	14.5	12.5	17	15.5	13.5	12	16.5	14.5

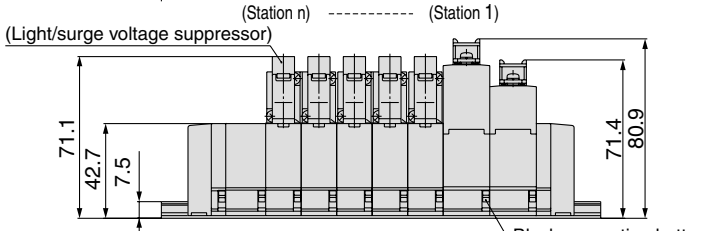
Stations n	10 stations	11	12	13	14	15	16	17 stations
L1	298	323	335.5	348	360.5	385.5	398	410.5
L2	287.5	312.5	325	337.5	350	375	387.5	400
L3	272	288	304	320	336	352	368	384
L4	13	17.5	15.5	14	12	16.5	15	13

SY5000: 18 Pins Terminal Block/Plug-in

SS5Y5-45T1D-[Stations]U-C4, N3 C6, N7 C8, N9 (18 pins)



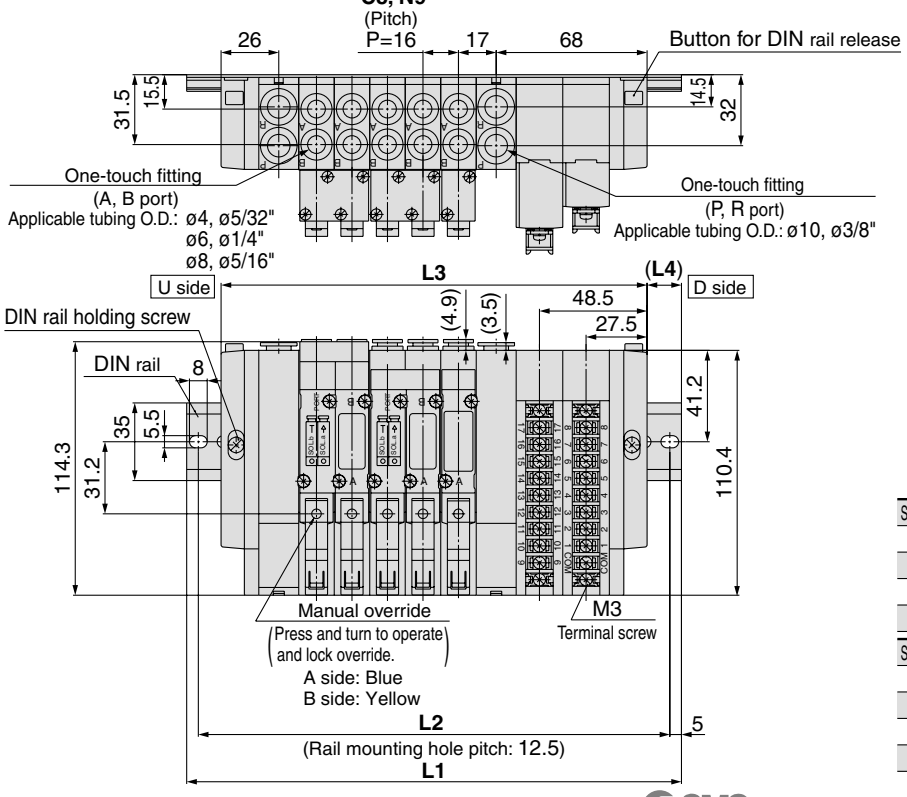




Note) **The L1** to **L4** dimensions of **SS5Y5-45T1D-[Stations]D-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45T1D-[Stations]U-C4, N3 C6, N7 C8, N9

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	160.5	173	185.5	198	223	235.5	248	273	285.5
L2	150	162.5	175	187.5	212.5	225	237.5	262.5	275
L3	126	142	158	174	190	206	222	238	254
L4	17	15.5	13.5	12	16.5	14.5	13	17.5	15.5

SS5Y5-45T1D-[Stations]B-C4, N3 C6, N7 C8, N9 (18 pins)

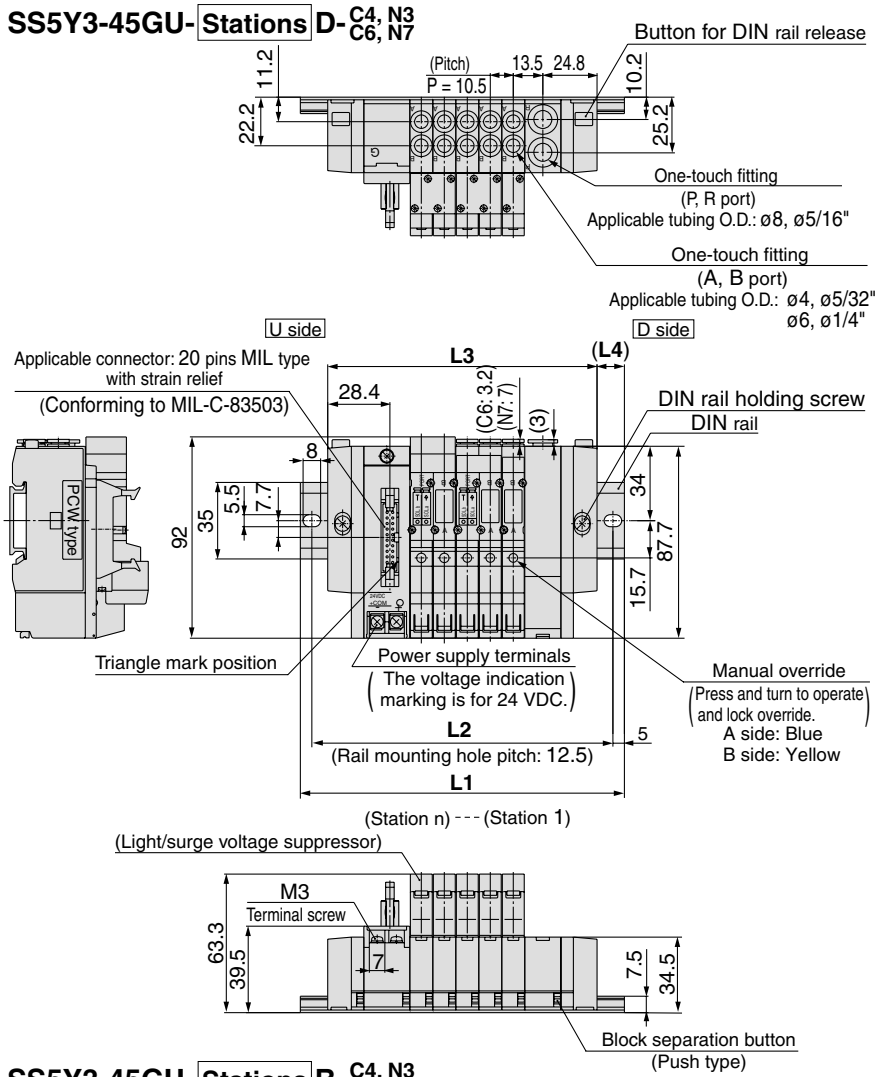


Stations n	2 stations	3	4	5	6	7	8	9 stations
L1	173	185.5	210.5	223	235.5	248	273	285.5
L2	162.5	175	200	212.5	225	237.5	262.5	275
L3	144	160	176	192	208	224	240	256
L4	14.5	12.5	17	15.5	13.5	12	16.5	14.5

Stations n	10 stations	11	12	13	14	15	16	17 stations
L1	298	323	335.5	348	360.5	385.5	398	410.5
L2	287.5	312.5	325	337.5	350	375	387.5	400
L3	272	288	304	320	336	352	368	384
L4	13	17.5	15.5	14	12	16.5	15	13

SY3000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)

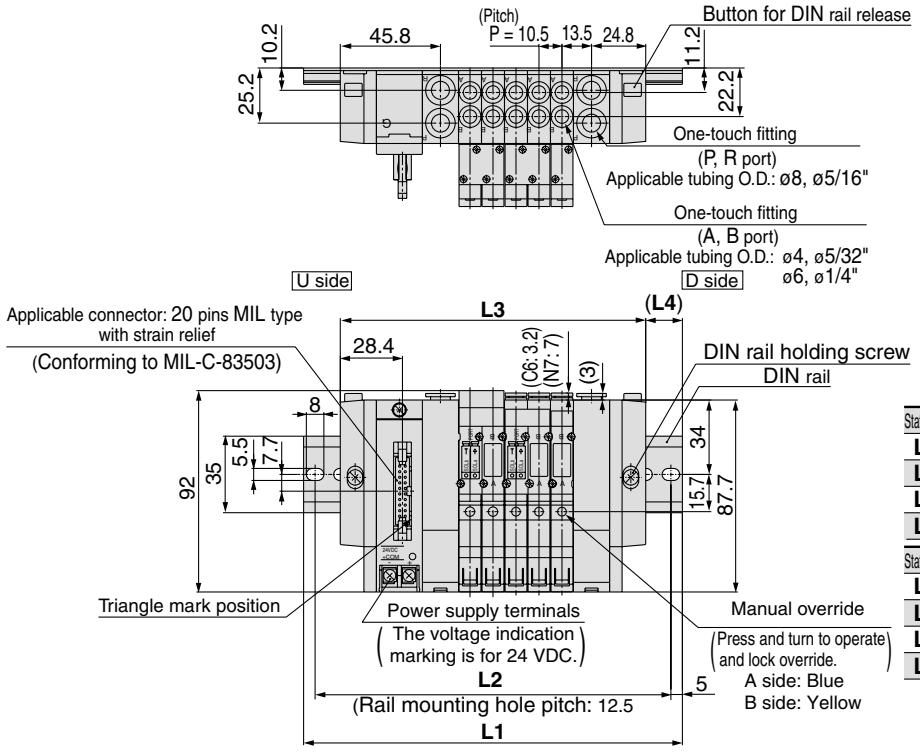
SS5Y3-45GU-[Stations]D-C4, N3 C6, N7



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5

Note) The **L1** to **L4** dimensions of **SS5Y3-45GU-[Stations]U-C4, N3 C6, N7** are identical to those of SS5Y3-45GU-[Stations]D-C4, N3 C6, N7.

SS5Y3-45GU-[Stations]B-C4, N3 C6, N7

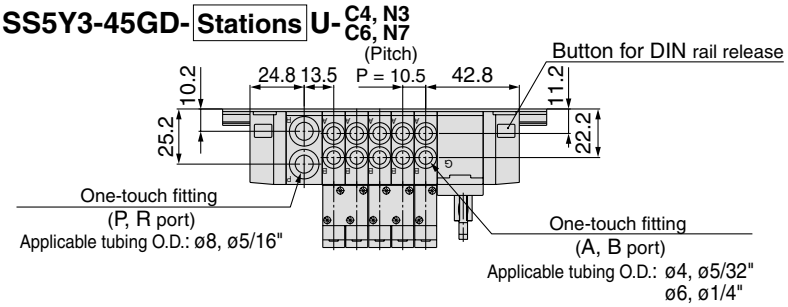


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	173	185.5	185.5	198	210.5	223
L2	125	137.5	150	162.5	175	175	187.5	200	212.5
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

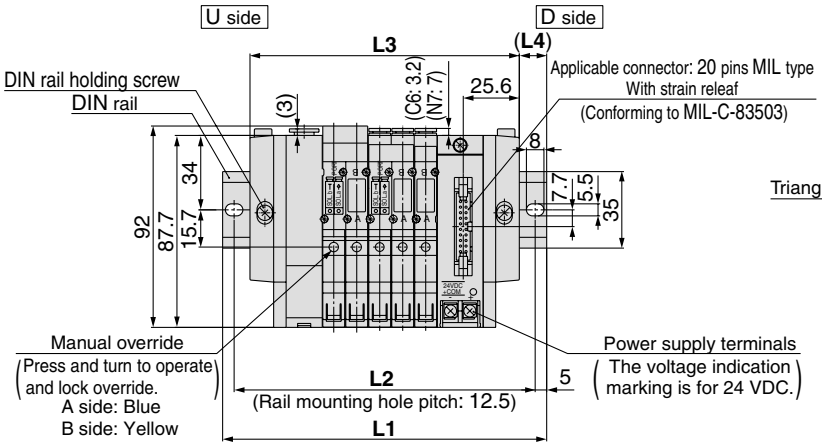
Stations n	11 stations	12	13	14	15	16 stations
L1	235.5	248	248	260.5	273	285.5
L2	225	237.5	237.5	250	262.5	275
L3	202.5	213	223.5	234	244.5	255
L4	16.5	17.5	12	13	14	15

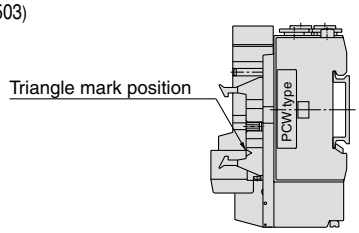
SY3000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)

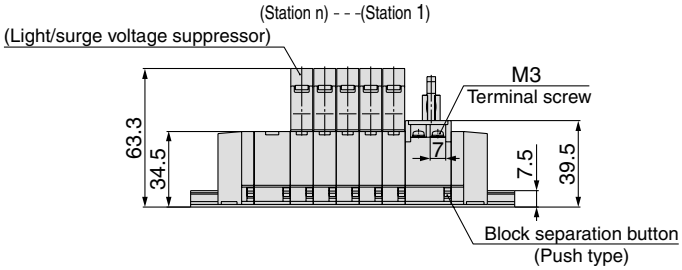
SS5Y3-45GD-[Stations]U-[C4, N3 / C6, N7]



Note) The **L1** to **L4** dimensions of **SS5Y3-45GD-[Stations]D-[C4, N3 / C6, N7]** are identical to those of SS5Y3-45GD-[Stations]U-[C4, N3 / C6, N7].

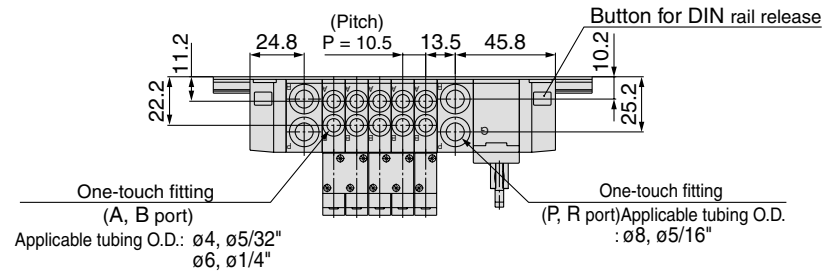


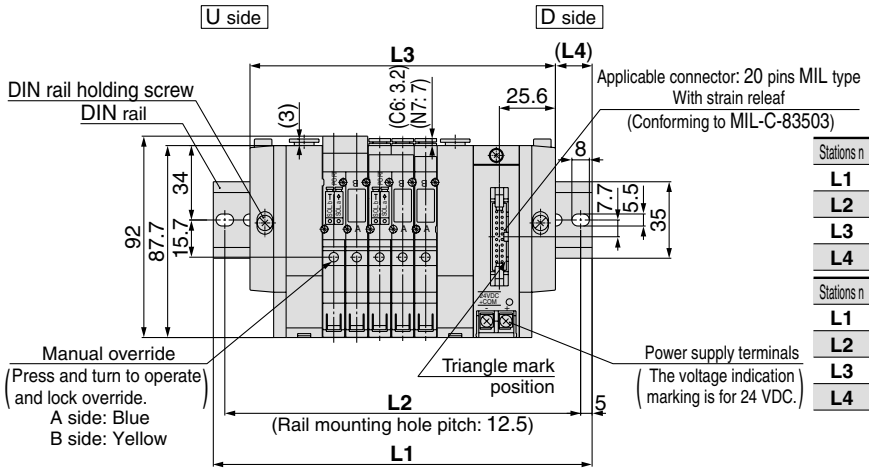




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	123	135.5	148	148	160.5	173	185.5	198	210.5
L2	112.5	125	137.5	137.5	150	162.5	175	187.5	200
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	15.5	16.5	17.5	12.5	13.5	14.5	15.5	16.5	17.5

SS5Y3-45GD-[Stations]B-[C4, N3 / C6, N7]



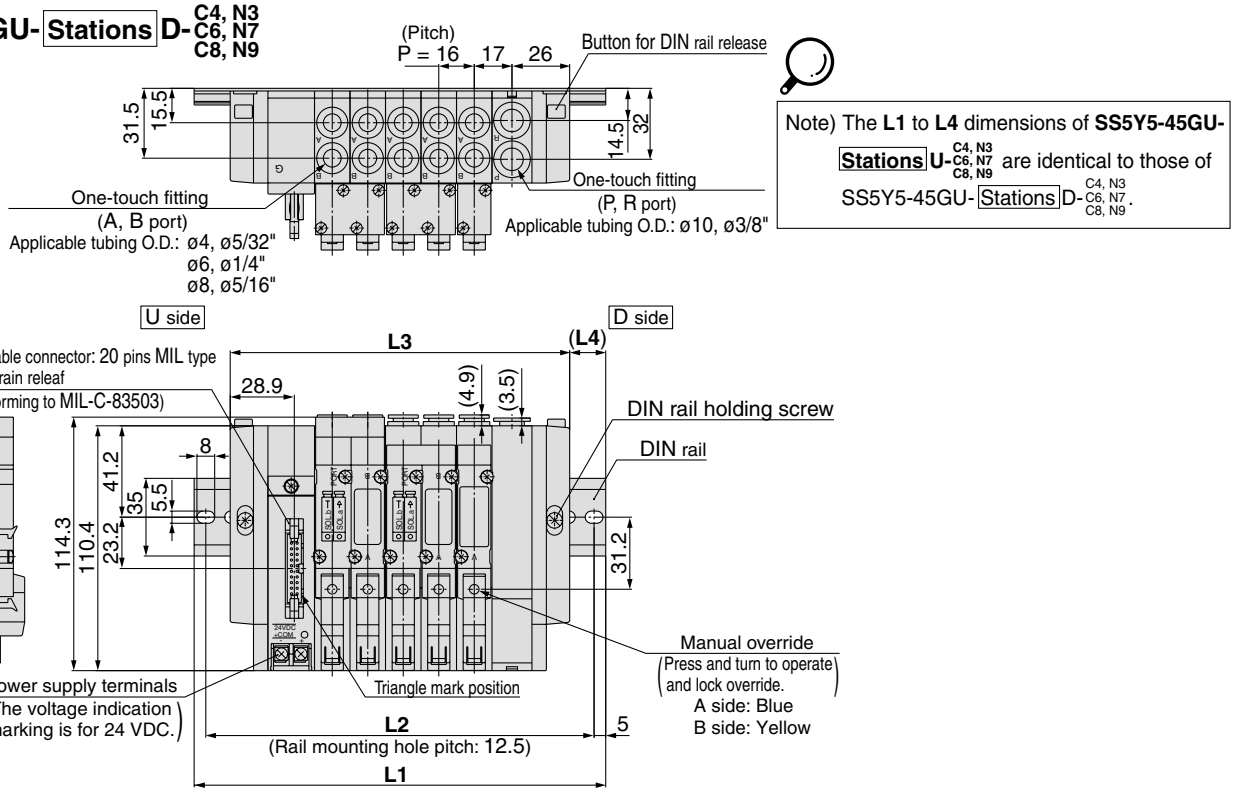


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	173	185.5	185.5	198	210.5	223
L2	125	137.5	150	162.5	175	175	187.5	200	212.5
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	13.5	14.5	15.5	16.5	17.5	12.5	13.5	14.5	15.5

Stations n	11 stations	12	13	14	15	16 stations
L1	235.5	248	248	260.5	273	285.5
L2	225	237.5	237.5	250	262.5	275
L3	202.5	213	223.5	234	244.5	255
L4	16.5	17.5	12	13	14	15

SY5000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)

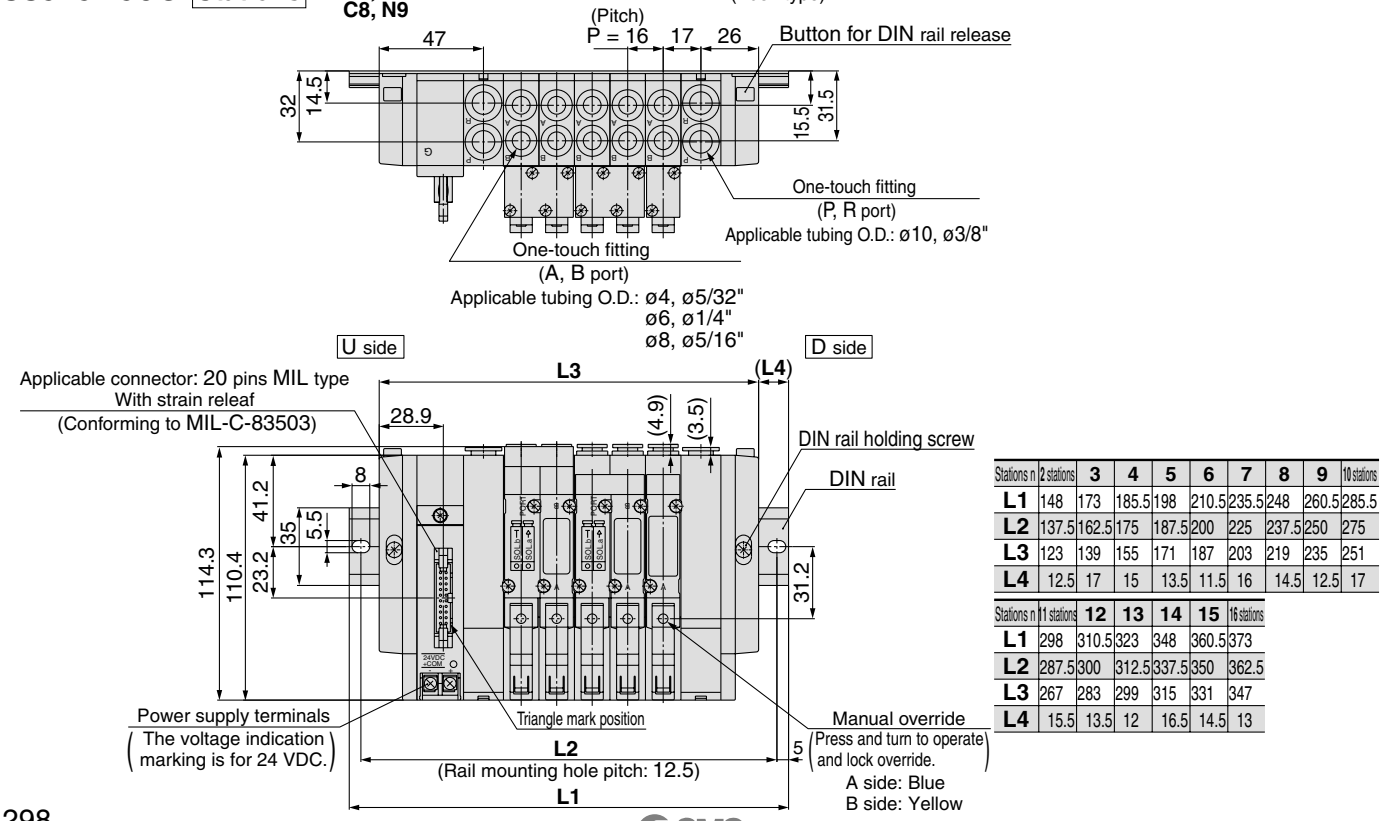
SS5Y5-45GU-[Stations] D- C4, N3 / C6, N7 / C8, N9



Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

Note) The **L1** to **L4** dimensions of **SS5Y5-45GU-[Stations] U-** C4, N3 / C6, N7 / C8, N9 are identical to those of SS5Y5-45GU-[Stations] D- C4, N3 / C6, N7 / C8, N9.

SS5Y5-45GU-[Stations] B- C4, N3 / C6, N7 / C8, N9

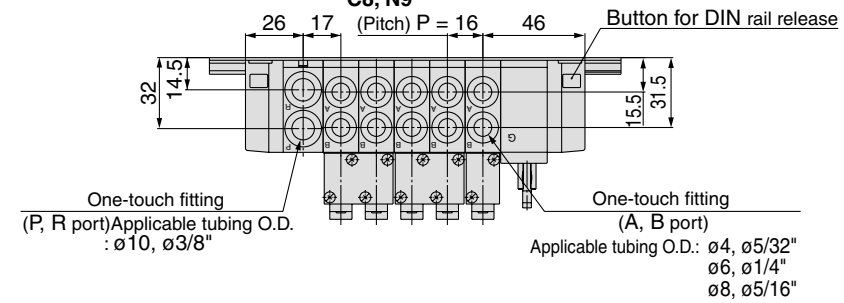


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

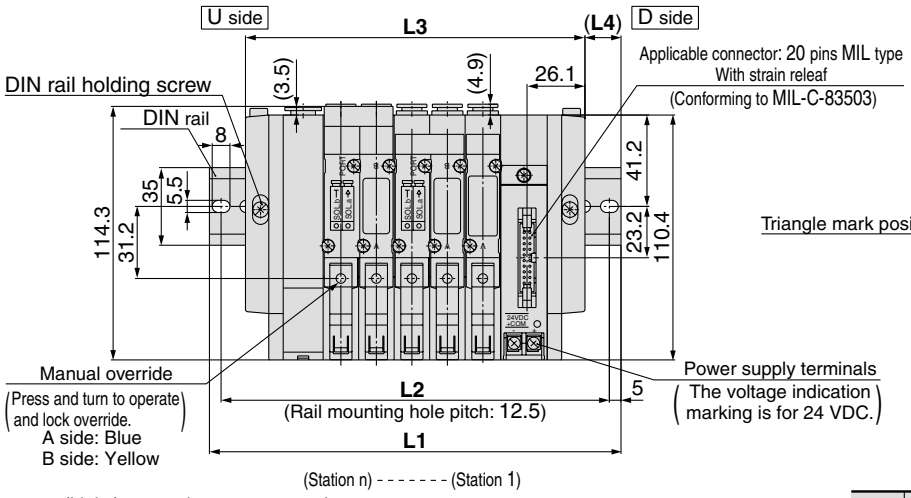
Stations n	11 stations	12	13	14	15	16 stations
L1	298	310.5	323	348	360.5	373
L2	287.5	300	312.5	337.5	350	362.5
L3	267	283	299	315	331	347
L4	15.5	13.5	12	16.5	14.5	13

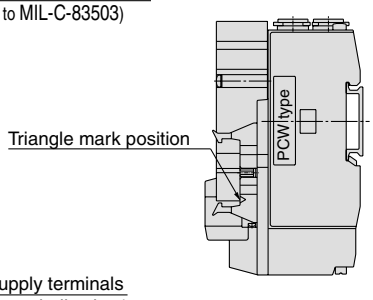
SY5000: PC Wiring System Compatible (Flat ribbon cable/Plug-in)

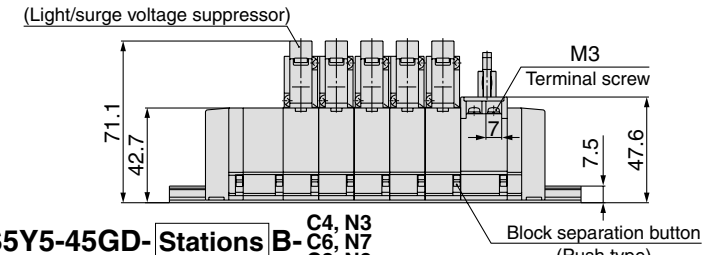
SS5Y5-45GD-Stations U-C4, N3 C6, N7 C8, N9



Note) The **L1** to **L4** dimensions of **SS5Y5-45GD-Stations D-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45GD-Stations U-C4, N3 C6, N7 C8, N9.

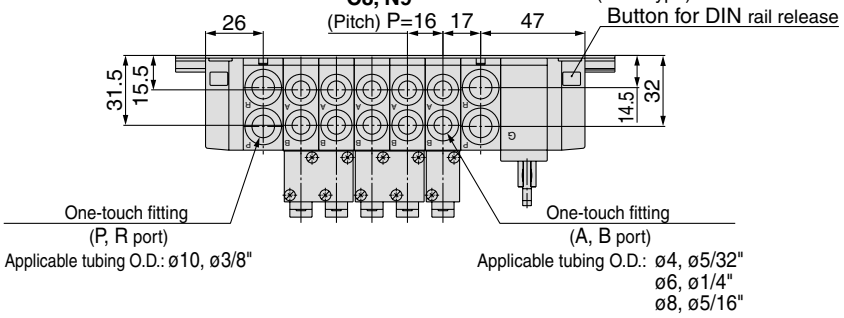


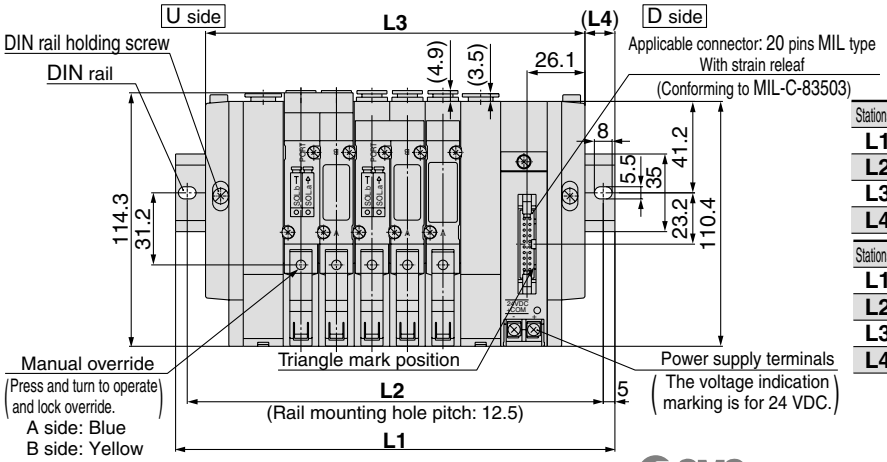




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	135.5	148	160.5	185.5	198	210.5	235.5	248	260.5
L2	125	137.5	150	175	187.5	200	225	237.5	250
L3	105	121	137	153	169	185	201	217	233
L4	15	13.5	11.5	16	14.5	12.5	17	15.5	13.5

SS5Y5-45GD-Stations B-C4, N3 C6, N7 C8, N9



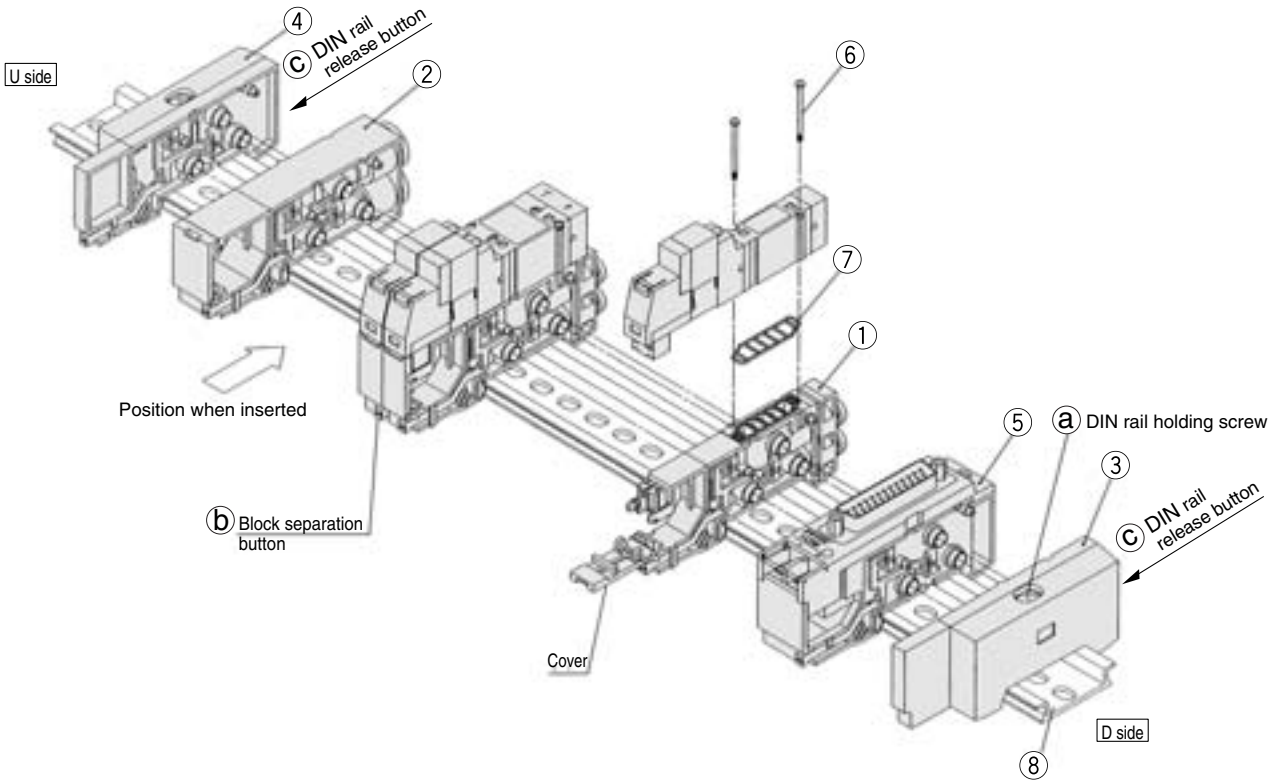


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	173	185.5	198	210.5	235.5	248	260.5	285.5
L2	137.5	162.5	175	187.5	200	225	237.5	250	275
L3	123	139	155	171	187	203	219	235	251
L4	12.5	17	15	13.5	11.5	16	14.5	12.5	17

Stations n	11 stations	12	13	14	15	16 stations
L1	298	310.5	323	348	360.5	373
L2	287.5	300	312.5	337.5	350	362.5
L3	267	283	299	315	331	347
L4	15.5	13.5	12	16.5	14.5	13

DIN Rail Manifold Exploded View

Type 45F (D-sub Connector) Manifold



No.	Description	Part no.		Note	
		SY3000	**SY5000**		
1	**Manifold block assembly**	Manifold block assembly part number differs according to an attached lead wire assembly based on the connector spec. Select an appropriate part number from the table of manifold block assembly part number shown below. (Gasket 7 is supplied as an accessory.)			
2	**SUP/EXH block assembly**	(Metric size) SX3000-51-2A (Inch size) SX3000-51-16A	(Metric size) SX3000-51-2A (Inch size) SX5000-51-16A	Metric size SY3000: P, R port with one-touch fitting for ø8 SY5000: P, R port with one-touch fitting for ø10	Inch size With one-touch fitting for ø5/16" With one-touch fitting for ø3/8"
3	**End block assembly**	SX3000-52-2A(-Q)	SX5000-52-2A(-Q)	For D side	
4	**End block assembly**	SX3000-53-2A(-Q)	SX5000-53-2A(-Q)	For U side	
5-1	**Connector block assembly (for D-sub connector)**	SX3000-64-$^{1A}_{1NA}$	SX5000-64-$^{1A}_{1NA}$	-1A: +COM -1NA: -COM	Note) For 24 VDC
5-2	**Connector block assembly (for 26 pins flat cable)**	SX3000-64-$^{2A}_{2NA}$-26	SX5000-64-$^{2A}_{2NA}$-26	-2A: +COM -2NA: -COM	
5-3	**Connector block assembly (for 20 pins flat cable)**	SX3000-64-$^{2A}_{2NA}$-20	SX5000-64-$^{2A}_{2NA}$-20		
5-4	**Connector block assembly (for 10 pins flat cable)**	SX3000-64-$^{2A}_{2NA}$-10	SX5000-64-$^{2A}_{2NA}$-10		
5-5	**Connector block assembly** (for 2 to 8 stations (T, T1) terminal block)	SX3000-64-3A	SX5000-64-3A	In common between +COM and –COM.	
5-6	**Connector block assembly** (for 9 to 17 stations (T1) terminal block)	SX3000-64-8A	SX5000-64-8A		
6	**Round head combination screw**	SY3000-23-4	M3 x 26, Matt nickel plated		
7	**Gasket**	SX3000-57-4	SX5000-57-6		
8	**DIN rail**	VZ1000-11-1-l□		Refer to page 276.	

Note 1) The numbers 5-1 to 4 are for 24 VDC. For 12 VDC, suffix "-12V" to the end of parts number. (Example) SX3000-64-1A-12 V
Note 2) Two manifold block assemblies are necessary for the double, 3 position (Dual body type).

Style of manifold	Manifold block assembly part no.	Note
For 45(N)F (D-sub connector)	SX$^{3}_{5}$000-50-3A-□□(-Q)	□□: AB port SY3000 (metric size) C4: With one-touch fitting for ø4 C6: With one-touch fitting for ø6 (inch size) N3: With one-touch fittign for ø5/32" N7: With one-touch fitting for ø1/4" A, B port SY5000 (metric size) C4: With one-touch fitting for ø4 C6: With one-touch fitting for ø6 C8: With one-touch fitting for ø8 (inch size) N3: WIth one-touch fitting for ø5/32" N7: With one-touch fitting for ø1/4" N9: With one-touch fitting for ø5/16"
For 45(N)$^{P}_{PG}$ $^{}_{PH}$ (Flat ribbon cable)	SX$^{3}_{5}$000-50-5A-□□(-Q)	
For 45G PC Wiring System compatible		
For 45$^{T}_{T1}$ (Terminal block)	SX$^{3}_{5}$000-50-7A-□□(-Q)	

How to Increase Manifold Bases

1 Loosen DIN rail holding screw ⓐ fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons ⓒ, at two locations, separate the manifold base from the DIN rail.)

2 Additional bases are to be added to the U side. Press splitting button ⓑ of the manifold block assembly on the U side until button ⓑ locks, and then separate the block assemblies.

3 Separate the connector block assembly in the same manner as 2, and remove the connector mounting screw shown in Fig. 1.

4 Loosen the valve mounting screw on the U side, remove the valve, and take out the receptacle housing. (Refer to Fig. 2.)

5 Insert the common wire (red) of the manifold block assembly to be added into the pin insertion section (N mark) of the receptacle housing that was taken out in 4, mount it on the manifold block, and mount the removed valve.

6 As shown in Fig. 3, mount the additional manifold block assembly on the DIN rail on the U side. Refer to the circuit diagram, and insert the lead wire (black) as shown in Fig. 4.

7 Press the blocks against each other until a click sound is produced, place the lead wire in the manifold block, and close the lid without pinching the lead wire.

8 While lightly holding the blocks together so that there are no gaps between them, secure them to the DIN rail by tightening the DIN rail holding screws ⓐ. ⚠ (Tightening torque: 1.4 N·m)

Fig. 1

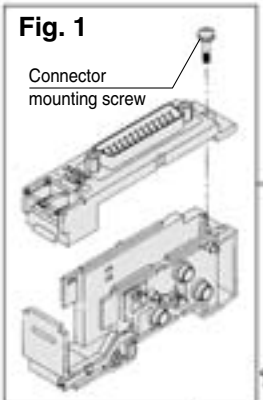


Fig. 2

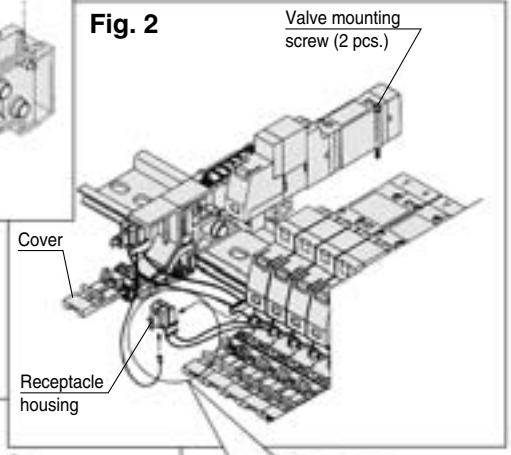
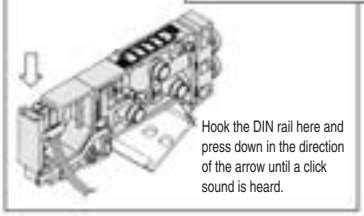


Fig. 3



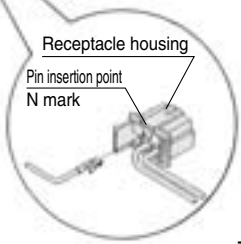
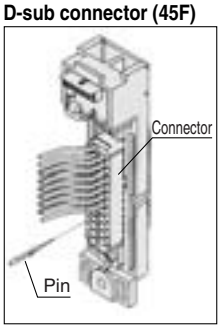


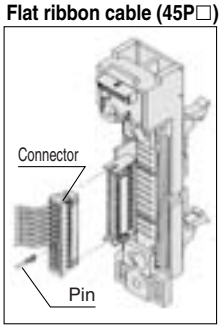
Fig. 4

D-sub connector (45F)



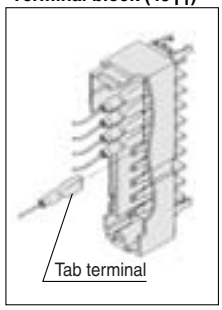
Note)
After inserting pins, lightly pull lead wiresto check that pins are locked.

Flat ribbon cable (45P□)



Note)
Insert pins after removing the connectorfrom the main unit. After inserting pins, lightly pull lead wires to check that the pins are locked.

Terminal block (45^{T}_{T1})



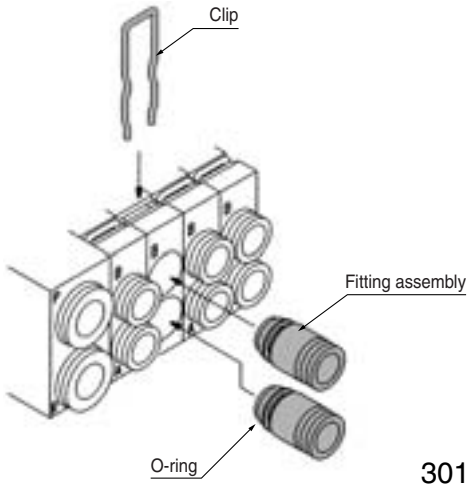
Note)
Insert tab terminals completely.

⚠ Caution

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

How to Change Fitting Assembly

Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.
After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.



Fitting Assembly Part No.

Metric size

SY3000	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY5000	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

Inch size

SY3000	One-touch fitting for ø5/32"	VVQ1000-50A-N3
	One-touch fitting for ø1/4"	VVQ1000-50A-N7
SY5000	One-touch fitting for ø5/32"	VVQ1000-51A-N3
	One-touch fitting for ø1/4"	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	VVQ1000-51A-N9

Note 1) P and R ports cannot be changed.
Note 2) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.

SY3000/5000 Base Mounted Manifold
Stacking Type/DIN Rail Mounted
EX122 Integrated Type (for Output) Serial Transmission System

Type 45S□

How to Order Manifold

SS5Y 3 -45S V -05 U -C6 - □ - □

Series

3	SY3000
5	SY5000

SI unit specifications

Symbol	Protocol type
0	Without SI unit
F1	NKE Corp.: Uni-wire System
H	NKE Corp.: Uni-wire H System
J1	SUNX Corp.: S-LINK (16 outputs)
J2	SUNX Corp.: S-LINK (8 outputs)
Q	DeviceNet
R1	OMRON Corp.: CompoBus/S (16 outputs) compatible
R2	OMRON Corp.: CompoBus/S (8 outputs) compatible
V	CC-LINK

∗ Even though when it is not equipped with SI unit, DIN rail length is long enough for future expectancy of mounting SI unit.

Valve stations

Symbol	Stations	Note
02	2 stations	Single wining spec. (Applicable up to 16 solenoid valves.)
⋮	⋮	
16	16 stations	

∗ This also includes the number of blanking plate assemblies.
∗ Two stations are necessary for the double, 3 position (Dual body type).

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	(Both sides)	2 to 16 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification sheet.

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

CE-compliant

Nil	—
Q	CE-compliant

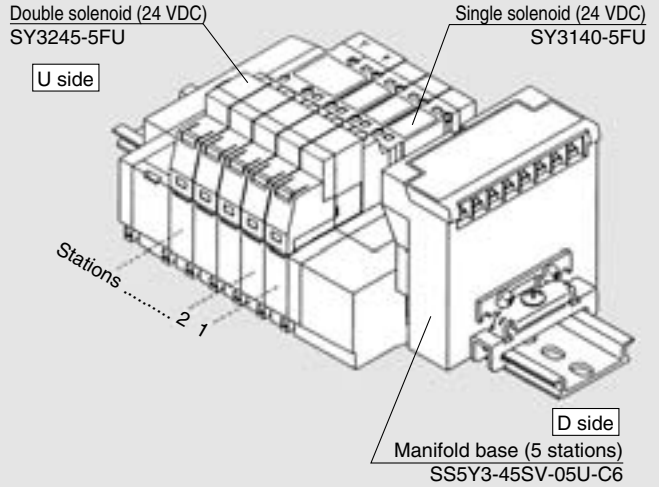
∗ Refer to the SI unit part no. for the SI unit compatible with CE.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

How to Order Manifold Assembly (Example)

Example



SS5Y3-45SV-05U-C6 ····· 1 set (45S with SI unit 5-station manifold base part number)
∗ **SY3140-5FU ····· 3 sets (Single solenoid part no.)**
∗ **SY3245-5FU ····· 1 set (Double solenoid part no.)**

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

∗ The valve arrangement is numbered as the 1st. station from D side.
∗ When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.
∗ SI unit is available only for the D-side mounting type.

How to Order Valve

2 position single **SY 3 1 4 0 - 5 FU □ - □ - □**

Double, 3 position **SY 3 2 4 5 - 5 FU □ - □ - □**

Series

3	SY3000
5	SY5000

Type of actuation

2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Dual body type (Double, 3 position)

Rated voltage

5	24 VDC

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

SI Unit Part No.

Symbol	Protocol type	SI unit No.	CE-compliant	Symbol	Protocol type	SI unit No.	CE-compliant
F1	NKE Corp.: Uni-wire System	EX122-SUW1	—	Q	DeviceNet	EX122-SDN1	○
H	NKE Corp.: Uni-wire H System	EX122-SUH1	—	R1	OMRON Corp.: CompoBus/S (16 outputs) compatible	EX122-SCS1	○
J1	SUNX Corp.: S-LINK (16 outputs)	EX122-SSL1	—	R2	OMRON Corp.: CompoBus/S (8 outputs) compatible	EX122-SCS2	○
J2	SUNX Corp.: S-LINK (8 outputs)	EX122-SSL2	—	V	CC-LINK	EX122-SMJ1	○

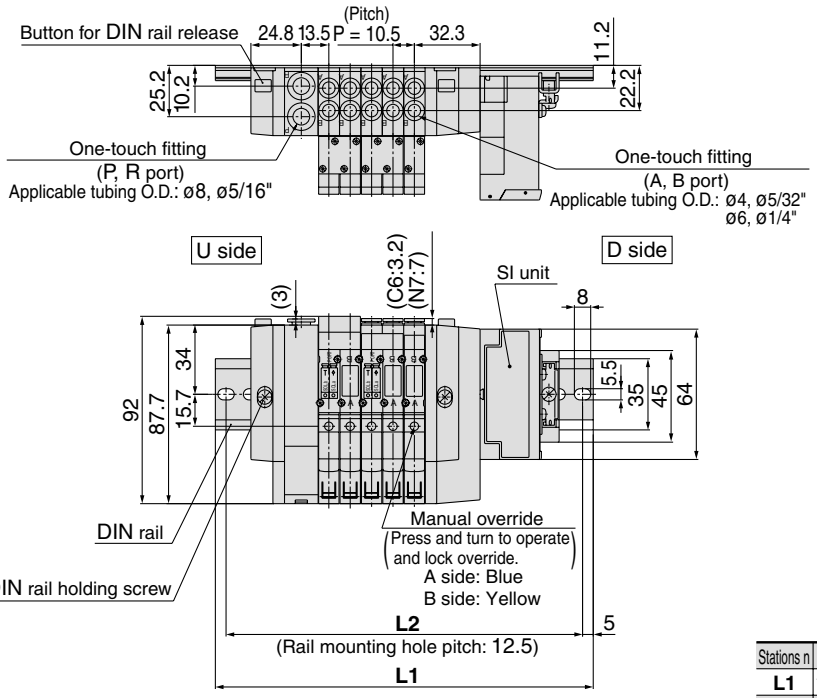
Refer to pages 1650 to 1652 for the details of the EX122 integrated type (for output) serial transmission system.

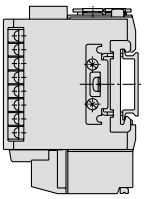
When ordering plug-in type valve as a single unit, gaskets are not included. Order them separately, if necessary. (Refer to page 300 for details.)

SMC

Series SY3000: EX122 Integrated Type (for Output) Serial Transmission System/Plug-in

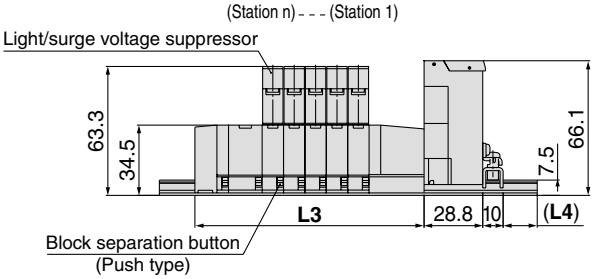
SS5Y3-45S□- Stations U-C4, N3 C6, N7



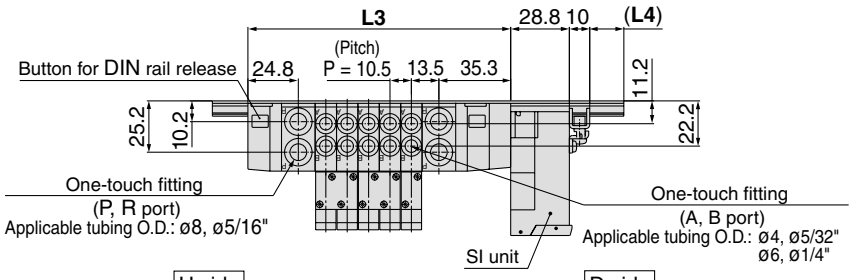


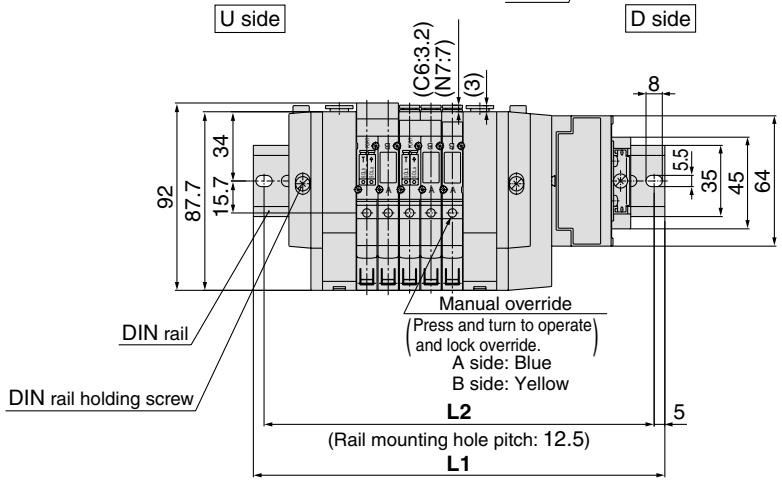
Note) The **L1** to **L4** dimensions of **SS5Y3-45S□- Stations U-C4, N3 C6, N7** are identical to those of SS5Y3-45S□- Stations D-C4, N3 C6, N7.

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	148	160.5	173	185.5	185.5	198	210.5	223	235.5
L2	137.5	150	162.5	175	175	187.5	200	212.5	225
L3	81	91.5	102	112.5	123	133.5	144	154.5	165
L4	14.5	15.5	16.5	17.5	12	13	14	15	16



SS5Y3-45S□- Stations B-C4, N3 C6, N7



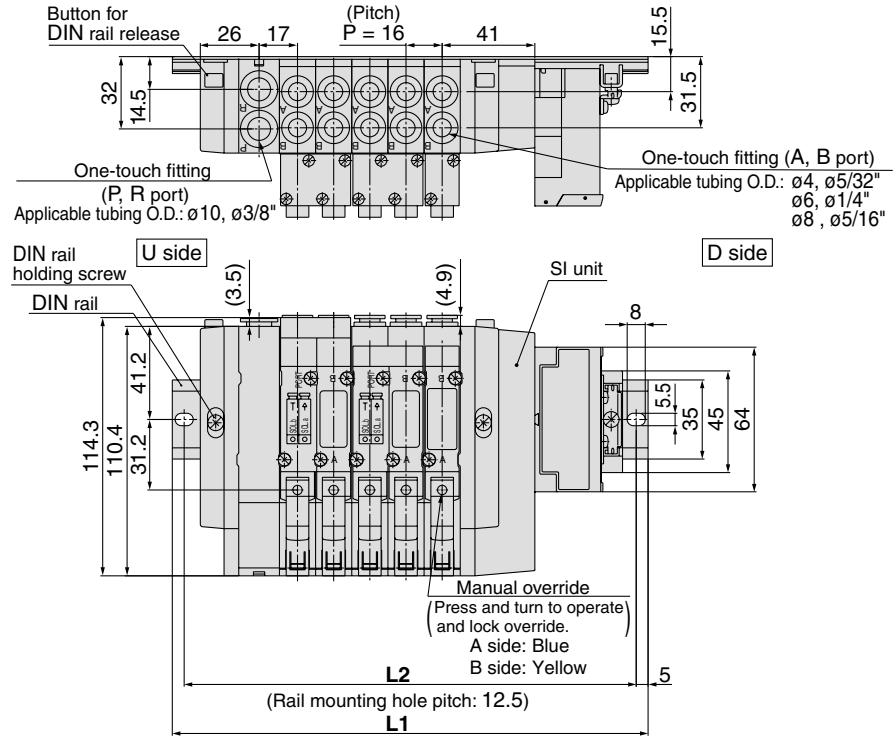


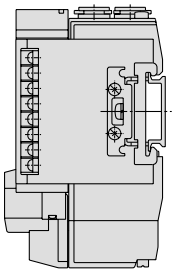
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	160.5	173	185.5	198	210.5	223	223	235.5	248
L2	150	162.5	175	187.5	200	212.5	212.5	225	237.5
L3	97.5	108	118.5	129	139.5	150	160.5	171	181.5
L4	12.5	13.5	14.5	15.5	16.5	17.5	12	13	14

Stations n	11 stations	12	13	14	15	16 stations
L1	260.5	273	285.5	285.5	298	310.5
L2	250	262.5	275	275	287.5	300
L3	192	202.5	213	223.5	234	244.5
L4	15	16	17	12	13	14

Series SY5000: EX122 Integrated Type (for Output) Serial Transmission System/Plug-in

SS5Y5-45S□- Stations U- C4, N3 C6, N7 C8, N9

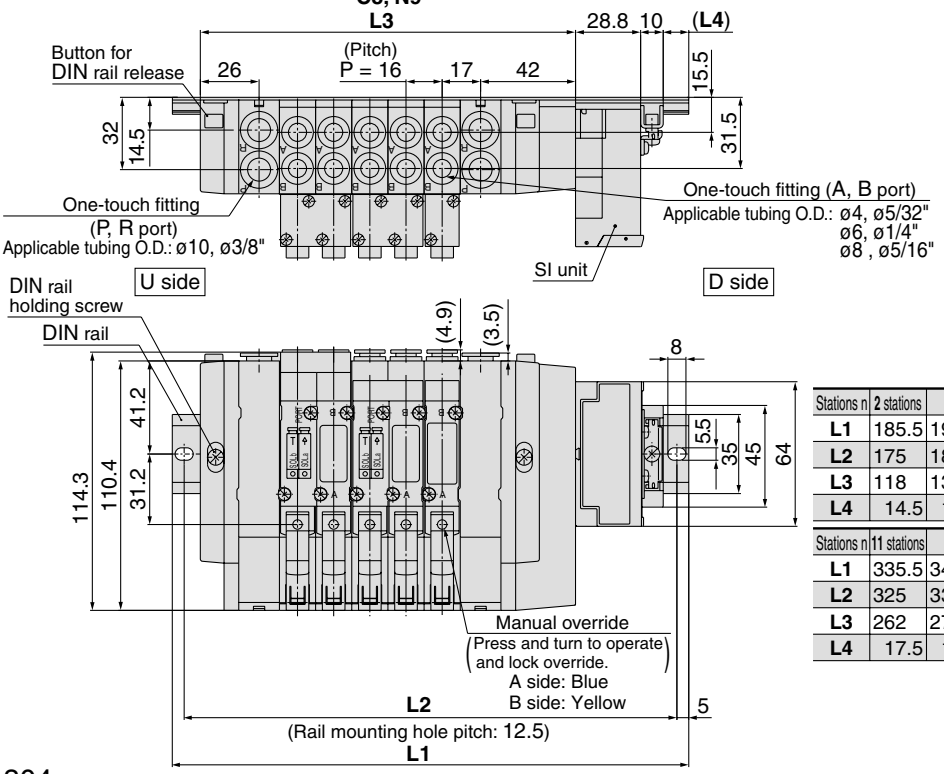




Note) The **L1** to **L4** dimensions of **SS5Y5-45S□- Stations U- C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45S□- Stations D- C4, N3 C6, N7 C8, N9.

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	173	185.5	198	210.5	235.5	248	260.5	285.5	298
L2	162.5	175	187.5	200	225	237.5	250	275	287.5
L3	100	116	132	148	164	180	196	212	228
L4	17.5	15.5	14	12	16.5	15	13	17.5	16

SS5Y5-45S□- Stations B- C4, N3 C6, N7 C8, N9

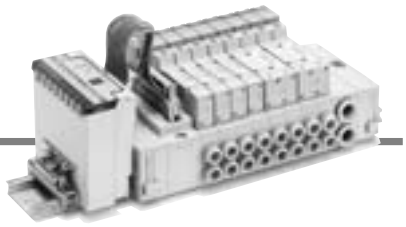


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	185.5	198	223	235.5	248	260.5	285.5	298	310.5
L2	175	187.5	212.5	225	237.5	250	275	287.5	300
L3	118	134	150	166	182	198	214	230	246
L4	14.5	13	17.5	15.5	14	12	16.5	15	13

Stations n	11 stations	12	13	14	15	16 stations
L1	335.5	348	360.5	373	398	410.5
L2	325	337.5	350	362.5	387.5	400
L3	262	278	294	310	326	342
L4	17.5	16	14	12.5	17	15

SY3000/5000 Base Mounted Manifold Stacking Type/DIN Rail Mounted EX 121 Separate Type (for Output) Serial Transmission System

Type 45S1□



How to Order Manifold

SS5Y 3 - 45S1 V D - 05 U - C4 - □ - □

Series

3	SY3000
5	SY5000

SI unit specifications

Symbol	Protocol type
0	Without SI unit
F1	NKE Corp.: Uni-wire System
H	NKE Corp.: Uni-wire H System
J1	SUNX Corp.: S-LINK (16 outputs)
J2	SUNX Corp.: S-LINK (8 outputs)
Q	DeviceNet
R1	OMRON Corp.: CompoBus/S (16 outputs) compatible
R2	OMRON Corp.: CompoBus/S (8 outputs) compatible
V	CC-LINK

• Even though when it is not equipped with SI unit, DIN rail length is long enough for future expectancy of mounting SI unit. When a shorter rail is required (same as type 45□), suffix "0" in the optional blank at the end of part number.

SI unit mounting position

Symbol	Mounting position
U	U side
D	D side

CE-compliant

Nil	—
Q	CE-compliant

∗ Refer to the SI unit part no. for the SI unit compatible with CE.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø 5/32"	SY3000
N7	One-touch fitting for ø 1/4"	
M	Mixed	
N3	One-touch fitting for ø 5/32"	SY5000
N7	One-touch fitting for ø 1/4"	
N9	One-touch fitting for ø 5/16"	
M	Mixed	

∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	2 to 10 stations
B	Both sides	2 to 16 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification sheet.

Valve stations

Symbol	Stations	Note
02	2 stations	Single wiring spec. (Applicable up to 16 solenoid valves.)
⋮	⋮	
16	16 stations	

∗ This also includes the number of blanking plate assemblies.
∗ Two stations are necessary for the double, 3 position (Dual body type).

SI Unit Part No.

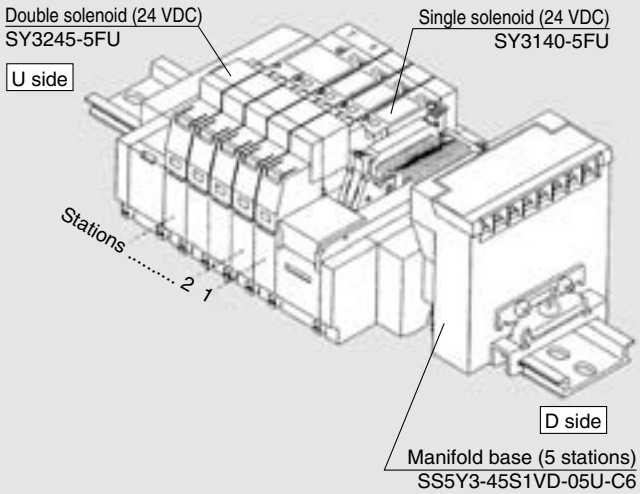
Symbol	Protocol type	SI unit No.	CE-compliant	Symbol	Protocol type	SI unit No.	CE-compliant
F1	NKE Corp.: Uni-wire System	EX121-SUW1	—	Q	DeviceNet	EX121-SDN1	○
H	NKE Corp.: Uni-wire H System	EX121-SUH1	—	R1	OMRON Corp.: CompoBus/S (16 outputs) compatible	EX121-SCS1	○
J1	SUNX Corp.: S-LINK (16 outputs)	EX121-SSL1	—	R2	OMRON Corp.: CompoBus/S (8 outputs) compatible	EX121-SCS2	○
J2	SUNX Corp.: S-LINK (8 outputs)	EX121-SSL2	—	V	CC-LINK	EX121-SMJ1	○

• For external pilot specifications and built-in silencer, refer to pages 324 to 328.

Refer to pages 1650 to 1652 for the details of the EX121 separate type (for output) serial transmission system.

How to Order Valve Manifold Assembly (Example)

Example



SS5Y3-45S1VD-05U-C6 1 set··· (Type 45S1 with serial unit 5-station manifold base part no.)
*** SY3140-5FU ····· 3 sets (Single solenoid part no.)**
*** SY3245-5FU ····· 1 set (Double solenoid part no.)**

→The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

- The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SI unit.
- When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.

How to Order Valve

2 position single **SY 3 1 4 0 — 5 FU □**

Double, 3 position **SY 3 2 4 5 — 5 FU □**

Series

3	SY3000
5	SY5000

Type of actuation

2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Dual body type (Double, 3 position)

Rated voltage

5	24 VDC

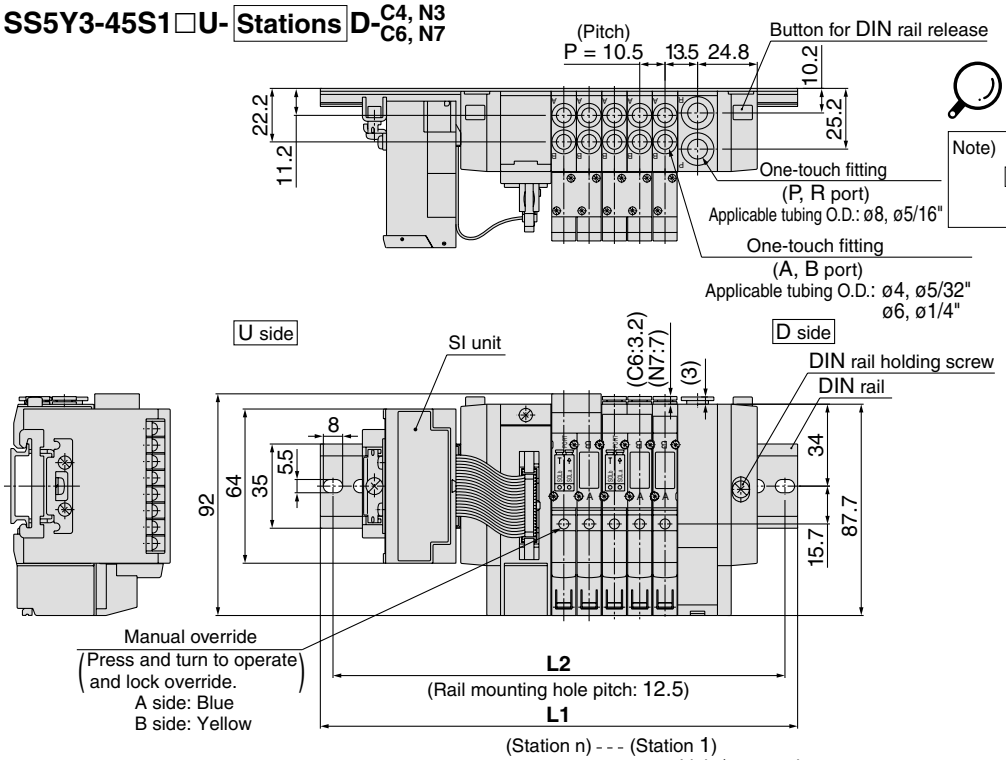
Manual override

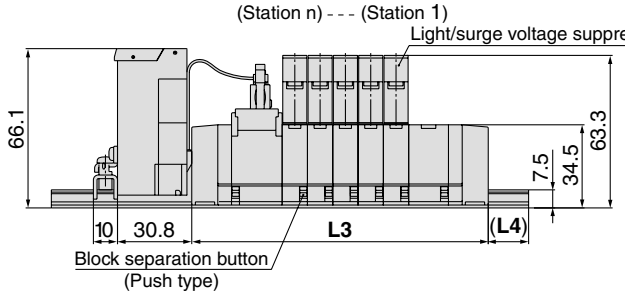
Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

When ordering plug-in type valve as a single unit, gaskets are not included. Order them separately, if necessary. (Refer to page 300 for details.)

SY3000: EX121 Separate Type (for Output) Serial Transmission System/Plug-in

SS5Y3-45S1□U-[Stations]D-C4, N3 / C6, N7

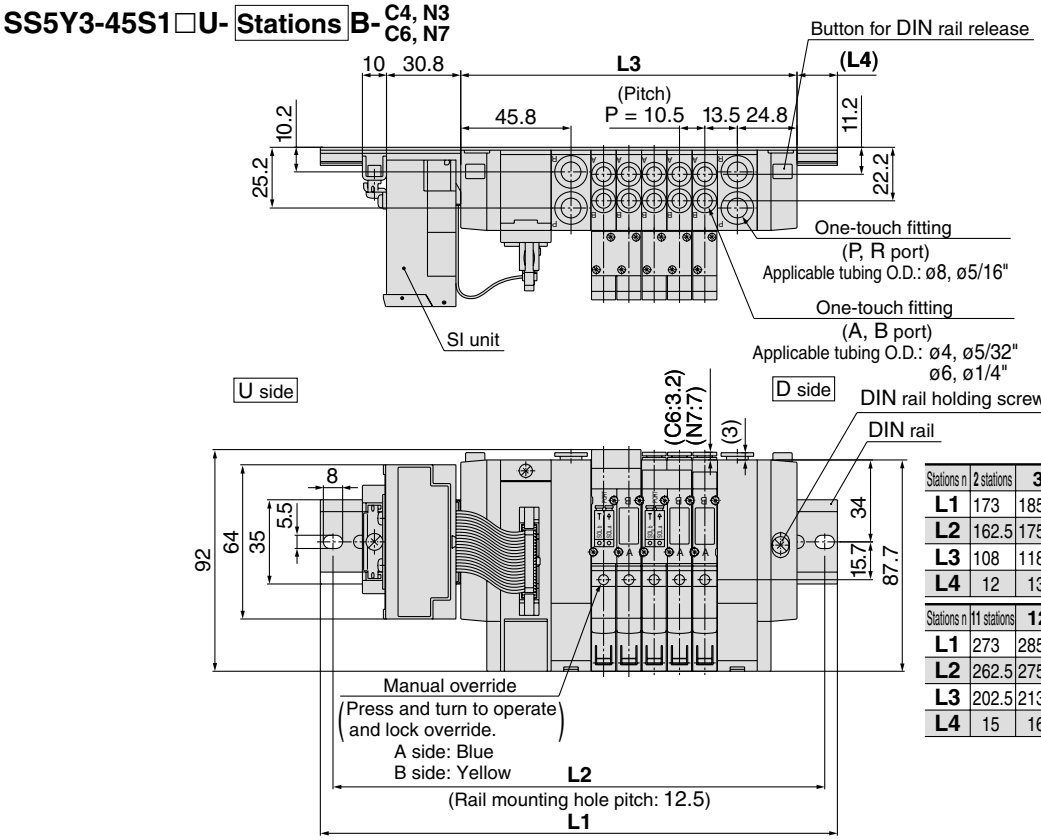




Note) The **L1** to **L4** dimensions of **SS5Y3-45S1□U-[Stations]U-C4, N3 / C6, N7** are identical to those of SS5Y3-45S1□U-[Stations]D-C4, N3 / C6, N7.

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	160.5	173	185.5	198	198	210.5	223	235.5	248
L2	150	162.5	175	187.5	187.5	200	212.5	225	237.5
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	14	15	16	17	12	13	14	15	16

SS5Y3-45S1□U-[Stations]B-C4, N3 / C6, N7

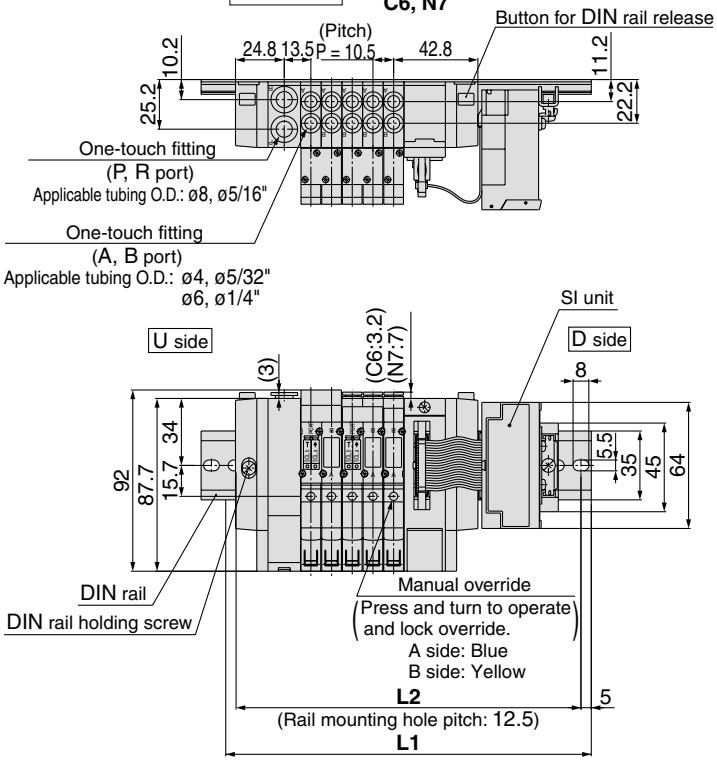


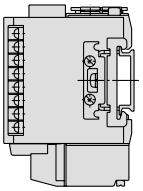
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	173	185.5	198	210.5	223	235.5	235.5	248	260.5
L2	162.5	175	187.5	200	212.5	225	225	237.5	250
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	12	13	14	15	16	17	12	13	14

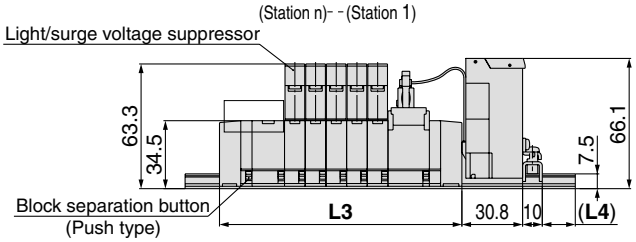
Stations n	11 stations	12	13	14	15	16 stations
L1	273	285.5	298	298	310.5	323
L2	262.5	275	287.5	287.5	300	312.5
L3	202.5	213	223.5	234	244.5	255
L4	15	16	17	11.5	12.5	13.5

SY3000: EX121 Separate Type (for Output) Serial Transmission System/Plug-in

SS5Y3-45S1□D- Stations U- C4, N3 C6, N7



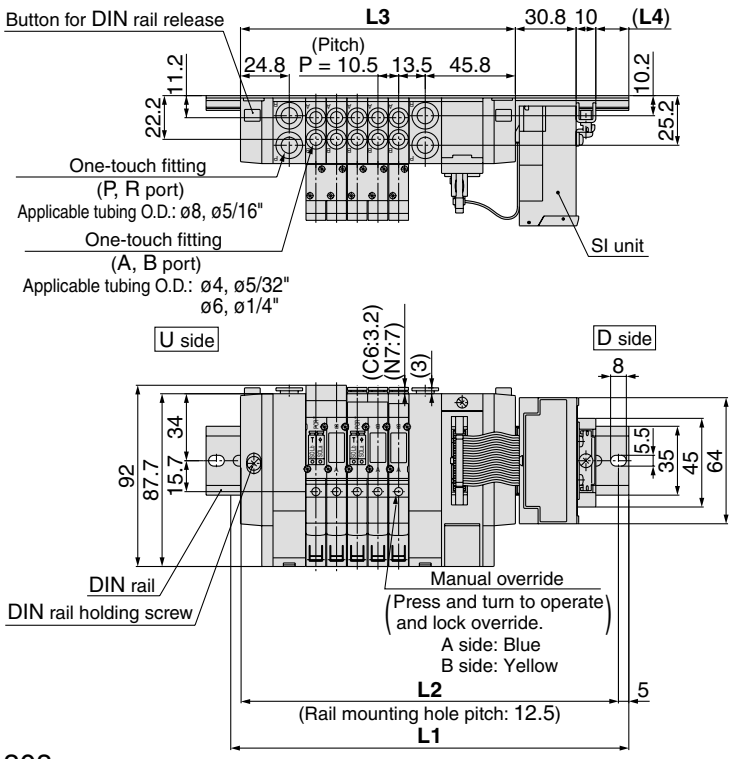




Note) The **L1** to **L4** dimensions of **SS5Y3-45S1□D- Stations D- C4, N3 C6, N7** are identical to those of SS5Y3-45S1□D- Stations U- C4, N3 C6, N7.

Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	160.5	173	185.5	198	198	210.5	223	235.5	248
L2	150	162.5	175	187.5	187.5	200	212.5	225	237.5
L3	91.5	102	112.5	123	133.5	144	154.5	165	175.5
L4	14	15	16	17	12	13	14	15	16

SS5Y3-45S1□D- Stations B- C4, N3 C6, N7

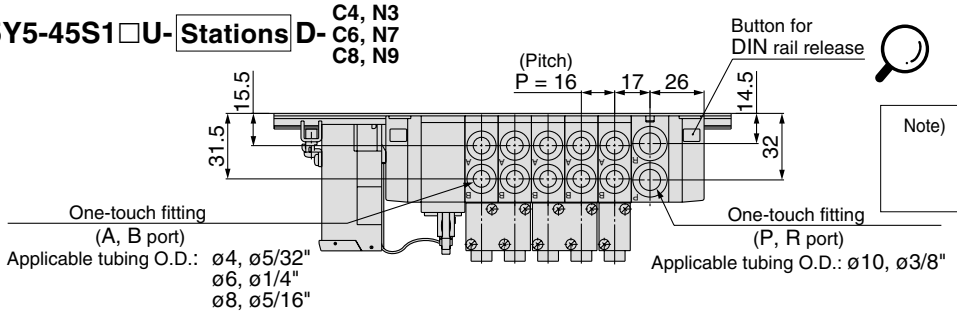


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	173	185.5	198	210.5	223	235.5	235.5	248	260.5
L2	162.5	175	187.5	200	212.5	225	225	237.5	250
L3	108	118.5	129	139.5	150	160.5	171	181.5	192
L4	12	13	14	15	16	17	12	13	14

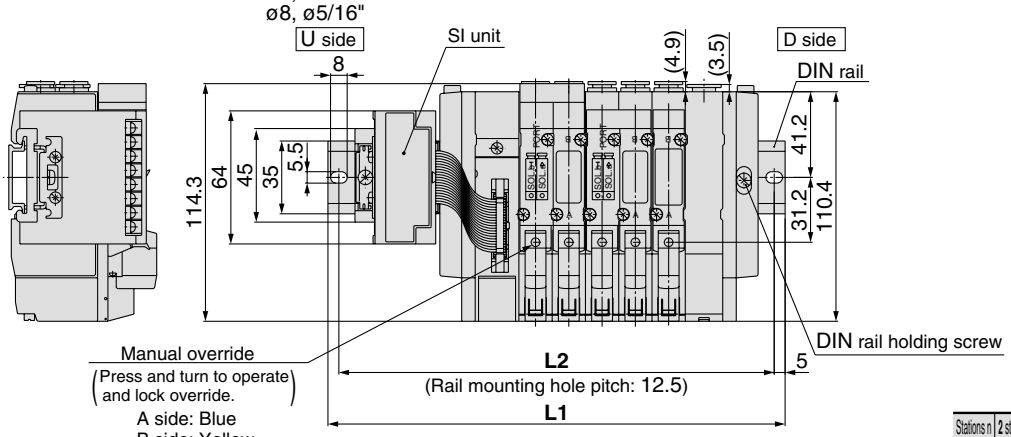
Stations n	11 stations	12	13	14	15	16 stations
L1	273	285.5	298	298	310.5	323
L2	262.5	275	287.5	287.5	300	312.5
L3	202.5	213	223.5	234	244.5	255
L4	15	16	17	11.5	12.5	13.5

SY5000: EX121 Separate Type (for Output) Serial Transmission System/Plug-in

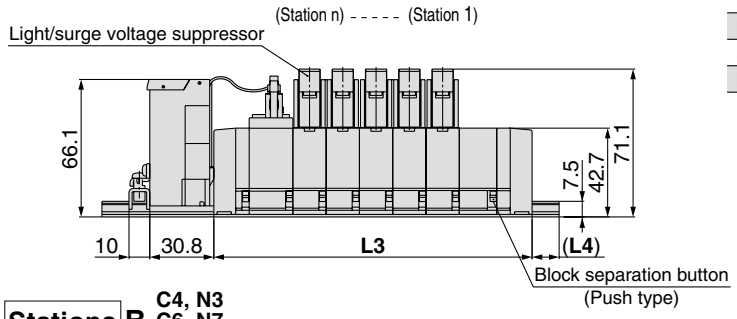
SS5Y5-45S1□U-Stations D-C4, N3 C6, N7 C8, N9



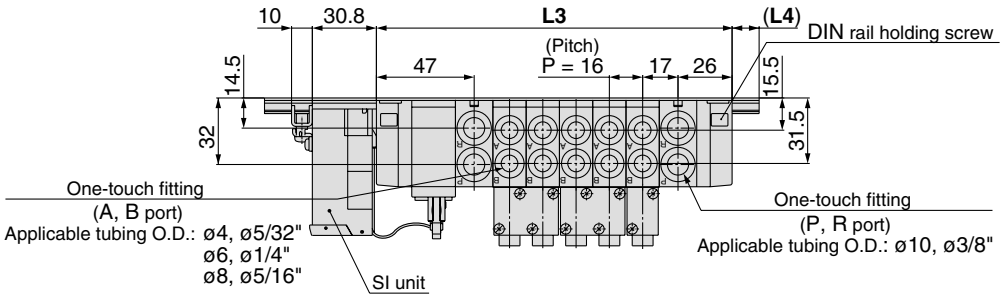
Note) The **L1** to **L4** dimensions of **SS5Y5-45S1□U-Stations U-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45S1□U-Stations D-C4, N3 C6, N7 C8, N9.

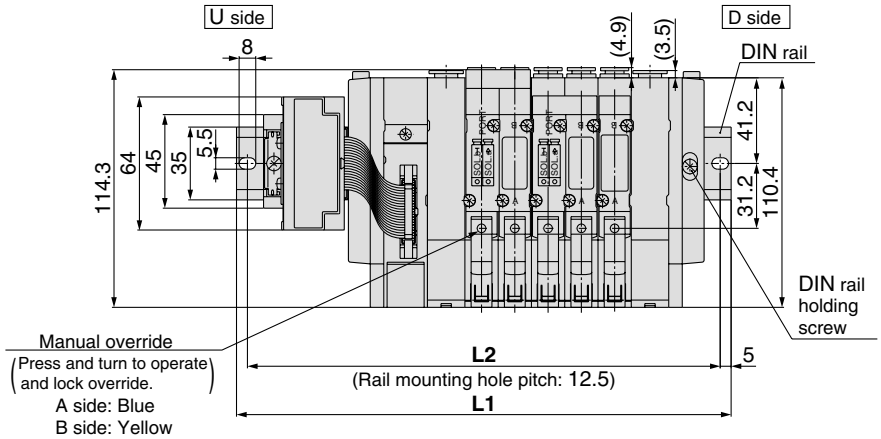


Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	173	185.5	210.5	223	235.5	260.5	273	285.5	298
L2	162.5	175	200	212.5	225	250	262.5	275	287.5
L3	105	121	137	153	169	185	201	217	233
L4	13.5	12	16.5	14.5	13	17.5	15.5	14	12



SS5Y5-45S1□U-Stations B-C4, N3 C6, N7 C8, N9



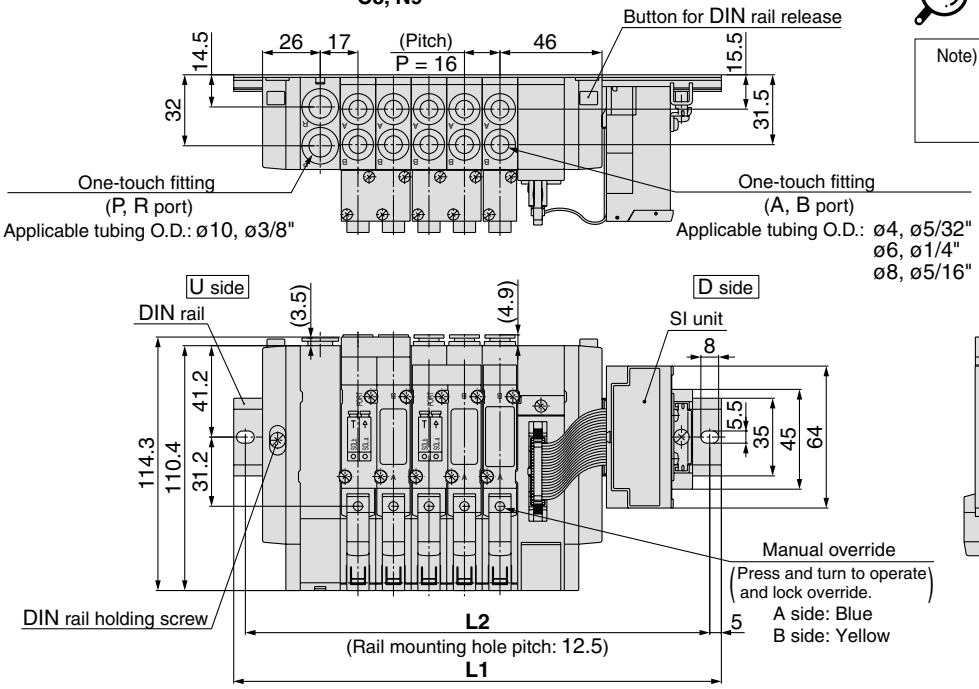


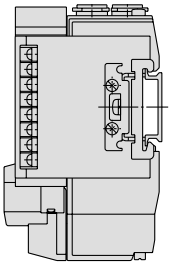
Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	198	210.5	223	235.5	260.5	273	285.5	310.5	323
L2	187.5	200	212.5	225	250	262.5	275	300	312.5
L3	123	139	155	171	187	203	219	235	251
L4	17	15.5	13.5	12	16.5	14.5	13	17.5	15.5

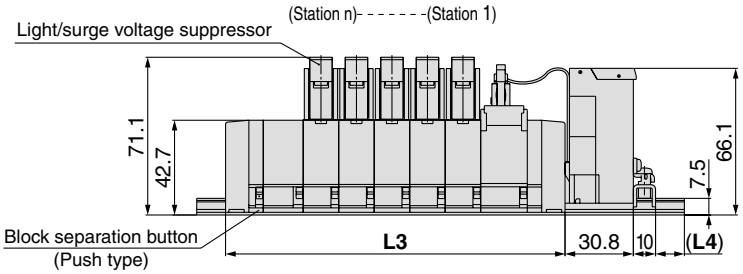
Stations n	11 stations	12	13	14	15	16 stations
L1	335.5	348	373	385.5	398	410.5
L2	325	337.5	362.5	375	387.5	400
L3	267	283	299	315	331	347
L4	14	12	16.5	15	13	11.5

SY5000: EX121 Separate Type (for Output) Serial Transmission System/Plug-in

SS5Y5-45S1□D-Stations U-C4, N3 C6, N7 C8, N9

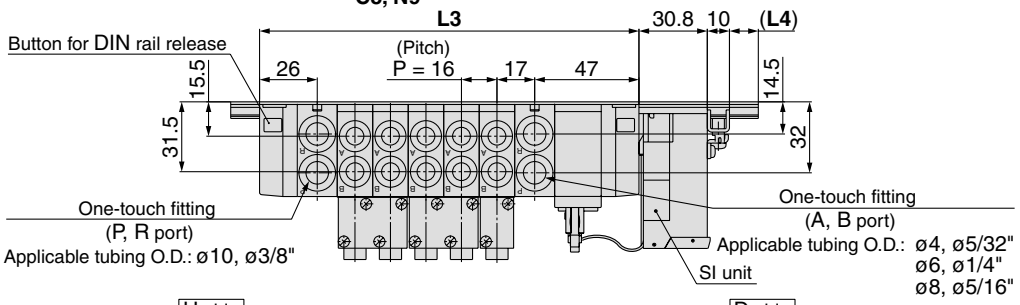


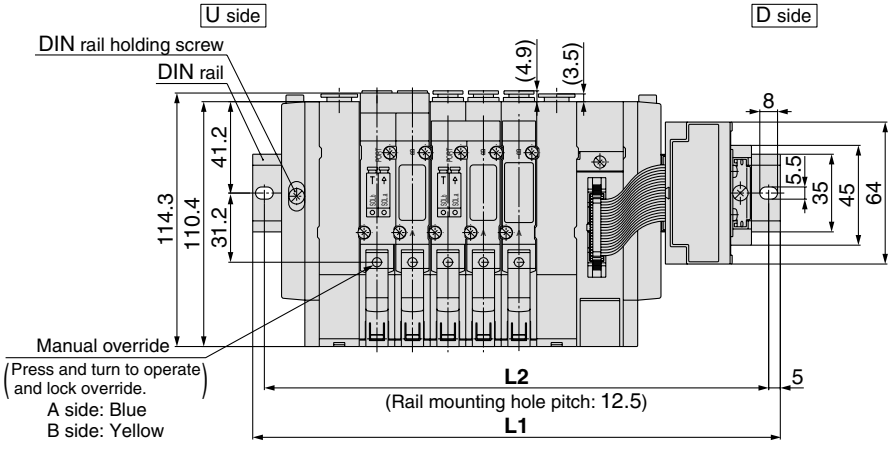




Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	173	185.5	210.5	223	235.5	260.5	273	285.5	298
L2	162.5	175	200	212.5	225	250	262.5	275	287.5
L3	105	121	137	153	169	185	201	217	233
L4	13.5	12	16.5	14.5	13	17.5	15.5	14	12

SS5Y5-45S1□D-Stations B-C4, N3 C6, N7 C8, N9





Stations n	2 stations	3	4	5	6	7	8	9	10 stations
L1	198	210.5	223	235.5	260.5	273	285.5	310.5	323
L2	187.5	200	212.5	225	250	262.5	275	300	312.5
L3	123	139	155	171	187	203	219	235	251
L4	17	15.5	13.5	12	16.5	14.5	13	17.5	15.5

Stations n	11 stations	12	13	14	15	16 stations
L1	335.5	348	373	385.5	398	410.5
L2	325	337.5	362.5	375	387.5	400
L3	267	283	299	315	331	347
L4	14	12	16.5	15	13	11.5

Note) The **L1** to **L4** dimensions of **SS5Y5-45S1□D-Stations D-C4, N3 C6, N7 C8, N9** are identical to those of SS5Y5-45S1□D-Stations U-C4, N3 C6, N7 C8, N9.

EX510 Gateway System
Serial Transmission System
Base Mounted Manifold/Stacking Type/Plug-in Type

Type 45S6B

Series SY3000/5000

How to Order Manifold

SS5Y 3 – 45S6B [ ] U – 02 U [ ] – C4 – [ ] – [ ]

Manifold series

3	SY3000
5	SY5000

SI unit

Nil	NPN output (+COM.)
N	PNP output (–COM.)

SI unit mounting position

U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Compatible with 16 solenoid valves
⋮	⋮	
16	16 stations	

*The number of the blanking plate assembly is also included.

SI unit part no.

Symbol	SI unit specifications	SI unit part no.	Page
Nil	NPN output (+COM.)	EX510-S002A	P.1715 to 1717
N	PNP output (–COM.)	EX510-S102A	

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

• For the mixed specification, indicate separately on a manifold specification sheet.

Pilot specifications

Nil	Internal pilot
S	Internal pilot/built-in silencer
R	External pilot
RS	External pilot/built-in silencer

SUP/EXH block assembly mounting position

U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 16 stations
M	Special specifications*	

*For the special specifications, indicate separately on a manifold specification sheet.

CE-compliant

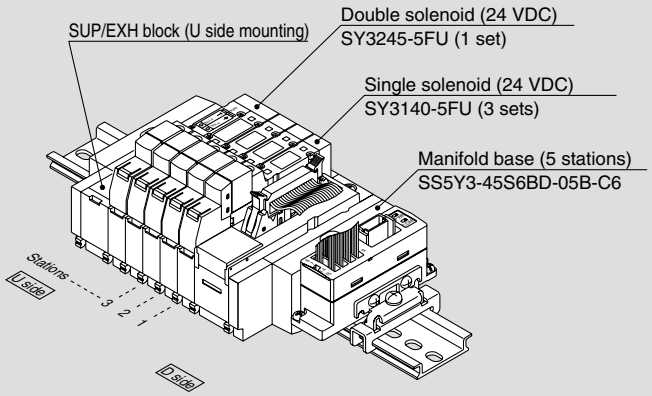
Nil	—
Q	CE-compliant

Option

When a DIN rail that is longer than the specified stations is desired, specify the required station number. (Max. 20 stations)

How to Order Manifold Assembly (Example)

Example

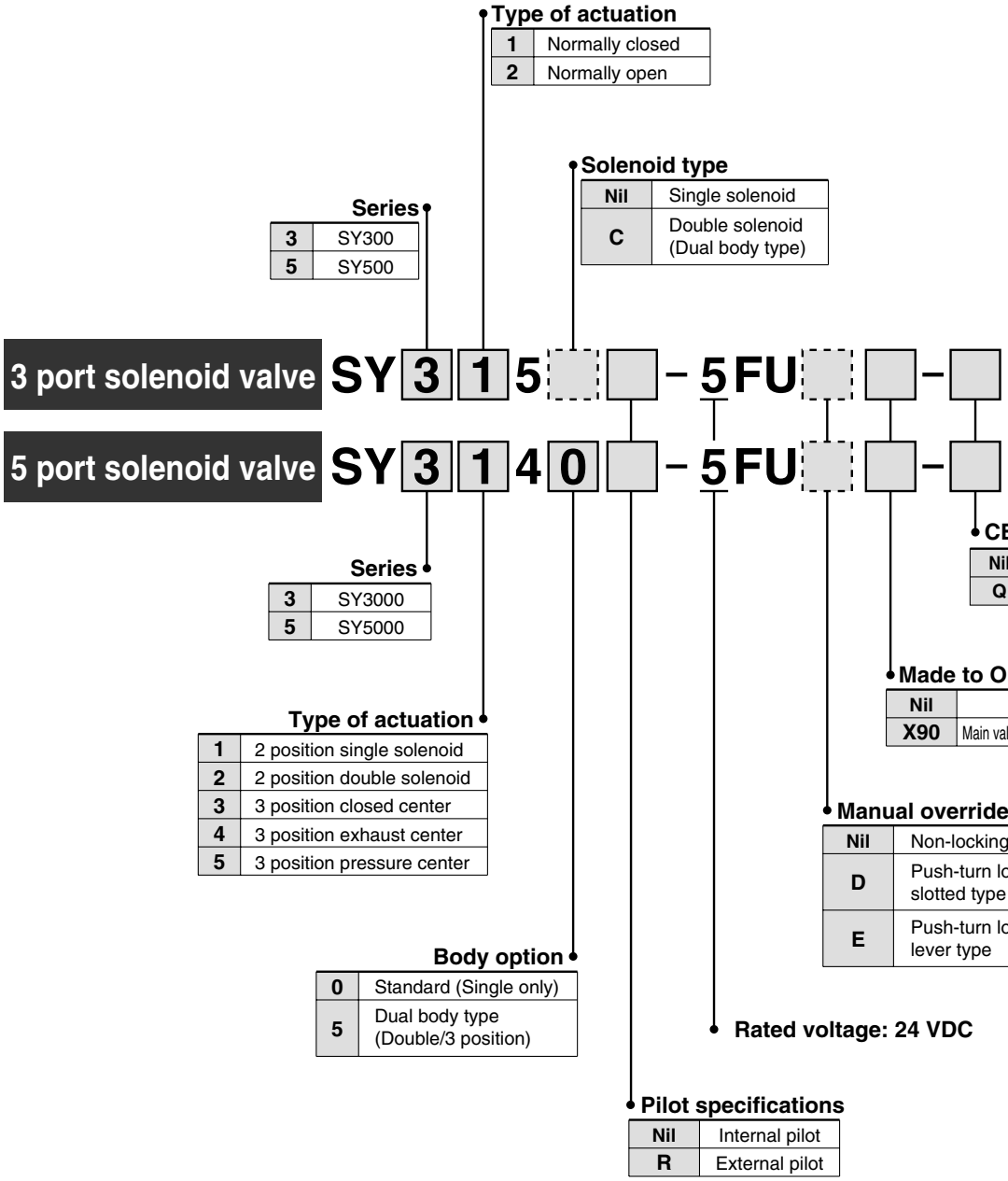


SS5Y3-45S6BD-05U-C6 ··1 set (45S6B type 5-station manifold part no.)
*** SY3140-5FU ····· 3 sets (Single solenoid part no.)**
*** SY3245-5FU ····· 1 set (Double solenoid part no.)**
→The asterisk denotes the symbol for assembly. Prefix to the part no. of the solenoid valve, etc.

• They will be assembled in the order listed starting at the first station at the D side whether the connector box is located at either end.
• When ordering double solenoid valves/3 position (dual body style), please keep in mind that they require two manifold stations.

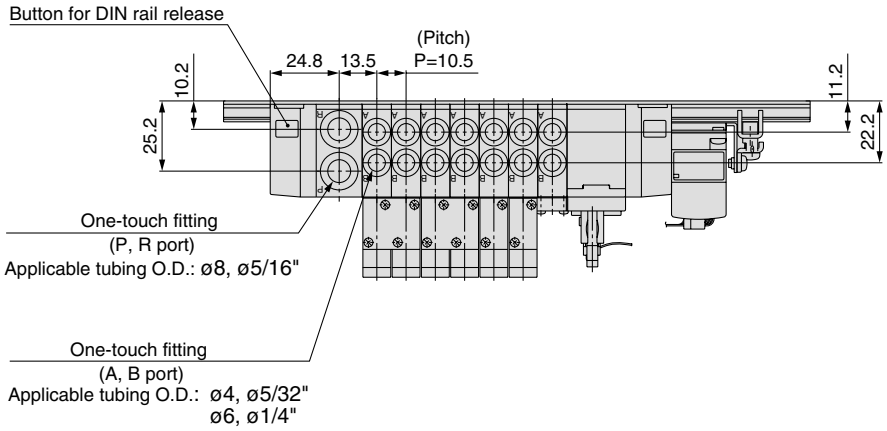
For details of "Gateway System Serial Transmission System, Series EX510", refer to pages 1696 through to 1724.

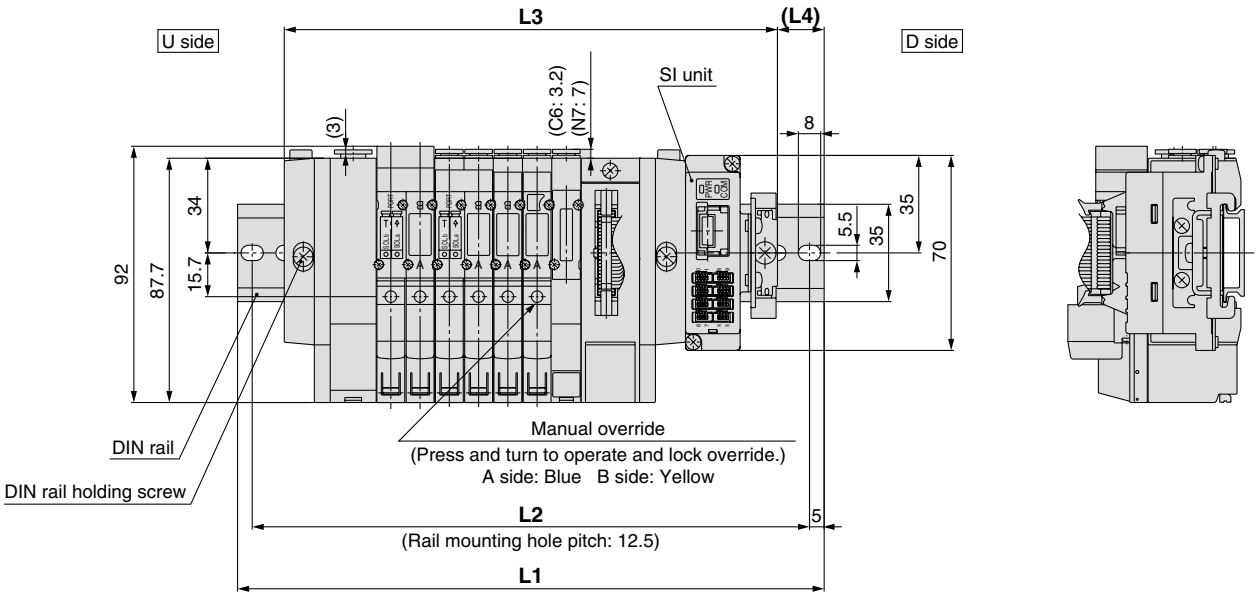
How to Order Valves

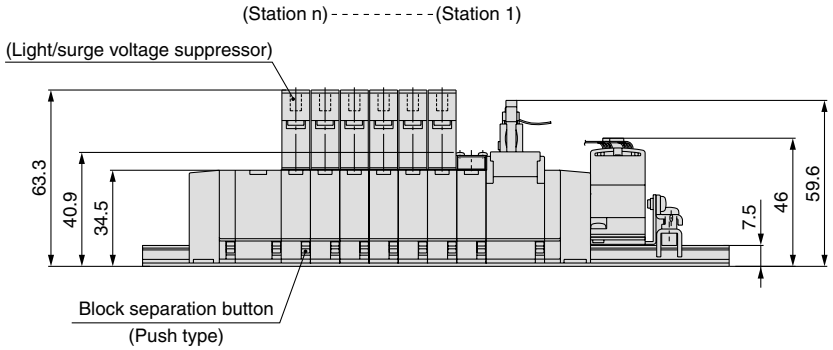


When ordering plug-in type valve as a single unit, gaskets are not included. Order them separately, if necessary. (Refer to page 300 for details.)

SS5Y3-45S6B ☐ D- Stations U- C4, N3 / C6, N7





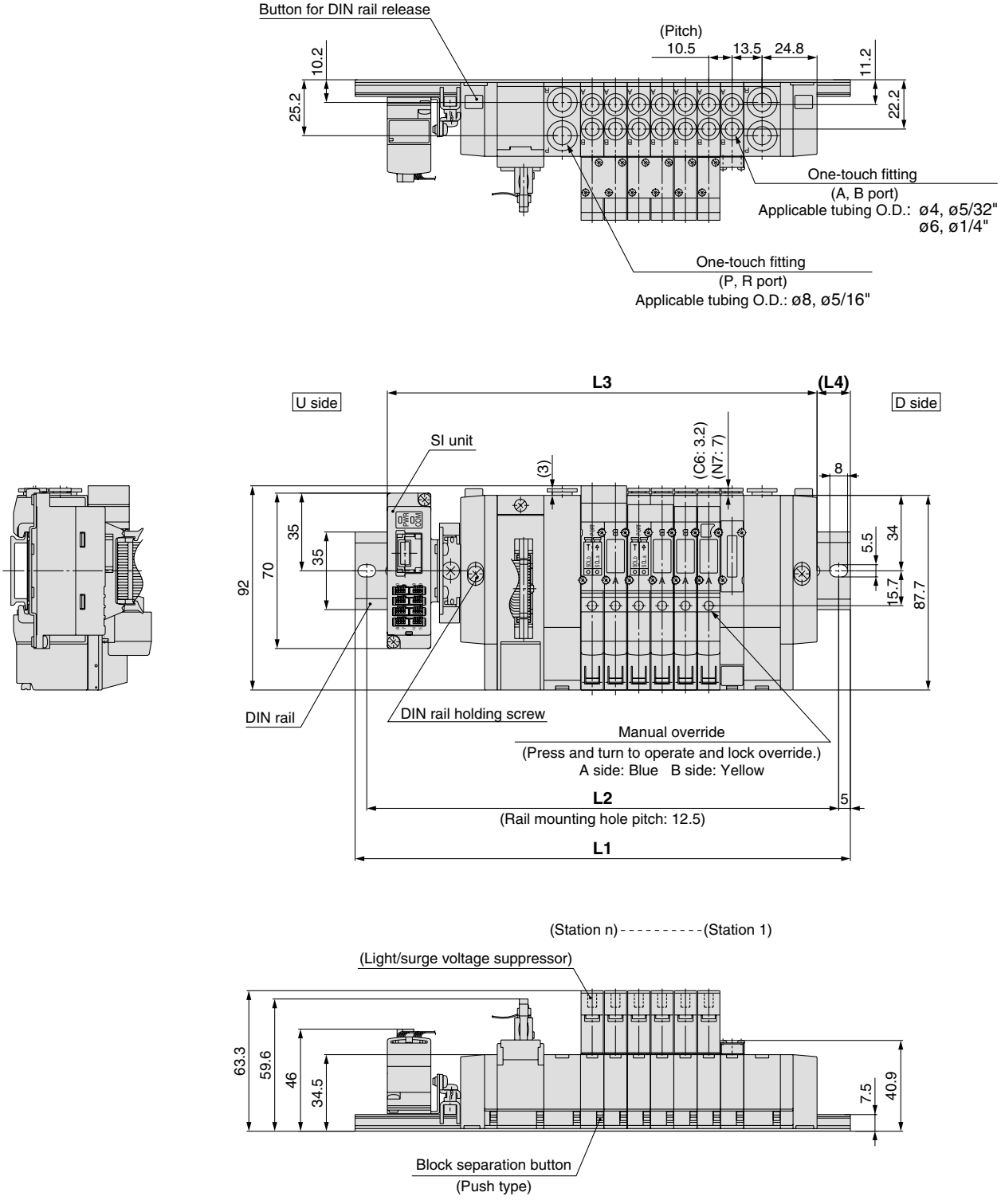


L: Dimensions

n: Stations

L \ n	2	3	4	5	6	7	8	9	10
L1	148	160.5	173	185.5	198	210.5	223	223	235.5
L2	137.5	150	162.5	175	187.5	200	212.5	212.5	225
L3	124.5	135	145.5	156	166.5	177	187.5	198	208.5
L4	12	13	14	15	16	17	18	12.5	13.5

SS5Y3-45S6B ☐U-Stations B-C4, N3 / C6, N7

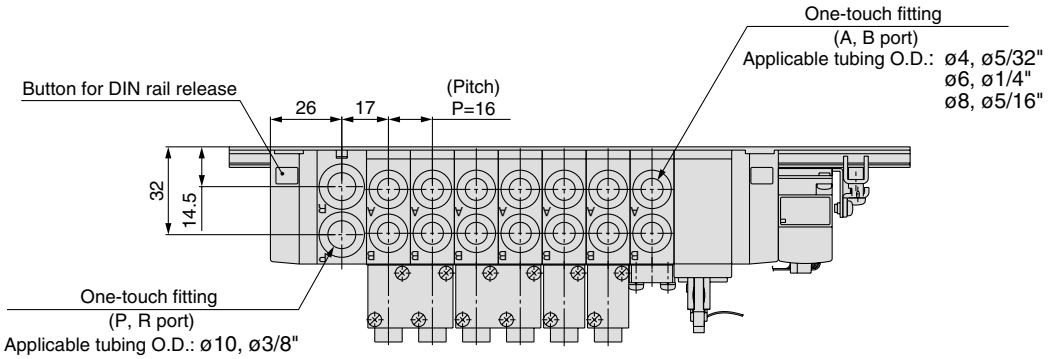


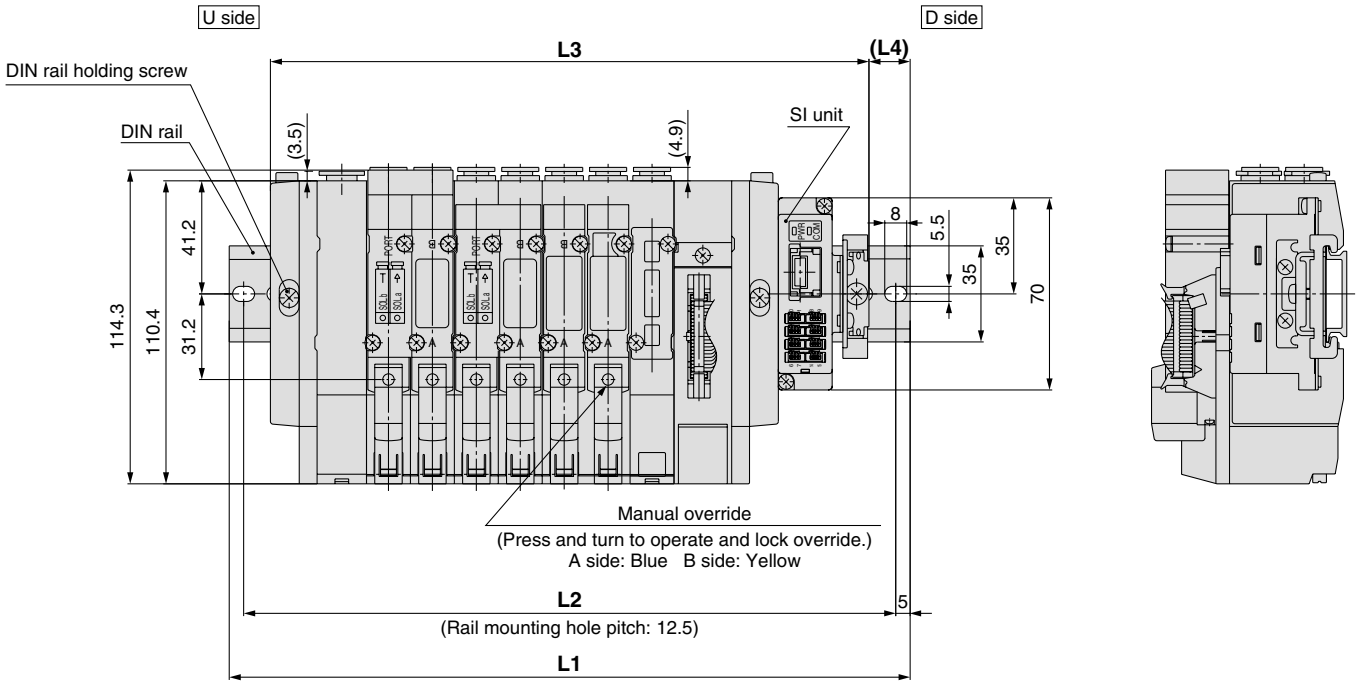
L: Dimensions

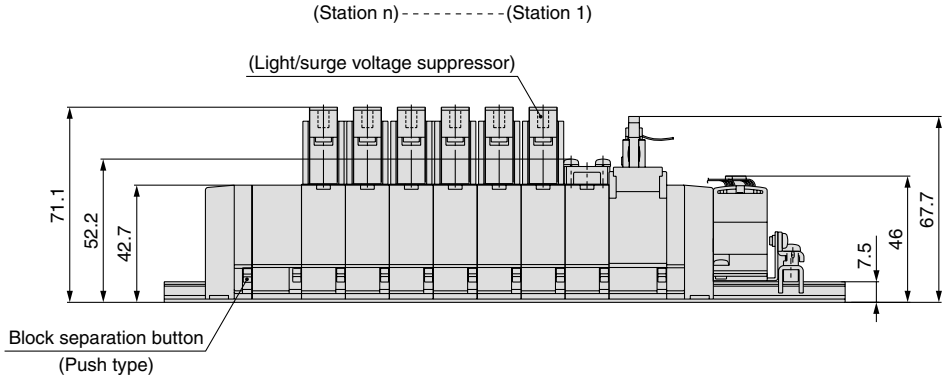
n: Stations

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	173	185.5	198	198	210.5	223	235.5	248	260.5	273	273	285.5	298	310.5	323
L2	162.5	175	187.5	187.5	200	212.5	225	237.5	250	262.5	262.5	275	287.5	300	312.5
L3	141	151.5	162	172.5	183	193.5	204	214.5	225	235.5	246	256.5	267	277.5	288
L4	16	17	18	13	14	15	16	17	18	19	13.5	14.5	15.5	16.5	17.5

SS5Y5-45S6B ☐ D- Stations U- C4, N3 / C6, N7 / C8, N9







L: Dimensions

n: Stations

L \ n	2	3	4	5	6	7	8	9	10
L1	173	185.5	198	210.5	235.5	248	260.5	285.5	298
L2	162.5	175	187.5	200	225	237.5	250	275	287.5
L3	138	154	170	186	202	218	234	250	266
L4	17.5	16	14	12.5	17	15	13.5	18	16

3 Port Valve
Mixed Mounting Type
on 5 Port Valve Manifold

Series SY300/500

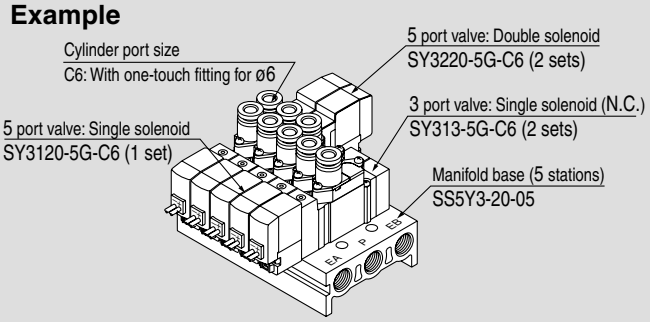
3 port valve can be mounted on manifold for 5 port valve.

Applications

Possible to be mounted on all kinds of manifolds for Series SY3000/5000.
Refer to “How to Order Manifold” for the details.

How to Order Manifold Assembly (Example)

Example



SS5Y3-20-05 ····· **1 set (Type 20, 5-station manifold base part no.)**
∗ **SY313-5G-C6** ····· **2 sets (3 port valve, type NC part no.)**
∗ **SY3120-5G-C6** ····· **1 set (5 port valve, single solenoid part no.)**
∗ **SY3220-5G-C6** ····· **2 sets (5 port valve, double solenoid part no.)**

→ The asterisk denotes the symbol for assembly.
Prefix it to the part nos. of the solenoid valve, etc.

Add the valve and option part number under the manifold base part number. In the case of complex arrangement, specify them on the manifold specification sheet.

Body Ported/How to Order Valve

Individual Wiring: For SS5Y$^{3}_{5}$-20

SY 5 1 3 □ □ – 5 L □ □ – 01 □ – □

Series

3	SY300
5	SY500

Type of actuation

1	Normally closed (N.C.)
2	Normally open (N.O.)

Solenoid type

Nil	Single solenoid
D	Double solenoid

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of Type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Electrical entry

24, 12, 6, 5, 3 VDC/ 100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm **H:** Lead wire length 600 mm	**L:** With lead wire (Length 300 mm) **LN:** Without lead wire **LO:** Without connector	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire **MO:** Without connector	**D:** With connector **DO:** Without connector **Y:** With connector **YO:** Without connector	**WO:** Without connector cable **W□:** With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ Refer to page 337 for DIN terminal of SY300 series.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ For connector cable of M8 connector, refer to page 339.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary. (Refer to page 173 for details.)

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

A port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY300
01	1/8	SY500

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY300
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY500
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY300
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY500
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
* For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y (SY500 only)

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Body Ported/How to Order Valve

Flat ribbon cable: SS5Y$^{3}_{5}$-20P

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	With light/surge voltage suppressor (Non-polar type)

Note) Z: Positive common specifications only.

Rated voltage

5	24 VDC
6	12 VDC

A port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY300
01	1/8	SY500

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY300
C6	One-touch fitting for ø6	
C6	One-touch fitting for ø6	SY500
C8	One-touch fitting for ø8	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY300
N7	One-touch fitting for ø1/4"	
N7	One-touch fitting for ø1/4"	SY500
N9	One-touch fitting for ø5/16"	

CE-compliant

Nil	—
Q	CE-compliant

For DC: SY 5 1 3 □ – 5 LO Z □ – □ □ – □

For AC: SY 5 1 3 □ – 1 LOZ □ – □ □ – □

Series

3	SY300
5	SY500

Type of actuation

1	Normally closed (N.C.)
2	Normally open (N.C.)

Rated voltage

1	100 VAC
3	110 VAC [115 VAC]

Solenoid type

Nil	Single solenoid
D	Double solenoid

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

Base Mounted/How to Order Valve

Individual wiring: For SS5Y$^{3}_{5}$-41/42/45

SY 5 1 5 □ □ □ – 5 L □ □ – □

Series

3	SY300
5	SY500

Type of actuation

1	Normally closed (N.C.)
2	Normally open (N.C.)

Solenoid type

Nil	Single solenoid
D	Double solenoid

Pilot type

Nil	Internal pilot
R	External pilot

∗ External pilot is not available for Type 41 manifold.

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

AC

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of Type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y (SY500 only)

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Electrical entry

24, 12, 6, 5, 3 VDC/ 100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm **H:** Lead wire length 600 mm	**L:** With lead wire (Length 300 mm) **LN:** Without lead wire **LO:** Without connector	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire **MO:** Without connector	**D:** With connector **DO:** Without connector **Y:** With connector **YO:** Without connector	**WO:** Without connector cable **W□:** With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ Refer to page 337 for DIN terminal of SY300 series.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 336.
∗ Refer to page 339 for connector cable of M8 connector.
∗ M8 conector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Base Mounted/How to Order Valve

Flat ribbon cable:
Connector box type: **For SS5Y$^{3}_{5}$-41P/42P/45-A**

41P/42P 45-A **For DC: SY 5 1 5 □ □ – 5 LO Z □ – □**

41P/42P **For AC: SY 5 1 5 □ □ – 1 LOZ □**

Light/surge voltage suppressor

Z	With light/surge voltage suppressor
U	With light/surge voltage suppressor (Non-polar type)

Note) Z: Positive common specifications only.

Rated voltage

5	24 VDC
6	12 VDC

Series

3	SY300
5	SY500

Type of actuation

1	Normally closed (N.C.)
2	Normally open (N.O.)

Solenoid type

Nil	Single solenoid
D	Double solenoid

Pilot type

Nil	Internal pilot
R	External pilot

∗ External pilot is not available for Type 41P manifold.

CE-compliant

Nil	—
Q	CE-compliant

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Rated voltage

1	100 VAC
3	110 VAC [115 VAC]

Plug-in: For SS5Y$^{3}_{5}$-45□

Single solenoid: SY 5 1 5 □ – 5 FU □ – □

Double solenoid: SY 5 1 5C □ – 5 FU □ – □

Series

3	SY300
5	SY500

Type of actuation

1	Normally closed (N.C.)
2	Normally open (N.C.)

Dual body type

∗ When ordering double solenoid valves (Dual body type), please keep in mind that they require two manifold stations.

CE-compliant

Nil	—
Q	CE-compliant

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Rated voltage

For DC

5	24 VDC
6	12 VDC

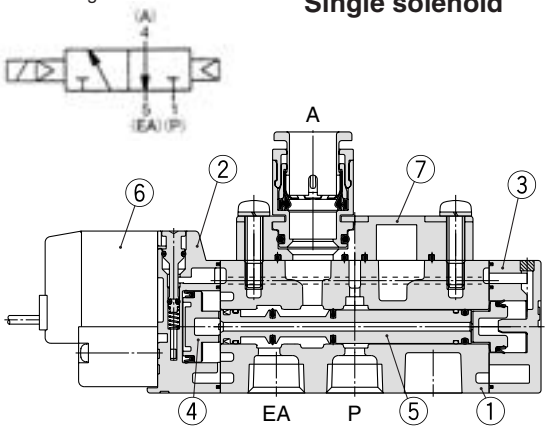
Pilot type

Nil	Internal pilot
R	External pilot

Construction

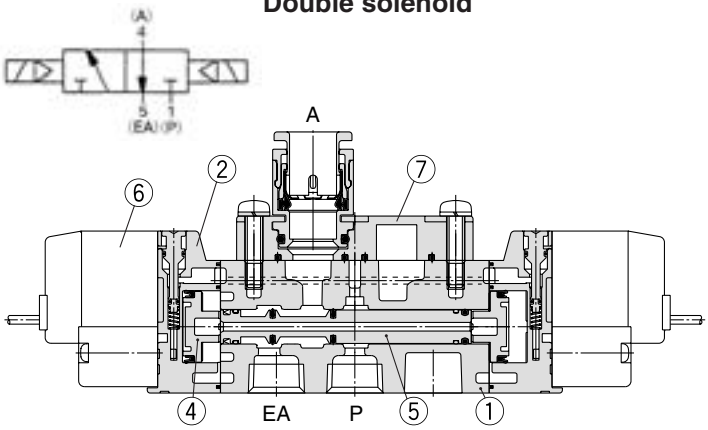
JIS Symbol
Single

Normally closed (N.C.)
Single solenoid



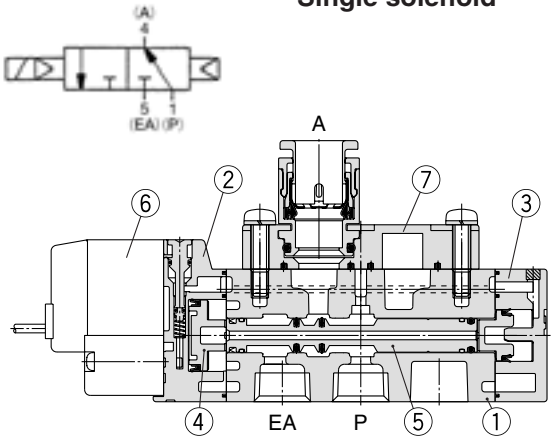
JIS Symbol
Double

Normally closed (N.C.)
Double solenoid



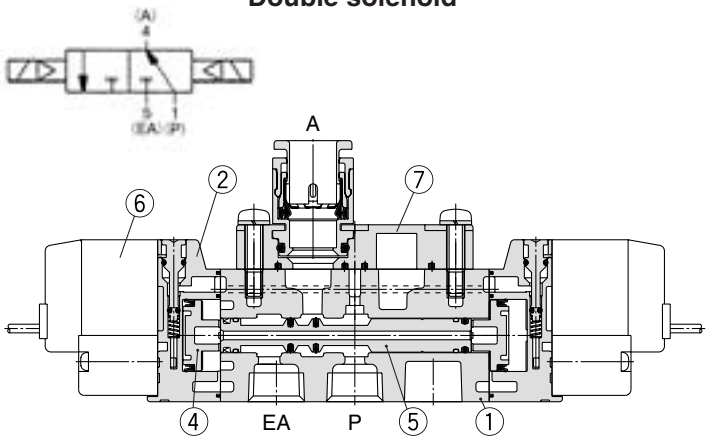
JIS Symbol
Single

Normally open (N.O.)
Single solenoid



JIS Symbol
Double

Normally open (N.O.)
Double solenoid



Component Parts

No.	Description	Material	Note
1	Body	Aluminum die-casted (SY3000: Zinc die-casted)	White
2	Adapter plate	Resin	White
3	End plate	Resin	White
4	Piston	Resin	–
5	Spool valve assembly	Aluminum, H-NBR	–

Replacement Parts

No.	Description	No.
6	Pilot valve assembly	Refer to "How to Order Pilot Valve Assembly" on page 112.
7	M5 port block assembly	Refer to "How to Order Port Block Assembly" below.

How to Order M5 Port Block Assembly

SY □ 00 − 2A − □ □

Series

3	Series SY300
5	Series SY500

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

∗ Except for M5

A, B port size

Thread piping

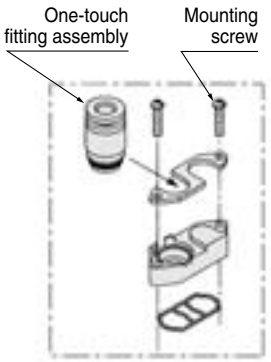
Symbol	Port size	Applicable series
M5	M5 x 0.8	SY300
01	1/8	SY500

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY300
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY500
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY300
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY500
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	



Port block assembly (cassette type)

∗ Only replacement of the fittings assembly is possible.

Metric size

SY300	One-touch fitting for ø4	VVQ1000-50A-C4
	One-touch fitting for ø6	VVQ1000-50A-C6
SY500	One-touch fitting for ø4	VVQ1000-51A-C4
	One-touch fitting for ø6	VVQ1000-51A-C6
	One-touch fitting for ø8	VVQ1000-51A-C8

Inch size

SY300	One-touch fitting for ø5/32"	VVQ1000-50A-N3
	One-touch fitting for ø1/4"	VVQ1000-50A-N7
SY500	One-touch fitting for ø5/32"	VVQ1000-51A-N3
	One-touch fitting for ø1/4"	VVQ1000-51A-N7
	One-touch fitting for ø5/16"	VVQ1000-51A-N9

⚠ Caution

Mounting screw tightening torques

SY300 (M2) : 0.12 N·m
SY500 (M3) : 0.6 N·m

Specifications

Dimensions, specifications, solenoid specifications, response time and effective area are the same as 5 port valve.

Mass

Series SY300

Valve model	Type of actuation	Mass (g)	
		Grommet	L, M plug connector
SY3□3-□□-M5	Single	51	53
	Double	68	74
SY3□3-□□-C4 N3	Single	56	59
	Double	74	79
SY3□3-□□-C6 N7	Single	54	57
	Double	72	77
SY3□5-□□	Single	47	50
	Double	65	70

Series SY500

Valve model	Type of actuation	Mass (g)		
		Grommet	L, M plug connector	DIN terminal
SY5□3-□-01□	Single	69	72	93
	Double	87	93	135
SY5□3-□-C4 N3	Single	82	82	103
	Double	100	102	144
SY5□3-□-C6 N7	Single	79	77	98
	Double	97	98	140
SY5□3-□-C8 N9	Single	75	84	105
	Double	93	105	147
SY5□5-□□	Single	55	58	79
	Double	73	78	120

SY3000/5000
Made to Order
External Pilot/Built-in Silencer

Type 45

External pilot manifold bases for low-pressure/vacuum use are added to split style/DIN rail manifolds. The built-in silencer has materialized a clear-cut appearance.

Individual Wiring/Connector Box Type

How to Order Manifold

Type 45

SS5Y3/5-45(-A)-05U R-C6-□-□

Series

3	SY3000
5	SY5000

Valve stations

Symbol	Stations
02	2 stations
⋮	⋮
20	20 stations

The number of blanking plate assembly is included.

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 20 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification

SUP/EXH block assembly specifications

Symbol	Specifications
R	External pilot specifications
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

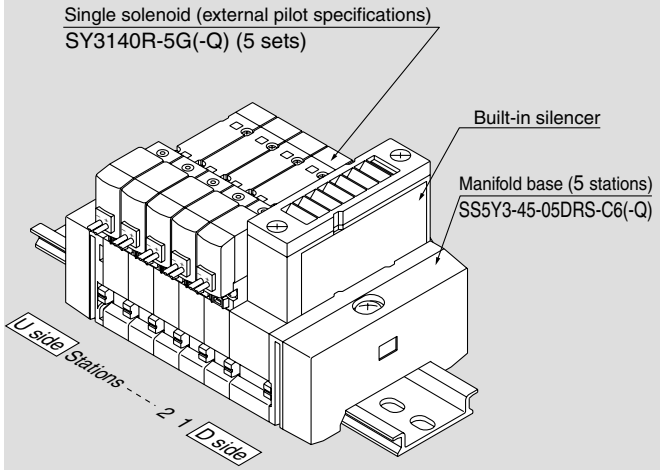
∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

CE-compliant

Nil	—
Q	CE-compliant

How to Order Manifold Assembly (Example)

Example



SS5Y3-45-05DRS-C6 ····1 set (External pilot specification with built-in silencer part no.)

∗ SY3140R-5G ····· 5 sets (Single solenoid part no.)

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.
For manifolds with SUP/EXH block assembly at each end of the manifold, external pilot ports and silencers will be also located at each end of the manifold.
The SUP/EXH block assembly (SX3/5000-51-1A), for special usage, as shown on page 254, can also be mounted. Please specify the mounting position, by correctly filling in the blank space on the manifold specification sheet.

How to Order Valve

SY [5] [2] 40 [ ] [ ] – [5] [L] [ ] [ ] – [ ] – [ ]

Series

3	SY3000
5	SY5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot type

Nil	Internal pilot
R	External pilot

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of D, Y, DO, YO or W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of Type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W□, DC voltage is only available.
∗ D, Y, DO and YO only available for SY5000.

Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y (SY5000 only)

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only except DIN terminal.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC			24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	DIN terminal	M8 connector
G: Lead wire length 300 mm **H:** Lead wire length 600 mm	**L:** With lead wire (Length 300 mm) **LN:** Without lead wire **LO:** Without connector	**M:** With lead wire (Length 300 mm) **MN:** Without lead wire **MO:** Without connector	**(SY5000 only)** **D:** With connector **DO:** Without connector **Y:** With connector **YO:** Without connector	**WO:** Without connector cable **W□:** With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ D, Y, DO and YO only available for SY5000.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). Refer to page 336 for details.
∗ Setting "-5LOU" is available only for connector box type.
∗ Refer to page 339 for connector cable of M8 connector.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Plug-in

How to Order Manifold

Type 45□

SS5Y3/5-45 □ F U - 05 U R - □ - □ - □ - □

Series

3	SY3000
5	SY5000

Common specifications

Nil	Positive common
N	Negative common

No symbol is used for T, T1, S□ types.

Connector type

Symbol	Mounting position
F	D-sub connector
P	Flat ribbon cable 26 pins
PG	Flat ribbon cable 20 pins
PH	Flat ribbon cable 10 pins
T	Terminal block 9 pins
T1	Terminal block 18 pins
S□	Serial Transmission Type

∗ For details, refer to pages from 272.

Connector mounting position

Symbol	Mounting position
U	U side
D	D side

Valve stations

Symbol	Stations	Note
02	2 stations	Single wining spec.
⋮	⋮	
20	20 stations	

∗ This also includes the number of blanking plate assemblies.
∗ Depending on the connector, the number of stations is limited. Refer to page 275.
∗ Two stations are necessary for the double, 3 position (Dual body type).

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 20 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification

SUP/EXH block assembly specifications

Symbol	Specifications
R	External pilot specifications
S	Internal pilot/Built-in silencer
RS	External pilot/Built-in silencer

A, B port size

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
M	Mixed	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
M	Mixed	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
M	Mixed	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
M	Mixed	

∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

Voltage

Nil	24 VDC
12V	12 VDC

No symbol is used for T, T1, S□ types.

Option

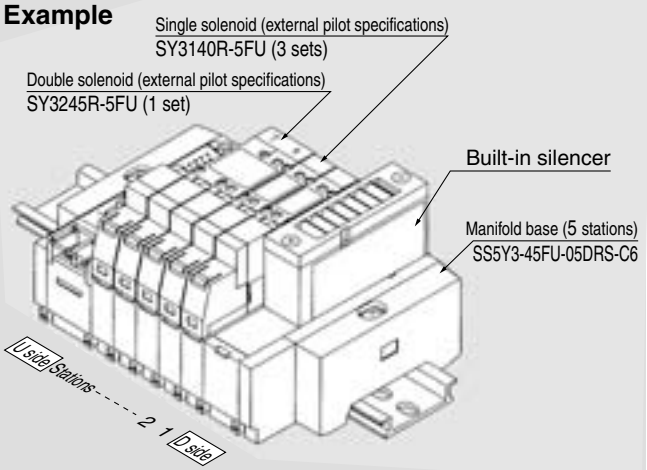
When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

CE-compliant

Nil	—
Q	CE-compliant

How to Order Manifold Assembly (Example)

Example



SS5Y3-45FU-05DRS-C6 ··· 1 set (External pilot specification with built-in silencer part no.)
∗ **SY3140R-5FU ····· 3 sets (Single solenoid part no.)**
∗ **SY3245R-5FU ····· 1 set (Double solenoid part no.)**
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.
For manifolds with SUP/EXH block at each end of the manifold, external pilot ports and silencers will be also located at each end of the manifold.
The SUP/EXH block assembly (SX3/5000-51-1A), for special usage, can also be mounted. Please specify the mounting position, by correctly filling in the blank space on the manifold specification sheet.
Two stations of the manifold base are necessary for the double, 3 position (Dual body type). Use caution when specifying the number of stations required for the manifold base.

How to Order Valve

SY 3 1 4 □ □ - 5 FU □ - □ - □

Series

3	SY3000
5	SY5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Body Option

0	Standard (Single only)
5	Dual body type (Double, 3 position)

Pilot type

Nil	Internal pilot
R	External pilot

Rated voltage

5	24 VDC
6	12 VDC
V∗	6 VDC
S∗	5 VDC
R∗	3 VDC

∗ Mark: 45T and T1 only
S□ type is available for 24 VDC only.

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

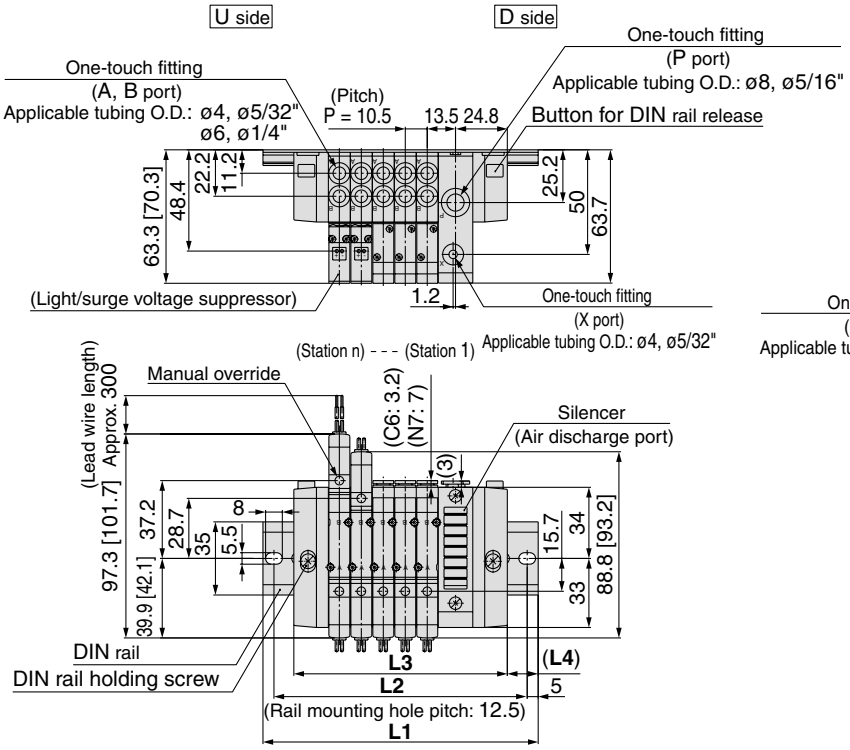
CE-compliant

Nil	—
Q	CE-compliant

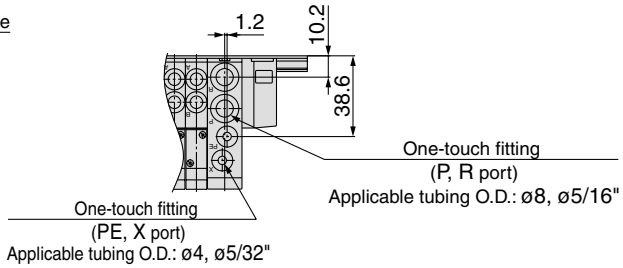
External Pilot/Built-in Silencer

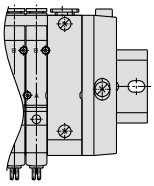
[ ]: AC

SY3000: SS5Y3-45-[Stations]DRS-C4, N3 / C6, N7



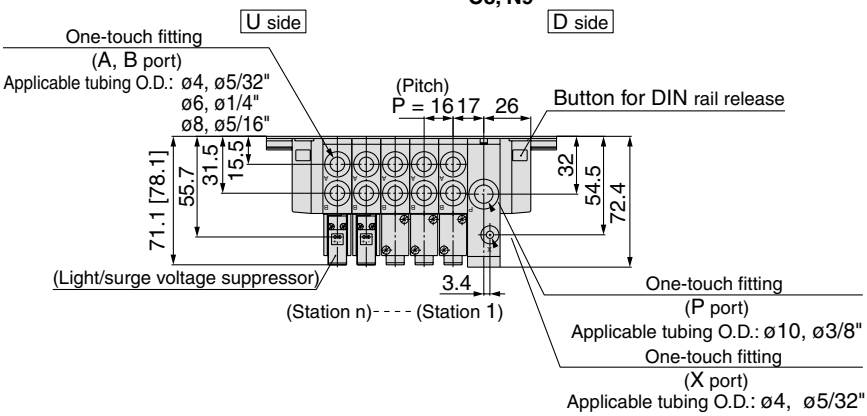
SS5Y3-45-[Stations]DR-C4, N3 / C6, N7



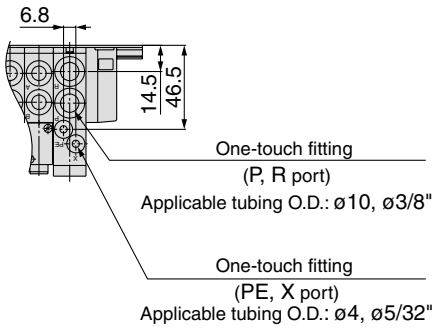


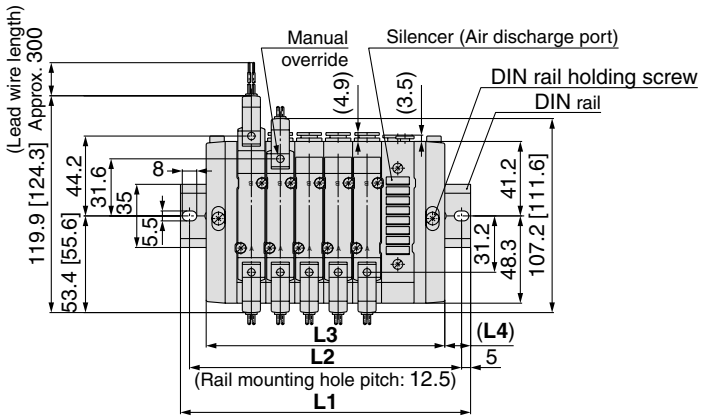
∗ The dimensions **L1** to **L4** are identical to those of **SS5Y3-45-[Stations]** U, D, B - C4, N3 / C6, N7.

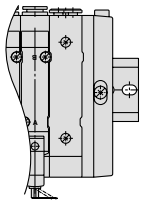
SY5000: SS5Y5-45-[Stations]DRS-C4, N3 / C6, N7 / C8, N9



SS5Y5-45-[Stations]DR-C4, N3 / C6, N7 / C8, N9





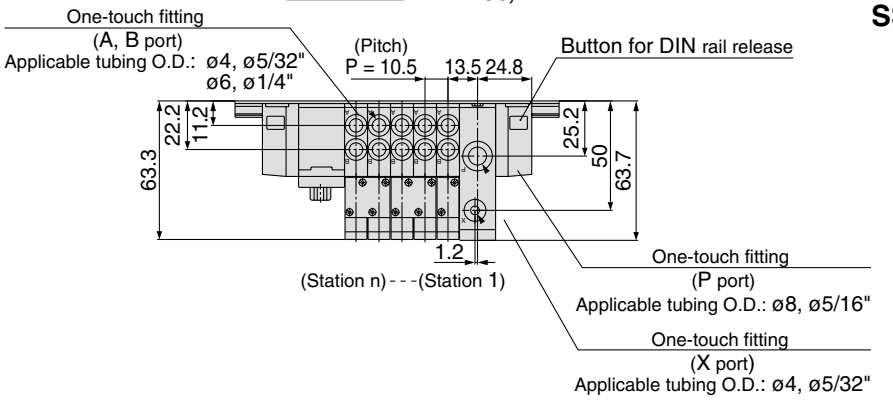


∗ The dimensions **L1** to **L4** are identical to those of **SS5Y3-45-[Stations]** U, D, B - C4, N3 / C6, N7 / C8, N9.

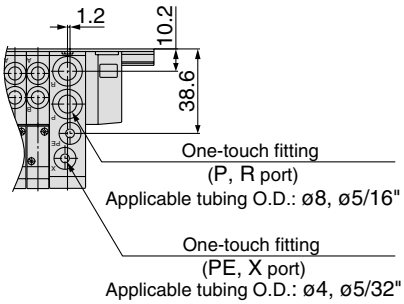
∗ The dimensions of **SS5Y$^{3}_{5}$-45-[Stations]URS** are identical to those of SS5Y$^{3}_{5}$-45-[Stations]DRS.

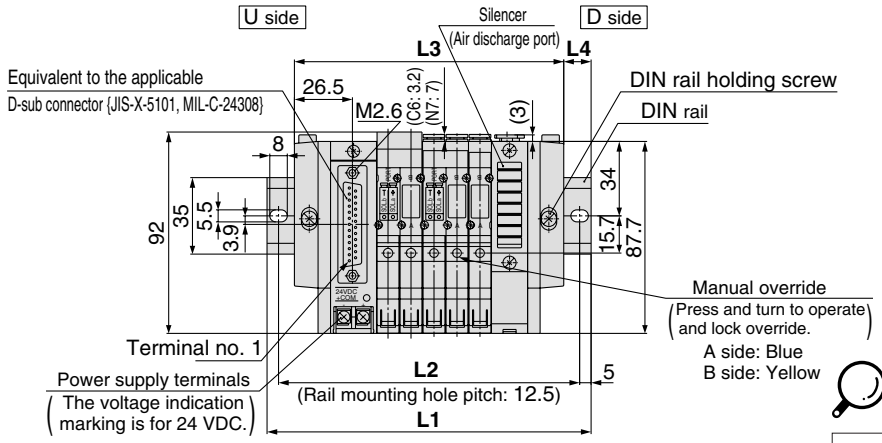
External Pilot/Built-in Silencer

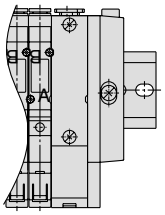
SY3000: SS5Y3-45FU-[Stations]DRS-C4,N3 C6,N7



SS5Y3-45FU-[Stations]DR-C4,N3 C6,N7

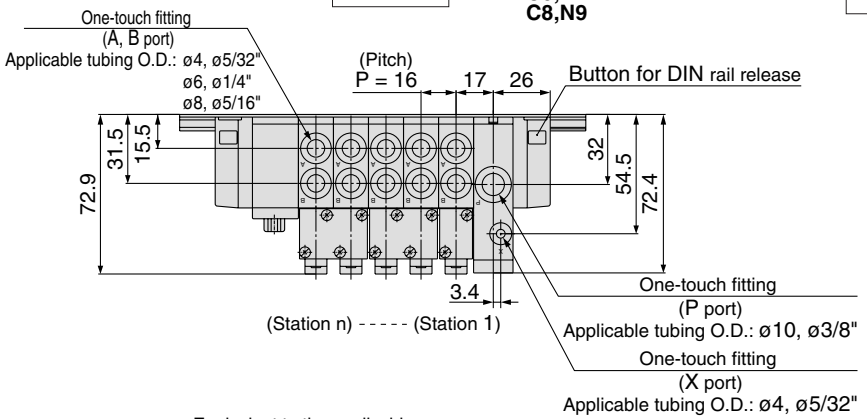




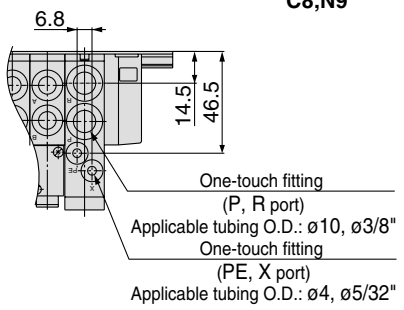


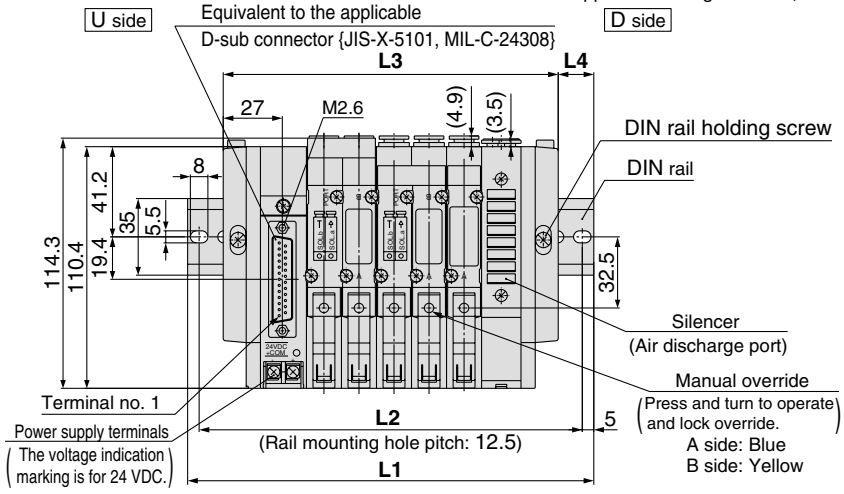
∗ The dimensions **L1** to **L4** are identical to those of **SS5Y3-45F$^{U}_{D}$-[Stations]$^{U}_{B}$-C4, N3 C6, N7.**

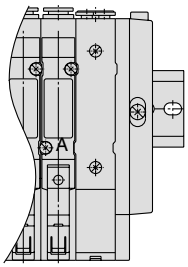
SY5000: SS5Y5-45FU-[Stations]DRS-C4,N3 C6,N7 C8,N9



SS5Y5-45FU-[Stations]DR-C4,N3 C6,N7 C8,N9







∗ The dimensions **L1** to **L4** are identical to those of **SS5Y5-45F$^{U}_{D}$-[Stations]$^{U}_{B}$-C4, N3 C6, N7. C8, N9**

∗ The dimensions of **SS5Y$^{3}_{5}$-45-[Stations]URS** are identical to those of SS5Y$^{3}_{5}$-45-[Stations]DRS.

SY3000/5000
Made to Order
Mixed Mounting Type

Type M45

Non plug-in

This manifold makes it possible to mount SY3000 onto base of SY5000.

How to Order Manifold

Type M45 (Mixed mounting style)

SS5Y5-M45 05 U □ - C86 □ - □

Mixed mounting style

Valve stations

Symbol	Stations
02	2 stations
⋮	⋮
20	20 stations

The number of blanking plate ass'y is included, too.

SUP/EXH block assembly mounting position

Symbol	Mounting position	Stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 20 stations
M	Special specifications	

∗ For special specifications, indicate separately by the manifold specification heet.

SUP/EXH block assembly specifications

Symbol	Specifications
Nil	Standard/Internal pilot specifications
S	Built-in silencer

∗ External pilot specification is unavailable for mixed mounting style.

CE-compliant

Nil	—
Q	CE-compliant

∗ For DC only.

Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

A, B port size

One-touch fitting (Metric size)

Symbol	Port size
C44	SY5000: One-touch fitting for ø4 SY3000: One-touch fitting for ø4
C46	SY5000: One-touch fitting for ø4 SY3000: One-touch fitting for ø6
C64	SY5000: One-touch fitting for ø6 SY3000: One-touch fitting for ø4
C66	SY5000: One-touch fitting for ø6 SY3000: One-touch fitting for ø6
C84	SY5000: One-touch fitting for ø8 SY3000: One-touch fitting for ø4
C86	SY5000: One-touch fitting for ø8 SY3000: One-touch fitting for ø6
M	Mixed

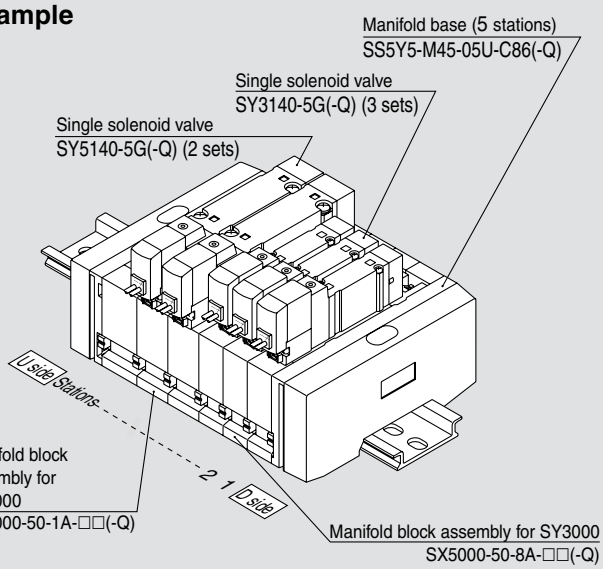
One-touch fitting (Inch size)

Symbol	Port size
N33	SY5000: One-touch fitting for ø5/32" SY3000: One-touch fitting for ø5/32"
N37	SY5000: One-touch fitting for ø5/32" SY3000: One-touch fitting for ø1/4"
N73	SY5000: One-touch fitting for ø1/4" SY3000: One-touch fitting for ø5/32"
N77	SY5000: One-touch fitting for ø1/4" SY3000: One-touch fitting for ø1/4"
N93	SY5000: One-touch fitting for ø5/16" SY3000: One-touch fitting for ø5/32"
N97	SY5000: One-touch fitting for ø5/16" SY3000: One-touch fitting for ø1/4"
M	Mixed

∗ In the case of mixed specifications, indicate separately on the manifold specification sheet.

How to Order Manifold Assembly (Example)

Example



SS5Y5-M45-05U-C86 ·· 1 set (Type M45, manifold base part no.)
∗ SY3140-5G ····· 3 sets (Single solenoid part no.)
∗ SY5140-5G ····· 2 sets (Single solenoid part no.)
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

How to Order Valve

SY 5 2 40 □ - 5 L □ □ - □ - □

Series

3	SY3000
5	SY5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Coil specifications

Nil	Standard
T	With power saving circuit (24 VDC, 12 VDC only)

∗ Power saving circuit is not available in the case of W□ type.

Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ For type W□, DC voltage is only available.

Electrical entry for G, H, L, M, W

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry

24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC			24, 12, 6, 5, 3 VDC
Grommet	L plug connector	M plug connector	M8 connector
G: Lead wire length 300 mm H: Lead wire length 600 mm	L: With lead wire (Length 300 mm) LN: Without lead wire LO: Without connector	M: With lead wire (Length 300 mm) MN: Without lead wire MO: Without connector	WO: Without connector cable W□: With connector cable Note)

∗ LN, MN type: with 2 sockets.
∗ Refer to page 339 for connector cable of M8 connector.
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 331 for details.
∗ Refer to page 336 for the lead wire length of L and M plug connectors.
∗ Refer to page 337 for the connector assembly with cover for L and M plug connectors.
Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 340.

Made to Order

Nil	—
X90	Main valve fluoro rubber (Refer to page 332.)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

CE-compliant

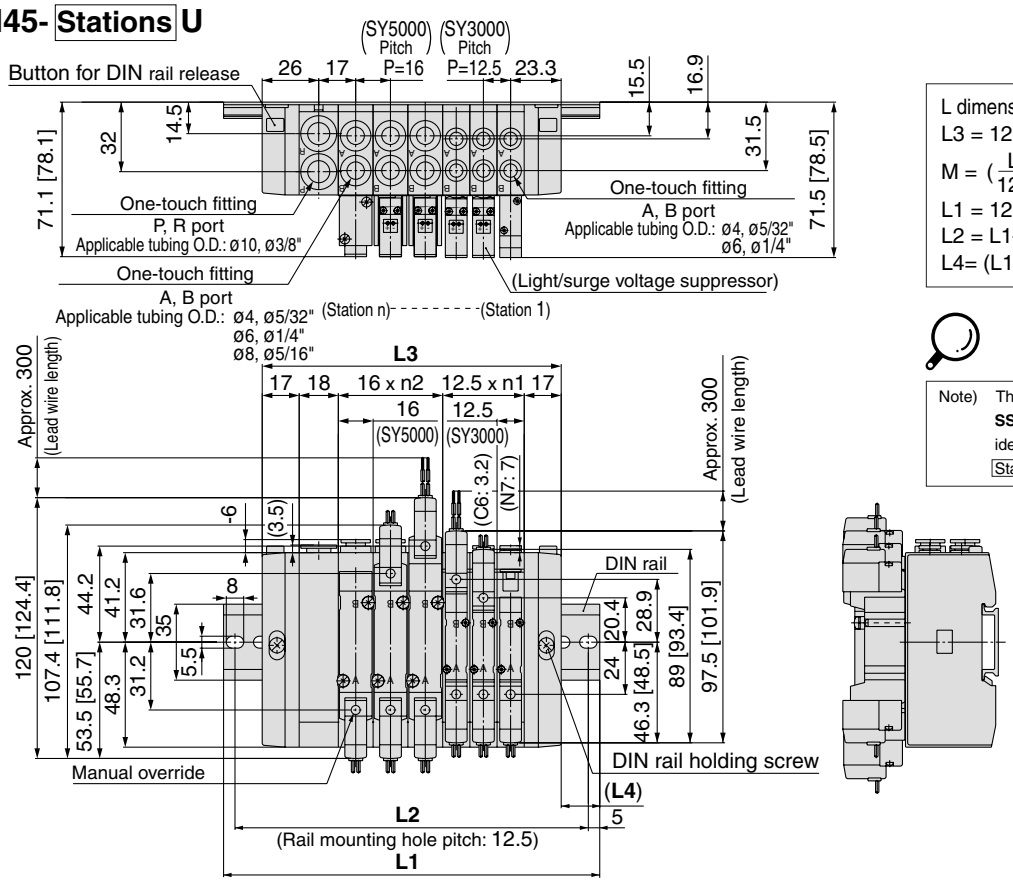
Nil	—
Q	CE-compliant

∗ For DC only.

Dimensions: Mixed Mounting

[ ]: AC

SS5Y5-M45- Stations U



L dimension: Formulae for L1 to L4

$L3 = 12.5 \times n1 + 16 \times n2 + 52$

$M = (\frac{L3}{12.5} + 1)$ Omit decimals

$L1 = 12.5 \times M + 23$

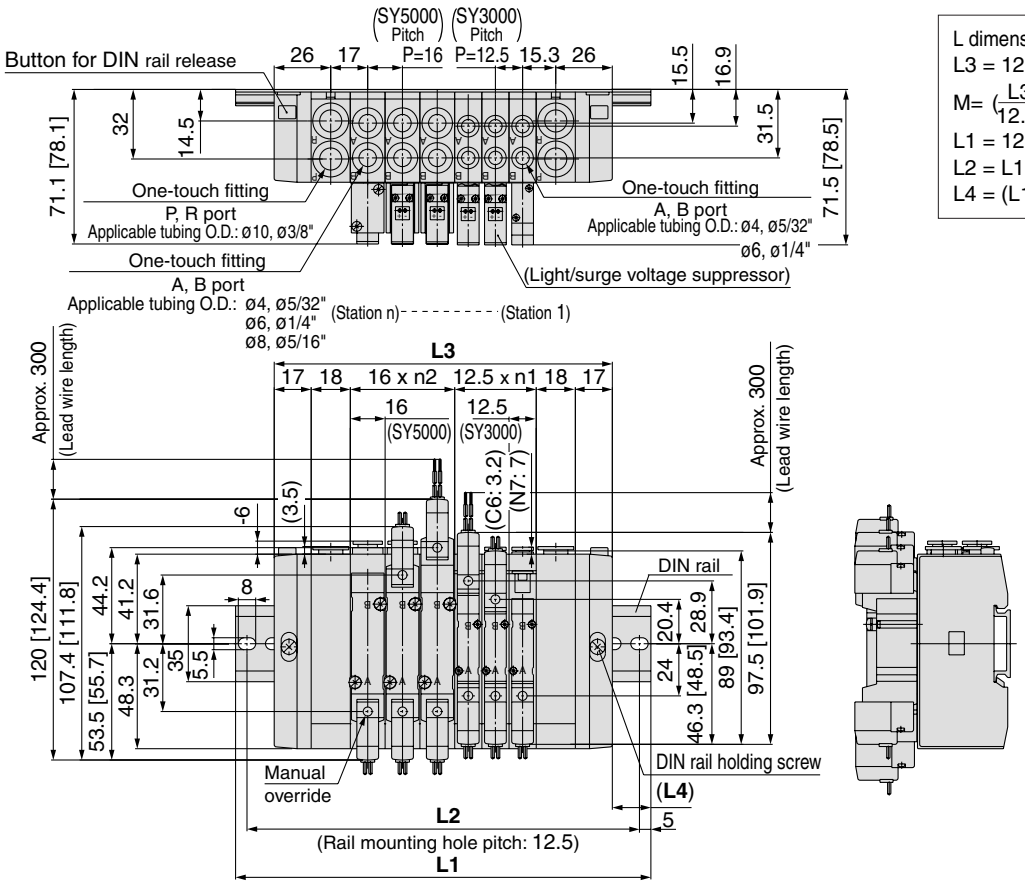
$L2 = L1 - 10.5$

$L4 = (L1 - L3)/2$

n1 = Number of SY3000
n2 = Number of SY5000

Note) The **L1** to **L4** dimensions of **SS5Y5-M45- Stations D** are identical to those of SS5Y5-M45- Stations U.

SS5Y5-M45- Stations B



L dimension: Formulae for L1 to L4

$L3 = 12.5 \times n1 + 16 \times n2 + 70$

$M = (\frac{L3}{12.5} + 1)$ Omit decimals

$L1 = 12.5 \times M + 23$

$L2 = L1 - 10.5$

$L4 = (L1 - L3)/2$

n1 = Number of SY3000
n2 = Number of SY5000

[*Series SY3000/5000/7000/9000/SY300/500*]
Made to Order
M8 Connector Conforming to IEC60947-5-2

How to Order Valve

Type of actuation

3	Body ported
5	Base mounted

Type of actuation

1	Normally open
2	Normally closed

Series

3	SY300
5	SY500

A port size
Thread piping

Symbol	Port size	Applicable series
Nil	Base mounted	
M5	M5 x 0.8	SY300
01	1/8	SY500

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY300
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY500
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for 5/32"	SY300
N7	One-touch fitting for 1/4"	
N7	One-touch fitting for 1/4"	SY500
N9	One-touch fitting for 5/16"	

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

3 port valve (5 port valve mixed mounting style) SY 3 1 3 – 5 WAO – –

5 port valve SY 3 2 2 0 – 5 WAO – – –

Series

3	SY3000
5	SY5000
7	SY7000
9	SY9000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Body type

2	Body ported
4	Base mounted
6	Body ported cassette type

∗ The body ported cassette type is not available for series SY9000.

Pilot type

Nil	Internal pilot
R∗	External pilot

∗ Base mounted type only.

Rated voltage

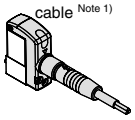
For DC	
5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

Electrical entry

WAO: Without connector cable



WA□: With connector cable Note 1)



Note 1) □: Enter a symbol for cable length. Enter referring page 340.

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light and surge voltage suppressor
R	Without surge voltage suppressor (non-polar type)
U	Without light/surge voltage suppressor (non-polar type)

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Made to Order

Nil	—
X20	Body ported external pilot (Refer to page 332.)
X90	Main valve fluoro rubber (Refer to page 332.)

∗ X20 for series SY9000 is not available.
∗ X20 for the base mounted type is not available.

A, B port size
For body ported
Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	SY3000
01	1/8	SY5000
02	1/4	SY7000
02	1/4	SY9000
03	3/8	

One-touch fitting (Metric size)

Symbol	Port size	Applicable series
C4	One-touch fitting for ø4	SY3000
C6	One-touch fitting for ø6	
C4	One-touch fitting for ø4	SY5000
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
C8	One-touch fitting for ø8	SY7000
C10	One-touch fitting for ø10	
C8	One-touch fitting for ø8	SY9000
C10	One-touch fitting for ø10	
C12	One-touch fitting for ø12	

One-touch fitting (Inch size)

Symbol	Port size	Applicable series
N3	One-touch fitting for ø5/32"	SY3000
N7	One-touch fitting for ø1/4"	
N3	One-touch fitting for ø5/32"	SY5000
N7	One-touch fitting for ø1/4"	
N9	One-touch fitting for ø5/16"	
N9	One-touch fitting for ø5/16"	SY7000
N11	One-touch fitting for ø3/8"	
N9	One-touch fitting for ø5/16"	SY9000
N11	One-touch fitting for ø3/8"	

For Base Mounted

Symbol	Port size	Applicable series
Nil	Without sub-plate	
01	1/8 With sub-plate	SY3000
02	1/4 With sub-plate	SY5000 SY7000
03	3/8 With sub-plate	SY7000 SY9000
04	1/2 With sub-plate	SY9000

Note) When placing an order for body ported solenoid valve as a single unit, gaskets are not included. Order them separately, if necessary. (Refer to catalog on page 173 for details.)

How to Order Pilot Valve

V111 – 5 WAO

Rated voltage

For DC	
5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

Light/surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light and surge voltage suppressor
R	Without surge voltage suppressor (non-polar type)
U	Without light/surge voltage suppressor (non-polar type)

Electrical entry

WAO	M8 connector	Without connector cable
WA□		With connector cable Note 1)

Note 1) □: Enter a symbol for cable length. Enter referring page 340.

Since V111 is CE-compliant as standard, the suffix "-Q" is not necessary.

Series SY3000/5000/7000/9000
Made to Order
Body Ported External Pilot/Fluoro Rubber for Main Valve

Made to Order

Body Ported External Pilot

Applicable solenoid valves: Series SY3□$^{2}_{6}$0, SY5□$^{2}_{6}$0, SY7□$^{2}_{6}$0

Model no. SY $\begin{matrix}3\\5\\7\end{matrix}$ □ $\begin{matrix}2\\6\end{matrix}$0- □□□□- □- □- X20- □

- **Entry is the same as standard products.**
- **CE-compliant**

Nil	—
Q	CE-compliant

Operating pressure range MPa

Operating pressure range	–100 kPa to 0.7
Pilot pressure range	0.25 to 0.7

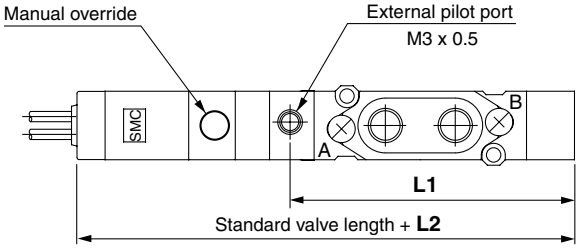
Dimensions: For SY3□$^{20}_{60}$, SY5□$^{20}_{60}$, SY7□$^{20}_{60}$

Dimensions SY3000 becomes 6.5 mm longer
SY5000 and SY7000 becomes 10 mm longer.

External pilot port

Series	Port size
SY3000	M3 x 0.5
SY$^{5}_{7}$000	M5 x 0.8

Dimensions: For SY3□60, SY5□60, SY7□60



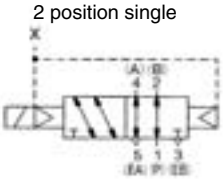
Dimentions/External Pilot Port Position

Series	**L1** dimensions	**L2** dimensions
SY3000	41.5	6.5
SY5000	60.4	9
SY7000	71.9	9

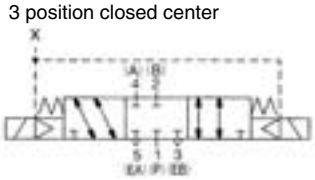
JIS Symbol

Body ported

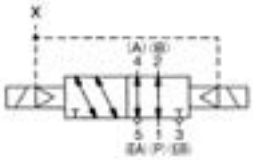
2 position single



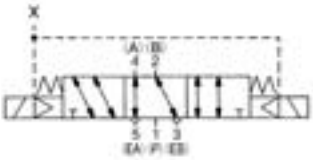
3 position closed center



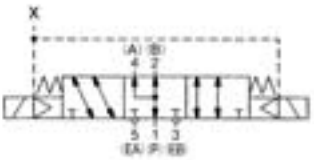
2 position double



3 position exhaust center



3 position pressure center



Main Valve Fluoro Rubber Specifications

Fluoro rubber is used for rubber parts of the main valve to allow use in applications such as the following.

- When using a lubricant other than the recommended turbine oil, and there is a possibility of malfunction due to swelling of the spool valve seals.

Applicable solenoid valves: Series SY3□$^{2}_{6}$0, SY5□$^{2}_{6}$0, SY7□$^{2}_{6}$0, SY9□$^{2}_{4}$0

Model no. SY $\begin{matrix}3\\5\\7\\9\end{matrix}$ □ $\begin{matrix}20\\40\\60\end{matrix}$- □□□□- □- □- X90- □

- **Entry is the same as standard products.** Specifications and performance are the same as standard products.
- **CE-compliant**

Nil	—
Q	CE-compliant

Series SY
Specific Product Precautions 1

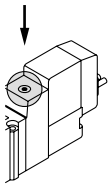
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Manual Override Operation

⚠Warning

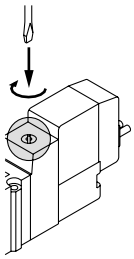
■ Non-locking push type [Standard]

Press in the direction of the arrow

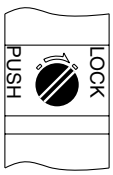


■ Push-turn locking slotted type [Type D]

While pressing, turn in the direction of the arrow.
If it is not turned, it can be operated the same way as the non-locking type.



Locked position

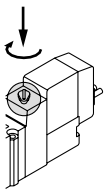


⚠Caution

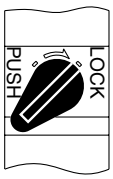
When operating the locking type D with a screw driver, turn it gently using a watchmakers screw driver.
[Torque: Less than 0.1 N·m]

■ Push-turn locking lever type [Type E]

While pressing, turn it the direction of the arrow.
If it is not turned, it can be operated the same way as the non-locking type.



Locked position



⚠Caution

When locking the manual override on the push-turn locking types (D, E), be sure to push it down before turning.
Turning without first pushing it down can cause damage to the manual override and trouble such as air leakage, etc.

Solenoid Valve for 200, 220 VAC Specifications

⚠Warning

Solenoid valves with grommet and L/M type plug connector AC specifications have a built-in rectifier circuit in the pilot section to operate the DC coil.
With 200 V, 220 VAC specification pilot valves, this built-in rectifier generates heat when energized. The surface may become hot depending on the energized condition; therefore, do not touch the solenoid valves.

Exhaust Throttle

⚠Caution

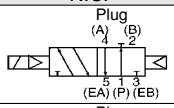
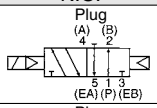
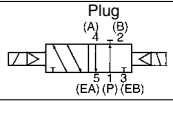
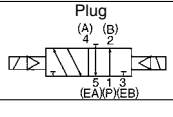
With series SY, the pilot valve and main valve share a common exhaust inside the valve. Therefore, do not block the exhaust port when arranging the piping.

Series SY3000/5000/7000/9000 Used as a 3-Port Valve

⚠ Caution

In case of using a 5-port valve as a 3-port valve

Series SY3000/5000/7000/9000 can be used as normally closed (N.C.) or normally open (N.O.) 3-port port valves by closing one of the cylinder ports (A or B) with a plug. However, they should be used with the exhaust ports kept open. (Refer to pages 318 to 323 for dedicated 3-port solenoid valve.)

Plug position		B port	A port
Configuration		N.C.	N.O.
Number of solenoids	Single		
	Double		

Series SY
Specific Product Precautions 2

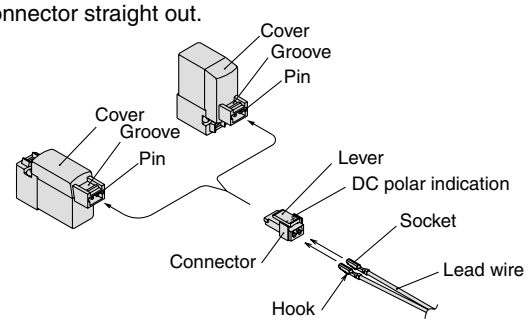
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

How to Use Plug Connector

⚠ Caution

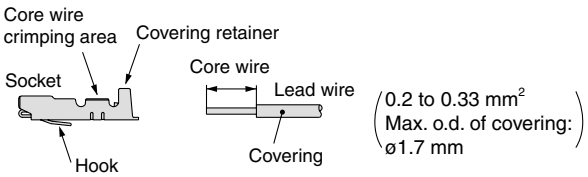
1. Attaching and detaching connectors

- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.



2. Crimping connection of lead wire and socket

Strip 3.2 to 3.7 mm at the end of lead wires, insert the end of the core wires evenly into the sockets, and then crimp it by a crimping tool. When this is done, take care that the coverings of the lead wires do not enter the core wire crimping area.
(Crimping tool: Model no. DXT170-75-1)



3. Attaching and detaching lead wires with sockets

• Attaching

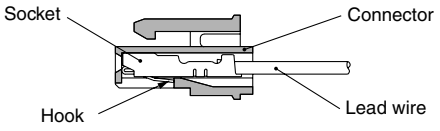
Insert the sockets into the square holes of the connector (+, – indication), and continue to push the sockets all the way in until they lock by hooking into the seats in the connector.

(When they are pushed in, their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

• Detaching

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm).

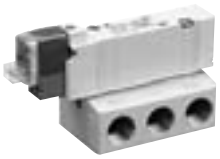
If the socket will be used again, first spread the hook outward.



Surge Voltage Suppressor

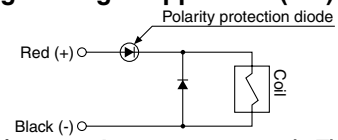
⚠ Caution

<For DC>
Grommet, L/M Plug Connector

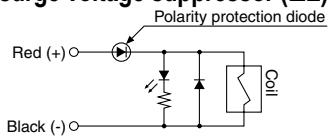


■ Standard type (With polarity)

With surge voltage suppressor (□S)



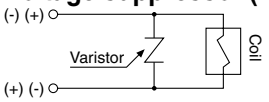
With light/surge voltage suppressor (□Z)



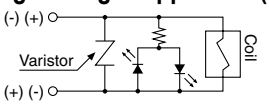


■ Non-polar type

With surge voltage suppressor (□R)



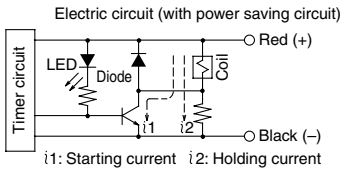
With light/surge voltage suppressor (□U)



- Connect the standard type in accordance with the +, – polarity indication. (The non-polar type can be used with the connections made either way.)
- Since voltage specifications other than standard 24 V and 12 VDC do not have diodes for polarity protection, be careful not to make errors in the polarity.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)
- When wiring is done at the factory, positive (+) is red and negative (–) is black.

■ With power saving circuit

Power consumption is decreased by 1/4 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms at 24 VDC.)

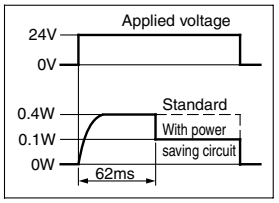


Operating Principle

With the above circuit, the current consumption when holding is reduced to save energy. Please refer to the electric wave data below.

- Please be careful not to reverse the polarity, since a diode to prevent the reversed current is not provided for the power saving circuit.
- Please use caution regarding the allowable voltage fluctuation because there is about a 0.5 volt drop due to the transistor. (For details, refer to the solenoid specifications for the individual valve.)

(In the case of SY$^{3}_{5}_{9}$0T, the electric wave form of energy saving type)**

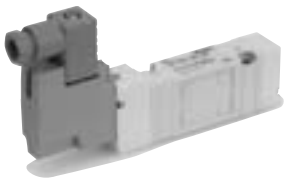


Series SY
Specific Product Precautions 3

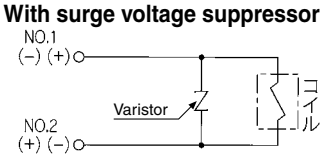
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Surge Voltage Suppressor

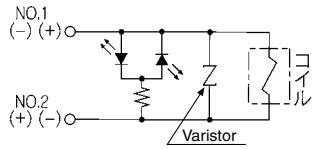
DIN Terminal



With surge voltage suppressor (DS)



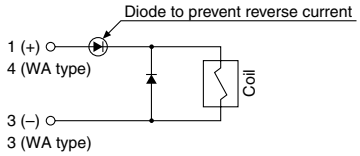
With light/surge voltage suppressor (DZ)



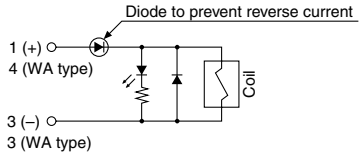
DIN terminal has no polarity.

M8 Connector

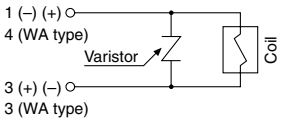
■ Standard type (without polarity)
With surge voltage suppressor (□S)



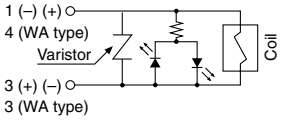
With light/surge voltage suppressor (□Z)



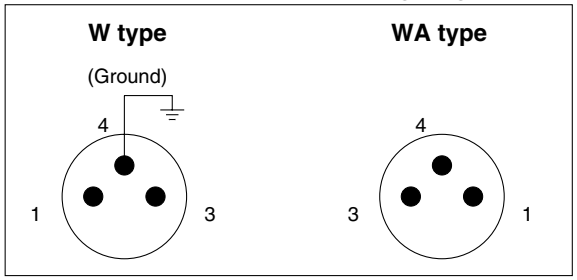
■ Non-polar type
With surge voltage suppressor (□R)



With light/surge voltage suppressor (□U)



Solenoid valve side pin wiring diagram

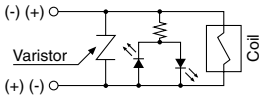


M8 Connector

- For the standard type, connect + to 1 and – to 3 for Type W according to polarity, while + to 4 and – to 3 for Type WA.
- For DC voltages other than 12 V and 24 V, incorrect wiring will case damage to the surge suppressor circuit.
- Please use caution regarding the allowable voltage fluctuation because there is about a 1 volt drop for a valve with polarity protection. (For details, refer to the solenoid specifications for the individual valve.)
- The WA-type valve cannot be grounded.

Plug-in

Circuit for non-polar (FU)

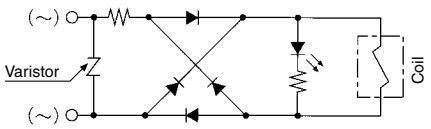


Plug-in valve has no polarity, so its possible to use for both manifold bases for positive (SS5Y$^{3}_{5}$-45□) and negative its common (SS5Y$^{3}_{5}$-45N□) types.

<For AC>
(There is no "S" option, because the generation of surge voltage is prevented by a rectifier.)

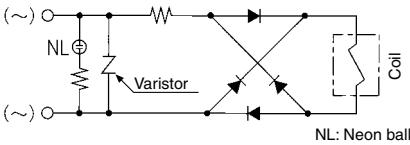
Grommet, L/M Plug Connector

With light { **GZ** / **LZ, LOZ, MZ, MOZ** }



DIN Terminal

With light (DZ) (YZ)



Note) Surge voltage suppressor of varistor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge voltage. The residual voltage of the diode is approximately 1 V.

Specific Product Precautions 4

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Plug Connector Lead Wire Length

⚠ Caution

Standard length is 300mm, but the following lengths are also available.

How to Order Connector Assembly

For DC: **SY100−30−4A−** □
For 100 VAC: **SY100−30−1A−** □
For 200 VAC: **SY100−30−2A−** □
For other voltages of AC: **SY100−30−3A−** □
Without lead wire: **SY100−30−A**
(with connector and 2 of sockets only)

• How to Order

Specify the part numbers of the solenoid valve without connector and the connector assembly with protective cover separately.
<Example> Lead wire length 2000 mm

For DC	For AC
SY3120-5LO-M5	SY3120-1LO-M5
SY100-30-4A-20	SY100-30-1A-20

Lead wire length

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

How to Use DIN Terminal

⚠ Caution

Connection

1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat head screwdriver, etc. into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the cores of the lead wires into the terminals according to the connection method, and fasten them securely with the terminal screws.
4. Secure the cord by fastening the ground nut.

⚠ Caution

When making connections, take note that using other than the supported size (ø3.5 to ø7) heavy duty cord will not satisfy IP65 (enclosure) standards. Also, be sure to tighten the ground nut and holding screw within their specified torque ranges.

Changing the entry direction

After separating the terminal block and housing, the cord entry can be changed by attaching the housing in the desired direction (4 directions at 90° intervals).

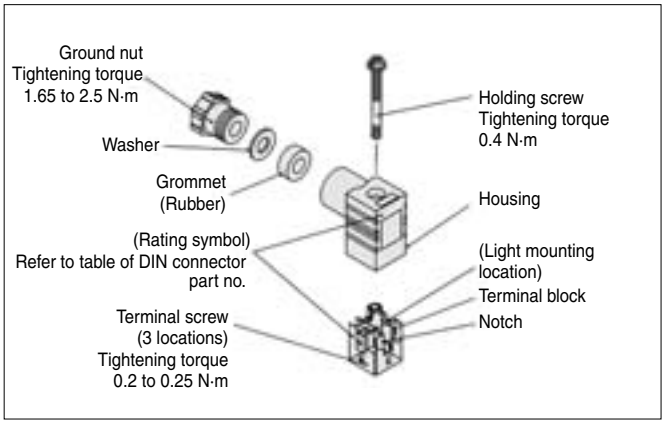
∗ When equipped with a light, be careful not to damage the light with the cord's lead wires.

Precautions

Plug in and pull out the connector vertically without tilting to one side.

Compatible cable

Cord O.D.: ø3.5 to ø7
(Reference) 0.5mm^2, 2-core or 3-core, equivalent to JIS C 3306



Type "Y"

DIN connector type Y is a DIN connector that confirms to the DIN pitch 8-mm standard.

- D type DIN connector with 9.4 mm pitch between terminals is not interchangeable.
- To distinguish from the D type DIN connector, "N" is listed at the end of voltage symbol. (For connector parts without lights, "N" is not indicated. Please refer to the name plate to distinguish.)
- Dimensions are completely the same as D type DIN connector.
- When exchanging the pilot valve assembly only, "SY115-□D" is interchangeable with "SY115-□Y". Do not replace SY114 (G, L, M) to SY115-□D/□Y (DIN terminal), and vice versa.

Series SY
Specific Product Precautions 5

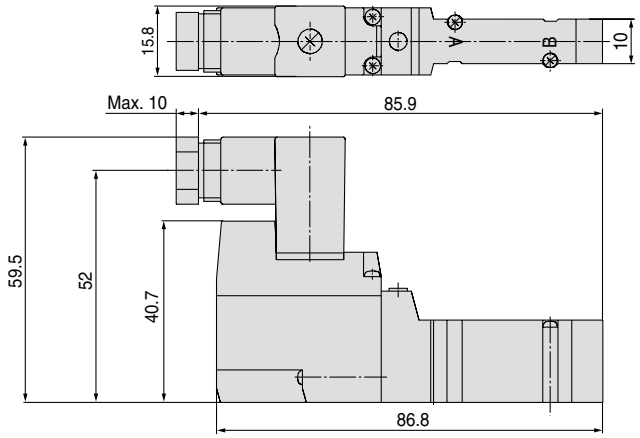
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Series SY300, SY3000 How to Use DIN Terminal Connector

⚠Caution

- SMC can provide a DIN style terminal connector (body ported type, sub-plate type) for the series SY300 and SY3000. This cannot be assembled to a standard manifold since the DIN connector width (15.8mm) exceeds that of the valve body (10mm). Contact SMC if you wish to use with a manifold. Please also note: that bracket F1 cannot be mounted.

∗ The external pilot type is not available.



DIN Connector Part No.

⚠Caution

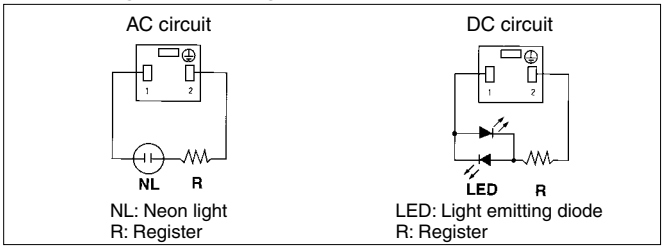
<Type D>

Without light	SY100-61-1	
With light		
Rated voltage	Voltage symbol	Part no.
24 VDC	24 V	SY100-61-3-05
12 VDC	12 V	SY100-61-3-06
100 VAC	100 V	SY100-61-2-01
200 VAC	200 V	SY100-61-2-02
110 VAC	110 V	SY100-61-2-03
220 VAC	220 V	SY100-61-2-04

<Type Y>

Without light	SY100-82-1	
With light		
Rated voltage	Voltage symbol	Part no.
24 VDC	24 VN	SY100-82-3-05
12 VDC	12 VN	SY100-82-3-06
100 VAC	100 VN	SY100-82-2-01
200 VAC	200 VN	SY100-82-2-02
110 VAC (115 VAC)	110 VN	SY100-82-2-03
220 VAC (230 VAC)	220 VN	SY100-82-2-04

Circuit Diagram with Light



Connector Assembly with Cover

⚠Caution

Connector assembly with dust proof protective cover.

- Effective to prevention of short circuit failure due to the entry of foreign matter into the connector.
- Chloroprene rubber for electrical use, which provides outstanding weather resistance and electrical insulation, is used for the cover material. However, do not allow contact with cutting oil, etc.
- Simple and unencumbered appearance by adopting round-shaped cord.

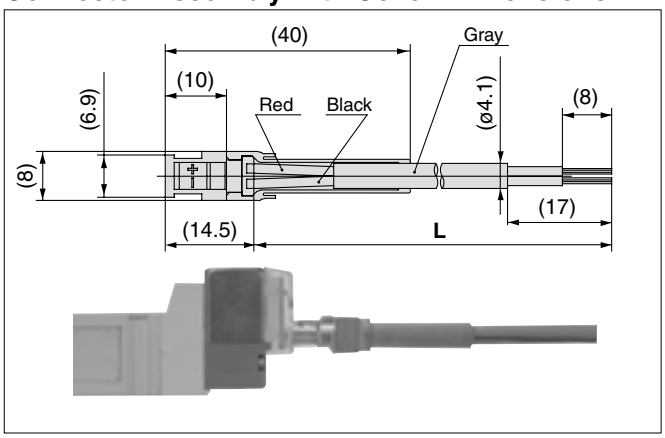
How to Order

SY100−68−A −□

Lead wire length (L)

Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

Connector Assembly with Cover: Dimensions



How to Order

Enter the part number for a plug connector solenoid valve without connector together with the part number for a connector assembly with cover.

<Example 1> Lead wire length of 2000 mm
SY3120-5LOZ-M5
SY100-68-A-20

<Example 2> Lead wire length of 300 mm (standard)
SY3120-5LPZ-M5
Symbol for connector assembly with cover

∗ In this case, the part number for the connector assembly with cover is not required.

Specific Product Precautions 6

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Plug-in

⚠Caution

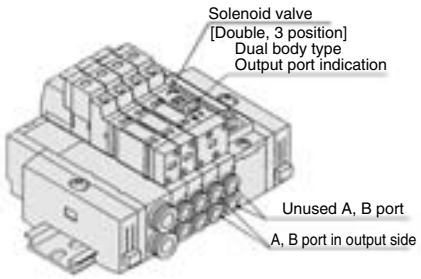
■ When using a double solenoid valve (Dual body type: SY$^{3}_{5}$245-□FU) on the plug-in style manifold (SS5Y$^{3}_{5}$-45(N)□), two manifold stations are required per valve.

Output to A/B ports will be made through the manifold block on the side indicated by an arrow on the top of the solenoid valve. Therefore, arrange the piping on the side indicated by the arrow.

Although the "T" side will not be used, plugs will not be necessary since it is sealed with the valve.

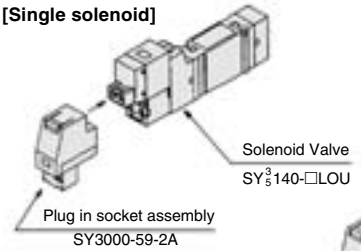
(However, insert a plug into the A/B ports if dust intrusion is possible. Refer to page 275.)

Manifold valve
SS5Y$^{3}_{5}$-45 (N)□

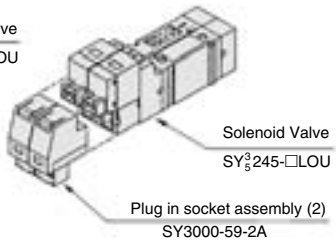


Plug-in type solenoid valves consist of a non-polar solenoid valve and a plug-in socket. When ordering them separately, refer to the following part numbers.

[Single solenoid]



[Double, 3 position]
Dual body type



Note) Using a valve other than a non-polar type may cause trouble.

DIN Rail for Series SY7000/9000

⚠Caution

The DIN rail used with Series SY7000 and SY9000 is stronger than that used with Series SY3000 and SY5000. Use this exclusive DIN rail with Series SY7000 and SY9000. Furthermore, if using a DIN rail other than that supplied by SMC, refer to the manifold mounting section below, and mount using the same method as prescribed for side facing and rear facing, regardless of the mounting orientation.

Manifold Mounting

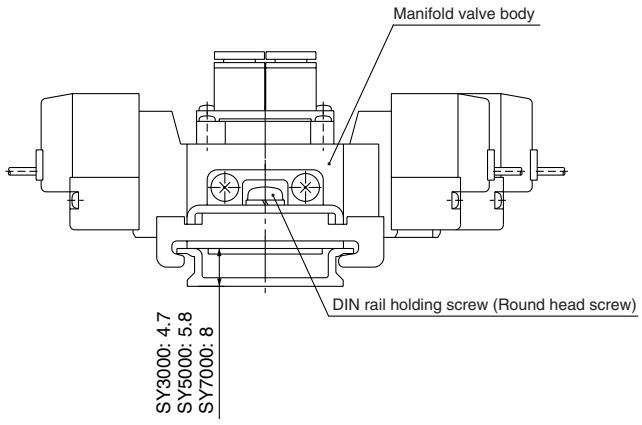
⚠Caution

For Type 23, 43, 45, 45□ and 60 DIN rail mounting, when attaching a manifold to a mounting surface, etc., with bolts, if the entire bottom surface of the DIN rail contacts the mounting surface in a horizontal mounting, it can be used by simply securing both ends of the DIN rail. However, for any other mounting method or for side facing and rear facing, etc., secure the DIN rail with bolts at uniform intervals using the following as a guide: 2 to 5 stations at 2 locations, 6 to 10 stations at 3 locations, 11 to 15 stations at 4 locations, and 16 to 20 stations at 5 locations. In addition, even in the case of a horizontal mounting, if the mounting surface is subject to vibration, etc., take the same measures indicated above. If secured at fewer than the specified number of locations, warping or twisting may occur in the DIN rail and manifold, causing trouble such as air leakage.

Also, when using mounting screws for the DIN rail on the bottom side (L3 dimension in the dimension table) of the manifold valve body, the height of the screw head has to be as follows.

Type 23, 43 (SY9000): 8 mm or less
Type 45 (SY3000, 5000): 5.8 mm or less

For type 60:
SY3000: 4.7 mm or less
SY5000: 5.8 mm or less
SY7000: 8 mm or less



[This is the case for type 60.]

Series SY
Specific Product Precautions 7

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

One-touch Fittings

⚠Caution

The pitch determined for each of the series SY piping ports (P, A, B, etc.) is based on the assumption that series KJ one-touch fittings will be used. For this reason, other pipe fittings may interfere with each other depending on their type and size. Dimensions should be confirmed in a pipe fitting catalog before they are used.

- **Tubing attachment/detachment for One-touch fittings**

1) Attaching of tubing

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

2) Detaching of tubing

1. Push in the release button sufficiently, pushing its collar equally around the circumference.
2. Pull out the tubing while holding down the release button so that it does not come out. If the release button is not pressed down sufficiently, there will be increased bite on the tubing and it will become more difficult to pull it out.
3. When the removed tubing is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tubing is used as is, this can cause trouble such as air leakage or difficulty in removing the tubing.

- The pitch determined for each of the series SY piping ports (A, B, etc.) is based on the assumption that series KJ one-touch fittings will be used. For this reason, other pipe fittings may interfere with each other depending on their type and size. Dimensions should be confirmed in a pipe fitting catalog before they are used.

Other Tubing Brands

⚠Caution

1. When using other than SMC brand tubing, confirm that the following specifications are satisfied with respect to the outside diameter tolerance of the tubing.

1) Nylon tubing	within ±0.1 mm
2) Soft nylon tubing	within ±0.1 mm
3) Polyurethane tubing	within +0.15 mm, within –0.2 mm.

Do not use tubing which do not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tubing pulling out after connection.

M8 Connector

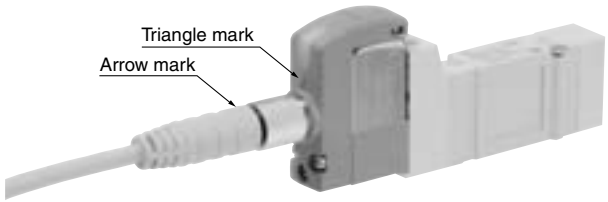
⚠Caution

1. M8 connector types have an IP65 (enclosure) rating, offering protection from dust and water. However please note: these products are not intended for use in water.
   Select a SMC connector cable (V100-49-1-□) or a FA sensor type connector, with M8 threaded 3 pin specifications conforming to Nippon Electric Control Equipment Association Standard, NECA4202 (IEC60947-5-2). Make sure the connector O.D. is 10.5mm or less when used with the Series SY3000 manifold. If more than 10.5mm, it cannot be mounted due to the size.
2. Do not use a tool to mount the connector, as this may cause damage. Only tighten by hand. (0.4 to 0.6 N·m)
3. The excessive stress on the cable connector will not be able to satisfy the IP65 rating. Please use caution and do not apply a stress of 30 N or greater.

⚠ Caution

Failure to meet IP65 performance may result if using alternative connectors than those shown above, or when insufficiently tightened.

Connector cable mounting



Note) Connector cable should be mounted in the correct direction.
Make sure that the arrow symbol on the connector is facing the triangle symbol on the valve when using SMC connector cable (V100-49-1-□).

Be careful not to squeeze it in the wrong direction, as problems such as pin damage may occur.

Series SY
Specific Product Precautions 8

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

M8 Connector

⚠Caution

■ Connector cable

- Connector cable for M8 can be ordered as follows:

How to Order

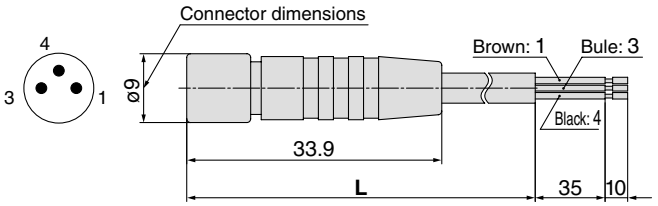
1. To order solenoid valve and connector cable at the same time.
   (Connector cable will be included in the shipment of the solenoid valve.)

SY 3/5/7/9 □□□ – □□□□ – □□

Electrical entry
W1, WA1: Cable length 300 mm
W2, WA2: Cable length 500 mm
W3, WA3: Cable length 1000 mm
W4, WA4: Cable length 2000 mm
W7, WA7: Cable length 5000 mm

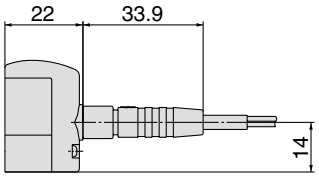
Ex. 1) Cable length: 300mm
SY312-5W1ZE-C4
Symbol for electrical entry

2. To order connector cable only



Cable length (L)	Part no.
300 mm	V100-49-1-1
500 mm	V100-49-1-2
1000 mm	V100-49-1-3
2000 mm	V100-49-1-4
5000 mm	V100-49-1-7

[Dimensions when installed]



Solenoid Valve Mounting

⚠Caution

Mount it so that there is no slippage or deformation in gaskets, and tighten with the tightening torque as shown below.

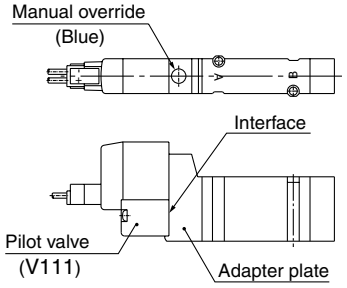
Model	Thread size	Tightening torque
SY3000	M2	0.16 N·m
SY5000	M3	0.8 N·m
SY7000	M4	1.4 N·m
SY9000	M3	0.8 N·m

Replacement of Pilot Valve

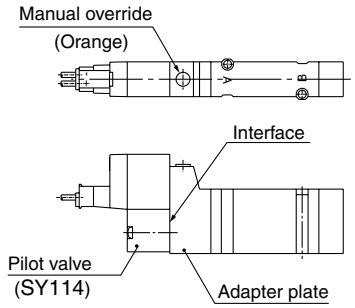
⚠Caution

Pilot valves in this series are improved to provide excellent energy saving results. However following this improvement, these new valves are no longer compatible with the conventional pilot valve used at the interface. Consult with SMC when you need to exchange these pilot valves, in the case of manual override (marked in orange) of the adapter plate.

New type



Conventional type



Specific Product Precautions 9

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

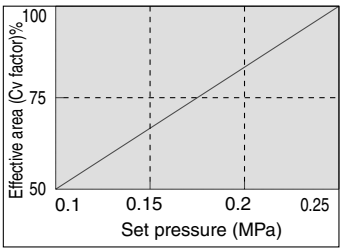
Interface Regulator

⚠Caution

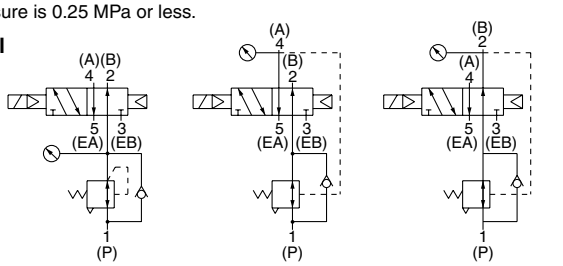
Specifications

Interface regulator model		ARBY3000-□-P-2	ARBY3000-□-$^{A1}_{B1}$-2		ARBY5000-□-P-2	ARBY5000-□-$^{A1}_{B1}$-2		ARBY7000-□-P-2	ARBY7000-□-$^{A1}_{B1}$-2	
Applicable solenoid valve model		SY3□40(R)			SY5□40(R)			SY7□40(R)		
Regulated port		P	A	B	P	A	B	P	A	B
Set pressure range		0.1 to 0.7 MPa								
Maximum operating pressure		0.7 MPa								
Fluid		Air								
Ambient and fluid temperature		Max. 50°C								
Connection port of pressure gauge		M5 x 0.8								
Mass W (g)	With pressure gauge	46 g (05), 50 g (06)			66.8 g			110.8 g		
	With plug	20 g			60.4 g			103.2 g		
Supply side effective area Note 3)	P→A,B	—	2.45 mm²		—	7.61 mm²		—	13.54 mm²	
Exhaust side effective area Note 3)	A,B→EA,EB	4.05 mm²	3.91 mm²		11.1 mm²	10.1 mm²		15.71 mm²	15.71 mm²	

Note 1) Pressurize the interface regulator from P port on the base.
Note 2) With closed center and pressure center valves, the pressure can be regulated through P port only.
Note 3) Effective area, excluding the regulated port, when a primary pressure of 0.5 MPa is supplied with regulators mounted on the solenoid valves (2 positions) and sub-plate. Refer to "Flow Characteristics" regarding the regulated port.
Note 4) Valves for weight include gasket and mounting screws.
Note 5) With A, B ports regulated (P port controlled A, B ports regulated), the effective area (Cv factor) for the regulated port and unregulated passage (P to B or P to A) decreases as shown in the graph below when the set pressure is 0.25 MPa or less.



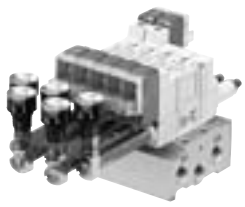
JIS Symbol



P port regulated | **A port regulated (P controlled, A port regulated)** | **B port regulated (P controlled, B port regulated)**

How to Order Interface Regulator

ARBY3000 – 05 – P – 2



Regulated port

P	P port
A1	A port (P controlled, A port regulated)
B1	B port (P controlled, B port regulated)

Pressure gauge connection port

05	Pressure gauge (G15-10-01) [for odd number stations]
06	Pressure gauge (G15-10-01) [for even number stations]
M1	Plug (M-5P)

Note) For series ARBY3000 with pressure gauge, note that the part numbers for odd number and even number stations differ to prevent interference between the pressure gauges when installing on the manifold.

ARBY5000 – 00 – P – 2



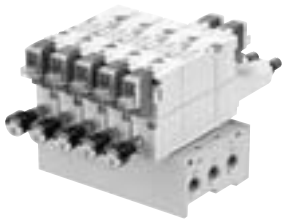
Regulated port

P	P port
A1	A port (P controlled, A port regulated)
B1	B port (P controlled, B port regulated)

Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

ARBY7000 – 00 – P – 2



Regulated port

P	P port
A1	A port (P controlled, A port regulated)
B1	B port (P controlled, B port regulated)

Pressure gauge connection port

00	Pressure gauge (G15-10-01)
M1	Plug (M-5P)

Specific Product Precautions 10

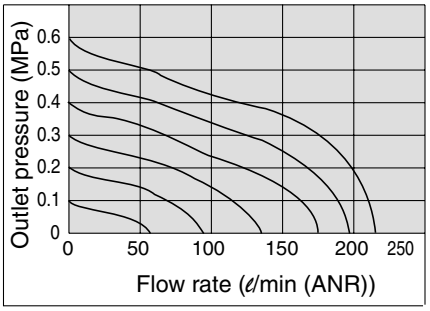
Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

Flow Characteristics

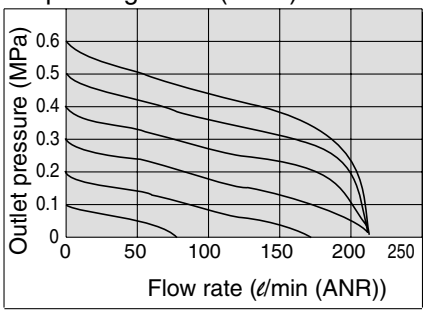
(Conditions: Inlet pressure 0.7 MPa when 2 position solenoid valve is mounted.)

ARBY3000

P port regulated (P→A, B)

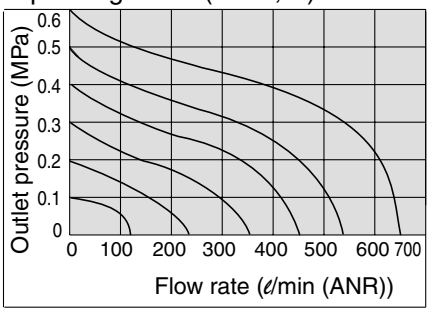


A1 port regulated (P→A),
B1 port regulated (P→B)

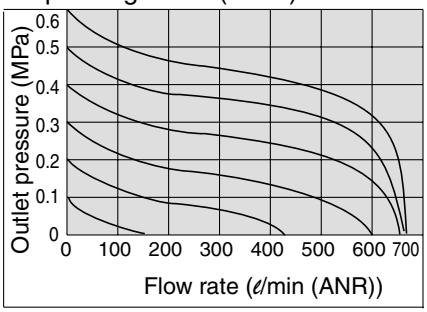


ARBY5000

P port regulated (P→A, B)

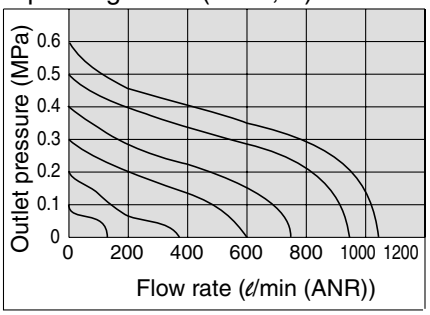


A1 port regulated (P→A),
B1 port regulated (P→B)

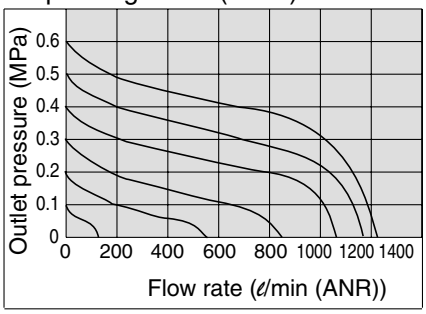


ARBY7000

P port regulated (P→A, B)



A1 port regulated (P→A),
B1 port regulated (P→B)



5 Port Pilot Operated Solenoid Valve

VFS1000/2000/3000/4000/5000/6000 Series

Metal Seal

Series Variations

Series		Sonic conductance C [dm³/s·bar)] 4/2→5/3(A/B→R1/R2) Single	Sonic conductance C [dm³/s·bar)] 4/2→5/3(A/B→R1/R2) Double	Type of actuation	Voltage	Electrical entry	With light/surge voltage suppressor (Option)	Manual override
Body Ported	**VFS1000** (P.1114)	1.8	1.8	2 position single 2 position double 3 position closed center 3 position exhaust center 3 position pressure center	(Standard) 100 VAC, 50/60 Hz 200 VAC, 50/60 Hz 24 VDC (Option) 110 to 120 VAC, 50/60 Hz 220 VAC, 50/60 Hz 240 VAC, 50/60 Hz 12 VDC 100 VDC	Grommet (G) Grommet terminal (E) Conduit terminal (T) DIN terminal (D)	☐With light/surge voltage suppressor • Grommet terminal (EZ) • Conduit terminal (TZ) • DIN terminal (DZ) ☐With surge voltage suppressor • Grommet (GS) Note) • Indicator light is not available for grommet type. Only surge voltage suppressor can be equipped on the middle of lead wire. • DC: There is polarity. (Lead wire Red: +, Black: –)	Non-locking push type (Flush) Non-locking push type (Extended) Locking type (Tool required) Locking type * (Lever)
	VFS2000 (P.1122)	3.4	3.4					
	VFS3000 (P.1130)	6.8	6.5					

* Locking type (lever) is not available for body ported Series VFS2000/3000.

Series		Sonic conductance C [dm³/s·bar)] 4/2→5/3(A/B→R1/R2) Single	Sonic conductance C [dm³/s·bar)] 4/2→5/3(A/B→R1/R2) Double	Type of actuation	Voltage	Electrical entry	With light/surge voltage suppressor (Option)	Manual override
Base Mounted	**VFS2000** Plug-in type Non plug-in type (P.1138)	2.8	2.7	2 position single 2 position double 3 position closed center 3 position exhaust center 3 position pressure center 3 position double check	(Standard) 100 VAC, 50/60 Hz 200 VAC, 50/60 Hz 24 VDC (Option) 110 to 120 VAC, 50/60 Hz 220 VAC, 50/60 Hz 240 VAC, 50/60 Hz 12 VDC 100 VDC	**Plug-in** Conduit terminal (F) **Non plug-in** Grommet terminal (E) Grommet (G) Conduit terminal (T) DIN terminal (D)	☐With light/surge voltage suppressor • Plug-in type Conduit terminal (FZ) • Non plug-in type Grommet terminal (EZ) Conduit terminal (TZ) DIN terminal (DZ) ☐With surge voltage suppressor • Non plug-in type Grommet (GS) Note) • Indicator light is not available for grommet type. Only surge voltage suppressor can be equipped on the middle of lead wire. • DC: There is polarity. (Lead wire Red: +, Black: –)	Non-locking push type (Flush) Non-locking push type (Extended) Locking type (Tool required) Locking type (Lever)
	VFS3000 Plug-in type Non plug-in type (P.1162)	5.8	5.4			**Plug-in** Conduit terminal (F) **Non plug-in** Grommet terminal (E) DIN terminal (D)	☐With light/surge voltage suppressor • Plug-in type Conduit terminal (FZ) • Non plug-in type Grommet terminal (EZ) DIN terminal (DZ)	
	VFS4000 Plug-in type Non plug-in type (P.1182)	12	11					
	VFS5000 Plug-in type Non plug-in type (P.1202)	20	17					
	VFS6000 Plug-in type Non plug-in type (P.1218)	38	—	2 position single 2 position double		**Plug-in** Conduit terminal (F) **Non plug-in** Grommet terminal (E) DIN terminal (D)		Non-locking push type (Flush)

SJ SY SV SYJ SZ VP4 S0700 VQ VQ4 VQ5 VQC VQZ SQ VFS VFR VQ7

Manifold Variations

		Manifold						
		Bar base	Stacking base	With attachment plug lead wire	With terminal block	With multi-connector	With D-sub connector	Non plug-in (Connection to each valve)
Body Ported	VFS1000	● (P.1119)						
	VFS2000	● (P.1127)						
	VFS3000		● (P.1136)					
Base Mounted Plug-in Type	VFS2000			● (P.1146)	● (P.1146)	● (P.1146)	● (P.1146)	
	VFS3000				● (P.1168)	● (P.1168)	● (P.1168)	
	VFS4000				● (P.1188)	● (P.1188)	● (P.1188)	
	VFS5000				● (P.1208)	● (P.1208)	● (P.1208)	
Base Mounted Non Plug-in Type	VFS2000							● (P.1146)
	VFS3000							● (P.1168)
	VFS4000							● (P.1188)
	VFS5000							● (P.1208)

Bar Base
(Series VFS1000/2000)

Pilot individual EXH



Pilot common EXH



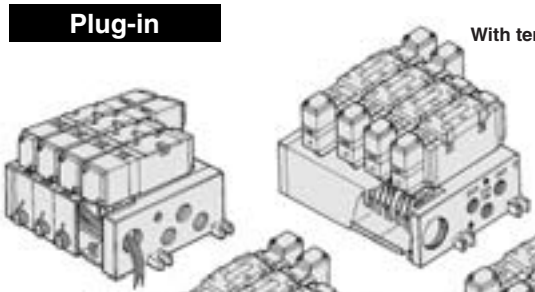
Stacking base
(Series VFS3000)

Pilot common EXH



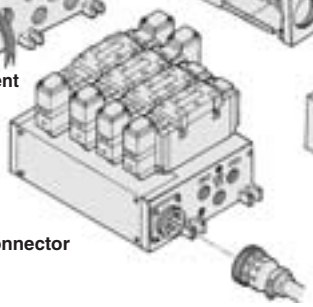
Plug-in

With terminal block



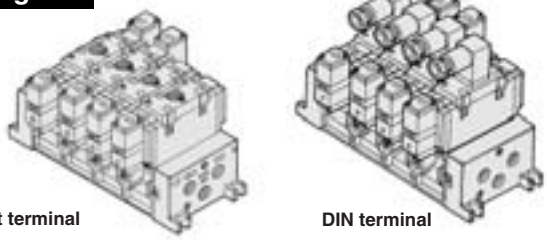
With attachment plug lead wire

With multi-connector



With D-sub connector

Non Plug-in



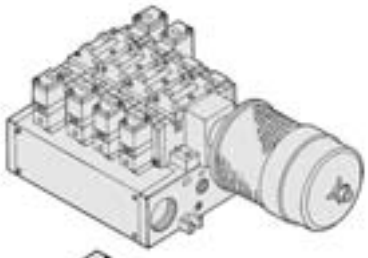
Grommet terminal

DIN terminal

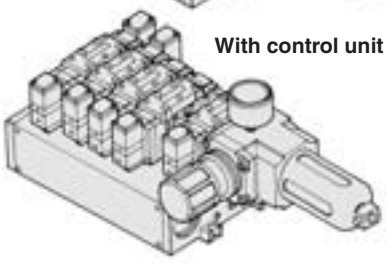
* Bottom piping is available as an option.

Manifold Option				Manifold Option Parts									
With exhaust cleaner	With control unit	Dripproof manifold (Equivalent to IP65)	Serial transmission kit manifold (EX123/4-type compatible)	Individual SUP spacer	Individual EXH spacer	SUP block disk	EXH block disk	Throttle valve spacer	Interface regulator	Air shutoff valve spacer	Air release valve spacer	Double check spacer	Blanking plate
													● (P.1119)
													● (P.1127)
													● (P.1136)
	● (P.1153)	● Note) (P.1155)	● Note) (P.1158)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)
● (P.1173)	● (P.1175)		● Note) (P.1178)	● (P.1170)	● (P.1170)	● (P.1170)	● (P.1170)	● (P.1170)	● (P.1170)			● (P.1170)	● (P.1170)
● (P.1193)	● (P.1195)		● Note) (P.1198)	● (P.1190)	● (P.1190)	● (P.1190)	● (P.1190)	● (P.1190)	● (P.1190)			● (P.1190)	● (P.1190)
● (P.1212)			● Note) (P.1214)	● (P.1209)	● (P.1209)	● (P.1209)	● (P.1209)	● (P.1209)	● (P.1209)			● (P.1209)	● (P.1209)
	● (P.1153)			● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)	● (P.1148)
● (P.1173)	● (P.1175)			● (P.1170)	● (P.1170)	● (P.1170)	● (P.1170)	● (P.1170)	● (P.1170)			● (P.1170)	● (P.1170)
● (P.1193)	● (P.1195)			● (P.1190)	● (P.1190)	● (P.1190)	● (P.1190)	● (P.1190)	● (P.1190)			● (P.1190)	● (P.1190)
● (P.1212)				● (P.1209)	● (P.1209)	● (P.1209)	● (P.1209)	● (P.1209)	● (P.1209)			● (P.1209)	● (P.1209)

With exhaust cleaner

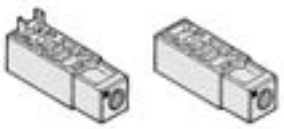


With control unit



Dripproof Manifold (Equivalent to IP65)
With serial transmission kit

Individual SUP spacer



Individual EXH spacer



SUP/EXH block disk



Throttle valve spacer



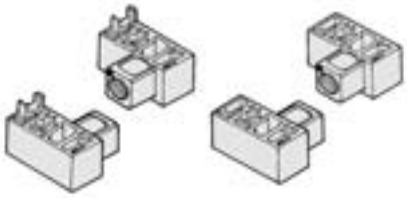
Interface regulator



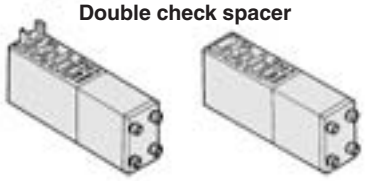
Air shutoff valve spacer



Air release valve spacer



Double check spacer



Note) Made to Order Specifications

5 Port Pilot Operated Solenoid Valve
Metal Seal, Body Ported
Series VFS1000

Model

Type of actuation		Model: Plug-in	Model: Non plug-in	Port size	Flow characteristics: 1→4/2 (P→A/B) C [dm³/(s·bar)]	1→4/2 (P→A/B) b	1→4/2 (P→A/B) Cv	4/2→5/3 (A/B→R1/R2) C [dm³/(s·bar)]	4/2→5/3 (A/B→R1/R2) b	4/2→5/3 (A/B→R1/R2) Cv	Max.(1) operating cycle (cpm)	Response time(2) (ms)	Mass(3) (kg)
2 position	Single	**VFS1120**	**VFS1130**	1/8	1.7	0.22	0.38	1.8	0.19	0.40	1200	15 or less	0.18
2 position	Double	**VFS1220**	**VFS1230**	1/8	1.7	0.22	0.39	1.8	0.19	0.40	1200	13 or less	0.26
3 position	Closed center	**VFS1320**	**VFS1330**	1/8	1.6	0.20	0.37	1.8	0.20	0.41	600	20 or less	0.27
3 position	Exhaust center	**VFS1420**	**VFS1430**	1/8	1.7	0.18	0.38	1.9	0.19	0.44	600	20 or less	0.27
3 position	Pressure center	**VFS1520**	**VFS1530**	1/8	1.7	0.24	0.40	1.6	0.18	0.37	600	20 or less	0.27

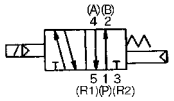
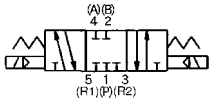
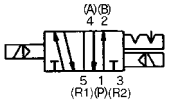
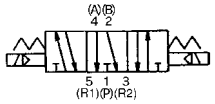
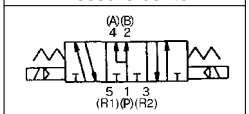
Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency.
Note 2) According to JIS B 8375-1981. (The value at supply pressure 0.5 MPa.)
Note 3) In the case of grommet type
Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

Compact yet provides a large flow capacity C: 1.8 dm³/(s·bar)

Low power consumption: 1.8 W DC



JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Min. operating pressure	**2 position**	0.1 MPa
		3 position	0.15 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C (1)
	Lubrication		Non-lube (2)
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² (3)
	Enclosure		Dustproof (Degrees of protection 0) (4)
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) (5)
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA (50 Hz), 5.0 VA (60 Hz)
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption (DC)		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Grommet, Grommet terminal, Conduit terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option Specifications

Pilot valve manual override	Non-locking push type (Extended), Locking type (Tool required), Locking type (Lever)
Coil rated voltage	110 to 120, 220, 240 VAC (50/60 Hz)
	12, 100 VDC
Option	With light/surge voltage suppressor Note)
Foot bracket (With screw)	Part No.: AXT626-10A, VFS1120 (single) only

Note) Grommet type is available only w/ surge voltage suppressor (which is directly connected with lead wire).

Manifold

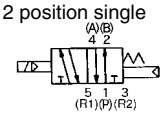
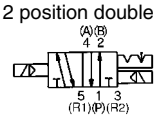
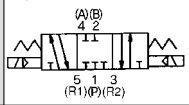
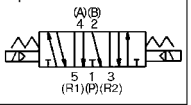
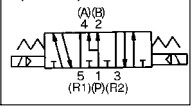
Body type	Applicable manifold base (Pilot EXH)
VFS1□20	Bar manifold (Individual EXH)
VFS1□30	Bar manifold (Common EXH base side)

Note) VFS1□30: Manifold only. Cannot be used as a single unit.

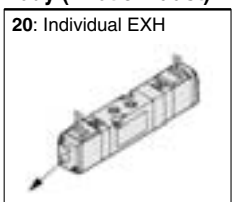
How to Order

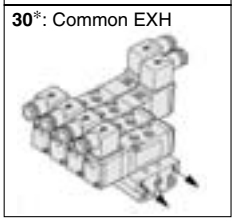
VFS1 [1] [20] – [1] [G] [ ] [ ] – [01] [ ] – [ ]

Symbol

1	2 position single 
2	2 position double 
3	3 position closed center 
4	3 position exhaust center 
5	3 position pressure center 

Body (Pilot exhaust)

20: Individual EXH 

30*: Common EXH 

* Manifold only

Port size

01	Rc 1/8

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Option

F: With foot bracket 

* Mountable only for VFS1120.

Manual override

Nil: Non-locking push type (Flush) 	**A***: Non-locking push type (Extended) 	**B***: Locking type 	**C***: Locking type (Lever) 

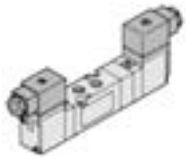
* Option

Light/Surge voltage suppressor

Nil	None
Z	With light/surge voltage suppressor
S*	With surge voltage suppressor

* Grommet type is available only w/ surge voltage suppressor, not w/ indicator light.

Electrical entry

G: Grommet 	**E**: Grommet terminal 	**T**: Conduit terminal 	**D, Y**: DIN terminal 

Coil rated voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3*	110 to 120 VAC (50/60 Hz)
4*	220 VAC (50/60 Hz)
5	24 VDC
6*	12 VDC
7*	240 VAC (50/60 Hz)
9*	Other

* Option

How to Order Pilot Valve Assembly

SF4 – [1] [DZ] [ ] – [21]

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC (50/60 Hz)
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Electrical entry, Light/Surge voltage suppressor

G	Grommet
GS	Grommet with surge voltage suppressor
D	DIN terminal
DZ	DIN terminal with light/surge voltage suppressor
DO	DIN terminal **
DOZ	DIN terminal with light/surge voltage suppressor **
Y*	DIN terminal
YZ*	DIN terminal with light/surge voltage suppressor
YO*	DIN terminal **
YOZ*	DIN terminal with light/surge voltage suppressor **
T	Conduit terminal
TZ	Conduit terminal with light/surge voltage suppressor
E	Grommet terminal
EZ	Grommet terminal with light/surge voltage suppressor

* D: Conforming to DIN43650 standard; Y: Conforming to DIN43650B standard
** DIN connector is not attached.

Manual override

Nil	Non-locking push type (Flush)
A*	Non-locking push type (Extended)
B*	Locking type (Tool required)
C*	Locking type (Lever)

* Option

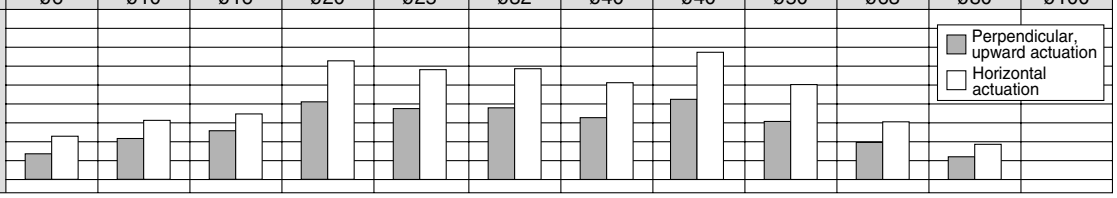
Applicable model

21	For VFS1□20	Individual pilot exhaust
22	For VFS1□30	Common pilot exhaust

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Body Ported

Series	Average speed (mm/s)	Bore size											
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
VFS1120-01	800 700 600 500 400 300 200 100 0												

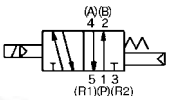
Conditions

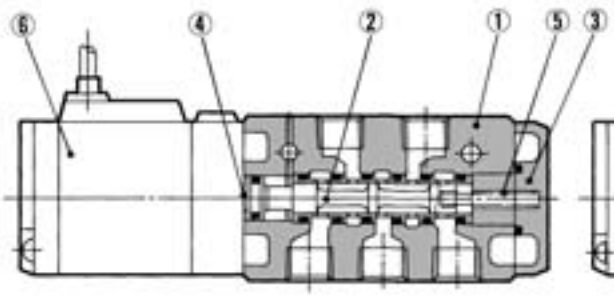
Body ported		Series CJ2	Series CM2	Series MB, CA2
VFS1120-01	Tube bore x Length	T0604 x 1 m	T0806 x 1 m	
	Speed controller	AS3001F-06	AS3001F-08	
	Silencer	AN101-01		

∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is the value that the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

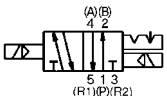
Construction

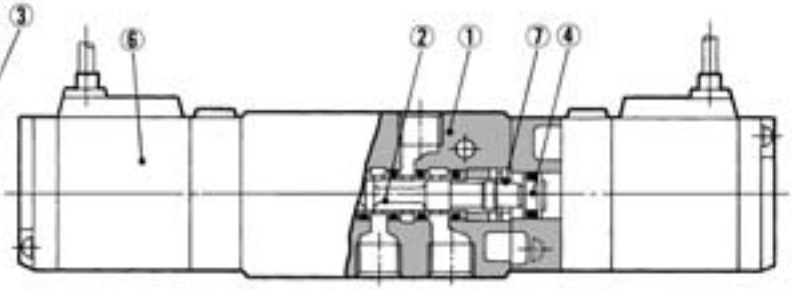
2 position single





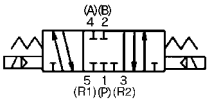
2 position double



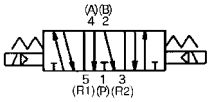


3 position closed center/exhaust center/pressure center

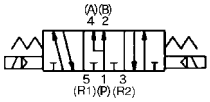
Closed center

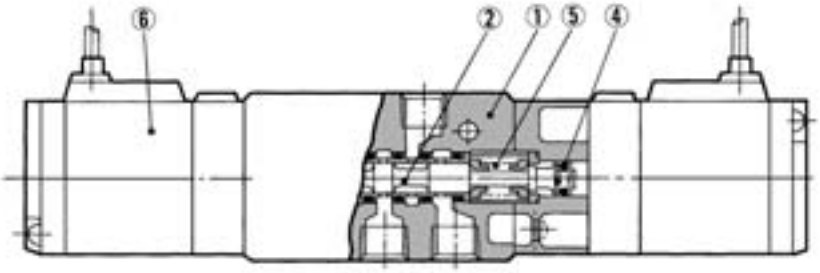


Exhaust center



Pressure center





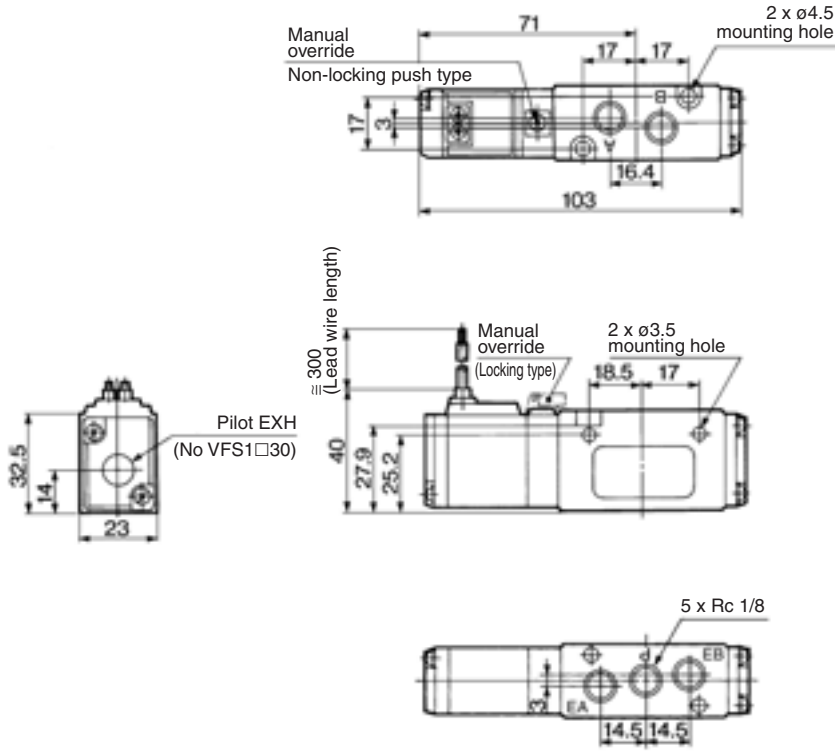
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Spool/Sleeve**	Stainless steel	—
3	**End plate**	Resin	—
4	**Piston**	Resin	—
5	**Return spring**	Stainless steel	—
6	**Pilot valve assembly**	—	—
7	**Detent assembly**	—	—

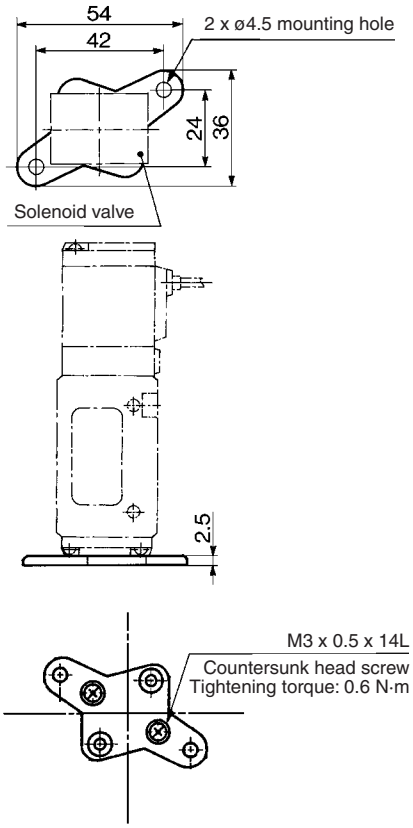
∗ Refer to “How to Order Pilot Valve Assembly” on page 1115.

2 Position Single — Grommet, Grommet terminal, Conduit terminal, DIN terminal

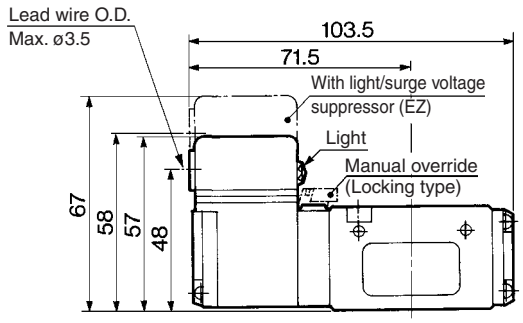
Grommet : VFS1120-□G



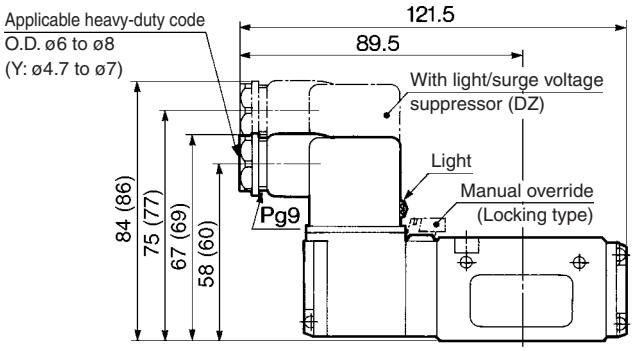
Foot bracket (F)
Part no. : AXT626-10A



Grommet terminal: VFS1120-□E/EZ

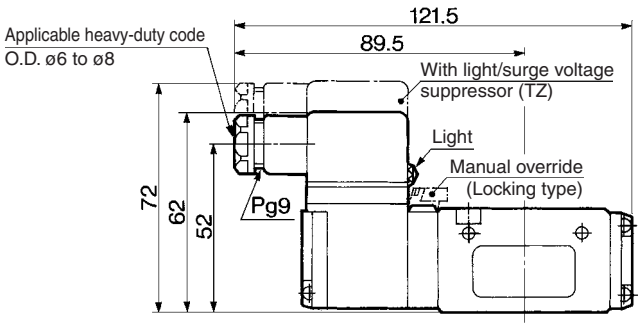


DIN terminal: VFS1120-□D/DZ/Y/YZ



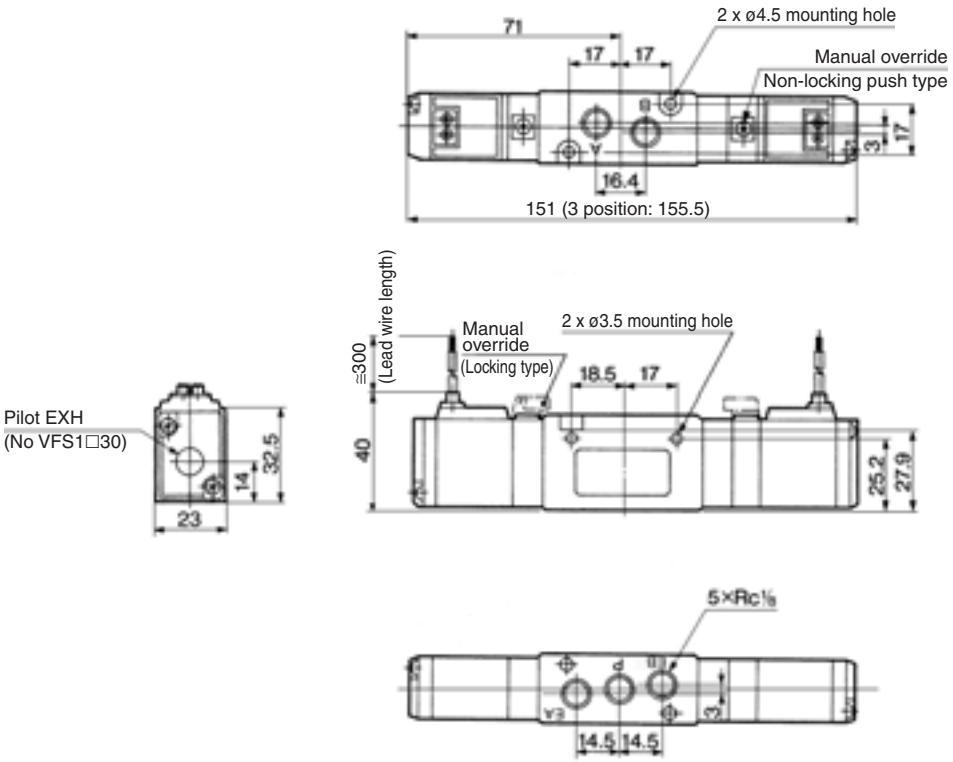
( ): Y, YZ

Conduit terminal: VFS1120-□T/TZ

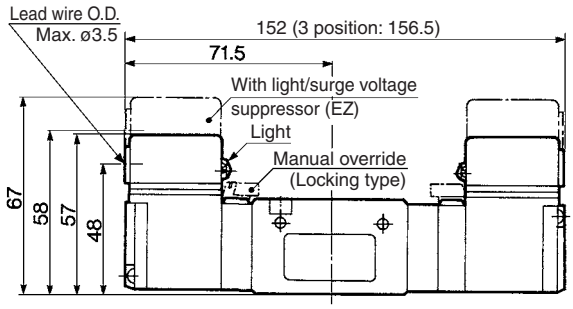


2 Position Double, 3 Position — Grommet, Grommet terminal, Conduit terminal, DIN terminal

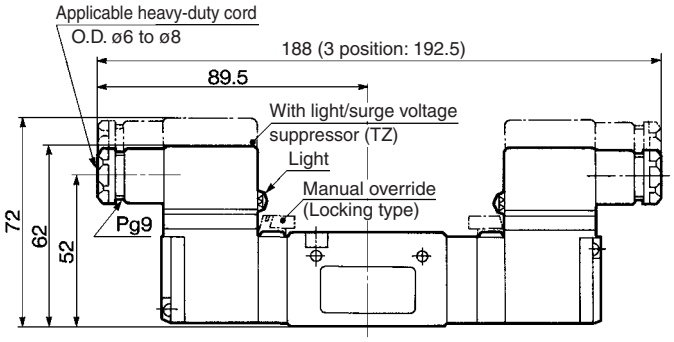
Grommet: VFS1220-□G, VFS1320-□G, VFS1420-□G, VFS1520-□G



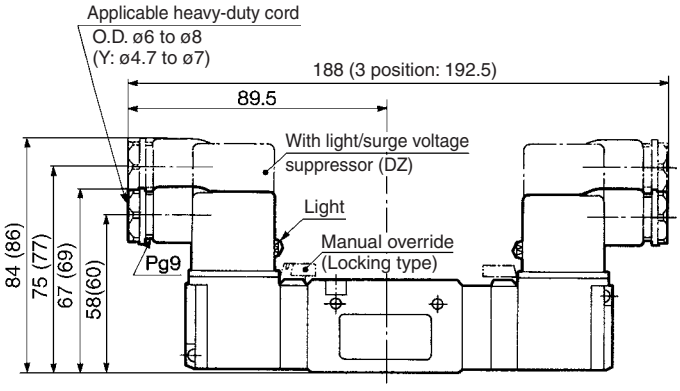
Grommet terminal: VFS1220-□E/EZ VFS1320-□E/EZ VFS1420-□E/EZ VFS1520-□E/EZ



Conduit terminal: VFS1220-□T/TZ VFS1320-□T/TZ VFS1420-□T/TZ VFS1520-□T/TZ



DIN terminal : VFS1220-□D/DZ/Y/YZ VFS1320-□D/DZ/Y/YZ VFS1420-□D/DZ/Y/YZ VFS1520-□D/DZ/Y/YZ

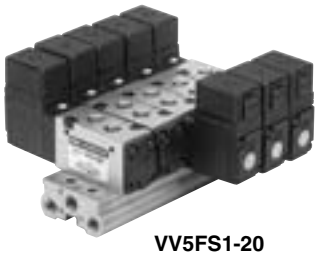


( ): Y, YZ

Series VFS1000
Manifold Specifications
Single Base Type

Compact and lightweight
Compact due to manifolding on a single base for mounting in small spaces.

Keeps environmental air clean from pilot exhaust
Use of the VV5FS1-30 manifold can exhaust intensively the pilot exhaust gas to the base side, and can prevent environmental aggravation due to noise and oil mist.



VV5FS1-20



VV5FS1-30

Part no. for mounting bolt and gasket
BG-VFS1030

Specifications

Manifold base type	Bar manifold, Body ported
Stations	Max. 15 stations

Port Specifications

Symbol	Passage		Porting specifications: Rc (Connecting port size)		
			Base	Valve	Base
	1(P)	5(R1), 3(R2)	1(P)	4(A), 2(B)	5(R1), 3(R2)
1	Common	Common	Side/Rc 1/8	Top/Rc 1/8	Side/Rc 1/8

Option

Blanking plate	VVFS1000-10A-1	With gasket, screw

How to Order Manifold Base

VV5FS1 - 20 - 05 1 - 01 □

Series VFS1000 Manifold

Base model

Model	Pilot exhaust	Applicable valve model
20	Pilot individual EXH 	VFS1□20-□□-01
30	Pilot common EXH 	VFS1□30-□□-01 ∗VFS1□20-□□-01 mountable

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

Symbol	Passage		Porting specifications
	1(P)	3(R2), 5(R1)	2(B), 4(A)
1	Common Rc 1/8	Common Rc 1/8	Top Rc 1/8

P, EA, EB port size

01	Rc 1/8

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

How to Order Manifold Assembly [Example]

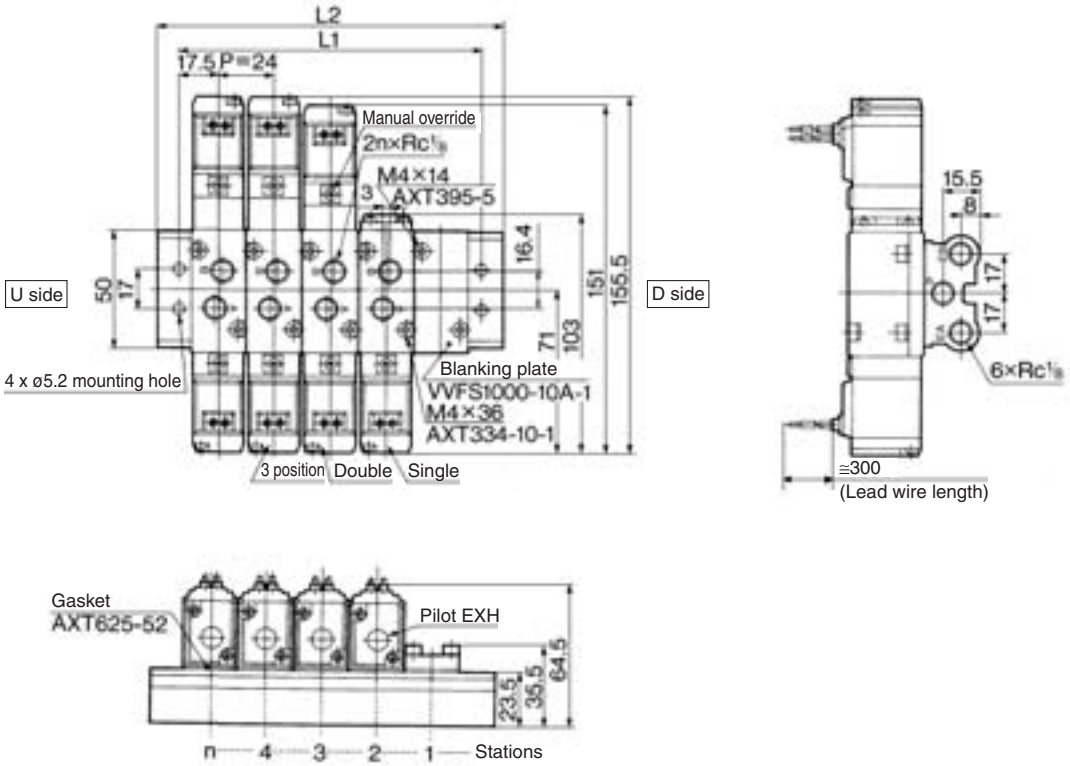
Add the valve and option part numbers in order starting from the first station on the D side.

<Example>
(Manifold base) **VV5FS1-20-061-01** ····· **1**
(2 position single) ∗ **VFS1120-1D-01** ····· **3**
(2 position double) ∗ **VFS1220-1D-01** ····· **2**
(Blanking plate) ∗ **VVFS1000-10A-1** ····· **1**

The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

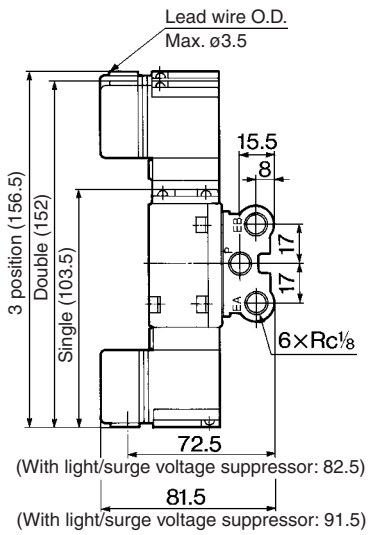
Type 20 Manifold — Pilot individual exhaust: VV5FS1-20-Station 1-01

Grommet: G

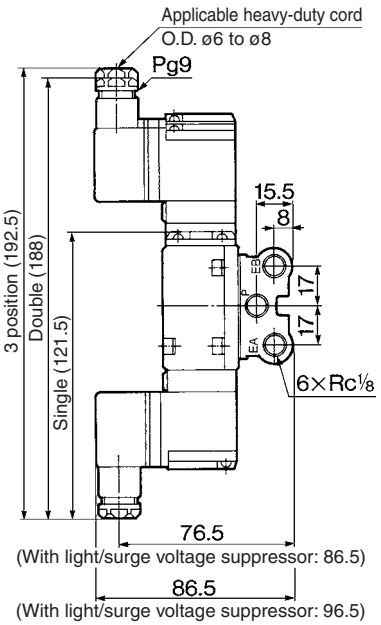


Formula for manifold weight M = 0.049n + 0.059 (kg) n: Station

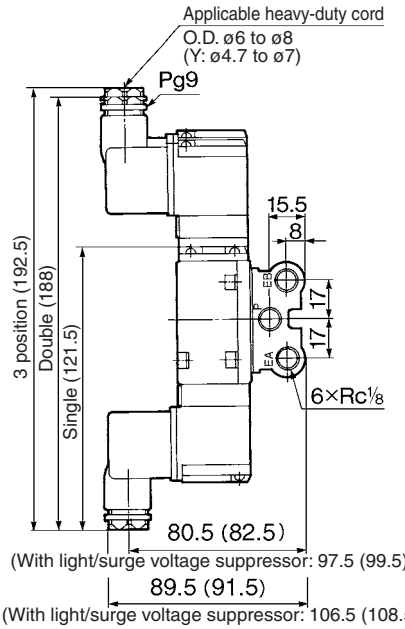
Grommet terminal: E/EZ



Conduit terminal: T/TZ



DIN terminal: D/DZ/Y/YZ



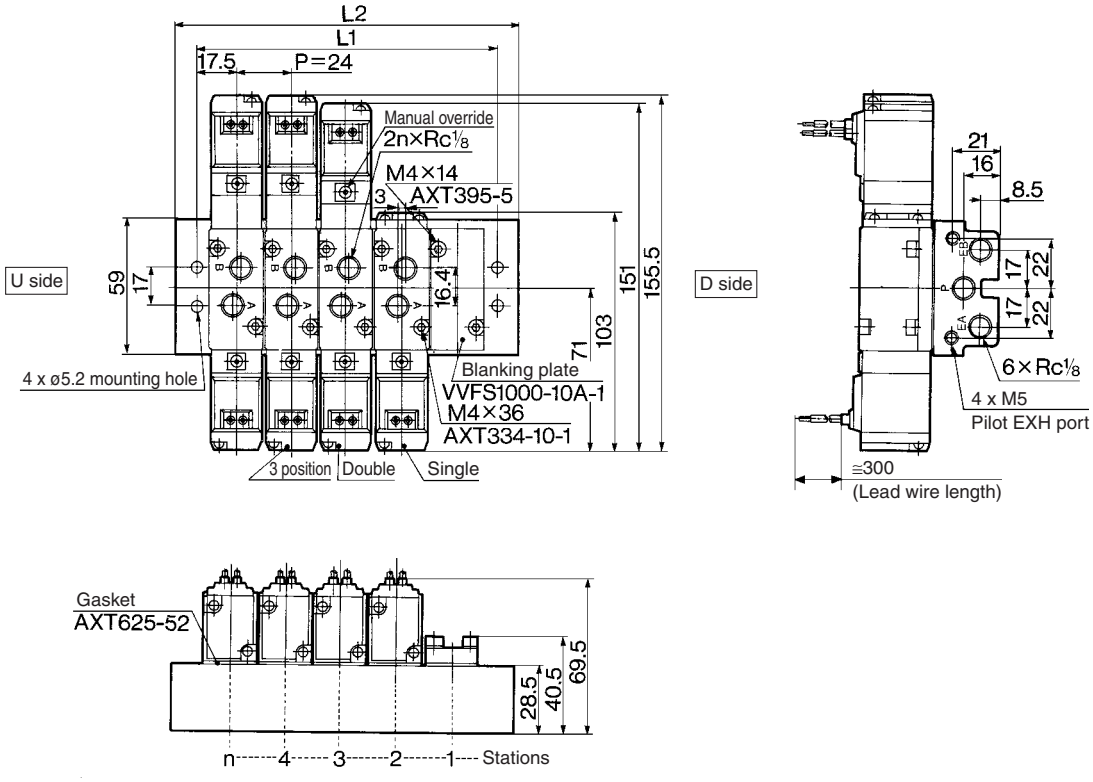
( ): Y, YZ

n: Station

Symbol / Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	59	83	107	131	155	179	203	227	251	L1 = 24 x n + 11
L_2	77	101	125	149	173	197	221	245	269	L2 = 24 x n + 29

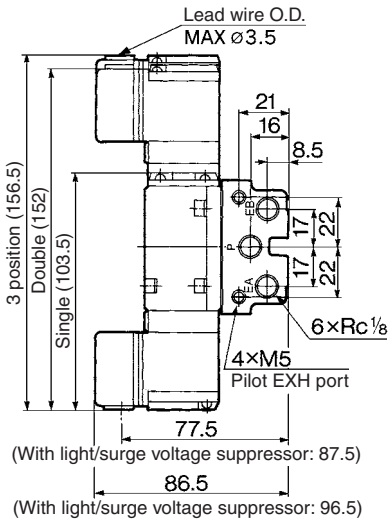
Type 30 Manifold — Pilot common exhaust: VV5FS1-30-Station 1-01

Grommet: G

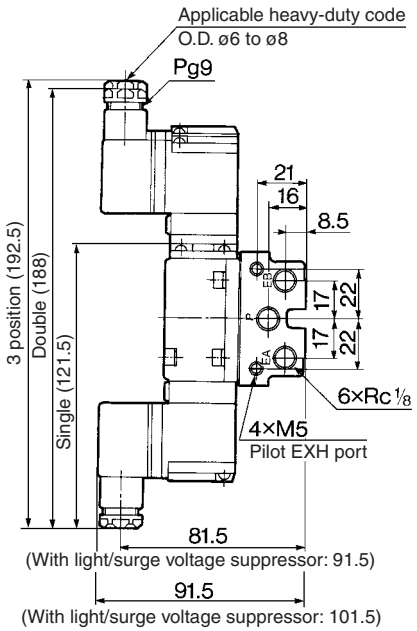


Formula for manifold weight M = 0.079n + 0.093 (kg) n: Station

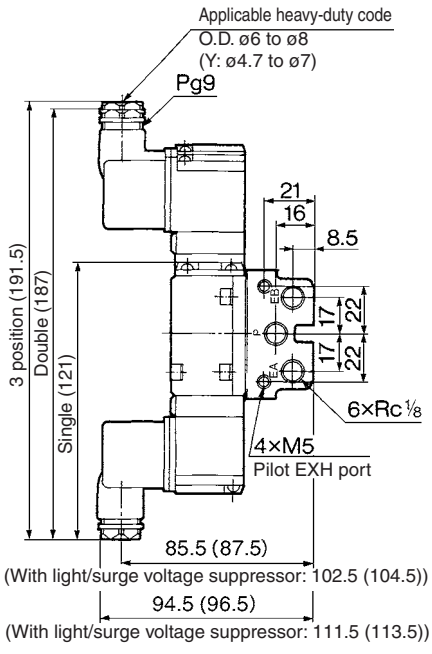
Grommet terminal: E/EZ



Conduit terminal: T/TZ



DIN terminal: D/DZ/Y/YZ



( ): Y, YZ

n: Station

Symbol / Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	59	83	107	131	155	179	203	227	251	L1 = 24 x n + 11
L_2	77	101	125	149	173	197	221	245	269	L2 = 24 x n + 29

5 Port Pilot Operated Solenoid Valve
Metal Seal, Body Ported
Series VFS2000

NRTL /C

Model

Type of actuation		Model: Plug-in	Model: Non plug-in	Port size Rc	Flow characteristics: 1→4/2 (P→A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics: 4/2→5/3 (A/B→R1/R2) C [dm³/(s·bar)]	b	Cv	Max. operating cycle (cpm) (1)	Response time (ms) (2)	Mass (kg) (3)
2 position	Single	**VFS2120**	**VFS2130**	1/8	3.2	0.24	0.78	3.4	0.28	0.82	1200	22 or less	0.26
				1/4	4.0	0.20	0.90	3.5	0.32	0.85			
	Double	**VFS2220**	**VFS2230**	1/8	3.2	0.24	0.78	3.4	0.28	0.82	1200	13 or less	0.35
				1/4	4.0	0.20	0.90	3.5	0.32	0.85			
3 position	Closed center	**VFS2320**	**VFS2330**	1/8	3.2	0.24	0.78	3.2	0.27	0.80	600	40 or less	0.42
				1/4	4.0	0.20	0.90	3.4	0.29	0.83			
	Exhaust center	**VFS2420**	**VFS2430**	1/8	3.2	0.25	0.79	3.4	0.26	0.82	600	40 or less	0.42
				1/4	4.0	0.20	0.90	3.4	0.32	0.84			
	Pressure center	**VFS2520**	**VFS2530**	1/8	3.1	0.23	0.75	3.3	0.27	0.80	600	40 or less	0.42
				1/4	4.0	0.24	0.92	3.3	0.30	0.82			

Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency.
Note 2) According to JIS B 8375-1981. (The value at supply pressure 0.5 MPa.)
Note 3) In the case of grommet type Note 4) Factors of "Note 1)" and "Note 2)" are achieved in controlled clean air.

Compact yet provides a high flow capacity 1/4: C: 3.4 dm³/(s·bar)

Low power consumption: 1.8 W DC



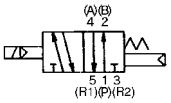
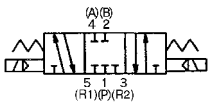
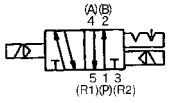
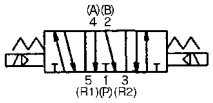
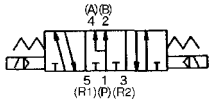
VFS2320-□T-02

VFS2120-□E-02-F

VFS2220-□E-02

VFS2120-□G-02

JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimum operating pressure		0.1 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C (1)
	Lubrication		Non-lube (2)
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² (3)
	Enclosure		Dustproof (Degrees of protection 0) (4)
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) (5)
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA (50 Hz), 5.0 VA (60 Hz)
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Grommet, Grommet terminal, Conduit terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option Specifications

Pilot type	External pilot (1)
Pilot valve manual override	Non-locking push type (Extended), Locking type (Tool required)
Coil rated voltage	110 to 120, 220, 240 VAC (50/60 Hz)
	12, 100 VDC
Option	With light/surge voltage suppressor (2)
Foot bracket (With screw)	Part no.: VFN200-17A, VFS2120 (single) only

Note 1) Operating pressure: 0 to 1.0 MPa. Pilot pressure: 0.1 to 1.0 MPa.
Note 2) Grommet type is available only w/ surge voltage suppressor (which is directly connected with lead wire), not w/ indicator light.

Manifold

Body type	Applicable manifold base (Pilot EXH)
VFS2□20	Bar manifold (Individual EXH)
VFS2□30	Bar manifold (Common EXH base side)

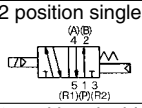
Note) VFS2□30: Manifold only. Cannot be used as a single unit.

How to Order

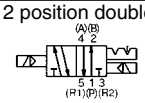
VFS2 [1] [20] [ ] – [1] [G] [ ] [ ] – [01] [ ] – [ ]

Symbol

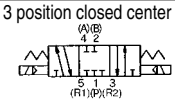
1: 2 position single



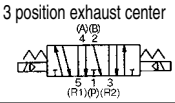
2: 2 position double



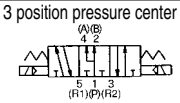
3: 3 position closed center



4: 3 position exhaust center



5: 3 position pressure center



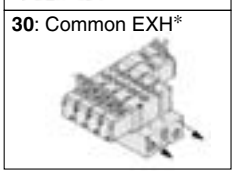
∗ Reverse pressure: Can be used by external pilot specifications.

Body (Pilot exhaust)

20: Individual EXH



30: Common EXH∗



∗ Manifold only

Pilot type

Nil	Internal pilot
R∗	External pilot

∗ Option: Individual external pilot (External pilot port: Body side)

Port size

01	Rc 1/8
02	Rc 1/4

Thread type

Nil	Rc
N∗	NPT
T∗	NPTF
F∗	G

∗ Option

Option

F: With foot bracket



∗ Mountable only for VFS2120.

Manual override

Nil: Non-locking push type (Flush)



A∗: Non-locking push type (Extended)



B∗: Locking type (Tool required)



∗ Option

Light/Surge voltage suppressor

Nil	None
Z	With light/surge voltage suppressor
S∗	With surge voltage suppressor

∗ Grommet type is available only w/ surge voltage suppressor, not w/ indicator light.

Electrical entry

G: Grommet



E: Grommet terminal



T: Conduit terminal



D, Y: DIN terminal



Coil rated voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3∗	110 to 120 VAC (50/60 Hz)
4∗	220 VAC (50/60 Hz)
5	24 VDC
6∗	12 VDC
7∗	240 VAC (50/60 Hz)
9∗	Other

∗ Option

How to Order Pilot Valve Assembly

SF4 – [1] [DZ] [ ] – [12]

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3∗	110 to 120 VAC (50/60 Hz)
4∗	220 VAC, 50/60 Hz
5	24 VDC
6∗	12 VDC
7∗	240 VAC, 50/60 Hz
9∗	Other

∗ Option

Electrical entry, Light/Surge voltage suppressor

G	Grommet
GS	Grommet with surge voltage suppressor
D∗	DIN terminal
DZ∗	DIN terminal with light/surge voltage suppressor
DO∗	DIN terminal ∗∗
DOZ∗	DIN terminal with light/surge voltage suppressor ∗∗
Y∗	DIN terminal
YZ∗	DIN terminal with light/surge voltage suppressor
YO∗	DIN terminal ∗∗
YOZ∗	DIN terminal with light/surge voltage suppressor ∗∗
T	Conduit terminal
TZ	Conduit terminal with light/surge voltage suppressor
E	Grommet terminal
EZ	Grommet terminal with light/surge voltage suppressor

∗ D: Conforming to DIN43650 standard; Y: Conforming to DIN43650B standard
∗∗ DIN connector is not attached.

Applicable model

12	For VFS2□20	Individual pilot exhaust
13	For VFS2□30	Common pilot exhaust

Manual override

Nil	Non-locking push type (Flush)
A∗	Non-locking push type (Extended)
B∗	Locking type (Tool required)

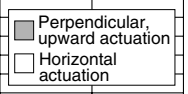
∗ Option

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Body Ported

Series	Average speed (mm/s)	Bore size											
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm				
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100
VFS2120-02	800 700 600 500 400 300 200 100 0												

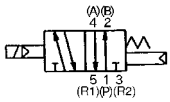


Conditions

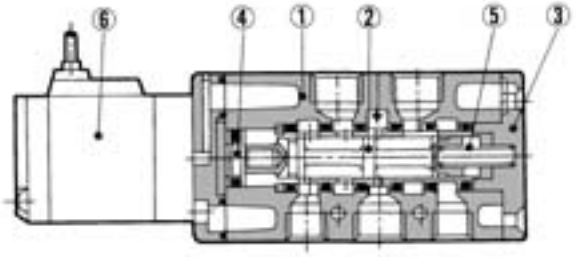
Body ported		Series CJ2	Series CM2	Series MB, CA2
VFS2120-02	Tube bore x Length	T0604 x 1 m	T1075 x 1 m	
	Speed controller	AS3001F-06	AS4001F-10	
	Silencer	AN110-01		

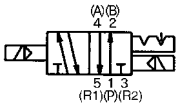
∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is the value that the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Construction

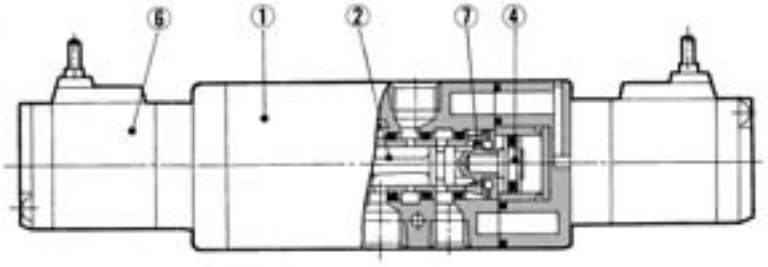


2 position single

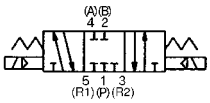




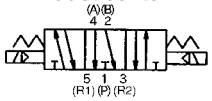
2 position double



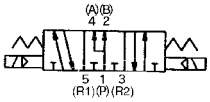
Closed center



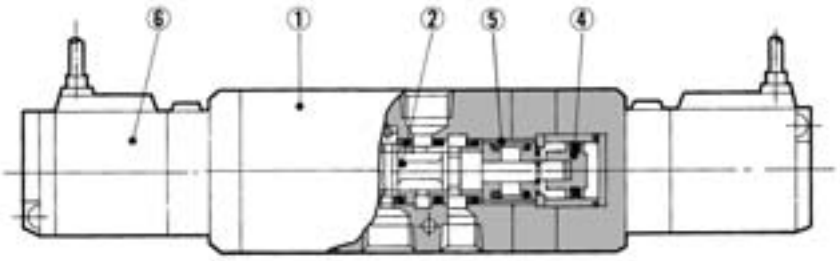
Exhaust center



Pressure center



3 position closed center/exhaust center/pressure center



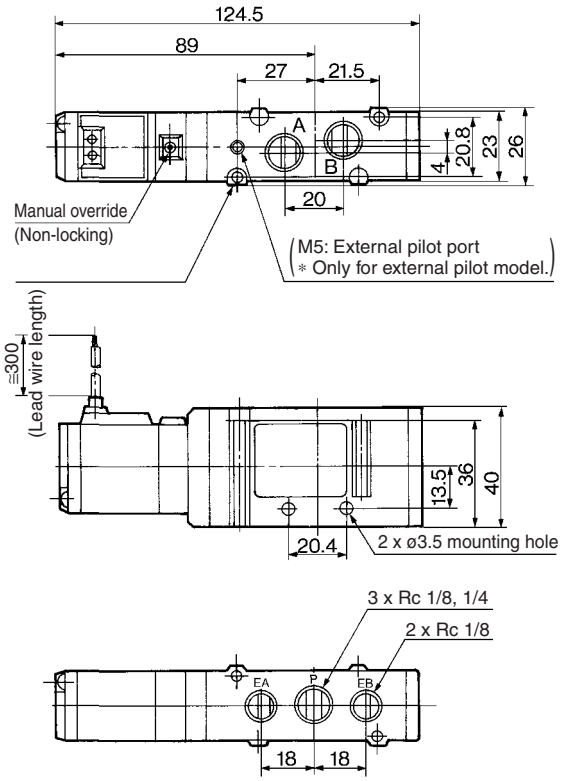
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Spool/Sleeve**	Stainless steel	—
3	**End plate**	Resin	—
4	**Piston**	Resin	—
5	**Return spring**	Stainless steel	—
6	**Pilot valve assembly**	—	—
7	**Detent assembly**	—	—

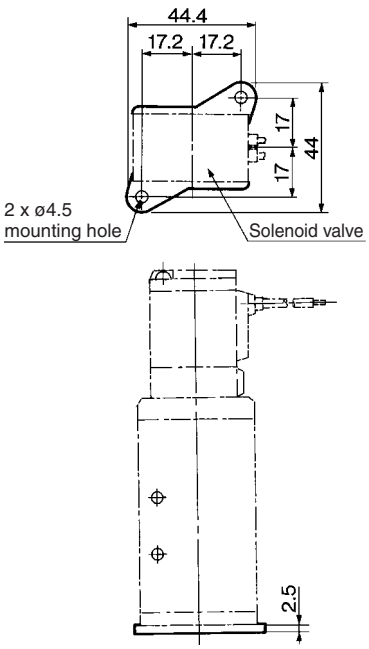
∗ Refer to “How to Order Pilot Valve Assembly” on page 1123.

2 Position Single — Grommet, Grommet terminal, Conduit terminal, DIN terminal

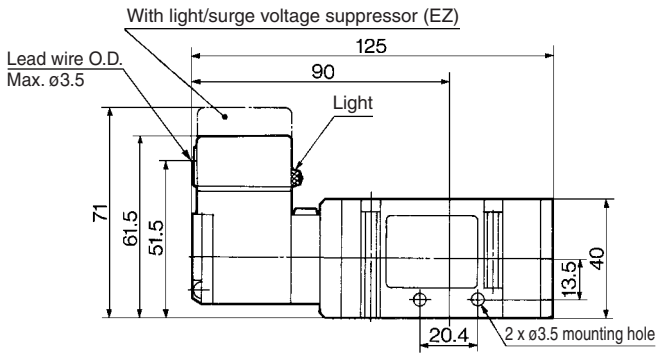
Grommet: VFS2120-□G



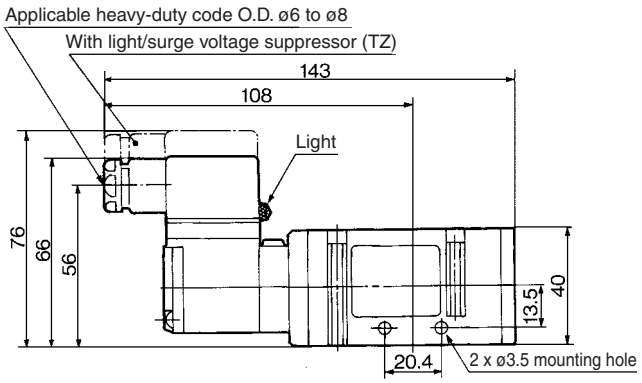
Foot bracket (F)
Part no.: VFN200-17A



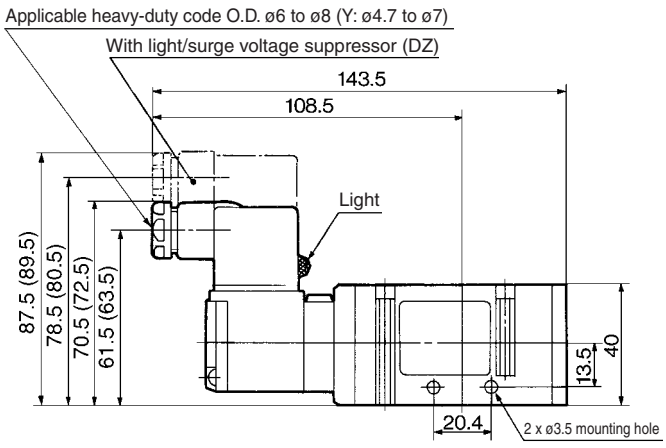
Grommet terminal: VFS2120-□E/EZ



Conduit terminal: VFS2120-□T/TZ



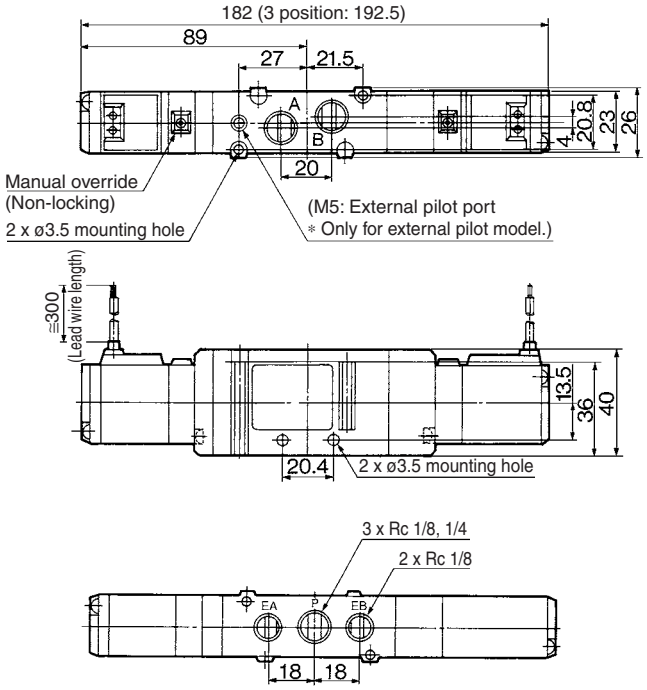
DIN terminal: VFS2120-□D/DZ/Y/YZ



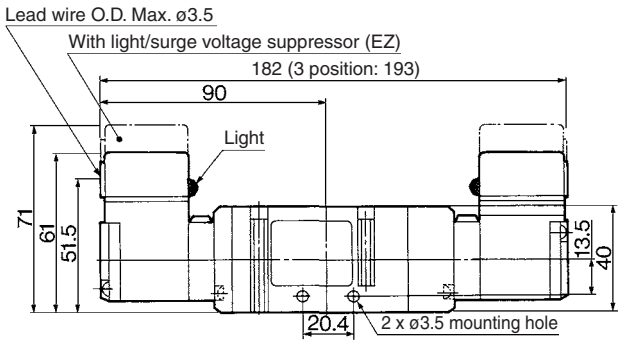
( ): Y, YZ

2 Position Double, 3 Position — Grommet, Grommet terminal, Conduit terminal, DIN terminal

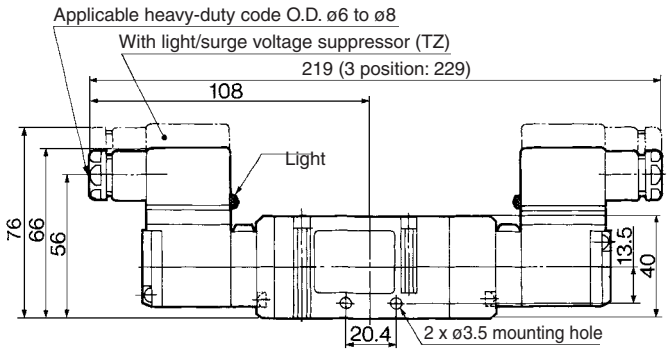
Grommet: VFS2220-□G, VFS2320-□G, VFS2420-□G, VFS2520-□G



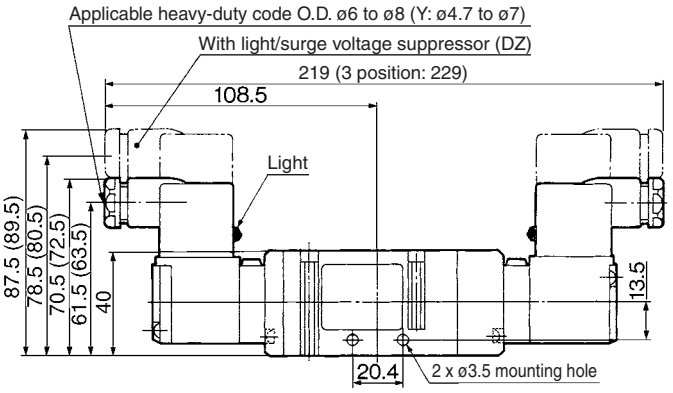
Grommet terminal: VFS2220-□E/EZ VFS2320-□E/EZ VFS2420-□E/EZ VFS2520-□E/EZ



Conduit terminal: VFS2220-□T/TZ VFS2320-□T/TZ VFS2420-□T/TZ VFS2520-□T/TZ



DIN terminal: VFS2220-□D/DZ/Y/YZ VFS2320-□D/DZ/Y/YZ VFS2420-□D/DZ/Y/YZ VFS2520-□D/DZ/Y/YZ



( ): Y, YZ

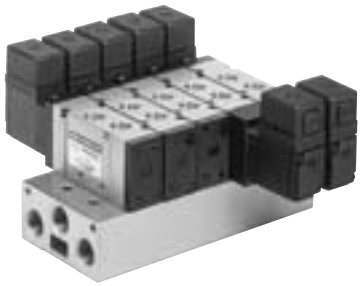
Series VFS2000
Manifold Specifications
Single Base Type

Keeps environmental air clean from pilot exhaust

Use of the VV5FS2-30 manifold can exhaust intensively the pilot exhaust gas to the base side, and can prevent environmental aggravation due to noise and oil mist.



VV5FS2-20



VV5FS2-30

Part no. for mounting bolt and gasket
BG-VFS2030

Specifications

Manifold base type	Bar manifold, Body ported
Stations	Max. 15 stations

Port Specifications

Symbol	Passage		Porting specifications: Rc		
			Base	Valve	Base
	1(P)	5(R1), 3(R2)	1(P)	2(B), 4(A)	3(R2), 5(R1)
1	Common	Common	Side: 3/8	Top: 1/8, 1/4	Side: 3/8

Option

Blanking plate	VVFS2000-10A-1	With gasket, screw

How to Order Manifold Base

VV5FS2 - 20 - 05 1 - 03 □

Series VFS2000 Manifold

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

P, EA, EB port size

03	Rc 3/8

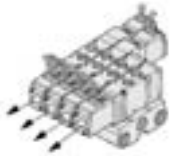
Symbol

	Passage		Porting specifications
	1(P)	3(R2), 5(R1)	2(B), 4(A)
1	Common Rc 3/8	Common Rc 3/8	Top Rc 1/8, 1/4

Stations

02	2 stations
⋮	⋮
15	15 stations

Base model

Model	Pilot exhaust	Applicable valve model
20	Pilot individual EXH 	VFS2□20-□□-$^{01}_{02}$
30	Pilot common EXH 	VFS2□30-□□-$^{01}_{02}$ *VFS2□20-□□-$^{01}_{02}$ mountable

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

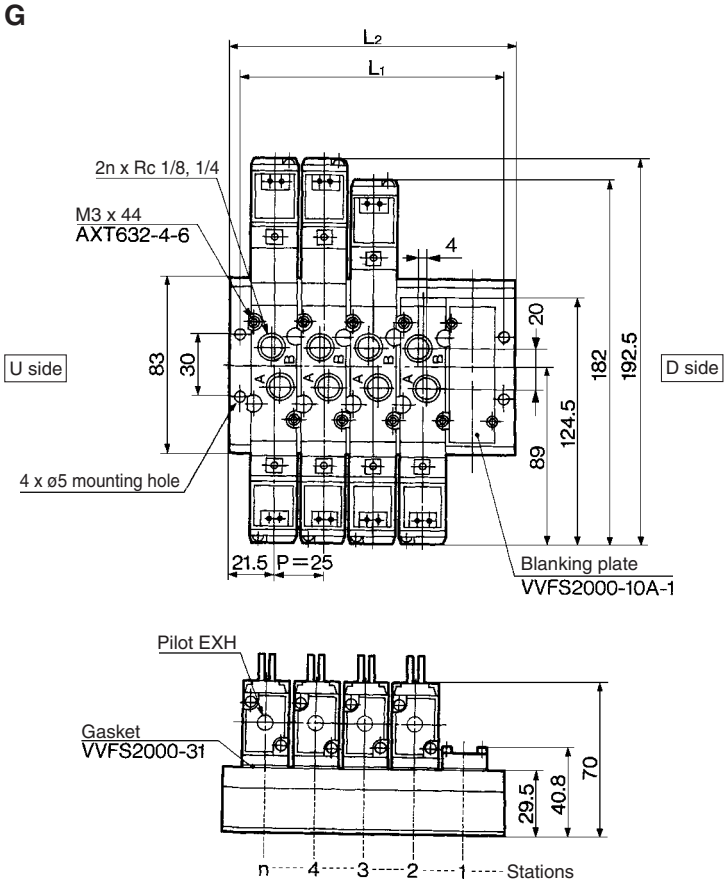
<Example>

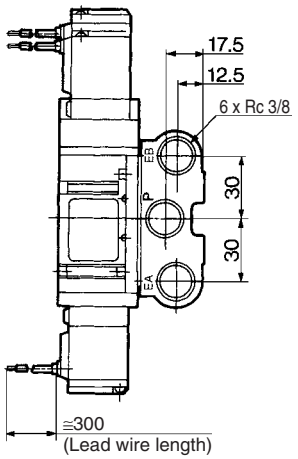
(Manifold base) **VV5FS2-20-061-03** ····· **1**
(2 position single) * **VFS2120-1D-02** ····· **3**
(2 position double) * **VFS2220-1D-02** ····· **2**
(Blanking plate) * **VVFS2000-10A-1** ····· **1**

The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

Type 20 Manifold — Pilot individual exhaust: VV5FS2-20- Station 1-03

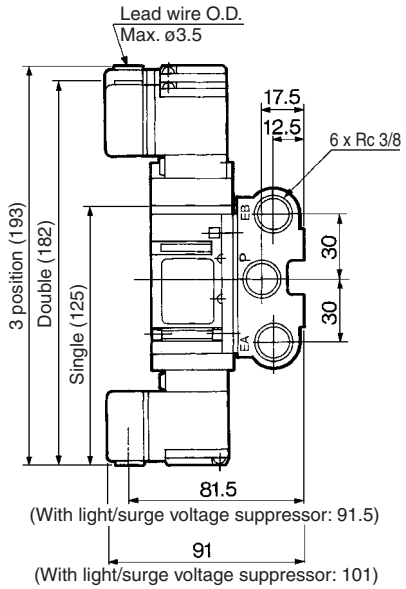
Grommet: G



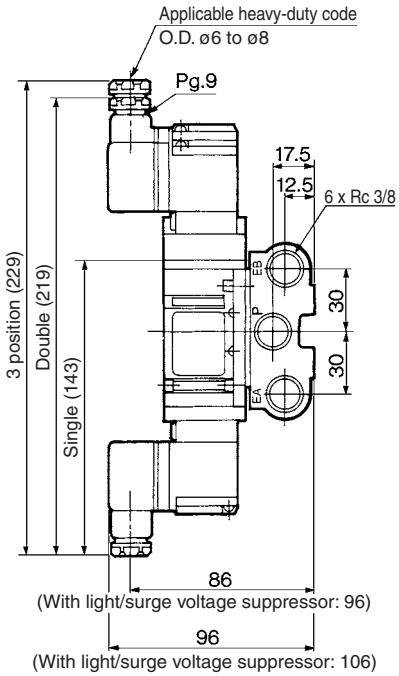


Formula for manifold weight M = 0.108n + 0.068 (kg) n: Station

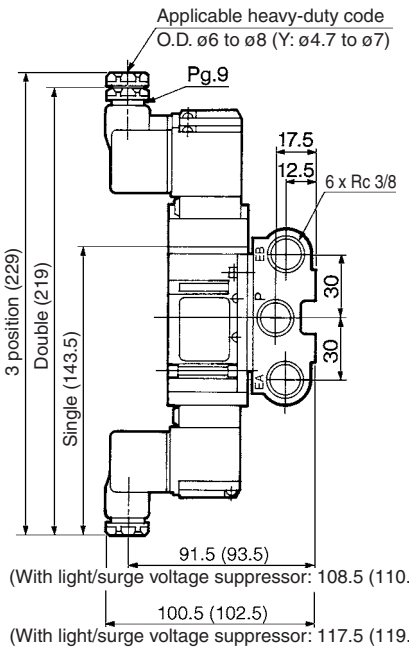
Grommet terminal: E/EZ



Conduit terminal: T/TZ



DIN terminal: D/DZ/Y/YZ



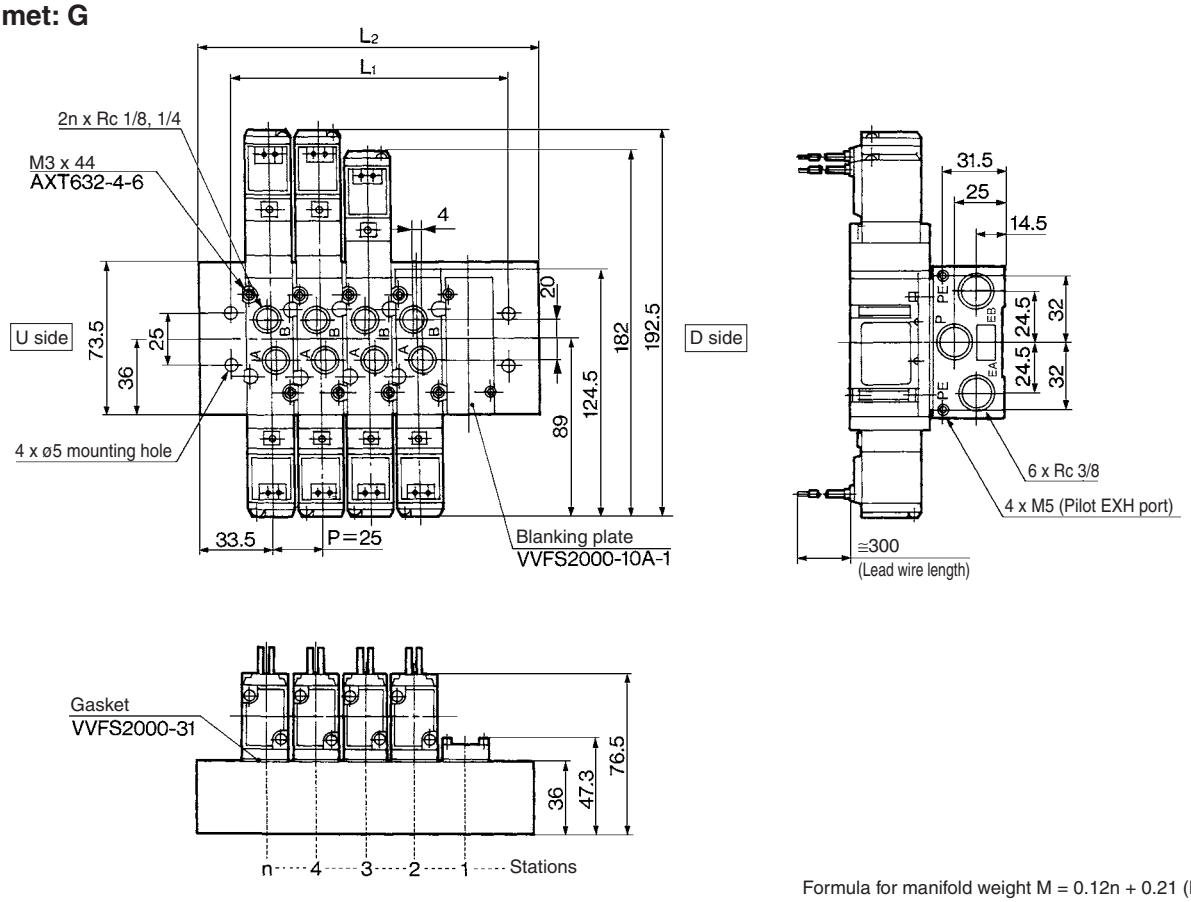
( ): Y, YZ

n: Station

L / Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	58	83	108	133	158	183	208	233	258	$L_1 = 25 \times n + 8$
L_2	68	93	118	143	168	193	218	243	268	$L_2 = 25 \times n + 18$

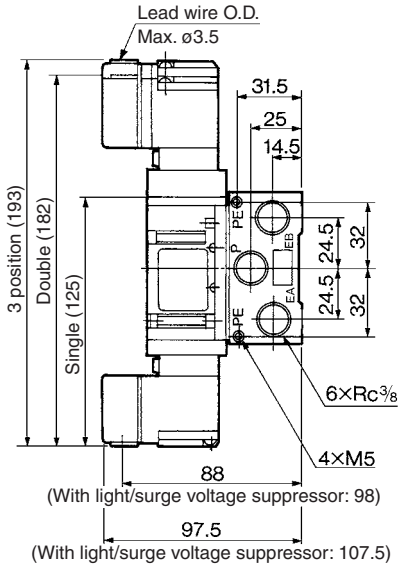
Type 30 Manifold — Pilot common exhaust: VV5FS2-30-Station 1-03

Grommet: G

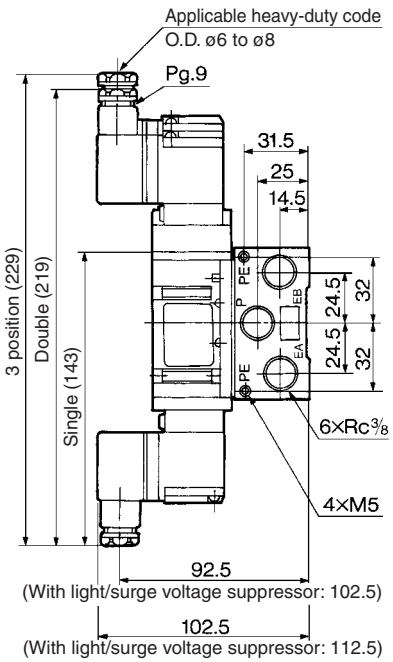


Formula for manifold weight M = 0.12n + 0.21 (kg) n: Station

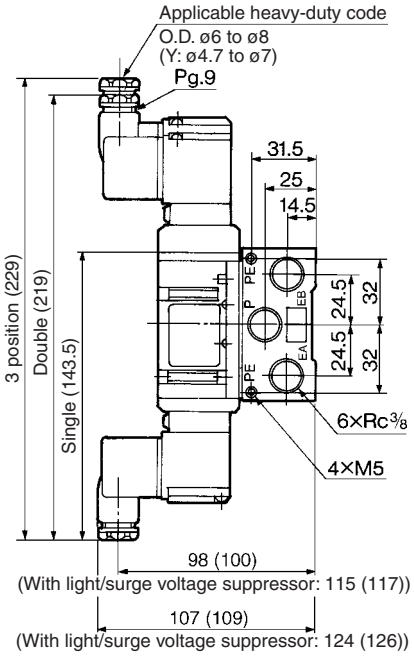
Grommet terminal: E/EZ



Conduit terminal: T/TZ



DIN terminal: D/DZ/Y/YZ



( ): Y, YZ

n: Station

L \ Stations	2	3	4	5	6	7	8	9	10	Formula
L1	62	87	112	137	162	187	212	237	262	L1 = 25 x n + 12
L2	92	117	142	167	192	217	242	267	292	L2 = 25 x n + 42

5 Port Pilot Operated Solenoid Valve
Metal Seal, Body Ported
Series VFS3000

NRTL /C

Model

Type of actuation		Model		Port size Rc	Flow characteristics						Max.[1] operating cycle (cpm)	Response[2] time (ms)	Mass[3] (kg)
		Plug-in	Non plug-in		1→4/2(P→A/B)			4/2→5/3(A/B→R1/R2)					
					C [dm³/(s·bar)]	b	Cv	C [dm3/(s·bar)]	b	Cv			
2 position	Single	**VFS3120**	**VFS3130**	1/4	5.0	0.20	1.1	6.8	0.30	1.7	1200	20 or less	0.33
				3/8	6.1	0.14	1.4	7.3	0.23	1.8			
	Double	**VFS3220**	**VFS3230**	1/4	5.0	0.20	1.1	6.8	0.3	1.7	1500	15 or less	0.43
				3/8	6.1	0.14	1.4	7.3	0.23	1.8			
3 position	Closed center	**VFS3320**	**VFS3330**	1/4	5.0	0.20	1.1	6.3	0.27	1.6	600	40 or less	0.45
				3/8	5.7	0.20	1.4	6.8	0.21	1.7			
	Exhaust center	**VFS3420**	**VFS3430**	1/4	4.9	0.24	1.1	6.5	0.28	1.6	600	40 or less	0.45
				3/8	5.8	0.15	1.4	7.0	0.22	1.7			
	Pressure center	**VFS3520**	**VFS3530**	1/4	4.9	0.23	1.1	6.6	0.28	1.6	600	40 or less	0.45
				3/8	6.5	0.15	1.6	7.0	0.23	1.7			

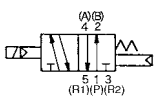
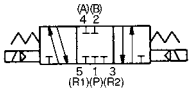
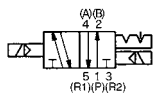
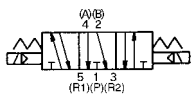
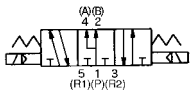
Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency.
Note 2) Based on JIS B 8375-1981. (The value at supply pressure 0.5 MPa.)
Note 3) In the case of grommet type.
Note 4) Factors of "Note1)" and "Note 2)" are achieved in controlled clean air.

Compact yet provides a large flow capacity 3/8: C: 6.8 dm³/(s·bar)

Low power consumption: 1.8 W DC



JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimun operating pressure		0.1 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C [1]
	Lubrication		Non-lube [2]
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² [3]
	Enclosure		Dustproof (Degrees of protection 0) [4]
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) [5]
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA/50 Hz, 5.0 VA/60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Grommet, Grommet terminal, Conduit terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option Specifications

Pilot type	External pilot [1]
Pilot valve manual override	Non-locking push type (Extended), Locking type (Tool reguired)
Coil rated voltage	110 to 120, 220, 240 VAC (50/60 Hz)
	12, 100 VDC
Option	With light/surge voltage suppressor [2]
Foot bracket (With screw)	Part no.: VFS3000-52A, VFS3120 (single) only

Note 1) Operating pressure: 0 to 1.0 MPa
Pilot pressure: 0.1 to 1.0 MPa
Note 2) Grommet type is available only w/ surge voltage suppressor (which is directly connected with lead wire), not w/ indicator light.

Manifold

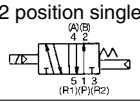
Body type	Applicable manifold base	Pilot EXH
VFS3□20	Stacking manifold	Individual EXH (Valve side)
VFS3□30		Common EXH (Manifold base side)

How to Order

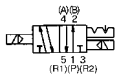
VFS3 1 20 □ – 1 G □ □ – 02 □ – □

Symbol

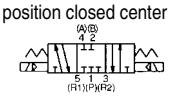
1: 2 position single



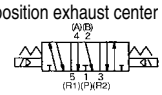
2: position double



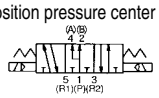
3: position closed center



4: position exhaust center



5: position pressure center



∗ Reverse pressure: Can be used by external pilot specifications.

Body (Pilot exhaust)

20: Individual EXH



30∗: Common EXH



∗ Manifold only

Pilot type

Nil	Internal pilot
R∗	External pilot

∗ Option. It will be an individual external pilot.

(External pilot port: Body side. For 30 type, common external pilot (on manifold side).)

Coil rated voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3∗	110 to 120 VAC (50/60 Hz)
4∗	220 VAC (50/60 Hz)
5	24 VDC
6∗	12 VDC
7∗	240 VAC (50/60 Hz)
9∗	Other

∗ Option

Electrical entry

G: Grommet



E: Grommet terminal



T: Conduit terminal



D, Y: DIN terminal



Light/Surge voltage suppressor

Nil	None
Z	With light/surge voltage suppressor
S∗	With surge voltage suppressor

∗ Grommet type is available only w/ surge voltage suppressor, not w/ indicator light.

Manual override

Nil: Non-locking push type (Flush)



A∗: Non-locking push type (Extended)



B∗: Locking type (Tool required)



∗ Option

Port size

02	Rc 1/4
03	Rc 3/8

Thread type

Nil	Rc
N∗	NPT
T∗	NPTF
F∗	G

∗ Option

Option

F: With foot bracket



∗ Mountable only for VFS3120.

How to Order Pilot Valve Assembly

SF4 – 1 DZ □ – 21

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3∗	110 to 120 VAC (50/60 Hz)
4∗	220 VAC, 50/60 Hz
5	24 VDC
6∗	12 VDC
7∗	240 VAC, 50/60 Hz
9∗	Other

∗ Option

Electrical entry, Light/Surge voltage suppressor

G	Grommet
GS	Grommet with surge voltage suppressor
D∗	DIN terminal
DZ∗	DIN terminal with light/surge voltage suppressor
DO∗	DIN terminal ∗∗
DOZ∗	DIN terminal with light/surge voltage suppressor ∗∗
Y∗	DIN terminal
YZ∗	DIN terminal with light/surge voltage suppressor
YO∗	DIN terminal ∗∗
YOZ∗	DIN terminal with light/surge voltage suppressor ∗∗
T	Conduit terminal
TZ	Conduit terminal with light/surge voltage suppressor
E	Grommet terminal
EZ	Grommet terminal with light/surge voltage suppressor

Manual override

Nil	Non-locking push type (Flush)
A∗	Non-locking push type (Extended)
B∗	Locking type (Tool required)
C∗	Locking type (Lever)

∗ Option

Applicable model

14	A side pilot operator for VFS3$^{1}_{4}{}^{2}_{5}$20	Individual pilot exhaust
15	B side pilot operator for VFS3220	
16	B side pilot operator for VFS3$^{3}_{5}$20	
17	A side pilot operator for VFS3$^{1}_{4}{}^{2}_{5}$30	Common pilot exhaust
18	B side pilot operator for VFS3230	
19	B side pilot operator for VFS3$^{3}_{5}$30	

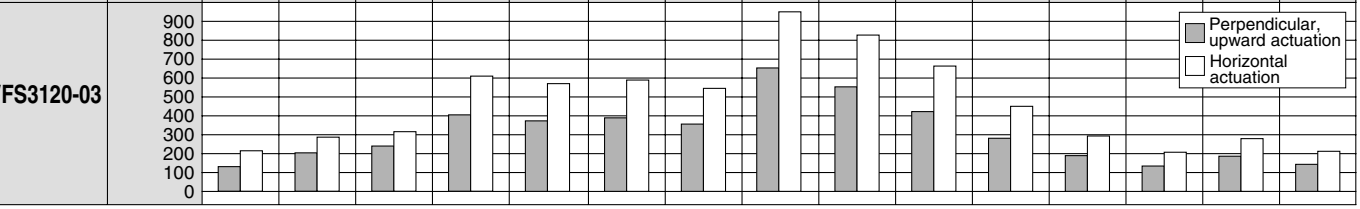
∗ D: Conforming to DIN43650 standard;
Y: Conforming to DIN43650B standard
∗∗ DIN connector is not attached.

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Body Ported

Series	Average speed (mm/s)	Bore size													
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm					Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Cylinder stroke 1000 mm		
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
VFS3120-03	900 800 700 600 500 400 300 200 100 0															

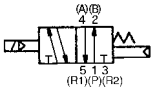


∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is the value that the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

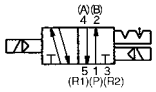
Conditions

Body ported		Series CJ2	Series CM2	Series MB, CA2	Series CS1/CS2
VFS3120-03	Tube bore x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	
	Speed controller	AS3001F-06	AS4001F-10	AS4001F-12	
	Silencer	AN200-02			AN202-02

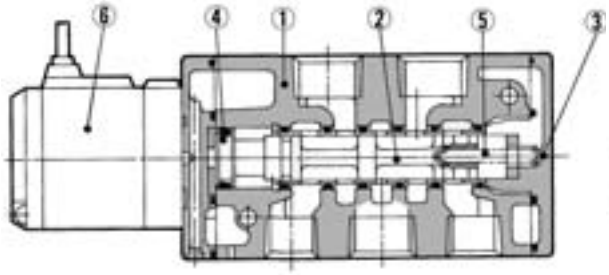
Construction

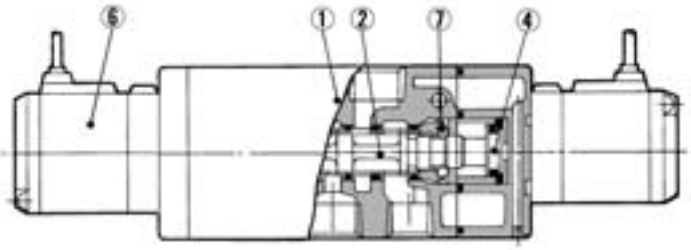


2 position single



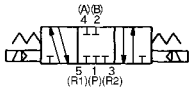
2 position double



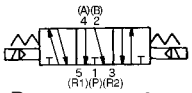


3 position closed center/exhaust center/pressure center

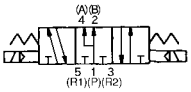
Closed center

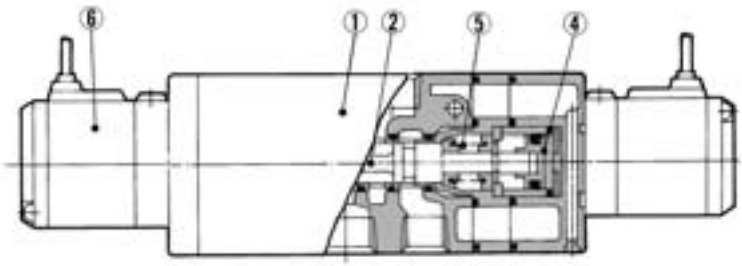


Exhaust center



Pressure center





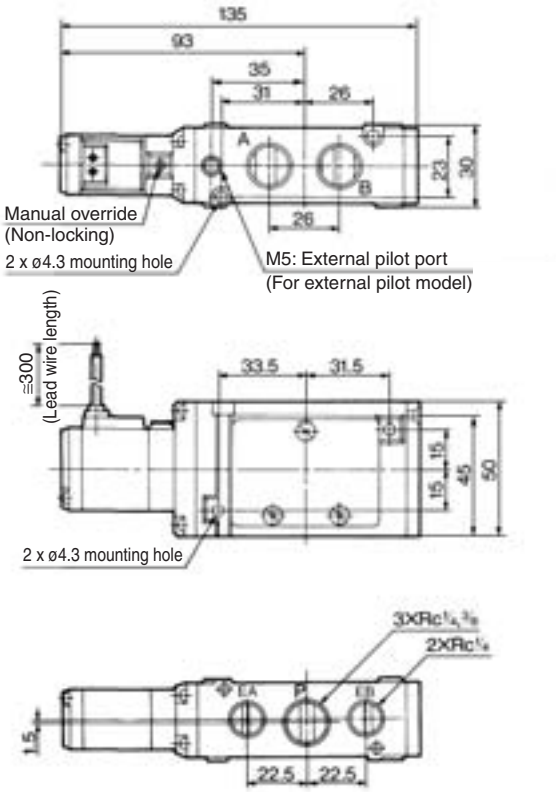
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Spool/Sleeve**	Stainless steel	—
3	**End plate**	Resin	Black
4	**Piston**	Resin	—
5	**Return spring**	Stainless steel	—
6	**Pilot valve assembly**	—	—
7	**Detent assembly**	—	—

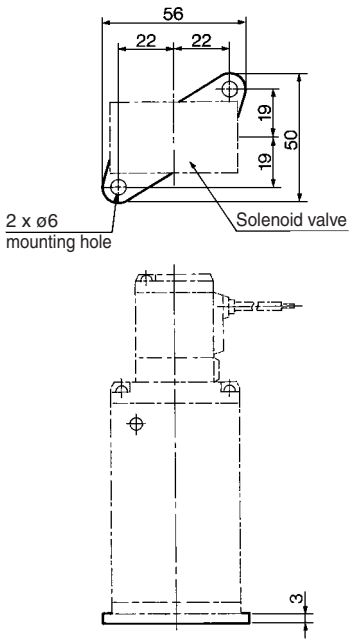
∗ Refer to “How to Order Pilot Valve Assembly” on page 1131.

2 Position Single — Grommet, Grommet terminal, Conduit terminal, DIN terminal

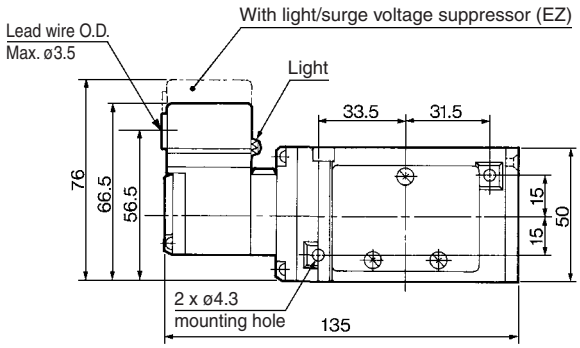
Grommet: VFS3120-□G



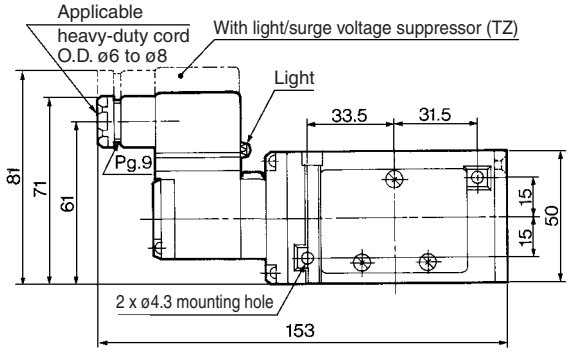
Foot bracket (F)
Part no.: VFS3000-52A



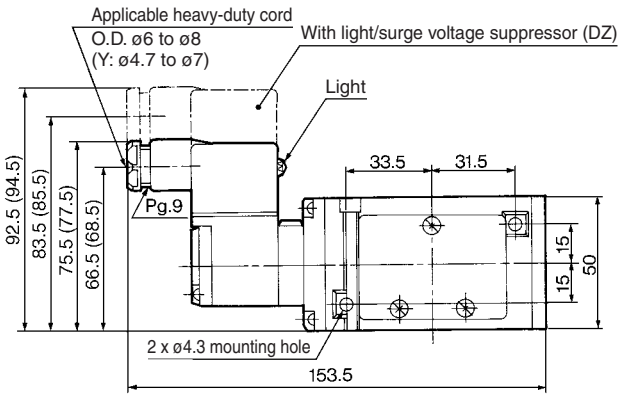
Grommet terminal: VFS3120-□E/EZ



Conduit terminal: VFS3120-□T/TZ



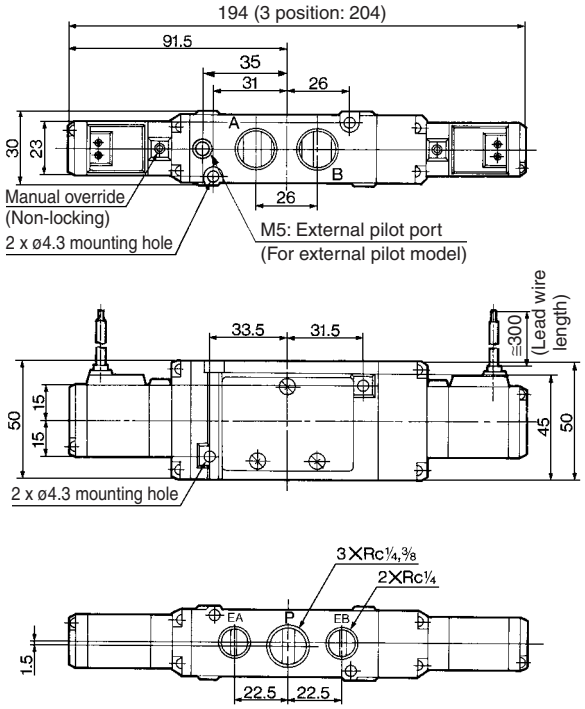
DIN terminal: VFS3120-□D/DZ/Y/YZ



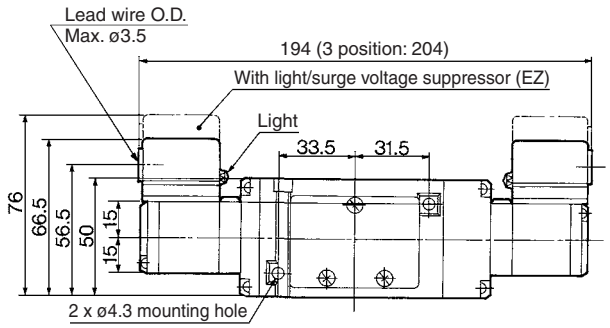
( ): Y, YZ

2 Position Double, 3 Position — Grommet, Grommet terminal, Conduit terminal, DIN terminal

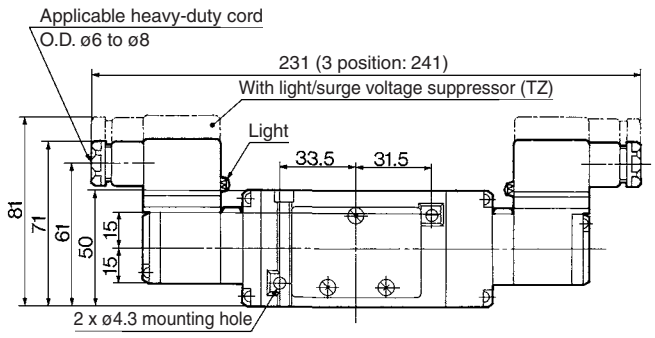
Grommet: VFS3220-□G, VFS3320-□G, VFS3420-□G, VFS3520-□G



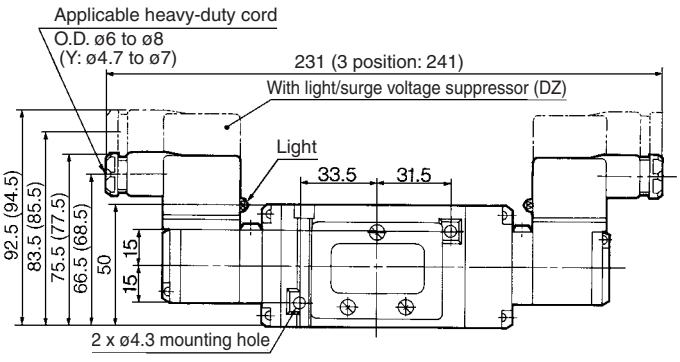
Grommet terminal: VFS3220-□E/EZ VFS3320-□E/EZ VFS3420-□E/EZ VFS3520-□E/EZ



Conduit terminal: VFS3220-□T/TZ VFS3320-□T/TZ VFS3420-□T/TZ VFS3520-□T/TZ



DIN terminal: VFS3220-□D/DZ/Y/YZ VFS3320-□D/DZ/Y/YZ VFS3420-□D/DZ/Y/YZ VFS3520-□D/DZ/Y/YZ

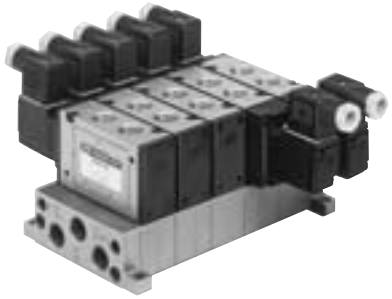


( ): Y, YZ

Series VFS3000
Manifold Specifications
Stacking Type

Keeps environmental air clean from pilot exhaust

Use of the VV5FS3-31 manifold can exhaust intensively the pilot exhaust gas to the base side, and can prevent environmental aggravation due to noise and oil mist.



VV5FS3-31

Part no. for mounting bolt and gasket
BG-VFS3030

Specifications

Manifold base type	Stacking type
Stations	Max. 15 stations

Port Specifications

Symbol	Passage		Porting specifications: Rc		
			Base	Valve	Base
	1(P)	3(R2), 5(R1)	1(P)	2(B), 4(A)	3(R2), 5(R1)
1	Common	Common	Side: 3/8	Top: 1/4, 3/8	Side: 3/8

Option

Blanking plate	VVFS3000-10A-1	With gasket, screw
SUP block plate	AXT636-10A	—
EXH block plate	AXT636-11A	—

Note) Individual SUP or EXH is possible with bottom porting of SUP or EXH. For your order, please indicate it in the manifold specification sheet.

How to Order Manifold Base

VV5FS3 - 31 - 05 1 - 03 □

Series VFS3000 Manifold

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

P, EA, EB port size

03	Rc 3/8

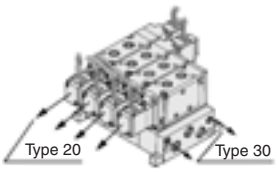
Symbol

	Passage		Porting specifications
	1(P)	3(R2), 5(R1)	2(B), 4(A)
1	Common Rc 3/8	Common Rc 3/8	Top Rc 1/4, Rc 3/8

Stations

02	2 stations
⋮	⋮
15	15 stations

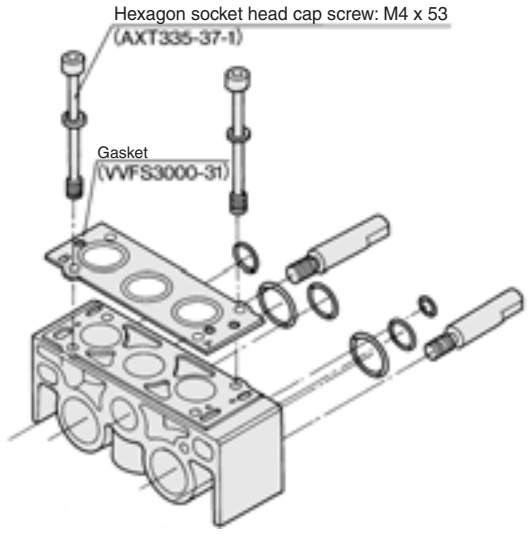
Base model

Model	Pilot exhaust	Applicable valve model
31	Pilot common EXH  Type 20 Type 30	VFS3□20-□□-02/03 VFS3□30-□□-02/03

Note) Also VFS3□20 is possible to manifold. In this case, it uses an individual pilot exhaust.

Exploded View of Manifold

Manifold block assembly VVFS3000-1A-30



- For increasing the manifold bases, please prepare the manifold block assembly no.

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

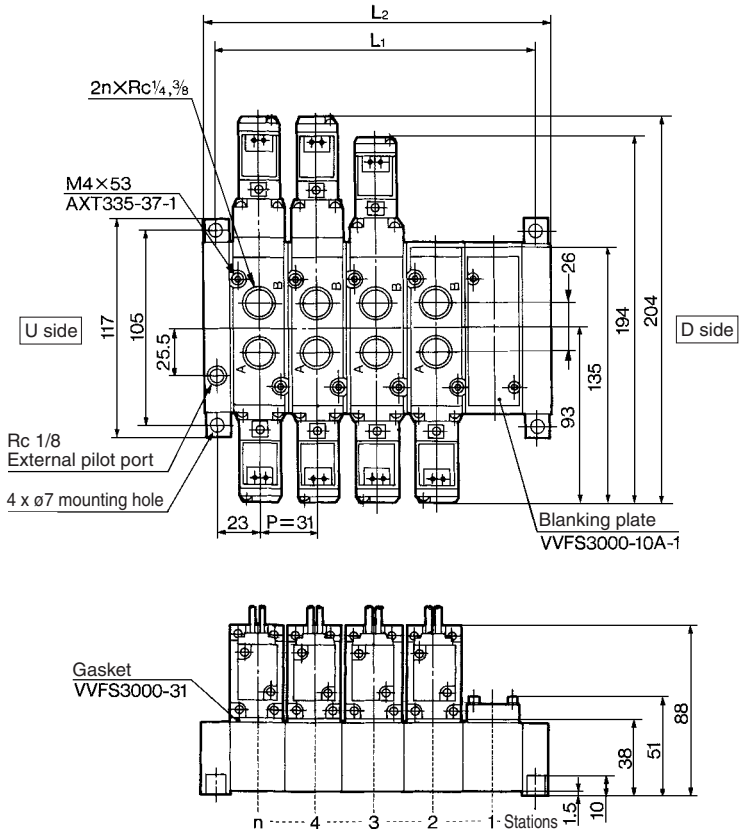
<Example>

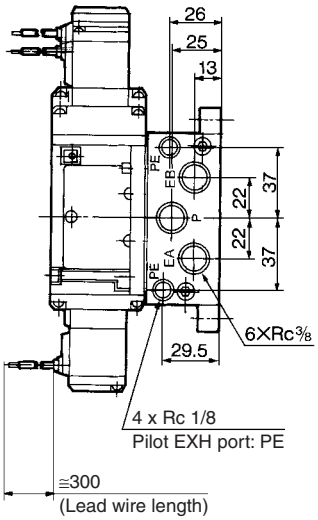
(Manifold base) **VV5FS3-31-061-03** ····· **1**
(2 position single) * **VFS3130-1D-02** ····· **3**
(2 position double) * **VFS3230-1D-02** ····· **2**
(Blanking plate) * **VVFS3000-10A-1** ····· **1**

The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

Type 31 Manifold — Pilot common exhaust: VV5FS3-31-Station 1-03

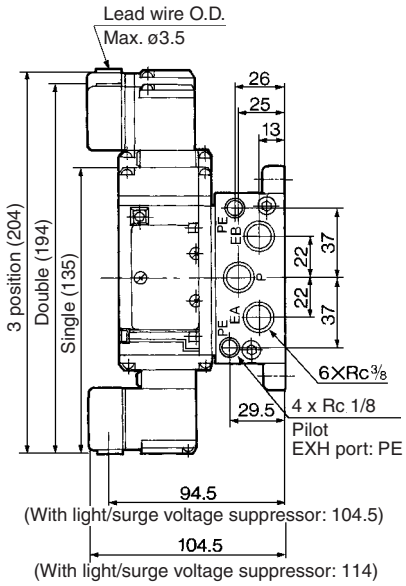
Grommet: G



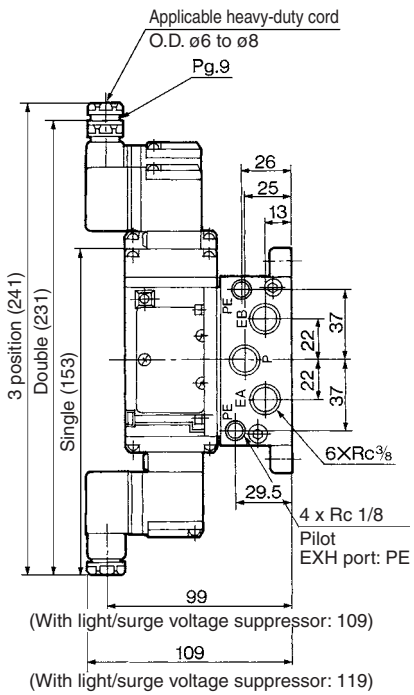


Formula for manifold weight M = 0.184n + 0.16 (kg) n: Station

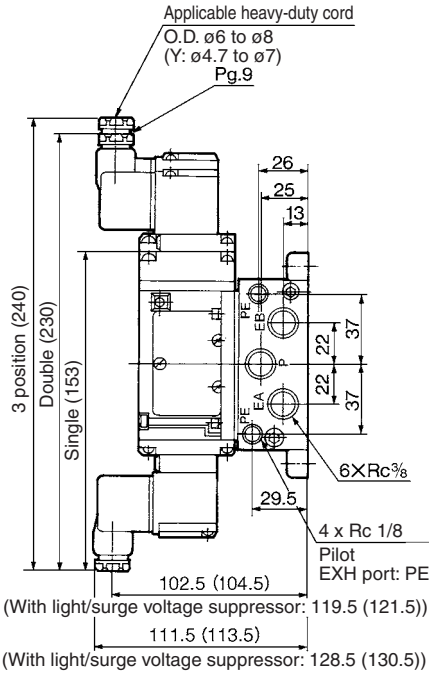
Grommet terminal: E/EZ



Conduit terminal: T/TZ



DIN terminal: D/DZ/Y/YZ



( ): Y, YZ

n: Station

L / Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	77	108	139	170	201	232	263	294	325	$L_1 = 31 \times n + 15$
L_2	92	123	154	185	216	247	278	309	340	$L_2 = 31 \times n + 30$

5 Port Pilot Operated Solenoid Valve
Metal Seal, Plug-in/Non Plug-in
Series VFS2000

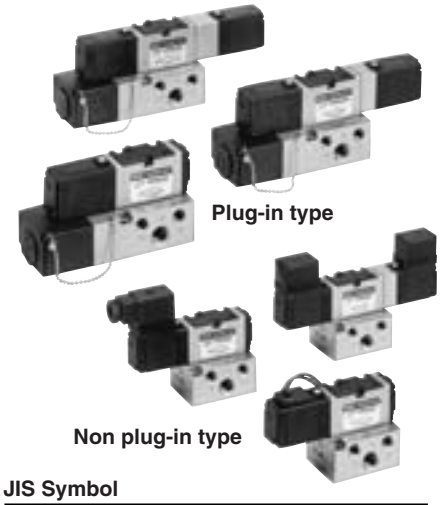
NRTL /C

Model

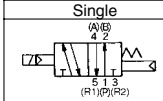
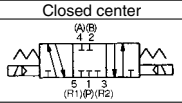
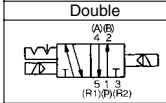
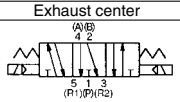
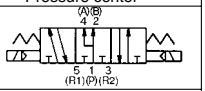
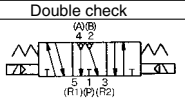
Type of actuation		Model: Plug-in	Model: Non plug-in	Port size Rc	Flow characteristics: 1→4/2(P→A/B) C [dm³/(s·bar)]	b	Cv	4/2→5/3(A/B→R1/R2) C [dm³/(s·bar)]	b	Cv	Max.(1) operating cycle (cpm)	Response(2) time (ms)	Mass(3) (kg)
2 position	Single	**VFS2100**	**VFS2110**	1/8	2.4	0.16	0.55	2.8	0.20	0.65	1200	15 or less	0.34
				1/4	2.5	0.18	0.58	2.8	0.21	0.65			
	Double	**VFS2200**	**VFS2210**	1/8	2.4	0.16	0.55	2.8	0.20	0.65	1200	13 or less	0.42
				1/4	2.5	0.18	0.58	2.8	0.21	0.65			
3 position	Closed center	**VFS2300**	**VFS2310**	1/8	2.3	0.14	0.53	2.6	0.20	0.61	600	20 or less	0.43
				1/4	2.5	0.18	0.58	2.6	0.23	0.62			
	Exhaust center	**VFS2400**	**VFS2410**	1/8	2.4	0.15	0.54	2.7	0.25	0.63	600	20 or less	0.43
				1/4	2.5	0.20	0.60	2.7	0.24	0.63			
	Pressure center	**VFS2500**	**VFS2510**	1/8	2.5	0.11	0.55	2.7	0.20	0.62	600	20 or less	0.43
				1/4	2.8	0.17	0.63	2.7	0.22	0.63			
	Double check	**VFS2600**	**VFS2610**	1/8	1.2	–	–	1.3	–	–	600	25 or less	0.6
				1/4	1.2	–	–	1.3	–	–			

Note 1) Based on JIS B 8375 (Once per 30 days) for the minimum operating frequency. Note 2) Based on JIS B 8375-1981 (The value at supply press. 0.5 MPa).
Note 3) Values for VFS2□00-□FZ-01. Note 4) Factors of "Note 1)" and "Note 2)" are ones achieved in controlled clean air.

Compact yet provides a large flow capacity
1/4: C: 2.8 dm³/(s·bar)
Low power consumption: 1.8 W DC
Easy maintenance
2 types of sub-plates:
Plug-in and non plug-in



JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Double check
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Min. operating pressure	**2 position**	0.1 MPa
		3 position	0.15 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C (1)
	Lubrication		Non-lube (2)
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² (3)
	Enclosure		Type G, E: Dustproof (Class 0), Type F, T, D: Splashproof (Class 4) (4)
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) (5)
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA/50 Hz, 5.0 VA /60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption DC		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Plug-in type: Conduit terminal; Non plug-in type: Grommet terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option Specifications

Pilot type	External pilot Note)
Manual override	Non-locking push type (Extended), Locking type (Tool required), Locking type (Lever)
Coil rated voltage	110 to 120, 220, 240 VAC, 50/60 Hz
	12, 100 VDC
Porting specifications	Bottom ported
Option	With light/surge voltage suppressor

Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure 2 position: 0.1 to 1.0 MPa 3 position: 0.15 to 1.0 MPa

Compact, lightweight type sub-plate

Compared with the standard type, this is the sub-plate having the reduced external dimensions and lighter weight. But, use caution that Cv factor or piping port position is different from the standards.
For details, refer to page 1161.

Sub-plate	L (mm)	Mass (kg)	Sonic conductance * C [dm³/(s·bar)]
Standard type	31.0	0.2	2.2
Compact type	25.5	0.13	2.8

* 2 position single Rc 1/4

How to Order



With attachment plug lead wire



With terminal block

Porting specifications

Nil	Side ported
B*	Bottom ported

* Option

Option

Nil	None
Z	With light/surge voltage suppressor

Body type

0: Plug-in type sub-plate



Electrical entry

F: Plug-in type



Port size

Nil		Without sub-plate
01	Rc 1/8	Plug-in type conduit terminal (With terminal block) Standard type
02	Rc 1/4	
Note) P01	Rc 1/8	Plug-in type grommet (With attachment plug lead wire) Compact type
Note) P02	Rc 1/4	

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Note) Please note Cv factor and piping port location of compact sub-plate is different from standard. Refer to page 1161 for details.

Plug-in VFS2 2 00 □ – 5 F □ □ – □ 01 □

Non plug-in VFS2 2 10 □ – 1 E □ □ – □ 02 □



Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Body type

1: Non plug-in type sub-plate



Pilot type

Nil	Internal pilot
R*	External pilot

* Option: External pilot is possible only to the one with sub-plate.

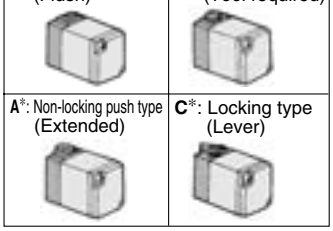
Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Pilot valve manual override

Nil: Non-locking push type (Flush)	B*: Locking type (Tool required)
A*: Non-locking push type (Extended)	C*: Locking type (Lever)



* Option

Option

Nil	None
Z	With light/surge voltage suppressor
S*	With surge voltage suppressor

* Grommet type is available only w/ surge voltage suppressor, not w/ indicator light.

Port size

Nil		Without sub-plate
01	Rc 1/8	Non plug-in type, Standard type
02	Rc 1/4	
Note) S01	Rc 1/8	Non plug-in type, Compact type
Note) S02	Rc 1/4	

Note) Please note Cv factor and piping port location of compact sub-plate are different from standard. Refer to page 1161 for details.

Electrical entry

G: Grommet	E: Grommet terminal	T: Conduit terminal	D, Y: DIN terminal
			

How to Order Pilot Valve Assembly

SF4 – 1 DZ □ – 20

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC (50/60 Hz)
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Electrical entry, Light/Surge voltage suppressor

F	Plug-in	Plug-in
G	Grommet	Non plug-in
GS	Grommet with surge voltage suppressor	
D	DIN terminal	
DZ	DIN terminal with light/surge voltage suppressor	
DO	DIN terminal*	
DOZ	DIN terminal with light/surge voltage suppressor*	
Y	DIN terminal	
YZ	DIN terminal with light/surge voltage suppressor	

YO	DIN terminal*	Non plug-in
YOZ	DIN terminal with light/surge voltage suppressor*	
T	Conduit terminal	
TZ	Conduit terminal with light/surge voltage suppressor	
E	Grommet terminal	
EZ	Grommet terminal with light/surge voltage suppressor	

* DIN connector is not attached.
** Refer to page 1223 for voltage conversion.
*** D: Conforming to DIN43650 standard;
Y: Conforming to DIN43650B standard

Manual override

Nil	Non-locking push type (Flush)
A*	Non-locking push type (Extended)
B*	Locking type (Tool required)
C*	Locking type (Lever)

* Option

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

System	Average speed (mm/s)	Bore size											
		Series CM Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB, CA2 Pressure 0.5 MPa Load factor 50% Stroke 500 mm					Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Cylinder stroke 1000 mm		
		ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
A	800 700 600 500 400 300 200 100 0												
B	800 700 600 500 400 300 200 100 0												

Perpendicular, upward actuation
Horizontal actuation

System Components

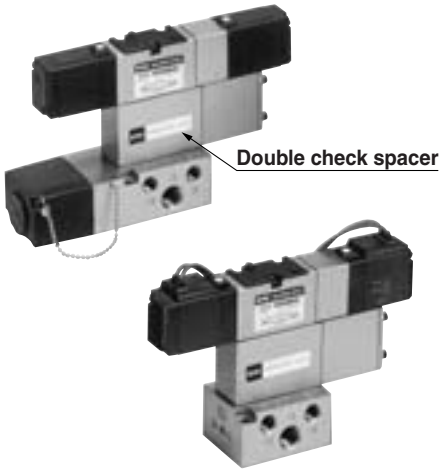
System	Solenoid valve	Speed controller	Silencer	Tube bore x Length
A	Series VFS2000 Rc 1/8	AS3000-02 (S = 12 mm²)	AN110-01 (S = 35 mm²)	T0604 x 1 m
B	Series VFS2000 Rc 1/4	AS4000-02 (S = 21 mm²)	AN110-01 (S = 35 mm²)	T1075 x 1 m

∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is the value that the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Double Check Spacer/Specifications

Can hold an intermediate cylinder position for an extended time

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.



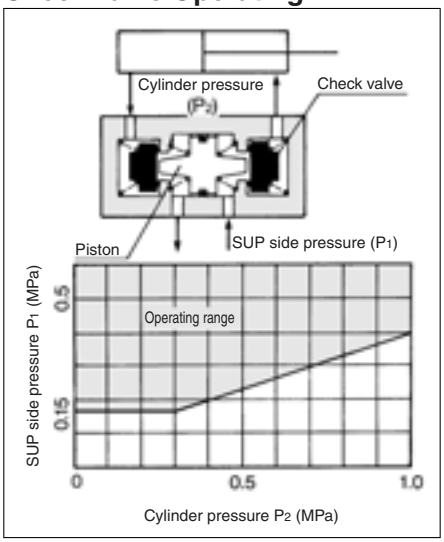
Specifications

Double check spacer part no.	Plug-in type	Non plug-in type
	VVFS2000-22A-1	**VVFS2000-22A-2**
Applicable valve model	VFS2400-□F	VFS2410-□ G E T D

⚠ Caution

- In the case of 3 position double check valve (VFS26□0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

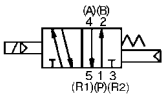
Check Valve Operating

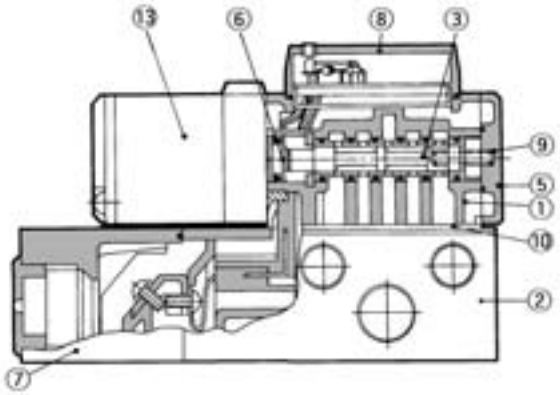


- The combination of VFS21$^{0}_{1}$0, VFS22$^{0}_{1}$0 and a double check spacer can be used as prevention of falling at the stroke end but cannot hold the intermediate position of the cylinder.

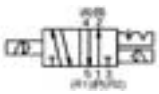
Construction

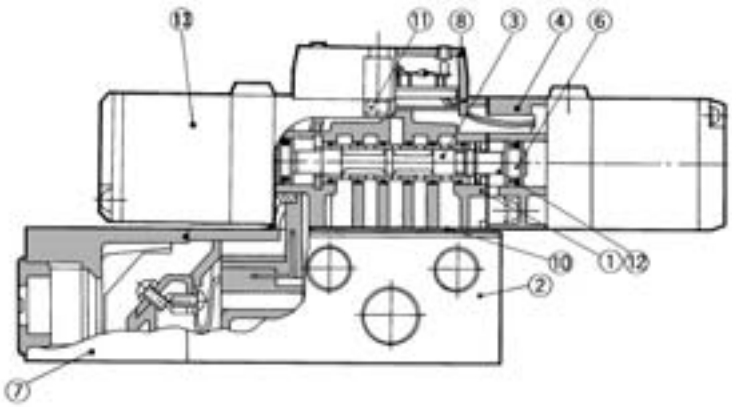
2 position single





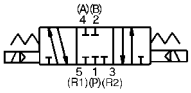
2 position double



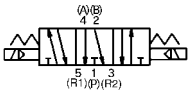


3 position closed center/exhaust center/pressure center

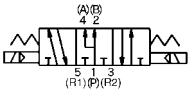
Closed center

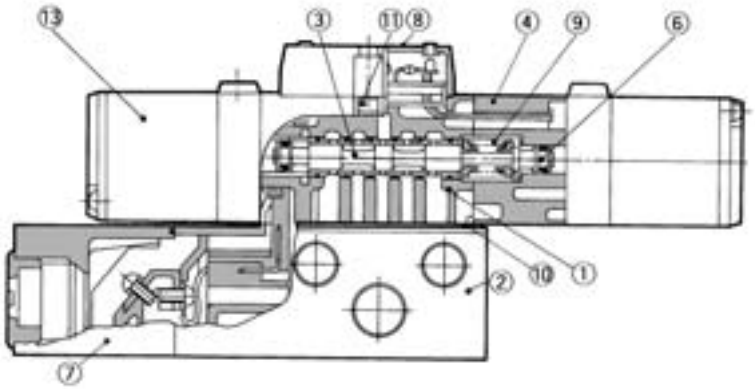


Exhaust center



Pressure





Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Sub-plate**	Aluminum die-casted	Platinum silver
3	**Spool/Sleeve**	Stainless steel	—
4	**Adapter plate**	Resin	Black
5	**End plate**	Resin	Black
6	**Piston**	Resin	—
7	**Junction cover**	Resin	—
8	**Cover**	Resin	—
9	**Return spring**	Stainless steel	—
10	**Gasket**	NBR	—
11	**Hexagon socket head screw**	Steel	—
12	**Detent assembly**	—	—
13	**Pilot valve assembly**	—	—

∗ Refer to “How to Order Pilot Valve Assembly” on page 1139.

Sub-plate Assembly (Standard) Part No.

Plug-in	VFS2000-LP-$^{01}_{02}$
Non plug-in	VFS2000-LS-$^{01}_{02}$

∗ Mounting bolt and gasket are not included.

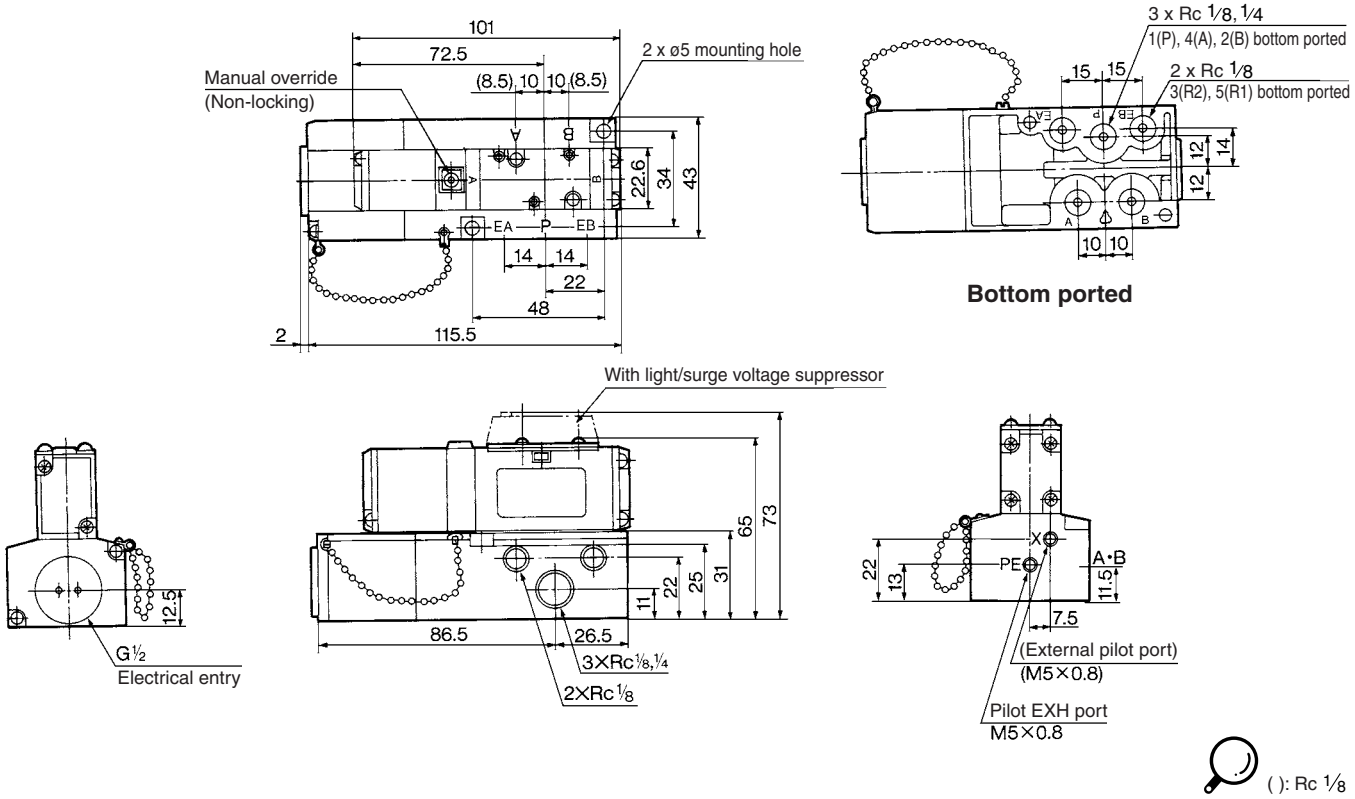
Sub-plate Assembly (For External Pilot) Part No.

Plug-in	VFS2000-LP-R$^{01}_{02}$
Non plug-in	VFS2000-LS-R$^{01}_{02}$

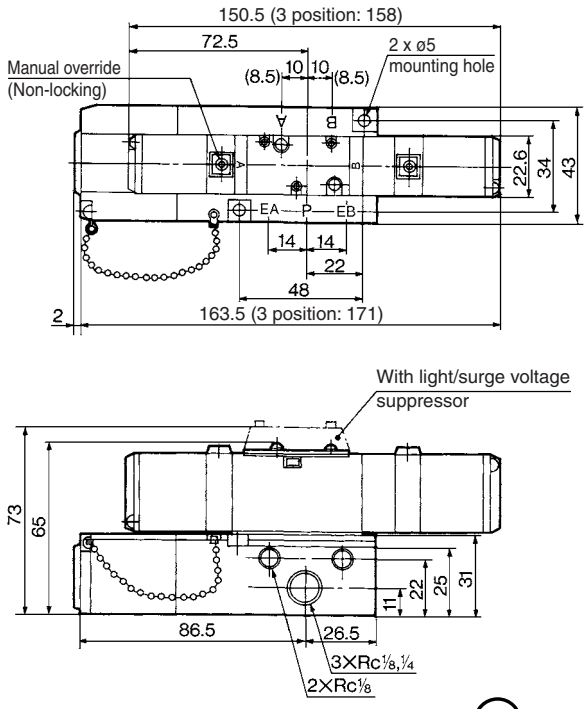
Part no. for mounting bolt and gasket
BG-VFS2000

Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

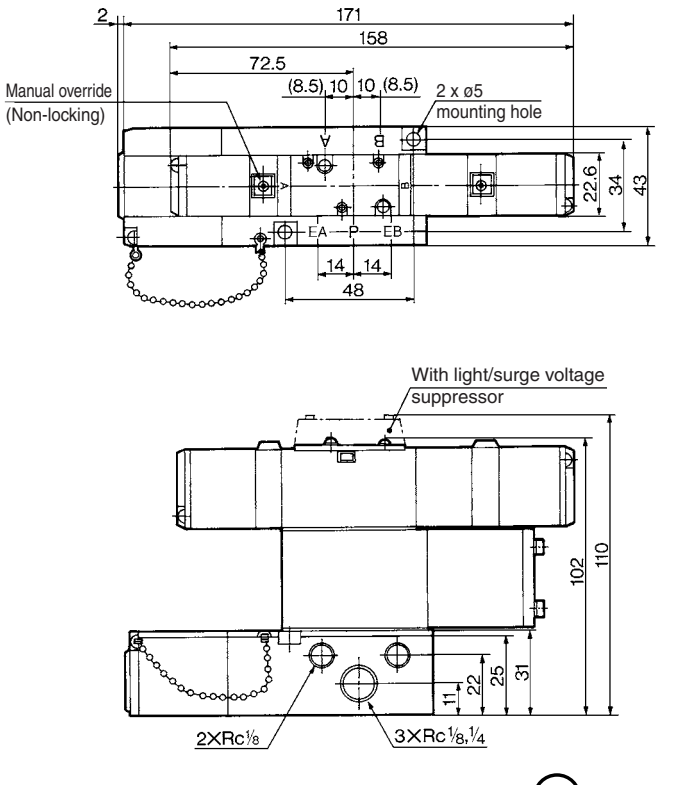
2 position single: VFS2100-□F-$^{01}_{02}$



2 position double: VFS2200-□F-$^{01}_{02}$
3 position closed center: VFS2300-□F-$^{01}_{02}$
3 position exhaust center: VFS2400-□F-$^{01}_{02}$
3 position pressure center: VFS2500-□F-$^{01}_{02}$

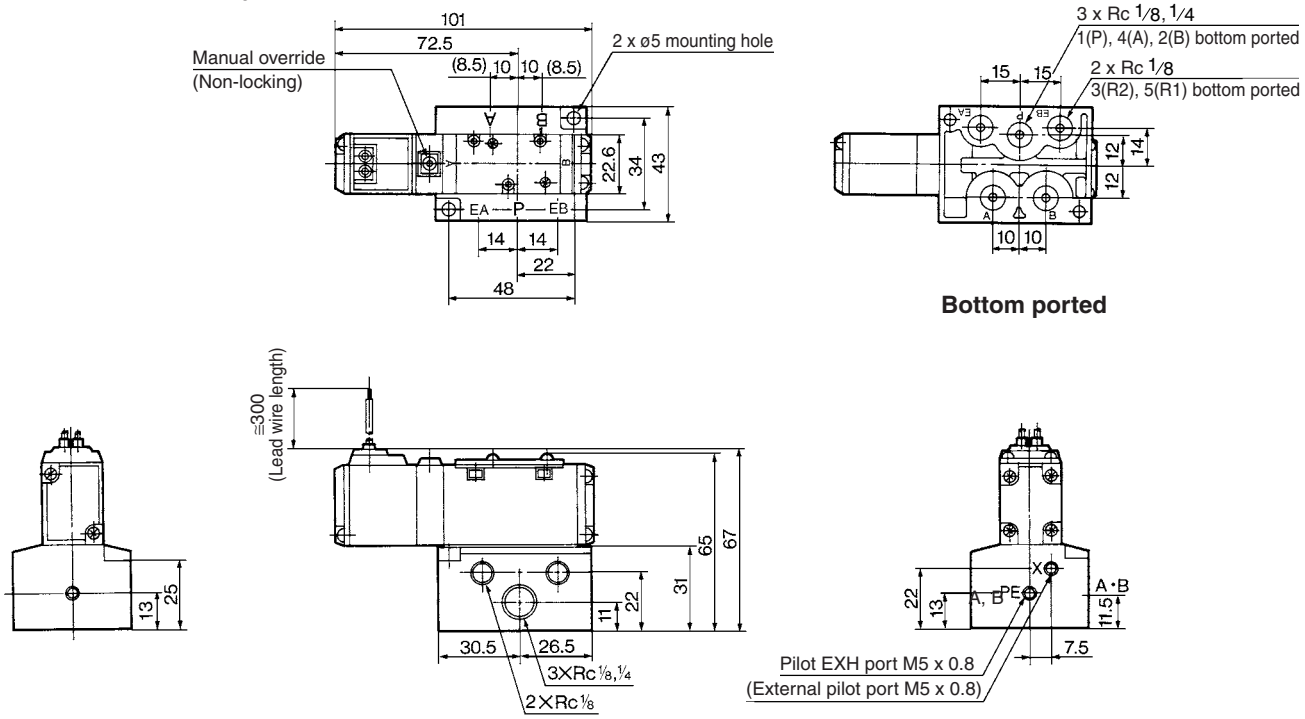


3 position double check: VFS2600-□F-$^{01}_{02}$



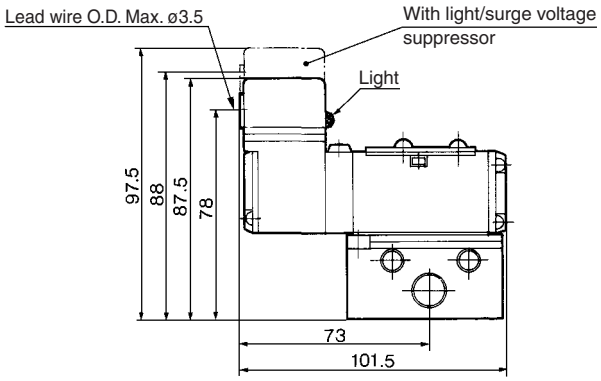
Non Plug-in — 2 Position single

Grommet: VFS2110-□G-$^{01}_{02}$

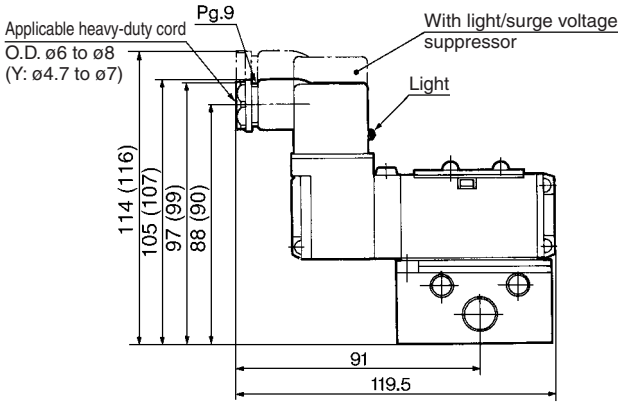


( ): Rc 1/8

Grommet terminal: VFS2110-□E-$^{01}_{02}$

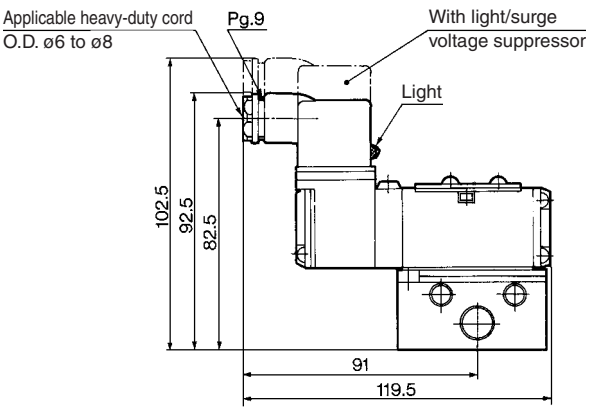


DIN terminal: VFS2110-□$^{D}_{Y}$-$^{01}_{02}$



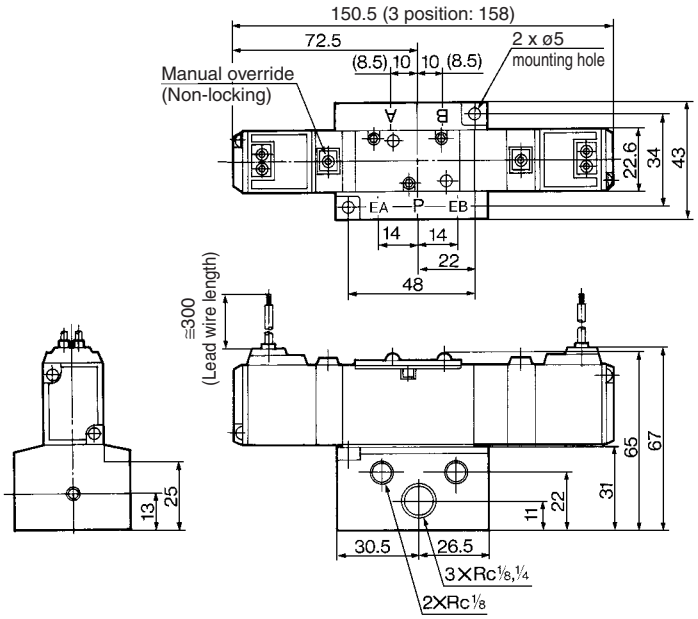
( ): Y, YZ

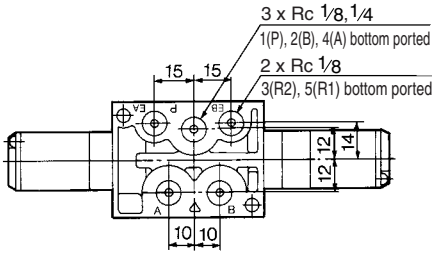
Conduit terminal: VFS2110-□T-$^{01}_{02}$



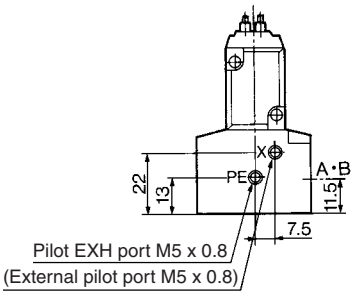
Non Plug-in — 2 Position double/3 Position closed center/Exhaust center/Pressure center

Grommet: Double VFS2210-□G-$^{01}_{02}$
Closed center VFS2310-□G-$^{01}_{02}$, Exhaust center VFS2410-□G-$^{01}_{02}$, Pressure center VFS2510-□G-$^{01}_{02}$



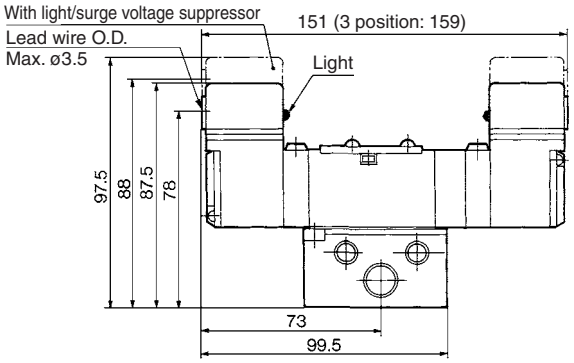


Bottom ported

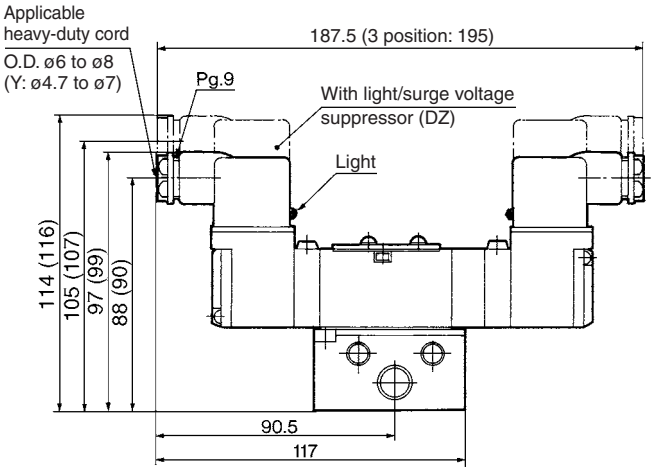


( ): Rc 1/8

Grommet terminal: Double VFS2210-□E-$^{01}_{02}$
Closed center VFS2310-□E-$^{01}_{02}$
Exhaust center VFS2410-□E-$^{01}_{02}$
Pressure center VFS2510-□E-$^{01}_{02}$

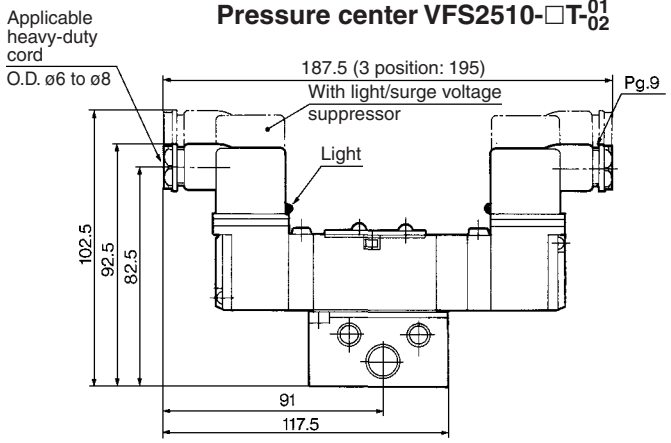


DIN terminal: Double VFS2210-□D-$^{01}_{Y-02}$
Closed center VFS2310-□D-$^{01}_{Y-02}$
Exhaust center VFS2410-□D-$^{01}_{Y-02}$
Pressure center VFS2510-□D-$^{01}_{Y-02}$



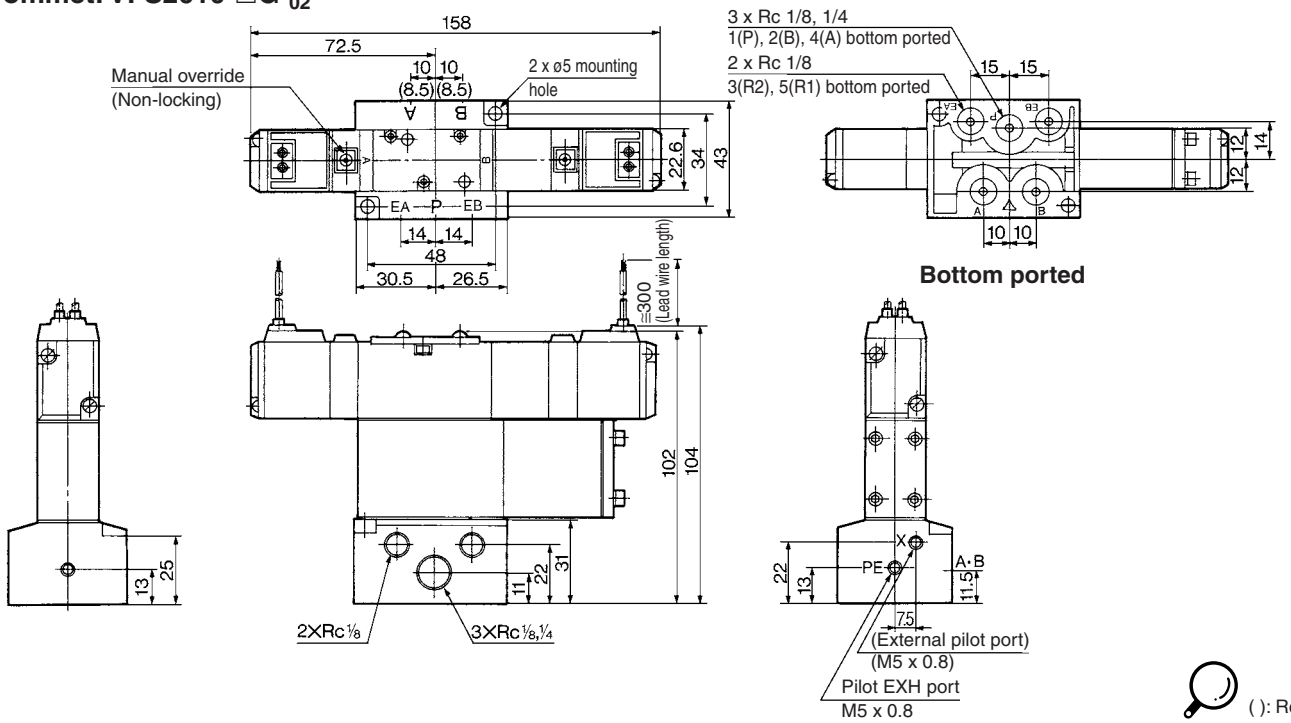
( ): Y, YZ

Conduit terminal: Double VFS2210-□T-$^{01}_{02}$
Closed center VFS2310-□T-$^{01}_{02}$
Exhaust center VFS2410-□T-$^{01}_{02}$
Pressure center VFS2510-□T-$^{01}_{02}$



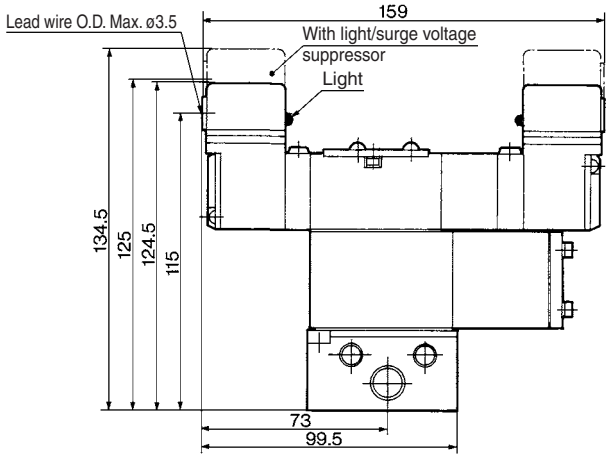
Non Plug-in — 3 Position double check

Grommet: VFS2610-□G-$^{01}_{02}$

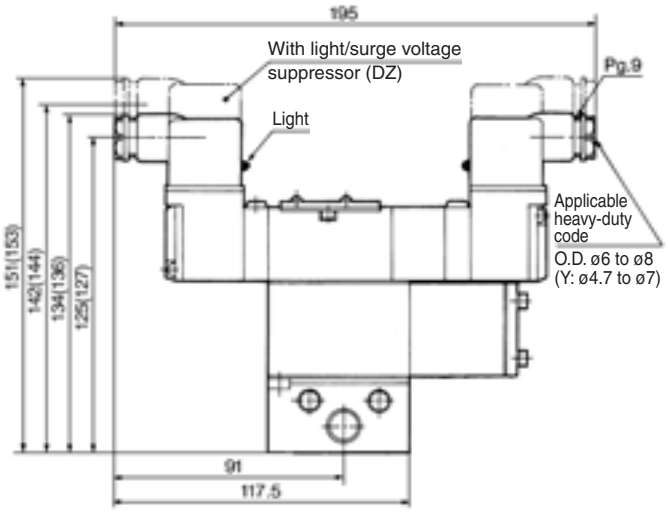


( ): Rc 1/8

Grommet terminal: VFS2610-□E-$^{01}_{02}$

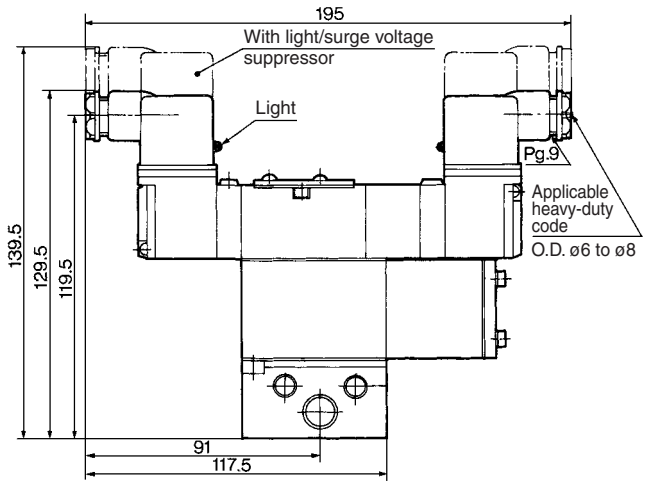


DIN terminal: VFS2610-□D-Y-$^{01}_{02}$



( ): Y, YZ

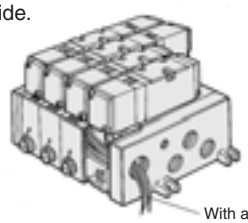
Conduit terminal: VFS2610-□T-$^{01}_{02}$



Series VFS2000
Manifold Specifications

Plug-in Type: With Attachment Plug Lead Wire

The insert plug is attached to the manifold block and lead wire is plugged into the valve side. Please connect with corresponding power side.



VV5FS2 - 01 - 06 1 - 01

- **VV5FS2**: Series VFS2000 Manifold
- **01**: Plug-in type, With attachment plug lead wire
- **Stations**

02	2 stations
⋮	⋮
16	16 stations

- **Symbol**

Symbol	Passage P	Passage EA,EB	Porting specifications A, B
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

∗ Option

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

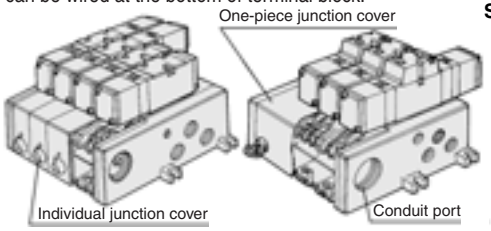
- **Port size**

Symbol	P, EA, EB	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported, Rc 1/8 is only available.

Plug-in Type: With Terminal Block

Since lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.



VV5FS2 - 01T 1 - 08 1 - 02

- **VV5FS2**: Series VFS2000 Manifold
- **01T**: Plug-in type, With terminal block
- **Junction cover**

Nil	Separate junction cover
1	One-piece junction cover

- **Stations**

02	2 stations
⋮	⋮
16	16 stations

- **Symbol**

Symbol	Passage P	Passage EA,EB	Porting specifications A, B
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

∗ Option

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

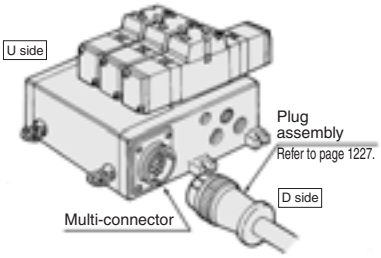
- **Port size**

Symbol	P, EA, EB	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported, Rc 1/8 is only available.

Plug-in Type: With Multi-connector (Wiring specifications: Refer to page 1227.)

- Master connection of power and solenoid valves.
- Quick wiring permits ease of installation.



VV5FS2 - 01C D 1 - 05 2 - 01

- **VV5FS2**: Series VFS2000 Manifold
- **01C**: Plug-in type, With multi-connector
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Junction cover**

1	One-piece junction cover

- **Stations**

02	2 stations
⋮	⋮
08	8 stations

∗ Max. 8 stations

- **Symbol**

Symbol	Passage P	Passage EA,EB	Porting specifications A, B
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

∗ Option

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

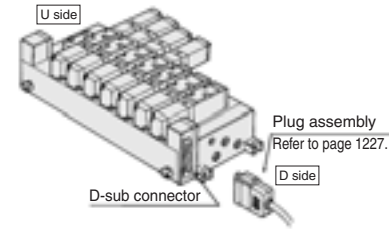
- **Port size**

Symbol	P, EA, EB	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported, Rc 1/8 is only available.

Plug-in Type: With D-sub Connector (Wiring specifications: Refer to page 1227.)

- Wide range of interchangeability (D-sub connector (25P) conforming to MIL standard)
- Quick wiring permits easier installation.



VV5FS2 - 01F U 1 - 06 1 - 01

- **VV5FS2**: Series VFS2000 Manifold
- **01F**: Plug-in type, With D-sub connector
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Junction cover**

1	One-piece junction cover

- **Stations**

02	2 stations
⋮	⋮
08	8 stations

∗ Max. 8 stations

- **Symbol**

Symbol	Passage P	Passage EA,EB	Porting specifications A, B
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

∗ Option

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

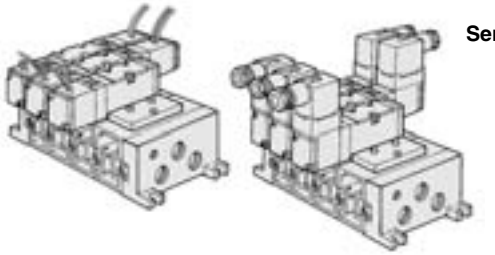
- **Port size**

Symbol	P, EA, EB	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported, Rc 1/8 is only available.

Non Plug-in Type: Grommet, Grommet Terminal, Conduit Terminal, DIN Terminal

- Wiring for every valve



VV5FS2 - 10 - 05 2 - 01

- **VV5FS2**: Series VFS2000 Manifold
- **10**: Non plug-in type
- **Stations**

02	2 stations
⋮	⋮
16	16 stations

- **Symbol**

Symbol	Passage P	Passage EA,EB	Porting specifications A, B
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

∗ Option

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

- **Port size**

Symbol	P, EA, EB	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported, Rc 1/8 is only available.

Note) The individual specification of the P port at the composition symbol 3 to 8 or the EA, EB, ports should be taken as individual port using a block plate. Therefore, if an individual port is using a single SUP spacer of option or a single EXH spacer, the composition symbol mark is "1".

How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

<Example>

- Plug-in type with terminal block
  (6 stations, one-piece style junction cover)
  (Manifold base) VV5FS2-01T1-061-02···· 1
  (2 position single) VFS2100-5FZ ·····3
  (2 position double) VFS2200-5FZ·····2
  (Blanking plate) VVFS2000-10A····· 1
- Non plug-in type (6 stations)
  (Manifold base) VV5FS2-10-061-01····· 1
  (2 position single) VFS2110-5D····· 3
  (3 position exhaust center) VFS2410-5D····· 1
  (Individual EXH spacer) VVFS2000-R-01-2··· 1

Manifold Specifications

Base model	Wiring	Porting specifications	Port size Rc		Stations	Applicable valve model
		A, B port	P, EA, EB	A, B		
Plug-in type **VV5FS2-01□**	• With attachment plug lead wire • With terminal block • With multi-connector • With D-sub connector	Side/Bottom	1/4	1/8, 1/4	2 to 15* stations	VFS2□00-□F
Non plug-in type **VV5FS2-10**	• Grommet • Grommet terminal • Conduit terminal • DIN terminal					VFS2□10-□G VFS2□10-□E VFS2□10-□T VFS2□10-□D

∗ With multi-connector, with D-sub connector: 8 stations at the maximum.

Flow Characteristics at the Number of Manifold Stations (Operated individually)

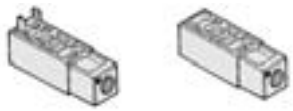
Model	Passage/Stations		Station 1	Station 5	Station 10
VVFS2	1→4/2 (P→A/B)	C [dm³/(s·bar)]	2.4	2.4	2.4
		b	0.14	0.14	0.14
		Cv	0.50	0.50	0.50
	4/2→5/3 (A/B→R1/R2)	C [dm³/(s·bar)]	2.5	2.5	2.5
		b	0.18	0.18	0.18
		Cv	0.60	0.60	0.60

∗ Port size Rc 1/4

Manifold Option Parts Assembly

Individual SUP spacer
An individual SUP spacer set on manifold block can form SUP port for every valve.

Body type		Plug-in type	Non plug-in type
Part no.	Rc 1/8	VVFS2000-P-01-1	VVFS2000-P-01-2
	Rc 1/4	VVFS2000-P-02-1	VVFS2000-P-02-2



Individual EXH spacer
An individual EXH spacer set on manifold block can form EXH port for every valve. (Common EXH type)

Body type		Plug-in type	Non plug-in type
Part no.	Rc 1/8	VVFS2000-R-01-1	VVFS2000-R-01-2
	Rc 1/4	VVFS2000-R-02-1	VVFS2000-R-02-2



SUP block plate
When supplying manifold with more than two different pressures, high and low, insert a block plate in between stations subjected to different pressures.

Body type	Plug-in type	Non plug-in type
Part no.	AXT625-12A	

EXH block plate
When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used to standard manifold valve, insert EXH block plate in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	AXT625-12A	



Throttle valve spacer
Needle valve set on the manifold block can control cylinder speed by throttling exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-20A-1	VVFS2000-20A-2



Interface regulator (P port regulation)
Interface regulator set on manifold block can regulate the pressure to each valve. Refer to "Flow Characteristics" on page 1225.

Body type	Plug-in type	Non plug-in type
P port regulation	ARBF2000-00-P-1	ARBF2000-00-P-2



Air shutoff valve spacer
When stopping supply air and releasing residual pressure after completion of work, actuators may move from original position. Air shut off valve spacer makes it possible to stop actuators in original position for extended periods.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-21A-1	VVFS2000-21A-2

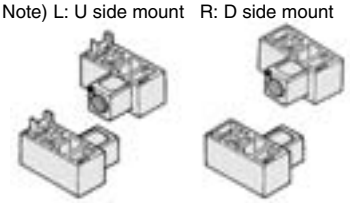


∗ Not mountable for standard type sub-plate.

Air release valve spacer
The concurrent use of air release valve spacer with VFS21□0 (single) can release air.

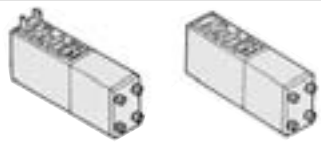
Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-24A-1 L/R	VVFS2000-24A-2 L/R

Note) L: U side mount R: D side mount



Double check spacer
If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-22A-1	VVFS2000-22A-2



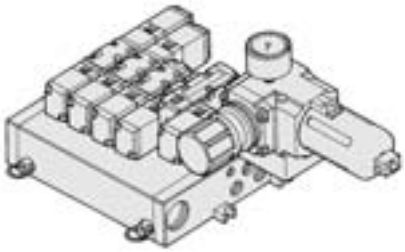
Blanking plate
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-10A	

Accessory
One pair of gasket and mounting thread is attached to every option parts assembly.

Manifold Option

With control unit
Plug-in type/Non plug-in type
- **Filter, regulation valve, pressure switch and air release valve are all combined to form one unit.**
- **Piping processes are eliminated.**



For details, refer to page 1153.

Dripproof Manifold
Plug-in type
- **Equivalent to IP65**

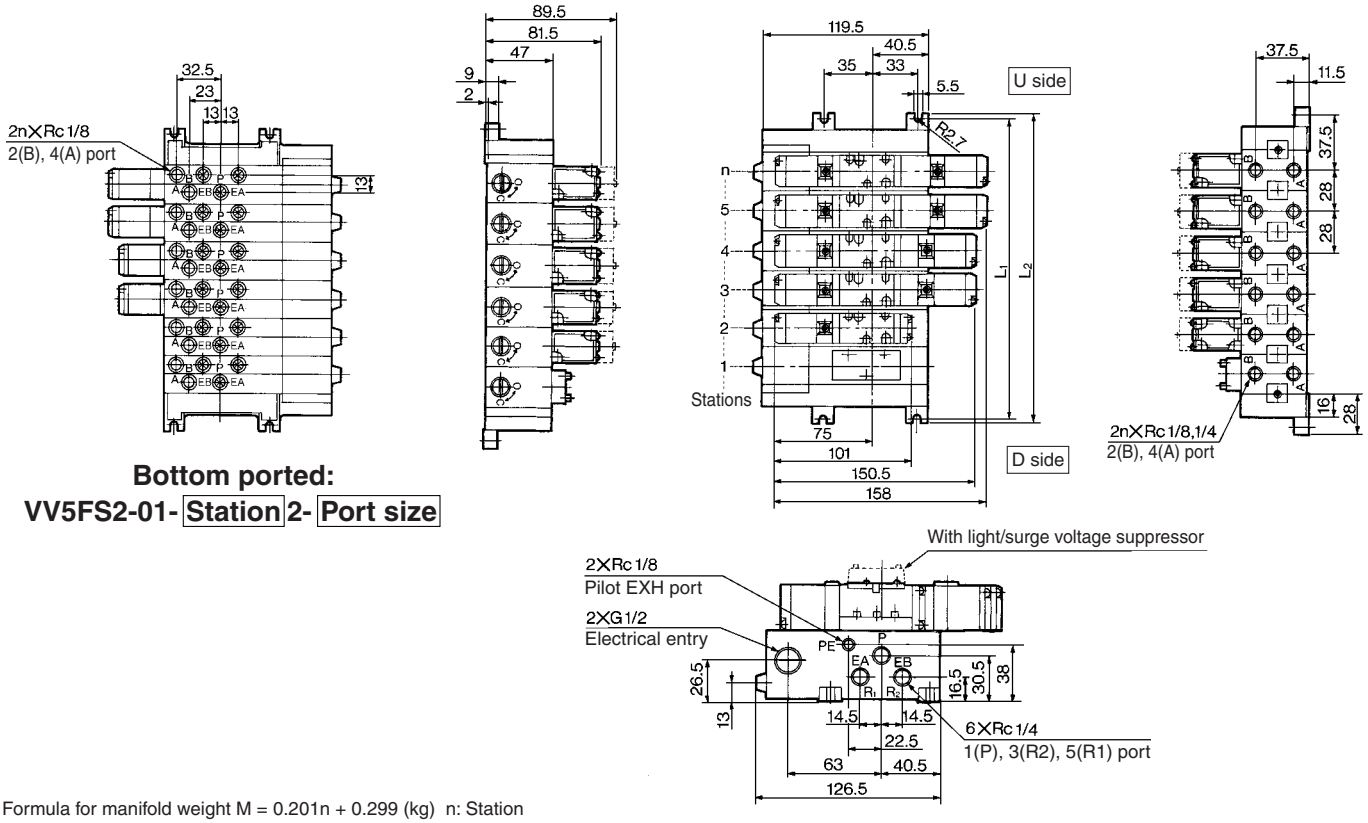
For details, refer to page 1155.

Made to Order
Manifold with serial transmission kit
Plug-in type
- **Solenoid valve wiring process reduced considerably.**

For details, refer to page 1158.

Manifold — Plug-in type, Non plug-in type

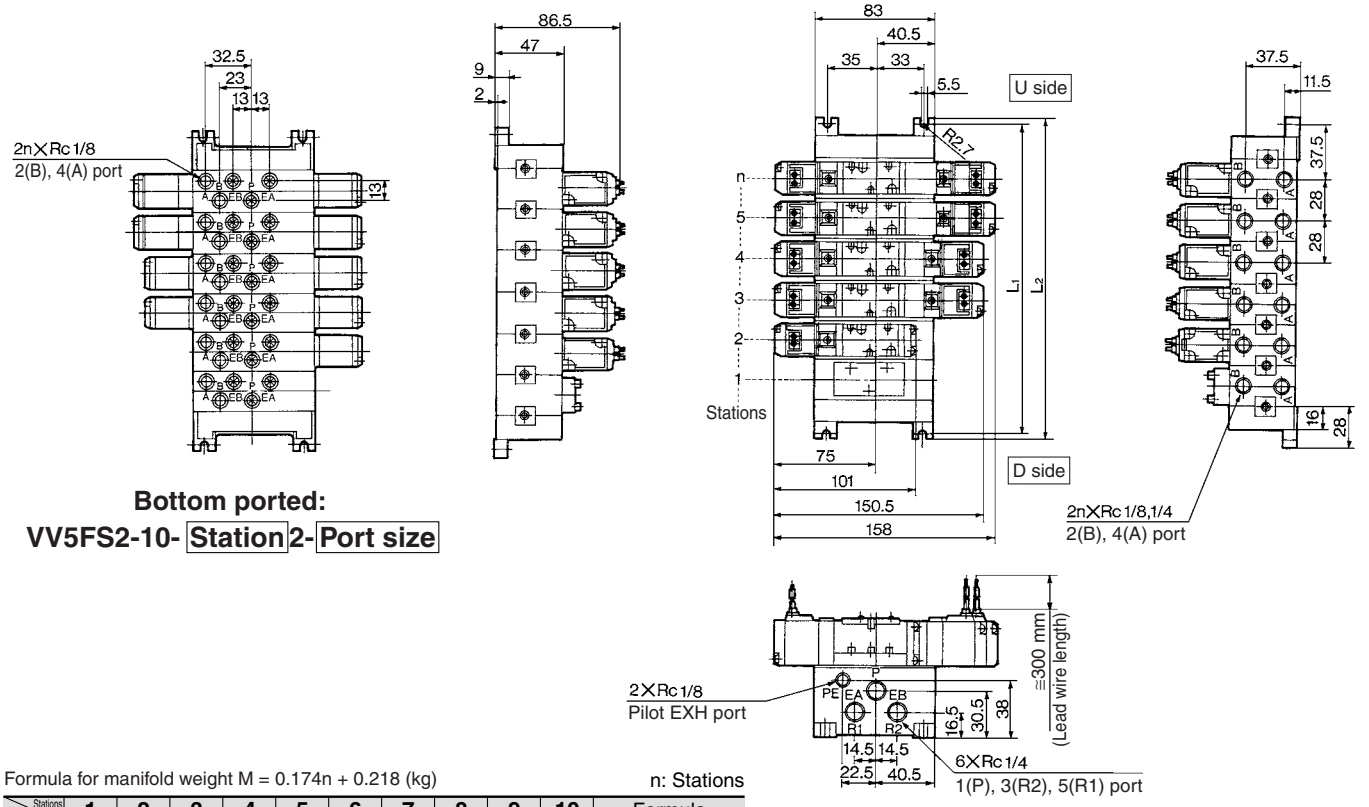
Plug-in type (Insert plug with lead wire): VV5FS2-01-Station 1-Port size



Bottom ported:
VV5FS2-01-Station 2-Port size

Formula for manifold weight M = 0.201n + 0.299 (kg) n: Station

Non plug-in type: VV5FS2-10-Station 1-Port size



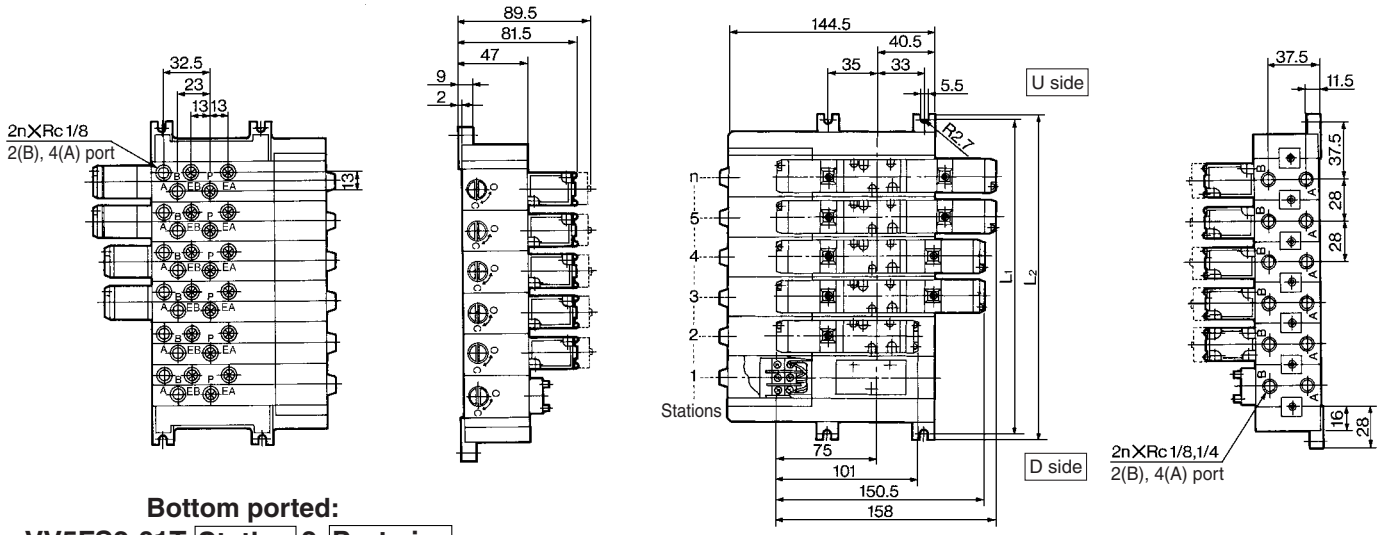
Bottom ported:
VV5FS2-10-Station 2-Port size

Formula for manifold weight M = 0.174n + 0.218 (kg) n: Stations

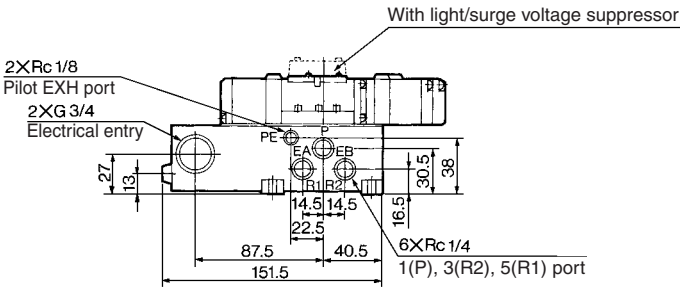
L / Stations	1	2	3	4	5	6	7	8	9	10	Formula
L_1	75	103	131	159	187	215	243	271	299	327	$L_1 = 28 \times n + 47$
L_2	84	112	140	168	196	224	252	280	308	336	$L_2 = 28 \times n + 56$

Manifold — Plug-in type: Individual/One-piece junction cover

Plug-in type with terminal block (Individual junction covers): VV5FS2-01T- Station 1- Port size

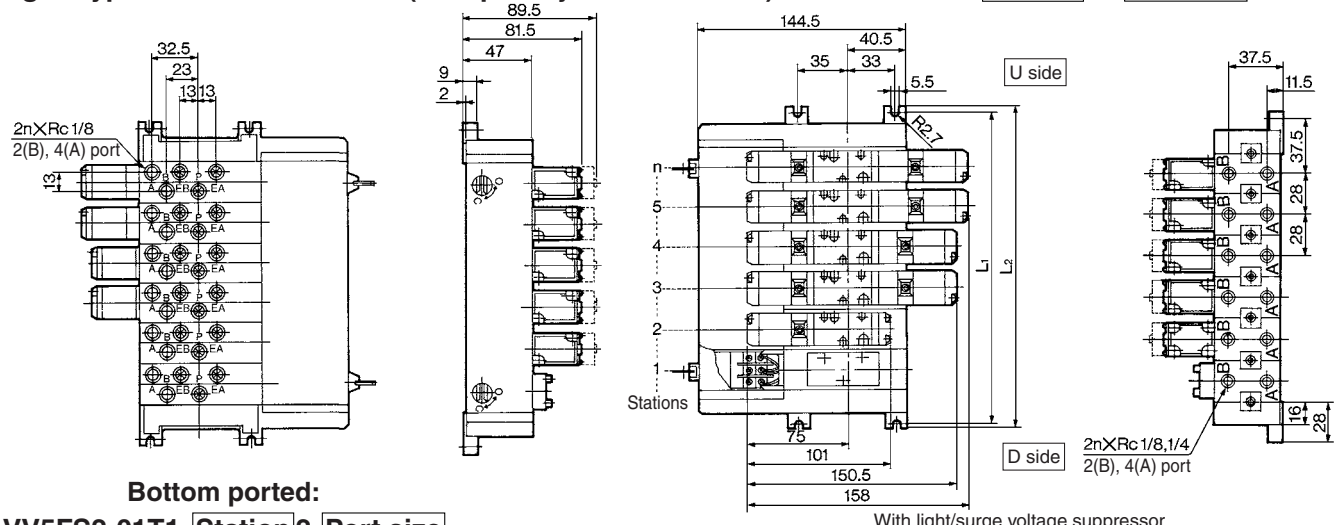


Bottom ported:
VV5FS2-01T-Station 2-Port size

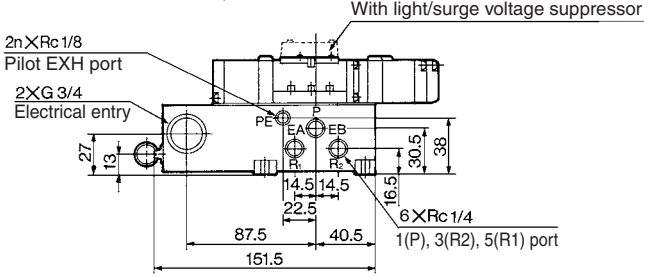


Formula for manifold weight M = 0.215n + 0.35 (kg) n: Station

Plug-in type with terminal block (One-piece junction covers): VV5FS2-01T1- Station 1- Port size



Bottom ported:
VV5FS2-01T1-Station 2-Port size

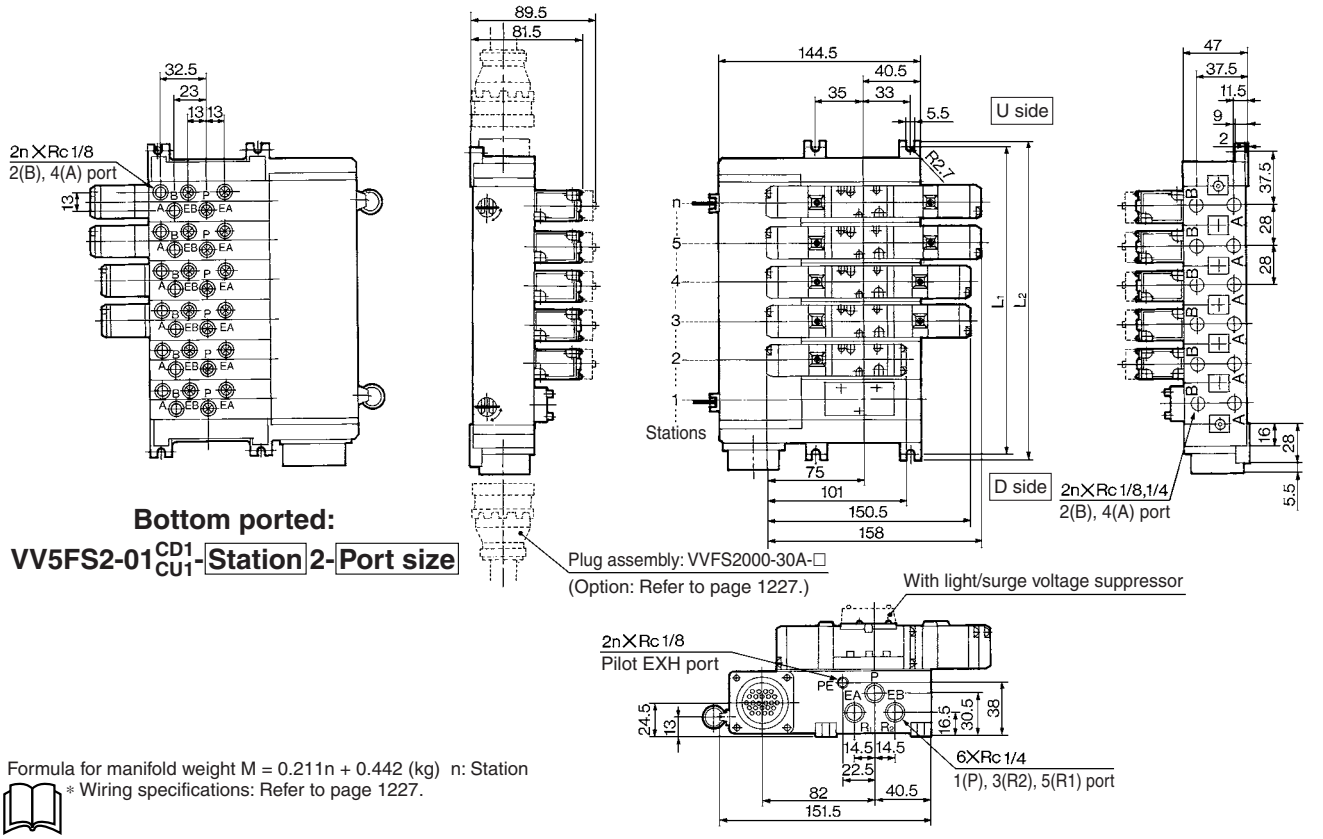


Formula for manifold weight M = 0.236n + 0.354 (kg) n: Station

L \ Stations	1	2	3	4	5	6	7	8	9	10	Formula
L_1	75	103	131	159	187	215	243	271	299	327	$L_1 = 28 \times n + 47$
L_2	84	112	140	168	196	224	252	280	308	336	$L_2 = 28 \times n + 56$

Manifold — Plug-in with multi-connector/with D-sub connector

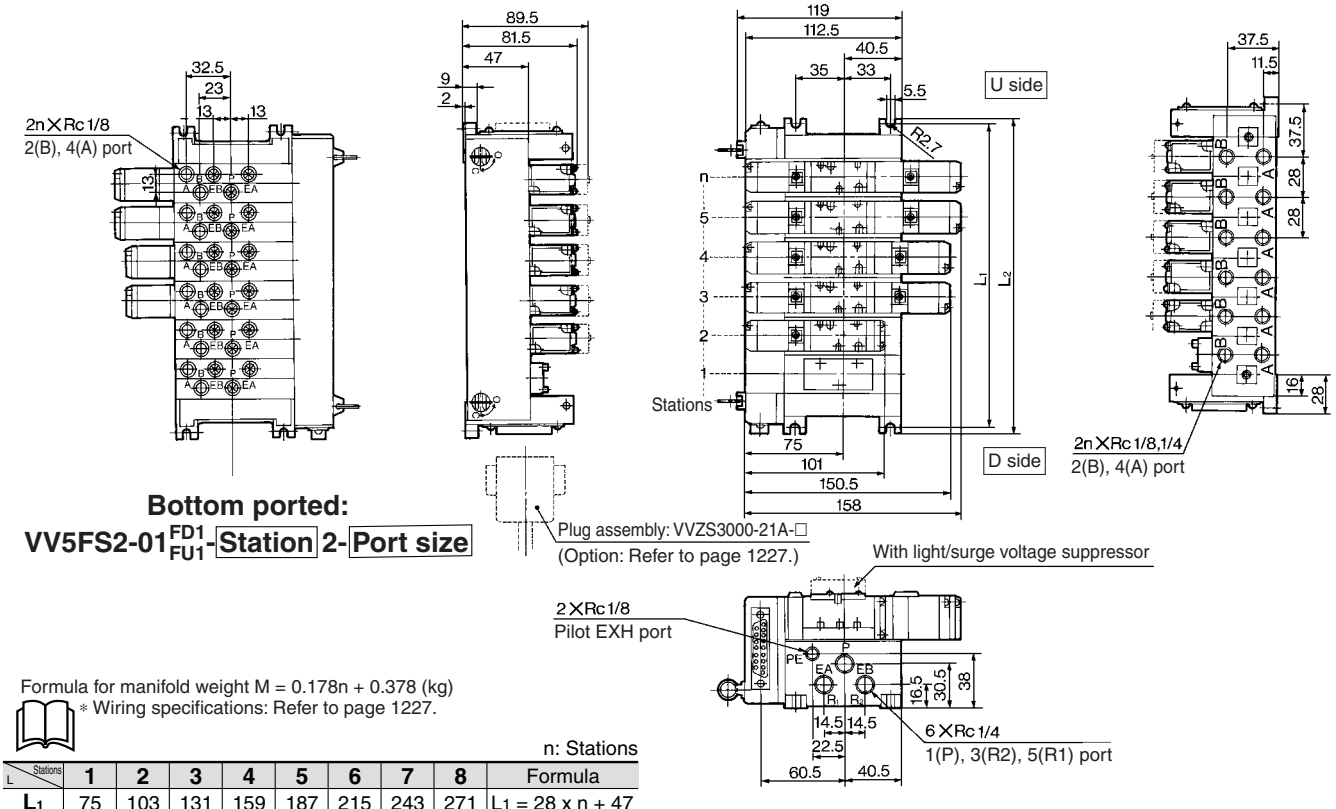
Plug-in with multi-connector: VV5FS2-01CD1-Station 1-Port size, VV5FS2-01CU1-Station 1-Port size



Bottom ported:
VV5FS2-01$^{CD1}_{CU1}$-Station 2-Port size

Formula for manifold weight M = 0.211n + 0.442 (kg) n: Station
∗ Wiring specifications: Refer to page 1227.

Plug-in type with D-sub connector: VV5FS2-01FD1-Station 1-Port size, VV5FS2-01FU1-Station 1-Port size



Bottom ported:
VV5FS2-01$^{FD1}_{FU1}$-Station 2-Port size

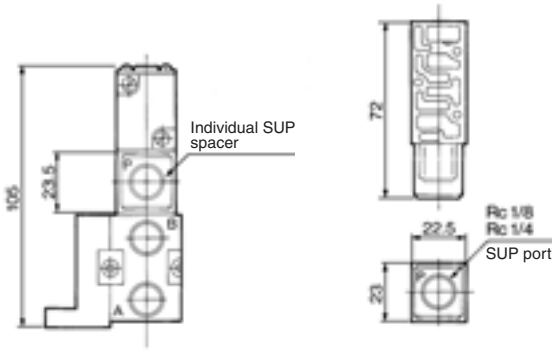
Formula for manifold weight M = 0.178n + 0.378 (kg)
∗ Wiring specifications: Refer to page 1227.

n: Stations

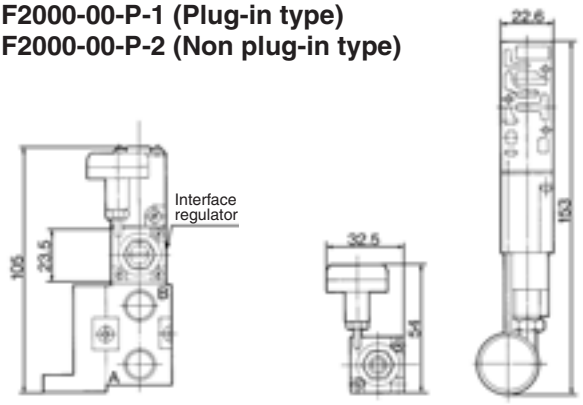
L \ Stations	1	2	3	4	5	6	7	8	Formula
L_1	75	103	131	159	187	215	243	271	$L_1 = 28 \times n + 47$
L_2	84	112	140	168	196	224	252	280	$L_2 = 28 \times n + 56$

Manifold Option Parts — Plug-in type, Non plug-in type

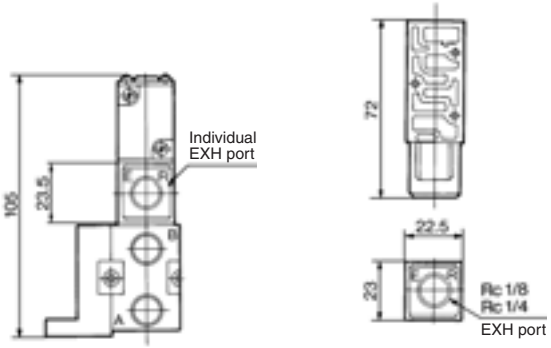
Individual SUP spacer:
VVFS2000-P-$^{01}_{02}$-1 (Plug-in type)
VVFS2000-P-$^{01}_{02}$-2 (Non plug-in type)



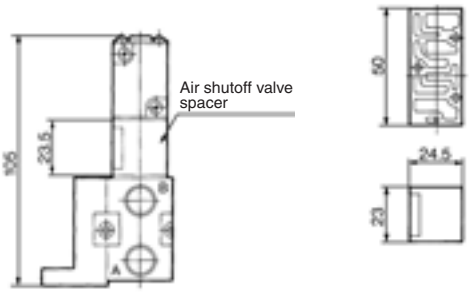
Interface regulator:
ARBF2000-00-P-1 (Plug-in type)
ARBF2000-00-P-2 (Non plug-in type)



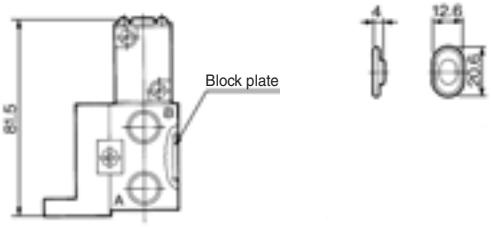
Individual EXH spacer:
VVFS2000-R-$^{01}_{02}$-1 (Plug-in type)
VVFS2000-R-$^{01}_{02}$-2 (Non plug-in type)



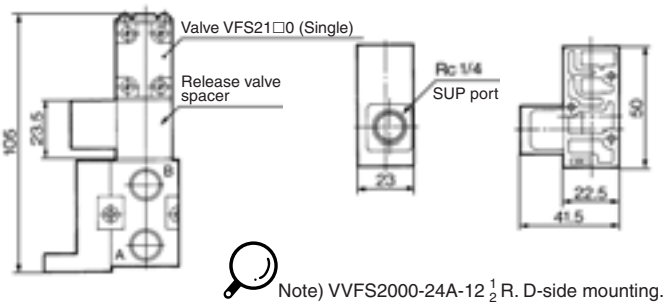
Air shutoff valve spacer:
VVFS2000-21A-1 (Plug-in type)
VVFS2000-21A-2 (Non plug-in type)



SUP block plate: AXT625-12A
EXH block plate: AXT625-12A

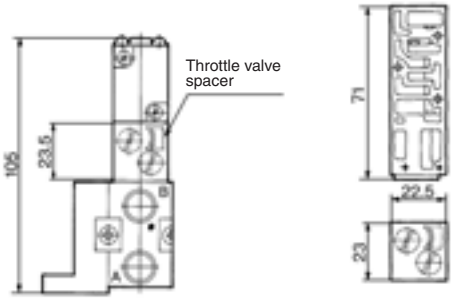


Release valve spacer:
VVFS2000-24A-1$^{R}_{L}$ (Plug-in type)
VVFS2000-24A-2$^{R}_{L}$ (Non plug-in type)

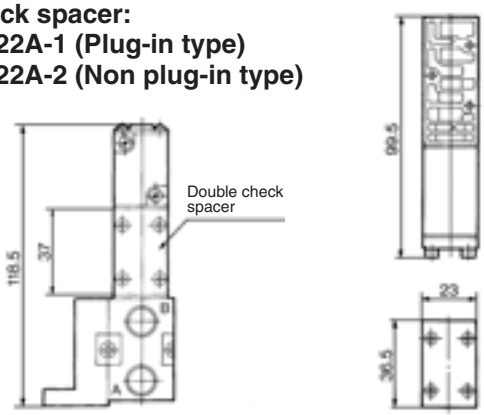


Note) VVFS2000-24A-12 $\frac{1}{2}$ R. D-side mounting.

Throttle valve spacer:
VVFS2000-20A-1 (Plug-in type)
VVFS2000-20A-2 (Non plug-in type)

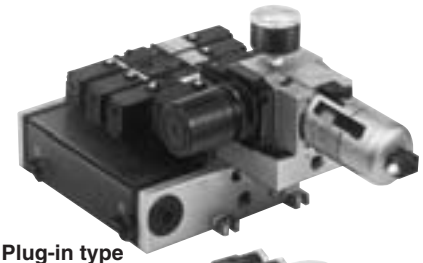


Double check spacer:
VVFS2000-22A-1 (Plug-in type)
VVFS2000-22A-2 (Non plug-in type)

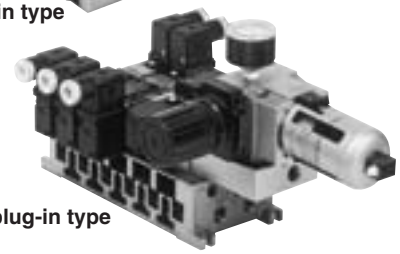


Manifold with Control Unit

- **Control unit (Filter, Regulator, Pressure switch, Air release valve) are all standardized to the one unit, and can be mounted on the manifold base without any attachments.**
- **Piping processes are eliminated.**



Plug-in type



Non plug-in type

⚠Caution

When using an air filter with auto-drain or manual drain, mount the filter vertically.

Manifold Specifications

Manifold	Plug-in type: VV5FS2-01□	Non plug-in type: VV5FS2-10
Wiring	Plug-in with attachment plug lead wire With terminal block With multi-connector With D-sub connector	Grommet Grommet terminal Conduit terminal DIN terminal
Applicable valve model	VFS2□00-□F	VFS2□10-□G, VFS2□10-□E VFS2□10-□T, VFS2□10-□D
Porting specifications Rc	Common SUP, Common EXH	
	2(B), 4(A) port: Side: Rc 1/8, 1/4, Bottom: Rc 1/8 (Option)	
	1 (P), 3(R2), 5(R1) port: Side: Rc 1/4, 1/8, Bottom: Rc 1/8 (Option)	
Stations	2 to 15 stations*	

* With multi-connector, or D-sub connector: 8 stations max.

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration degree	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch (1)	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa or less
Contact	1a
Indicator light	LED (RED)
Max. switch capacity	2 VA AC, 2 W DC
Max. operating current	24 VAC/DC or less: 50 mA 100 VAC/DC: 20 mA
Air release valve (Single only)	
Operating pressure range	0.1 to 1.0 MPa

Control Unit/Option

Air release valve spacer (2)	<Plug-in type> VVFS2000-24A-1R (D side mounting) VVFS2000-24A-1L (U side mounting)	
	<Non plug-in type> VVFS2000-24A-2R (D side mounting) VVFS2000-24A-2L (U side mounting)	
Pressure switch (3)	IS1000P-2-1	
Blanking plate	With control unit/Filter regulator	MP2-2
	Pressure switch	MP3-2
	Release valve	AXT625-18A
Filter element	111511-5B	

Note 1) Voltage: 24 VDC to 100 VAC
Inner voltage drop: 4 V
Note 2) Refer to manifold option parts on page 1148.
Note 3) The non plug-in type cannot be mounted afterwards.

How to Order

Note) The manifold of plug-in type with attachment plug lead wire is applied to individual type only. Non plug-in type has no junction cover.

VV5FS2 - 10 □ □ - 08 1 - 01 □ - AP □

Series VFS2000 Manifold

Base type/Electrical entry

01	Plug-in type with attachment plug lead wire
01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01, 01T, 10
D	D side mounting	01C, 01F
U	U side mounting	

Junction cover

Nil	Stacking type
1	Integrated type

Note) Stacking type:
Base type 01, 01T
Integrated type:
Base type 01T, 01C, 01F

Stations

02	2 stations
⋮	⋮
15*	15 stations

* Base type
01, 01T, 10 — 2 to 15 stations
01C, 01F — 2 to 8 stations

Symbol

Symbol	Passage P	Passage EA, EB	Porting specifications B, A
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

* Option
The individual specification of the P port in the composition symbol marks 3 to 8 or EA, EB ports should be taken as individual port using a block plate. Therefore, if an individual port is taken using a single SUP spacer of option or a single EXH spacer, the composition symbol mark is "1".

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Port size

Symbol	P, EA, EB	B, A
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

Air release valve coil rating

Nil	None (F, G type only)
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

Control unit type

Control equipment \ Symbol	Nil	A	AP	M	MP	F	G	C	E
Air filter with auto-drain		●	●			●			
Air filter with manual drain				●	●		●		
Regulator		●	●	●	●	●	●		
Air release valve		●	●	●	●			●	●
Pressure switch			●		●				
Blanking plate (Air release valve)						●	●		
Blanking plate (Filter, Regulator)								●	
Blanking plate (Pressure switch)		●		●		●	●	●	
Number of manifold blocks required for mounting (stations)		2	2	2	2	2	2	2	1

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

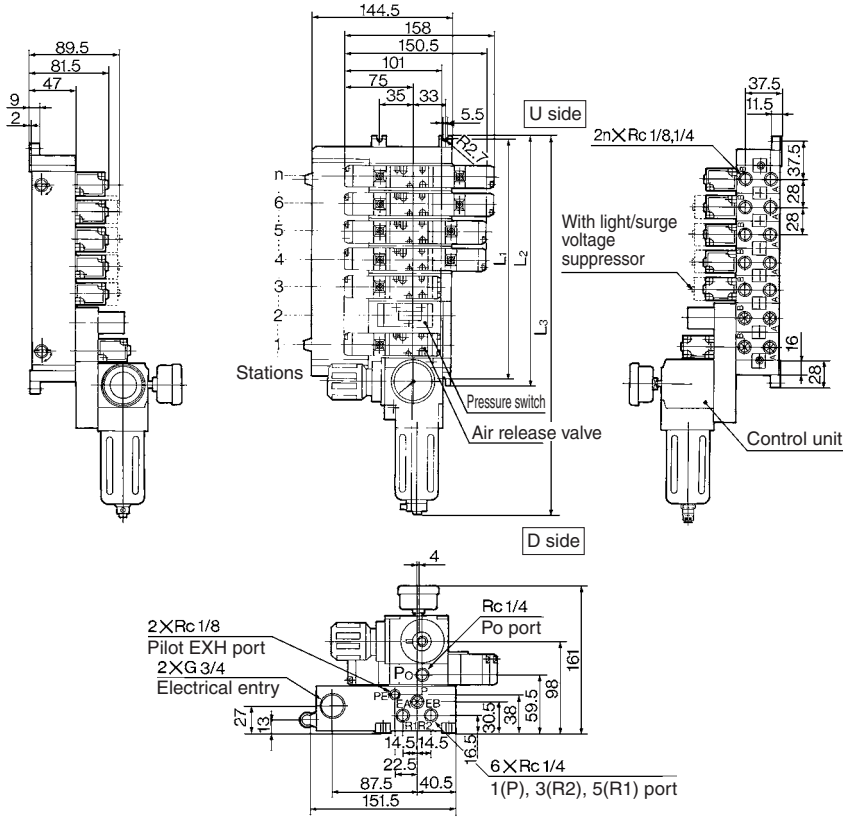
<Example>

- Plug-in type with terminal block
  (Manifold base) VV5FS2-01T1-091-02-MP5 ···· 1
  (2 position single) *VFS2100-5FZ ···· 5
  (2 position double) *VFS2200-5FZ ···· 2
  * 2 stations are needed to mount control unit.
- Non plug-in type
  (Manifold base) VV5FS2-10-071-01-M ····· 1
  (2 position single) *VFS2110-5D ····· 5
  * 2 stations are needed to mount control unit.

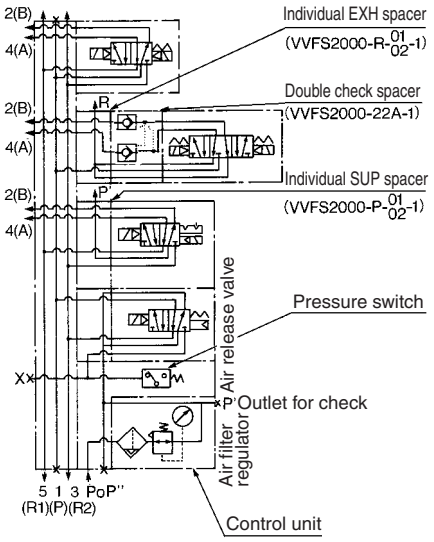
The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

Manifold with Control Unit — Plug-in type, Non plug-in type

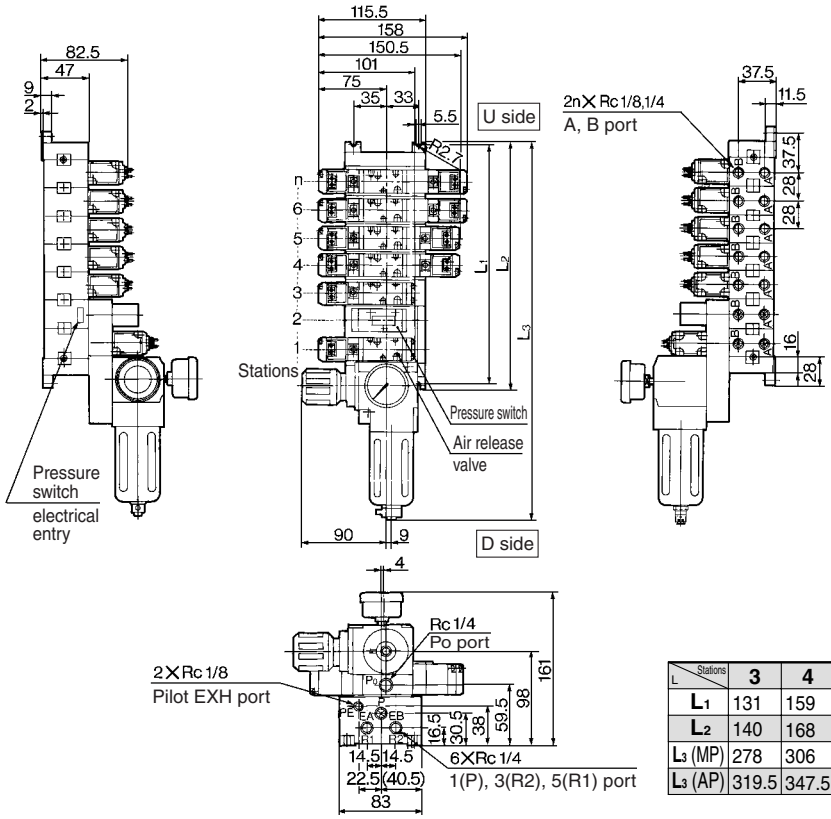
Plug-in type:
VV5FS2-01T- Station 1- Port size - Control unit Voltage for release valve



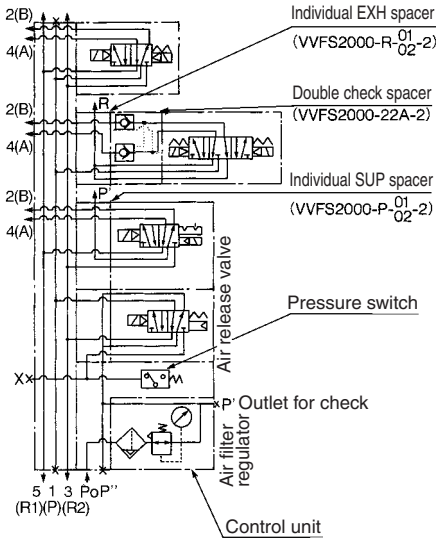
Example for manifold



Non plug-in type:
VV5FS2-10- Station 1- Port size - Control unit Voltage for release valve



Example for manifold



n: Stations

L \ Stations	3	4	5	6	7	8	9	10	Formula
L1	131	159	187	215	243	271	299	327	L1 = 28 x n + 47
L2	140	168	196	224	252	280	308	336	L2 = 28 x n + 56
L3 (MP)	278	306	334	362	390	418	446	474	L3 = 28 x n + 194
L3 (AP)	319.5	347.5	375.5	403.5	431.5	459.5	487.5	515.5	L3 = 28 x n + 235.5

Dripproof Manifold (Equivalent to IP65)

Manifold Specifications

Manifold	VV5FS2-01WTB$^{U}_{D}$		VV5FS2-01W
Wiring	Common terminal box		Attachment plug lead wire
Applicable value model	VFS2□00-□F-X54		
Porting specifications Rc	Common SUP, Common EXH		
	2(B), 4(A) port	Side: Rc 1/8, 1/4, Bottom: Rc 1/8 (Option)	
	1(P), 3(R2), 5(R1) port	Side: Rc 1/4	
Stations	2 to 10 stations		2 to 15 stations

How to Order

How to order manifold

VV5FS2 - 01WTBU - 08 1 - 02

Plug-in dripproof manifold (Equivalent to IP65)

01WTBU	Common terminal box (U side mounting)
01WTBD	Common terminal box (D side mounting)
01W	Attachment plug lead wire

Stations

02	2 stations
⋮	⋮
15	15 stations

Port size

Symbol	P, R1, R2	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported, A/B port is available only with Rc 1/8.

Symbol

Symbol	Passage	Porting specifications
	P, R1, R2	A, B
1	Common	Side
2∗		Bottom

∗ Option

How to order valves

VFS2 1 00 □ - 5 F □ □ - X54

Dripproof

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Pilot valve manual override

Nil	Non-locking push type (Flush)
A∗	Non-locking push type (Extended)
B∗	Locking type (Tool required)
C∗	Locking type (Lever)

∗ Option

Pilot type

Nil	Internal pilot
R∗	External pilot

∗ Option

Option

Nil	None
Z	With light/surge voltage suppressor

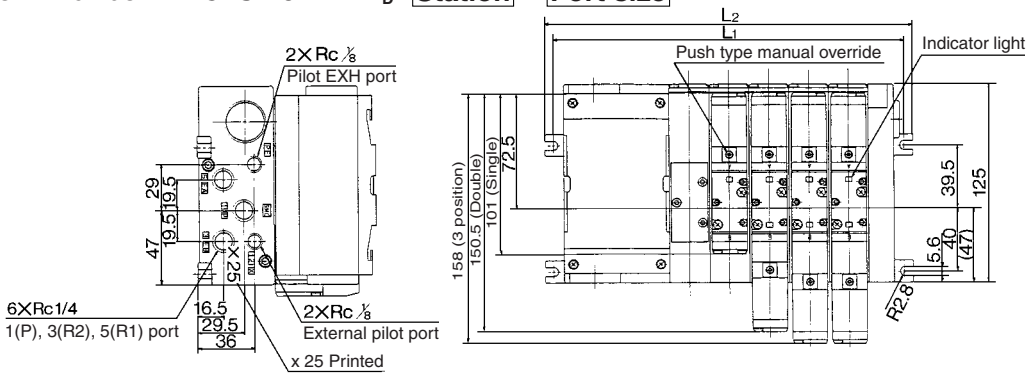
Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3∗	110 to 120 VAC, 50/60 Hz
4∗	220 VAC, 50/60 Hz
5	24 VDC
6∗	12 VDC
7∗	240 VAC, 50/60 Hz
9∗	Other

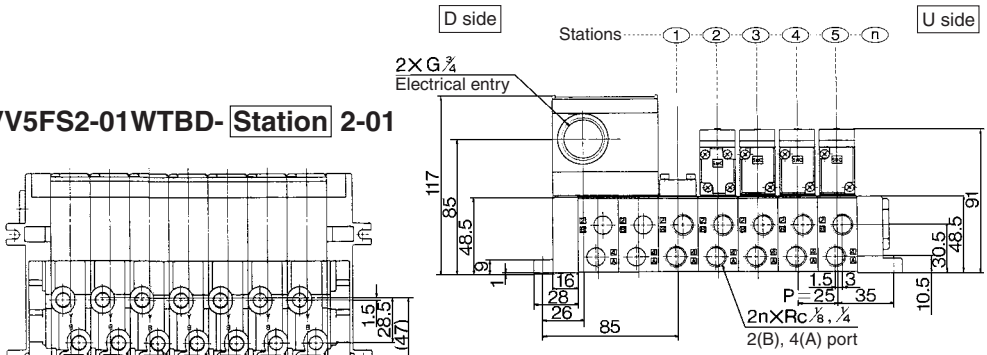
∗ Option

Dripproof Manifold

With common terminal box: VV5FS2-01WTB $^{U}_{D}$- Station 1- Port size



Bottom ported: VV5FS2-01WTBD- Station 2-01

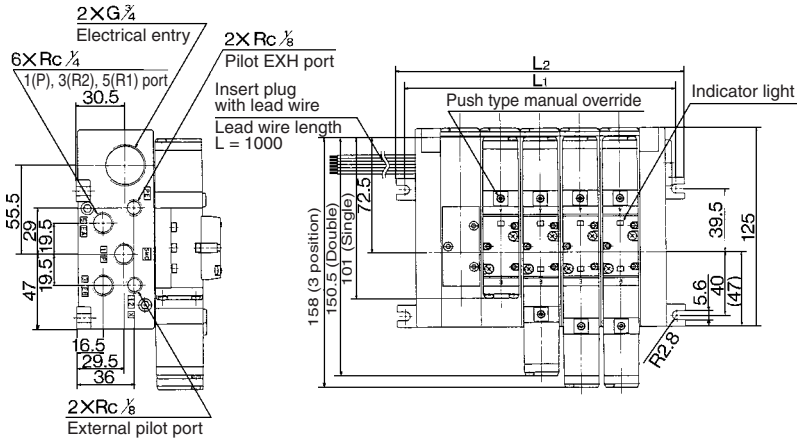


n: Stations

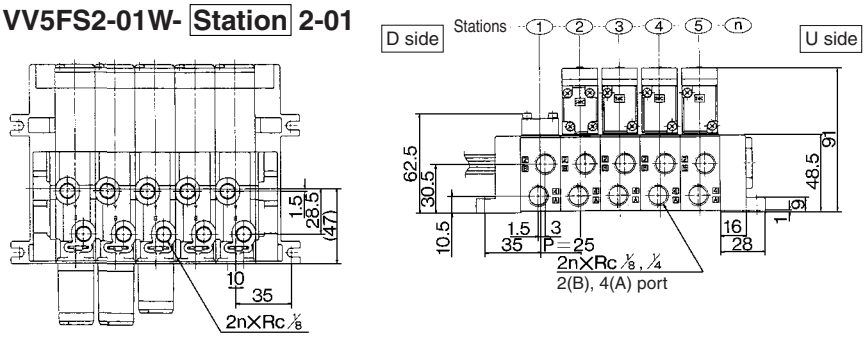
L \ Stations	1	2	3	4	5	6	7	8	9	10	Formula
L_1	120	145	170	195	220	245	270	295	320	345	$L_1 = 25 \times n + 95$
L_2	131	156	181	206	231	256	281	306	331	356	$L_2 = 25 \times n + 106$

* Terminal mounting stations are not included.
Indicates Solenoid valve mounting stations.

With attachment plug lead wire: VV5FS2-01W- Station 1- Port size



Bottom ported: VV5FS2-01W- Station 2-01



n: Stations

L \ Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Formula
L_1	70	95	120	145	170	195	220	245	270	295	320	345	370	395	420	$L_1 = 25n + 45$
L_2	81	106	131	156	181	206	231	256	281	306	331	356	381	406	431	$L_2 = 25n + 56$

Made to Order

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output)
Serial Transmission System

How to Order

How to Order Manifold

VV5FS2 − 01S V − 0 1 − 02 □ − X460

Plug-in type
Serial transmission kit

Stations

3	3 stations
⋮	⋮
18	18 stations

Note 1) Max. 18 stations. Add 2 stations for serial unit mounting.
Note 2) Max. 18 stations for all-single wiring. (No. of valves: 16)
For the standard double wiring, the maximum number of stations is 10. (No. of valves: 8)

Port size

Symbol	P, R1, R2	A, B
01	Rc 1/4	Rc 1/8
02		Rc 1/4
M		Mixed

∗ For bottom ported: Rc 1/8 only

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Combination symbol

Symbol	Port specification		Piping specification
	P	R1, R2	A, B
1	Common	Common	Side
2∗			Bottom
3∗	Common	Individual	Side
4∗			Bottom
5∗	Individual	Common	Side
6∗			Bottom
7∗	Individual	Individual	Side
8∗			Bottom

∗ Option

Compatible with SI unit U side mounating only

Applicable models

Symbol	SI unit part no.	Description
0	—	Without SI unit
F1	EX123U-SUW1	NKE Corporation: Uni-wire System (16 outputs)
H	EX123U-SUH1	NKE Corporation: Uni-wire H System (16 outputs)
J1	EX123U-SSL1	SUNX Corporation: S-LINK System (16 outputs)
J2	EX123U-SSL2	SUNX Corporation: S-LINK System (8 outputs)
Q	EX124U-SDN1	DevieNet (2 power supply systems)
R1	EX124U-SCS1	OMRON Corporation: CompoBus/S (16 outputs) (2 power supply systems)
R2	EX124U-SCS2	OMRON Corporation: CompoBus/S (8 outputs) (2 power supply systems)
V	EX124U-SMJ1	CC-Link (2 power supply systems)

Refer to pages 1653 to 1655 for the details of the EX123/124 integrated type (for output) serial transmission system.

● Correspondence of SI unit output numbers and solenoid valve coils

<Wiring Example 1> Double wiring (Standard)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9	10
	Double	Double	Single	Single	Single	Double	Single	Single	SI unit	
	A B	A B	A B	A B	A B	A B	A B	A B		
	0 1	2 3	4 5	6 7	8 9	10 11	12 13	14 15		

<Wiring Example 2> Single/Double mixed wiring (Option)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9	10	11	12
	Double	Double	Single	Single	Single	Double	Single	Double	Single	Single	SI unit	
	A B	A B	A	A	A	A B	A	A B	A	A		
	0 1	2 3	4	5	6	7 8	9	10 11	11	12		

∗ Mixed wiring is available as an option. Use the manifold specification sheet to specify this.

How to Order Valves

VFS2 □ 00 □ − 5 F □ □

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Pilot type

Nil	Internal pilot
R	External pilot

24 VDC

Pilot valve manual override

Nil	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Locking type (Tool required)
C	Locking type (Lever)

Option

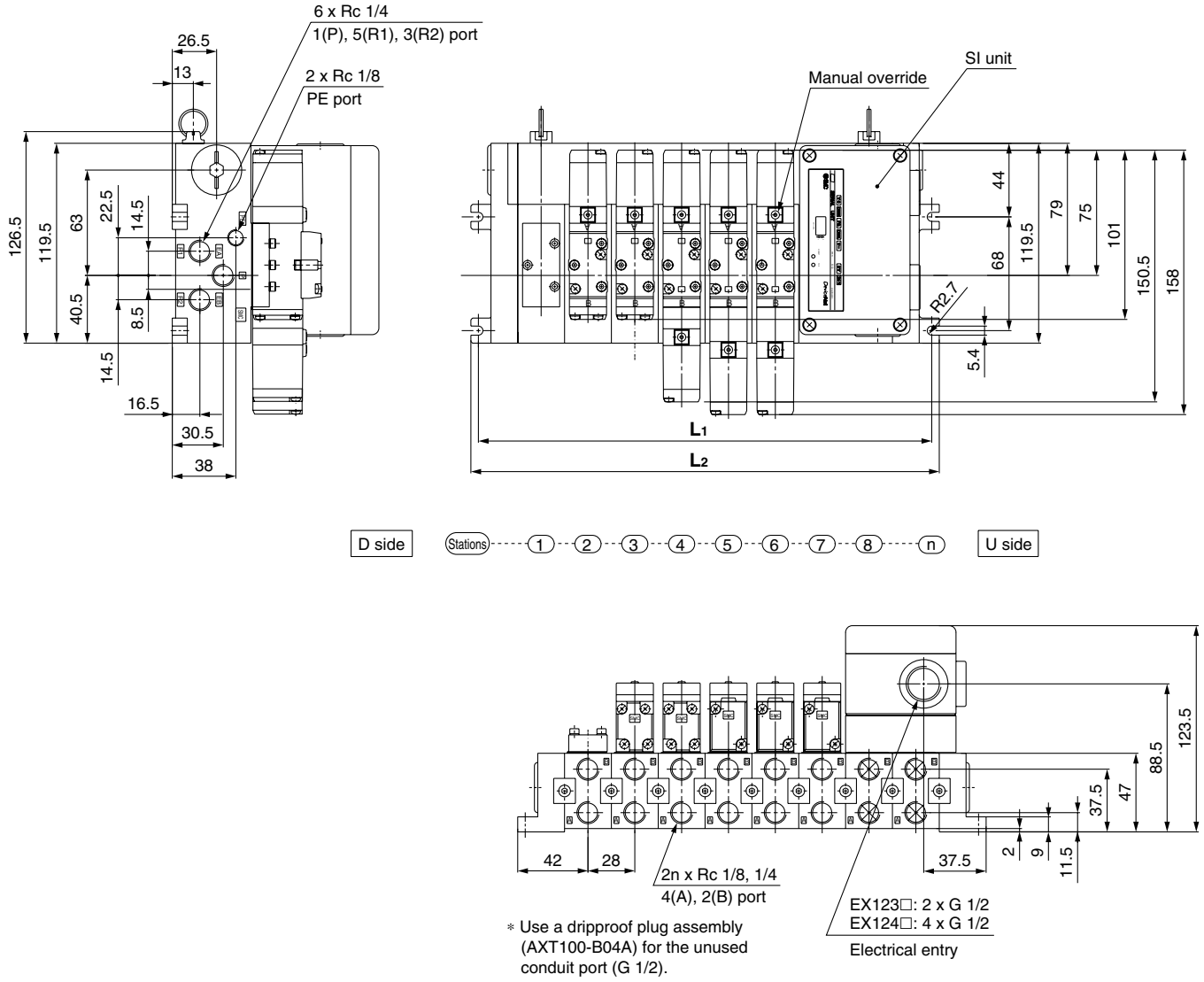
Nil	None
Z	With light/surge voltage suppressor

Coil rated voltage

Nil	None

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output) Serial Transmission System

VV5FS2-01S Model - Stations Symbol - Port size -X460



∗ Use a dripproof plug assembly (AXT100-B04A) for the unused conduit port (G 1/2).

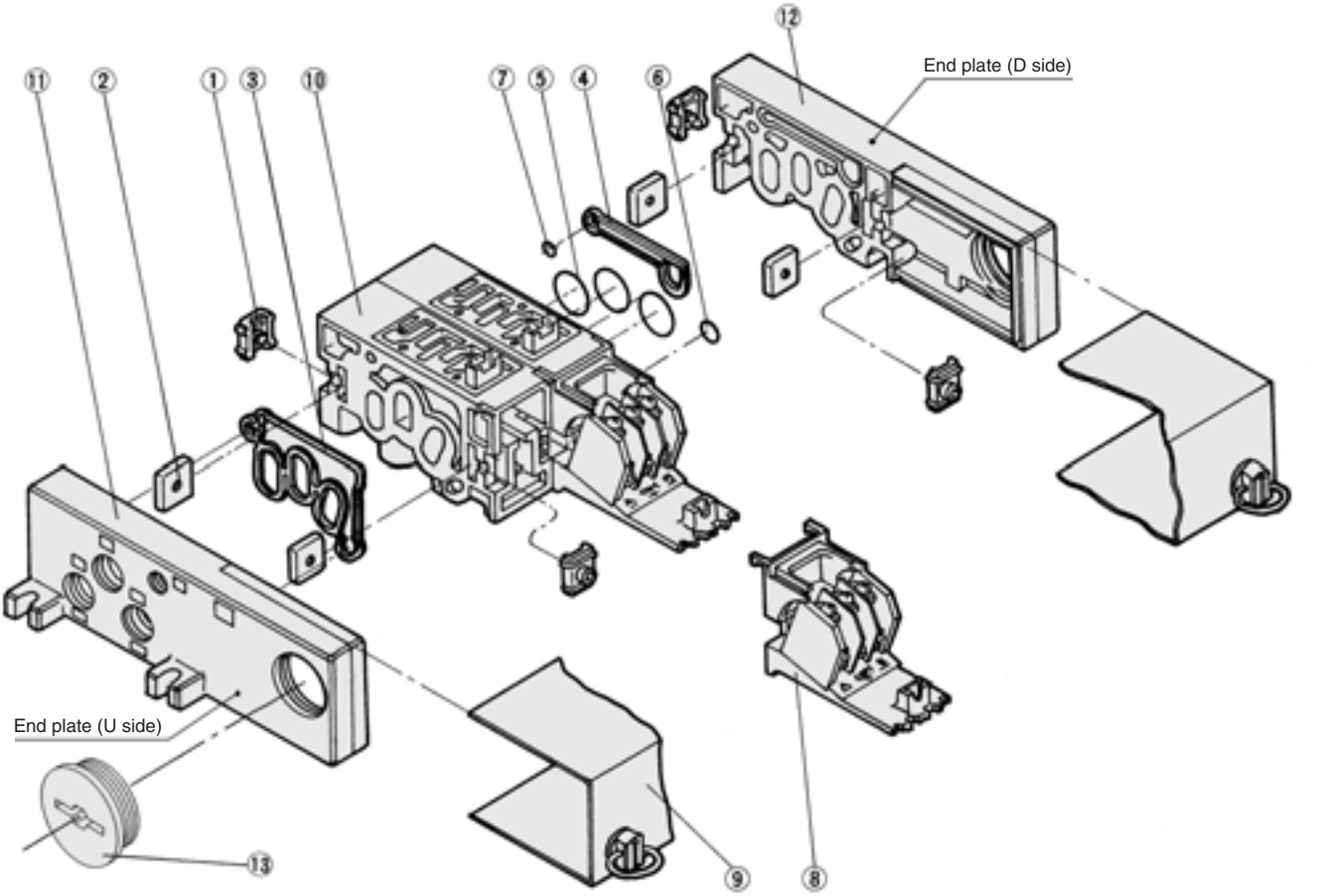
Dimensions

Formula $L_1 = 28n + 47$ $L_2 = 28n + 56$
n: Stations (Max. 18 stations)

L \ n	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
L_1	131	159	187	215	243	271	299	327	355	383	411	439	467	495	523	551
L_2	140	168	196	224	252	280	308	336	364	392	420	448	476	504	532	560

Note) Actual number of manifold base stations: Add 2 SI unit mounting stations to the number of valve stations.

Manifold Base Construction — Plug-in type, Non plug-in type



Replacement Parts

No.	Description	Material		Part no.
1	**Connection fitting A**	Steel plate		AXT625-4-1#1
2	**Connection fitting B**	Steel plate		AXT625-5
3	**Gasket A**	NBR		AXT625-17
4	**Gasket B**	NBR		AXT625-16
5	**O-ring**	NBR		18 x 15 x 1.5
6	**O-ring**	NBR		10.5 x 7.5 x 1.5
7	**O-ring**	NBR		8 x 5 x 1.5
8	**Adapter plate**	Resin	For 01	AXT625-6
	Adapter plate assembly	—	For 01T	AXT625-28-1A (Terminal section with adapter plate)
			For 01T1	
	Adapter plate	Resin	For 01C	AXT625-28-1
			For 01F	VVF2000-26-6
			For 01S□	AXT625-6

No.	Description	Material		Part no.
9	**Junction cover assembly**	—	For 01	AXT625-7A
			For 01T	AXT625-28-3A
			For 01T1	AXT625-28-7A- Stations
			For 01C	
			For 01F	VVF2000-26-5A- Stations
			For 01S□	AZ738-10A- Stations
13	**Rubber plug**	NBR	For 01	AXT333-12
			For 01T / 01S□	AXT625-22
	Plug	—	For 01 W	EXP22S

- For increasing the manifold bases, please order the manifold block assembly number of the principle number assembly ⑩.
  For plug-in type: The manifold base with terminal stand (integrated with a junction cover) is required with the ⑨ junction cover assembly.

Note) Manifold Base/Construction: Plug-in type with terminal block.

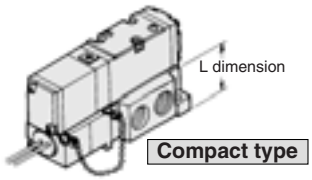
Replacement Parts: Sub Assembly

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	**Manifold block assembly**	AXT625-01A-$\frac{1}{2}$ Note)	Manifold block ⑩, Metal joint ①, ②. O-ring ⑤, ⑥, ⑦ Junction cover, Adapter plate, Pin housing, Guide, Insert plug lead wire	Plug-in type With attachment plug lead wire
		AXT625-20A-$\frac{1}{2}$ Note)	Manifold block ⑩, Metal joint ①, ②, O-ring ⑤, ⑥, ⑦ Terminal ⑧, Junction cover ⑨, Adaptor plate, Pin housing, Guide	Plug-in type With terminal block
		AXT625-10A-$\frac{1}{2}$ Note)	Manifold block ⑩, Metal joint ①, ②, O-ring ⑤, ⑥, ⑦	Non plug-in type
11	**End plate (U side) assembly**	AXT625-2A	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Plug-in type With attachment plug lead wire
		AXT625-2A-20	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Plug-in type With terminal block
		AXT625-2A-10	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Non plug-in type
12	**End plate (D side) assembly**	AXT625-3A	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Plug-in type With attachment plug lead wire
		AXT625-3A-20	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Plug-in type With terminal block
		AXT625-3A-10	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Non plug-in type

Note) 1: A, B port size Rc 1/8, 2: A, B port size Rc 1/4

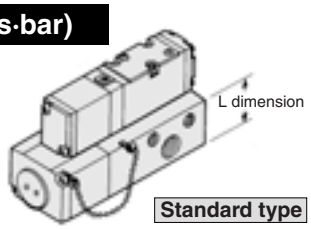
Light Compact Type Sub-plate/C: 2.8 dm³/(s·bar)

C: 2.2 dm³/(s·bar)



Compact type

C: 2.8 dm³/(s·bar)



Standard type

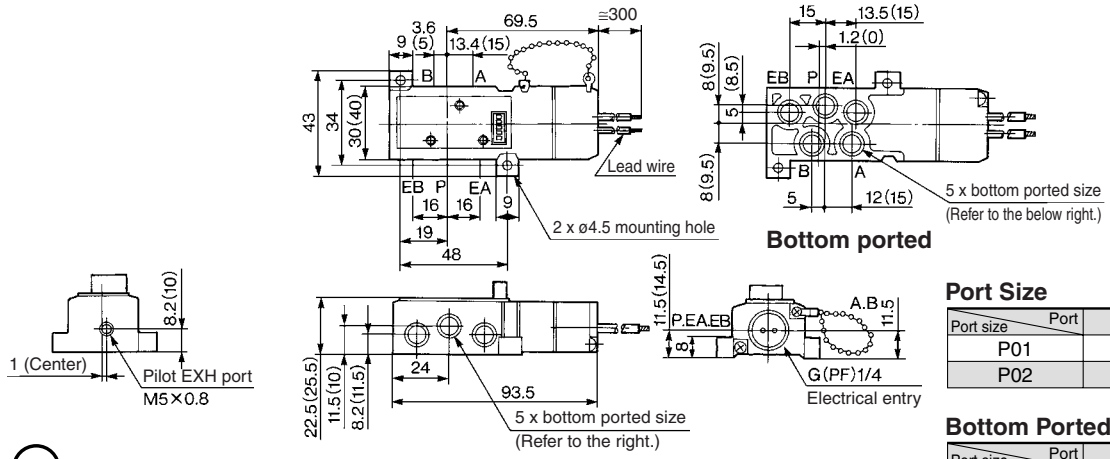
Sub-plate

Type	L dimension (mm)	Mass (kg)
Compact type	25.5	0.13
Standard type	31	0.2

Sub-plate — Compact: Plug-in, Grommet (With attachment plug lead wire)

VFS2□00-□F-(B) $^{P01}_{P02}$

Sub-plate assembly part no.: VFS2000-CP-(B) $^{01}_{02}$ (01: Rc 1/8, 02: Rc 1/4)



Port Size

Port size \ Port	P, A, B	EA, EB
P01	Rc 1/8	Rc 1/8
P02	Rc 1/4	Rc 1/8

Bottom Ported Size

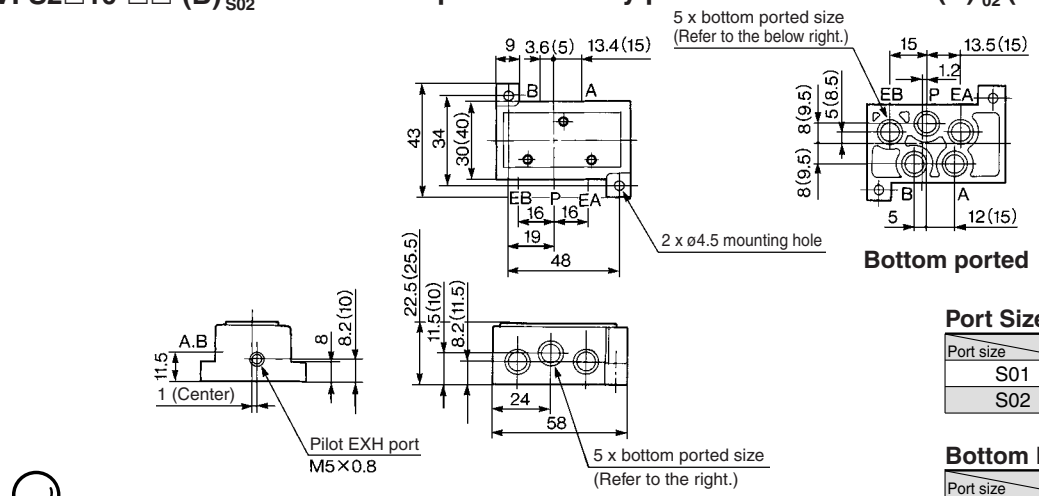
Port size \ Port	P, A, B	EA, EB
BP02	Rc 1/8, 1/4	Rc 1/8

( ): Port size P02

Sub-plate — Compact: Non plug-in

VFS2□10-□□-(B) $^{S01}_{S02}$

Sub-plate assembly part no.: VFS2000-CS-(B) $^{01}_{02}$ (01: Rc 1/8, 02: Rc 1/4)



Port Size

Port size \ Port	P, A, B	EA, EB
S01	Rc 1/8	Rc 1/8
S02	Rc 1/4	Rc 1/8

Bottom Ported Size

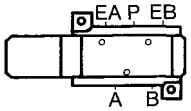
Port size \ Port	P, A, B	EA, EB
BS02	Rc 1/8 1/4	Rc 1/8

( ): Port size S02

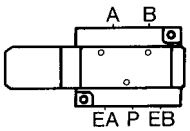
Precautions

Please pay attention to piping port location of sub-plate.

VFS2□□0-□□-$^{P01/02}_{S01/02}$: Compact type



VFS2□□0-□□-$^{01}_{02}$: Standard type



Electrical Connection

Compact type, plug-in type grommet sub-plate (With attachment plug lead wire)

- The attachment plug lead wire is attached to the manifold block and lead wire is plugged in with valve side as shown in the following list. Please connect with corresponding power side.

Solenoid	A side		B side	
Lead wire color	Red	Black	Brown	White

- There is no polarity.

5 Port Pilot Operated Solenoid Valve
Metal Seal, Plug-in/Non Plug-in
Series VFS3000

NRTL /C

Model

Type of actuation		Model		Port size Rc	Flow characteristics						Max.[1] operating cycle (cpm)	Response[2] time (ms)	Mass[3] (kg)
					1→4/2 (P→A/B)			4/2→5/3 (A/B→R1/R2)					
		Plug-in	Non plug-in		C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv			
2 position	Single	**VFS3100**	**VFS3110**	1/4	6.0	0.15	1.4	5.8	0.12	1.3	1200	20 or less	0.31
				3/8	7.3	0.23	1.8	6.8	0.12	1.6			
	Double	**VFS3200**	**VFS3210**	1/4	6.0	0.15	1.4	5.8	0.12	1.3	1500	15 or less	0.41
				3/8	7.3	0.23	1.8	6.8	0.12	1.6			
3 position	Closed center	**VFS3300**	**VFS3310**	1/4	5.8	0.21	1.4	5.4	0.14	1.2	600	40 or less	0.43
				3/8	6.8	0.22	1.7	6.3	0.12	1.5			
	Exhaust center	**VFS3400**	**VFS3410**	1/4	6.1	0.23	1.4	5.0	0.14	1.2	600	40 or less	0.43
				3/8	7.4	0.20	1.8	5.6	0.18	1.3			
	Pressure center	**VFS3500**	**VFS3510**	1/4	6.0	0.22	1.5	5.8	0.16	1.3	600	40 or less	0.43
				3/8	7.2	0.19	1.8	7.1	0.18	1.8			
	Double check	**VFS3600**	**VFS3610**	1/4	4.0	—	—	3.5	—	—	600	50 or less	0.91
				3/8	4.0	—	—	3.7	—	—			

Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency. Note 2) Based on JIS B 8375-1981 (the value at supply press. 0.5 MPa).
Note 3) The figures in the above list are for without sub-plate. In the case of with plug-in sub-plate and with non plug-in sub-plate, add 0.30 kg and 0.27 kg respectively.
Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

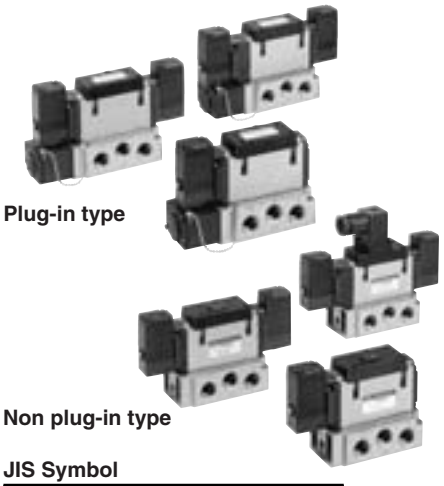
Compact yet provides a large flow capacity
3/8: C: 5.8 dm³/(s·bar)

Low power consumption: 1.8 W DC

Easy maintenance

2 types of sub-plates:

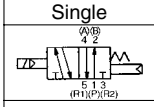
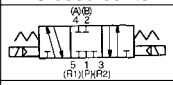
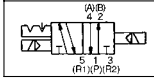
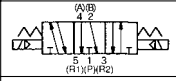
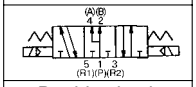
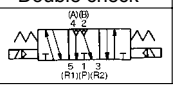
Plug-in and non plug-in



Plug-in type

Non plug-in type

JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Double check
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimum operating pressure		0.1 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C [1]
	Lubrication		Non-lube [2]
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² [3]
	Enclosure		Type E: Dustproof (Level 0), Type F: Dripproof (Level 2), Type D: Splashproof (Level 4) [4]
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) [5]
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA/50 Hz, 5.0 VA/60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption DC		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry	Plug-in type	Conduit terminal
		Non plug-in type	DIN terminal, Grommet terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option

Pilot type		External pilot Note)
Manual override	**Main valve**	Direct manual override type
	Pilot valve	Non-locking push type (Extended), Locking type (Tool required), Locking type (Lever)
Coil rated voltage		110 to 120, 220, 240 VAC (50/60 Hz)
		12, 100 VDC
Porting specifications		Bottom ported
Option		With light/surge voltage suppressor

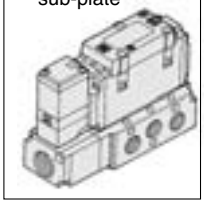
Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure: 0.1 to 1.0 MPa

How to Order



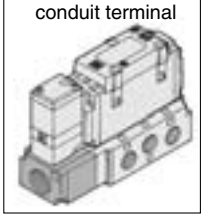
Body type

O: Plug-in type sub-plate



Electrical entry

F: Plug-in type conduit terminal



Porting specifications

Nil	Side ported
B*	Bottom ported

* Option

Port size

Nil	Without sub-plate
02	Rc 1/4
03	Rc 3/8

* For bottom ported, Rc 1/4 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in VFS3 **1 0 0 □ – 1 F □ □ – □ 02 □**

Non plug-in VFS3 **2 1 1 □ – 2 D □ □ – □ 02 □**



Pilot valve Manual override

Nil: Non-locking push type (Flush)



A*: Non-locking push type (Extended)



B*: Locking type (Tool required)



C*: Locking type (Lever)



* Option

Option

Nil	None
Z	With light/surge voltage suppressor

Electrical entry

E: Grommet terminal



D: DIN terminal



Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

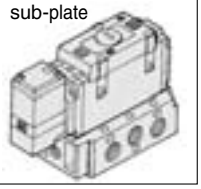
Symbol

1	2 position single	**5**	3 position pressure center
2	2 position double	**6**	3 position double check
3	3 position closed center		
4	3 position exhaust center		

* Reverse pressure: Can be used by external pilot specifications.

Body type

1: Non plug-in type sub-plate



Pilot type

Nil	Internal pilot
R*	External pilot

* Option

Body Option

0	Standard
1*	Direct manual override

* Option

How to Order Pilot Valve Assembly

SF4 – 1 F □ – 30

Coil rated voltage

Symbol	Rated voltage
1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Manual override

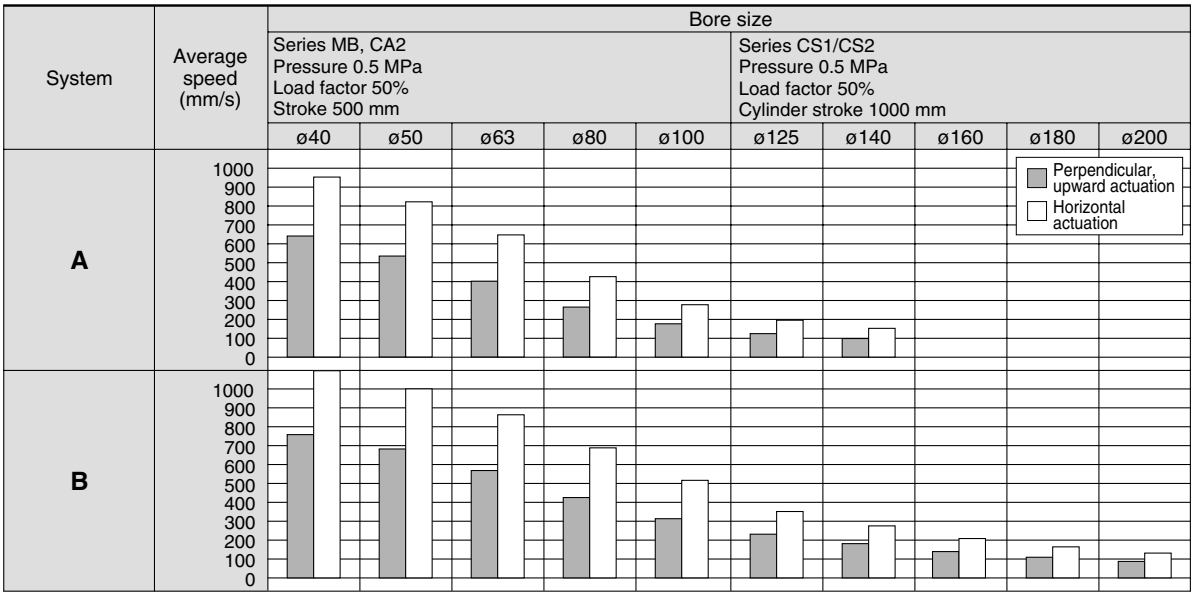
Symbol	Manual override
Nil	Non-locking push type (Flush)
A*	Non-locking push type (Extended)
B*	Locking type (Tool required)
C*	Locking type (Lever)

* Option

* Refer to page 1224 for voltage conversion.

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.



System Components

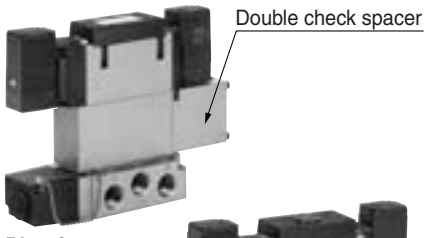
System	Solenoid valve	Speed controller	Silencer	SGP (Steel pipe) Port size x Length
A	Series VFS3000 Rc 1/4	AS4000-02 (S = 24 mm²)	AN200-02 (S = 35 mm²)	6A x 1 m
B	Series VFS3000 Rc 3/8	AS420-03 (S = 73 mm²)	AN300-03 (S = 60 mm²)	10A x 1 m

∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is the value that the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Double Check Spacer/Specifications

Can hold an intermediate cylinder position for an extended time

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.



Plug-in type



Non plug-in type

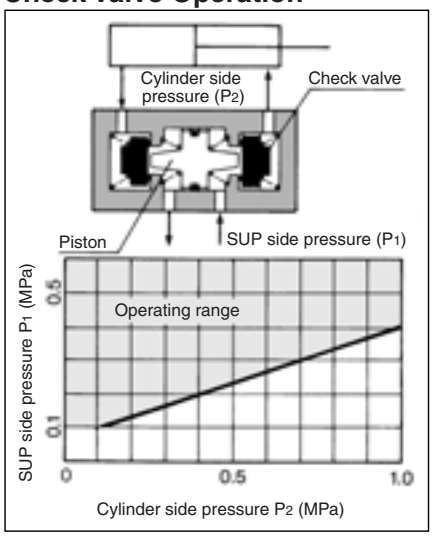
Specifications

Double check spacer part no.	Plug-in type	Non plug-in type
	VVFS3000-22A-1	**VVFS3000-22A-2**
Applicable valve model	VFS3400-□F	VFS3410-□D VFS3410-□E

⚠ Caution

- In the case of 3 position double check valve (VFS36□0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

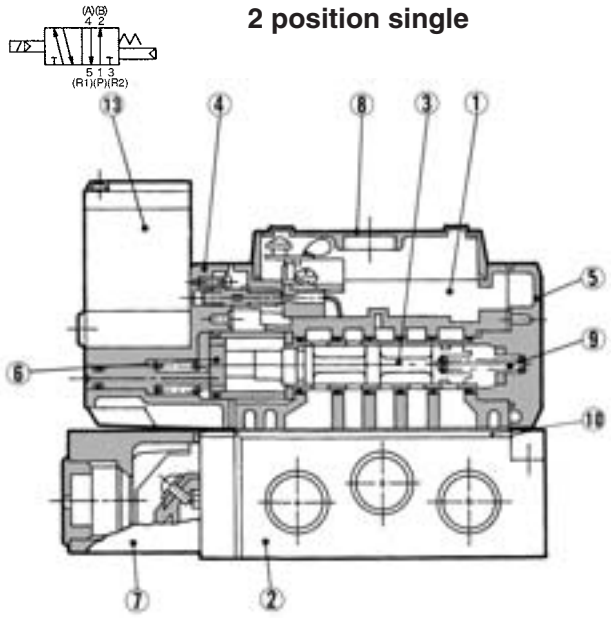
Check Valve Operation



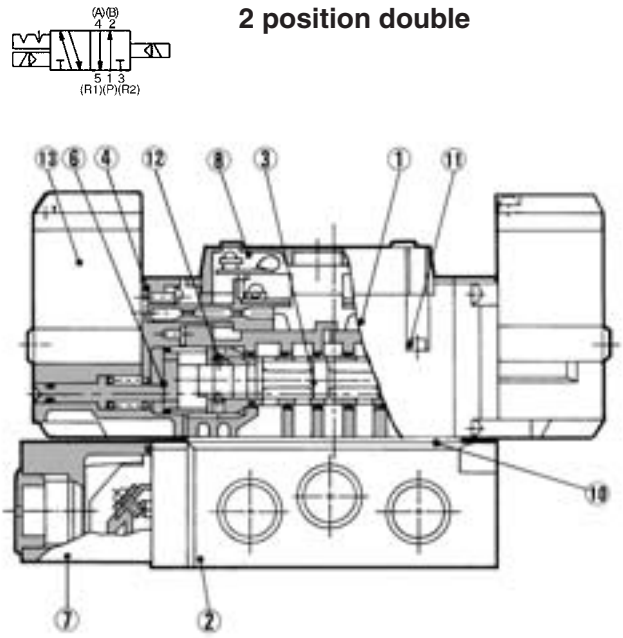
- The combination of VFS31$^{0}_{1}$0, VFS32$^{0}_{1}$0 and double check spacer can be used as prevention for falling at the stroke end but cannot hold the intermediate position of the cylinder.

Construction

2 position single



2 position double



3 position closed center/exhaust center/pressure center

Closed center

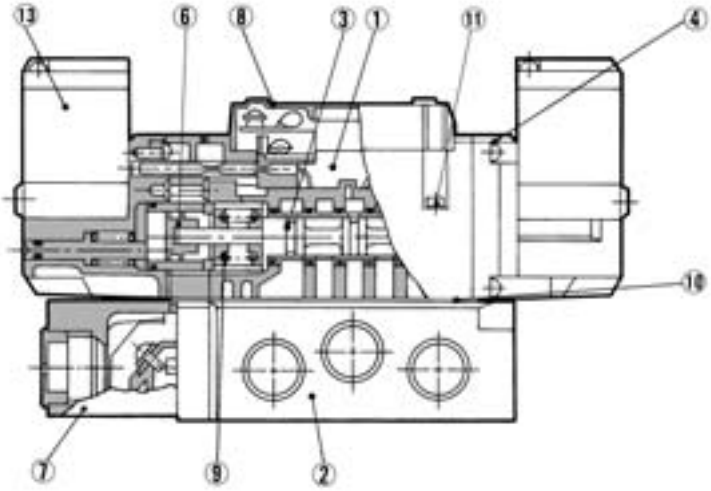


Exhaust center



Pressure center





Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Sub-plate**	Aluminum die-casted	Platinum silver
3	**Spool/Sleeve**	Stainless steel	—
4	**Adapter plate**	Resin	Black
5	**End plate**	Resin	Black
6	**Piston**	Resin	—
7	**Junction cover**	Resin	—
8	**Light cover**	Resin	—
9	**Return spring**	Stainless steel	—
10	**Gasket**	NBR	—
11	**Hexagon socket head screw**	Steel	—
12	**Detent assembly**	—	—
13	**Pilot valve assembly**	—	—

∗ Refer to “How to Order Pilot Valve Assembly” on page 1163.

Sub-plate Assembly Part No.

Plug-in	VFS3000-P-$^{02}_{03}$
Non plug-in	VFS3000-S-$^{02}_{03}$

∗ Mounting bolt and gasket are not included.

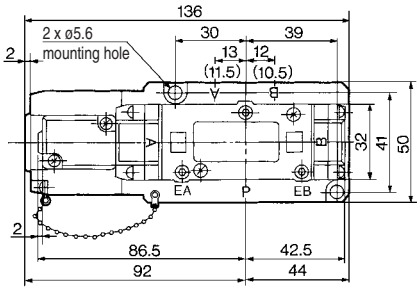
Sub-plate Assembly (For External Pilot) Part No.

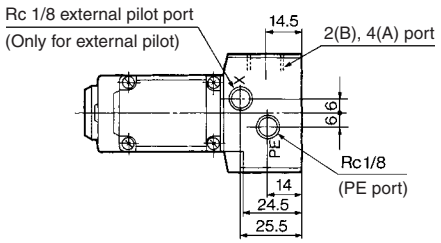
Plug-in	VFS3000-P-R$^{02}_{03}$
Non plug-in	VFS3000-S-R$^{02}_{03}$

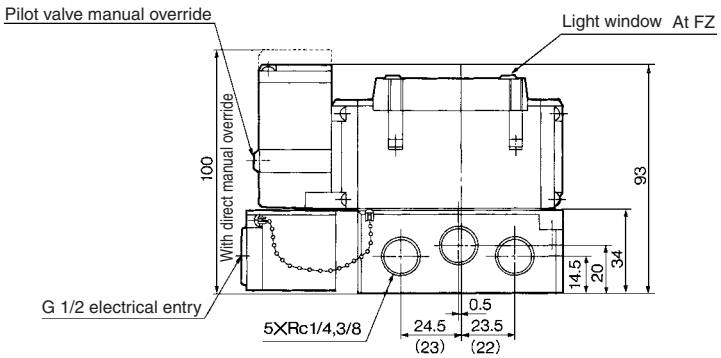
Part no. for mounting bolt and gasket
BG-VFS3000

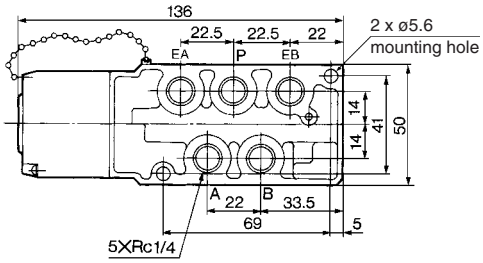
Plug-in — 2 Position single/3 Position closed center/Exhaust center/Pressure center/Double check

2 position single: VFS3100-□F





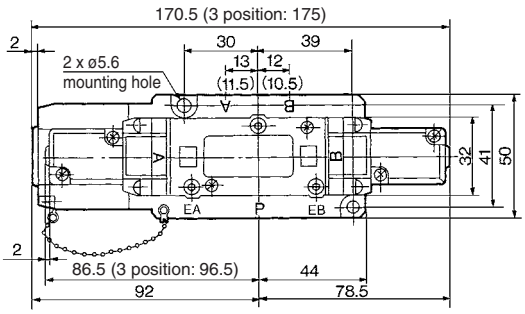


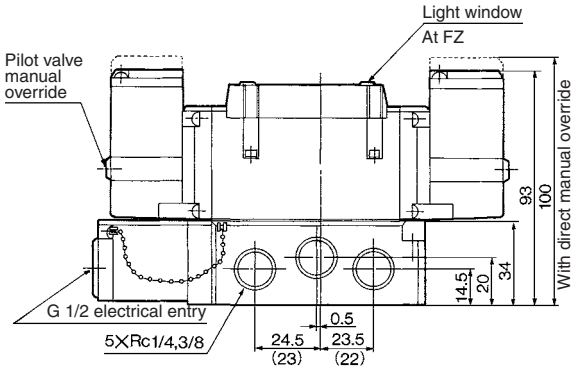


Bottom ported

( ): Rc 1/4

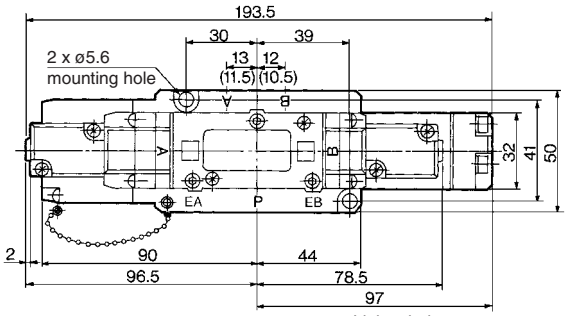
2 position double: VFS3200-□F
3 position closed center: VFS3300-□F
3 position exhaust center: VFS3400-□F
3 position pressure center: VFS3500-□F

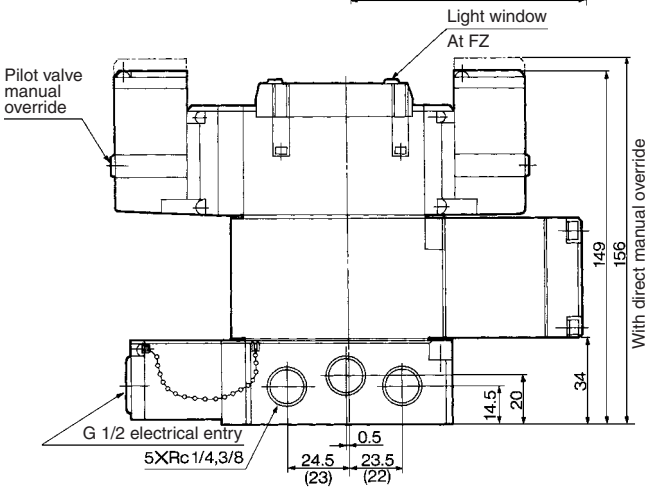




( ): Rc 1/4

3 position double check: VFS3600-□F

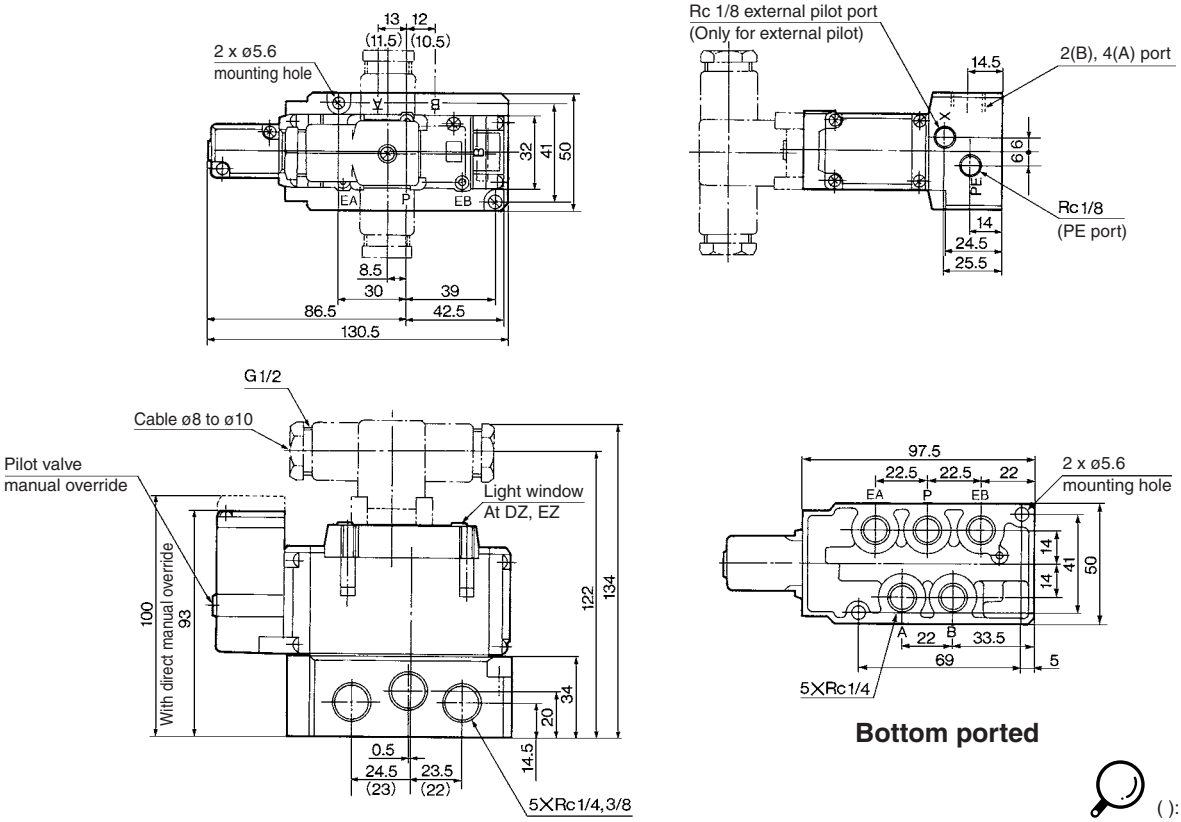




( ): Rc 1/4

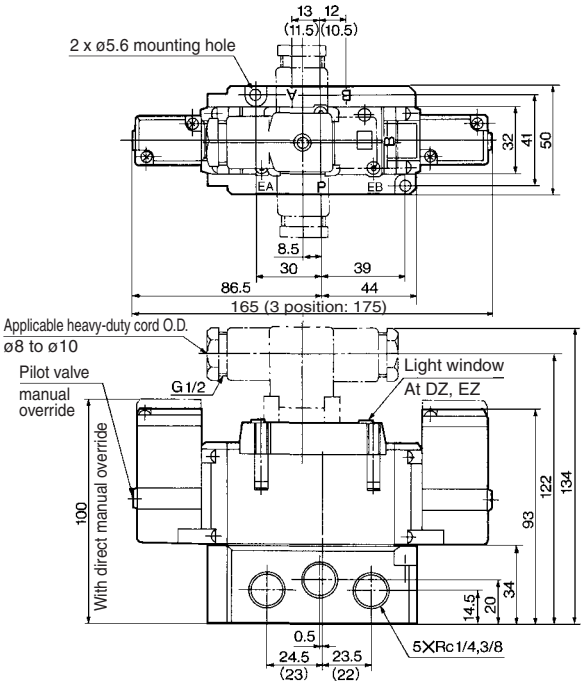
Non Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

2 position single: VFS3110-□E, VFS3110-□D



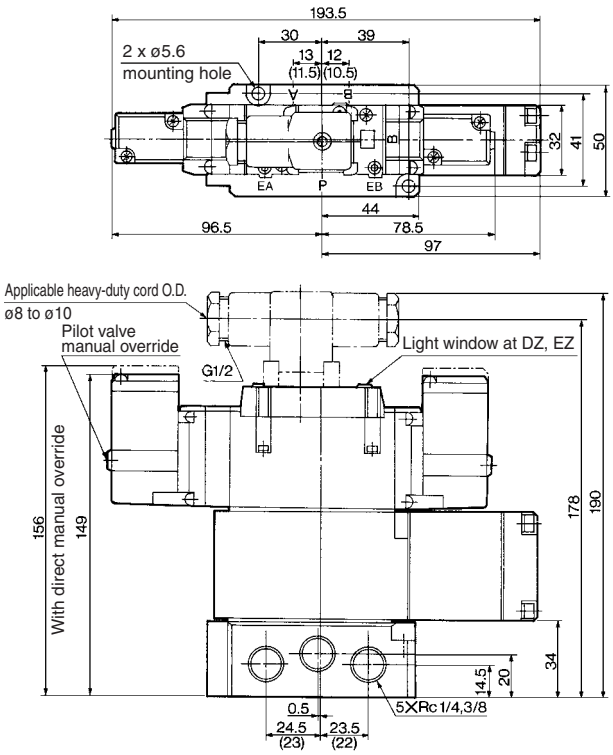
( ): Rc 1/4

2 position double: VFS3210-□E, VFS3210-□D
3 position closed center: VFS3310-□E, VFS3310-□D
3 position exhaust center: VFS3410-□E, VFS3410-□D
3 position pressure center: VFS3510-□E, VFS3510-□D



( ): Rc 1/4

3 position double check: VFS3610-□E, VFS3610-□D

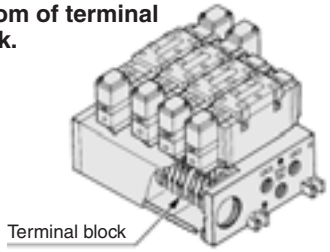


( ): Rc 1/4

Series VFS3000
Manifold Specifications

Plug-in Type: With Terminal Block

- **Since lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.**



VV5FS3 - 01T - 06 1 - 02

- **Series VFS3000 Manifold**
- **Plug-in type with terminal block**
- **Stations**

02	2 stations
⋮	⋮
16	16 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

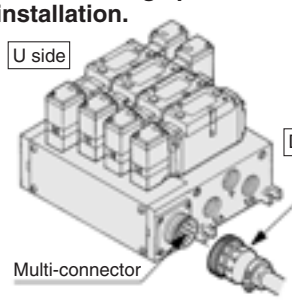
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in Type: With Multi-connector (Wiring specifications: Refer to page 1227.)

- **Master connection of power and solenoid valves.**
- **Quick wiring permits easier installation.**



VV5FS3 - 01C D - 05 2 - 02

- **Series VFS3000 Manifold**
- **Plug-in type with multi-connector**
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Stations**

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

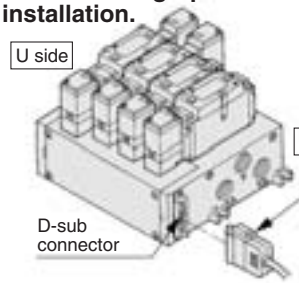
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in Type: With D-sub Connector (Wiring specifications: Refer to page 1227.)

- **Wide range of interchangeability** (MIL Spec D-sub connector terminal 25 pcs attached.)
- **Quick wiring permits easier installation.**



VV5FS3 - 01F D - 06 1 - 02

- **Series VFS3000 Manifold**
- **Plug-in type with D-sub connector**
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Stations**

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

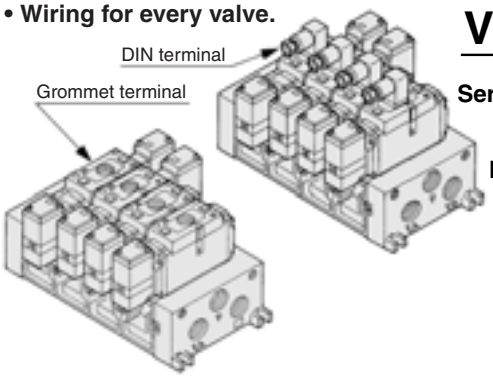
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- **Wiring for every valve.**



VV5FS3 - 10 - 05 2 - 02

- **Series VFS3000 Manifold**
- **Non plug-in type**
- **Stations**

02	2 stations
⋮	⋮
16	16 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

<Example>
- Plug-in type with terminal block: 6 stations
  (Manifold base) VV5FS3-01T-061-02 ·····1
  (2 position single) VFS3100-5FZ ·····3
  (2 position double) VFS3200-5FZ·····2
  (Blanking plate) VVFS3000-10A ·····1

<Example>
- Non plug-in type: 6 stations
  (Manifold base) VV5FS3-10-061-03 ·····1
  (2 position single) VFS3110-5D ·····5
  (3 position exhaust center) VFS3410-5D ·····1
  (Individual EXH spacer) VVFS3000-R-03-2 ···1

Manifold Specifications

Base model	Wiring	Porting specifications A, B port	Port size Rc P, EA, EB	Port size Rc A, B	Stations	Applicable valve model
Plug-in type **VV5FS3-01□**	• With terminal block • With multi-connector • With D-sub connector	Side/ Bottom	1/2 (1)	1/4, 3/8	2 to 10 (2)	VFS3□00-□F
Non plug-in type **VV5FS3-10**	• DIN terminal • Grommet terminal					VFS3□10-□D VFS3□10-□E

Note 1) Appropriate silencer for EA, EB port: "AN403-04" (O.D. ø27).
Note 2) With multi-connector, or with D-sub connector: 8 stations max.

Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations		Station 1	Station 5	Station 10
VV5FS3	1 → 4/2 (P → A/B)	C [dm³/(s·bar)]	6.0	6.0	6.0
		b	0.20	0.20	0.20
		Cv	1.4	1.4	1.4
	4/2 → 5/3 (A/B → R1/R2)	C [dm³/(s·bar)]	7.0	7.0	7.0
		b	0.20	0.20	0.20
		Cv	1.8	1.8	1.8

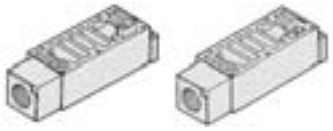
∗ Port size: Rc 3/8

Manifold Option Parts Assembly

Individual SUP spacer

An individual SUP spacer set on manifold block can form SUP port for every valve.

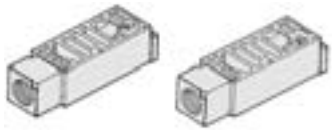
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-P-03-1	VVFS3000-P-03-2



Individual EXH spacer

An individual EXH spacer set on manifold block can form EXH port for every valve. (common EXH type)

Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-R-03-1	VVFS3000-R-03-2



∗ SUP block plate

When supplying manifold with more than two different pressures, high and low, insert a block plate in between stations subjected to different pressures.

Body type	Plug-in type	Non plug-in type
Part no.	AXT636-1A	

∗ EXH block plate

When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used to standard manifold valve, insert EXH block plate between stations to separate valve exhaust.

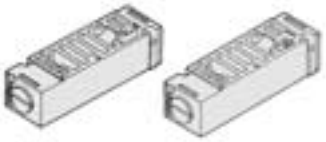
Body type	Plug-in type	Non plug-in type
Part no.	AXT636-1A	



Throttle valve spacer

Needle valve set on the manifold block can control cylinder speed by throttling exhaust.

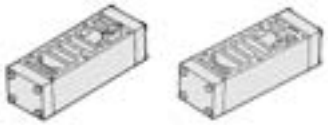
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-20A-1	VVFS3000-20A-2



Double check spacer

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.

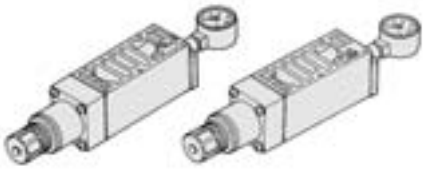
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-22A-1	VVFS3000-22A-2



Interface regulator

Interface regulator set on manifold block can regulate the pressure to each valve. (Refer to page 1225 for “Flow Characteristics”.)

Body type	Plug-in type	Non plug-in type
P port regulation	ARBF3050-00-P-1	ARBF3050-00-P-2
A port regulation	ARBF3050-00-A-1	ARBF3050-00-A-2
B port regulation	ARBF3050-00-B-1	ARBF3050-00-B-2



Blanking plate

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.

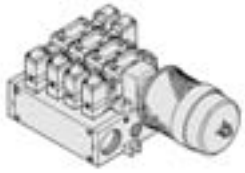
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-10A	

Manifold Option

With exhaust cleaner

Plug-in type/Non Plug-in type

- **Valve exhaust noise dampening: 35 dB or more.**
- **Oil mist collection: Rate of collection 99.9% or more.**
- **Piping process reduced.**



For details, refer to page 1173.

With control unit

Plug-in type/Non Plug-in type

- **Filter, regulation valve, pressure switch and air release valve are all combined to form one unit.**
- **Piping processes are eliminated.**



For details, refer to page 1175.

Made to Order
Serial transmission kit manifold

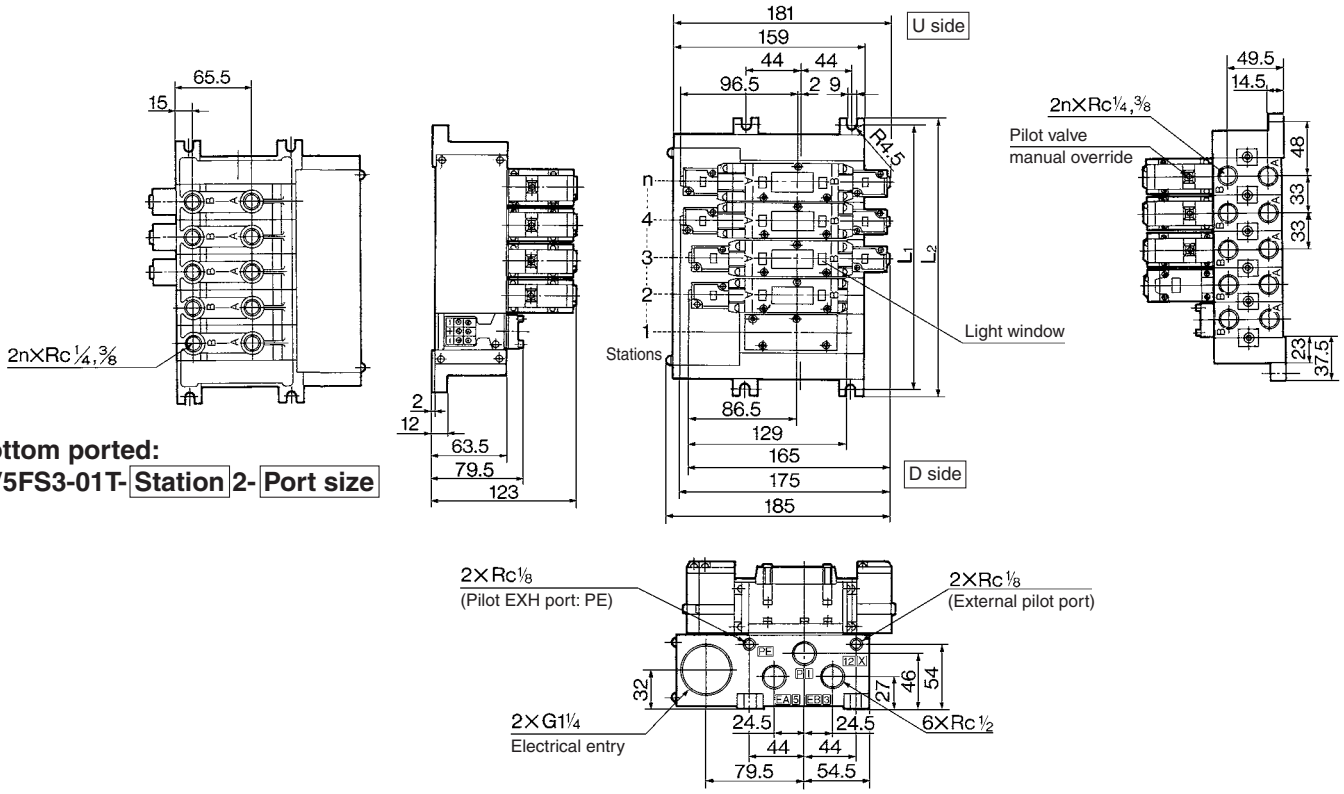
Plug-in type

- **Solenoid valve wiring process reduced considerably.**

For details, refer to page 1178.

Manifold — Plug-in type, Non plug-in type

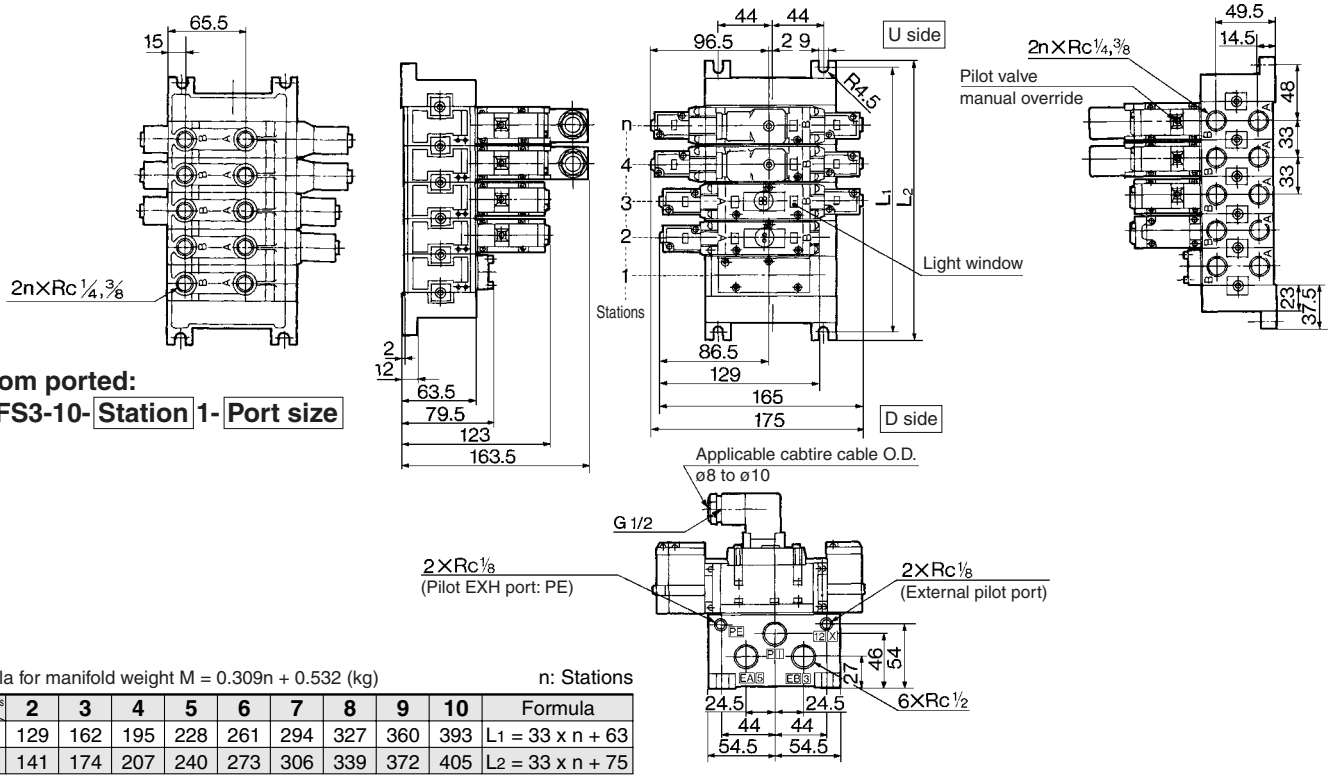
Plug-in type (With terminal block): VV5FS3-01T- Station 1- Port size



Bottom ported:
VV5FS3-01T- Station 2- Port size

Formula for manifold weight M = 0.405n + 0.665 (kg) n: Station

Non plug-in type: VV5FS3-10- Station 1- Port size



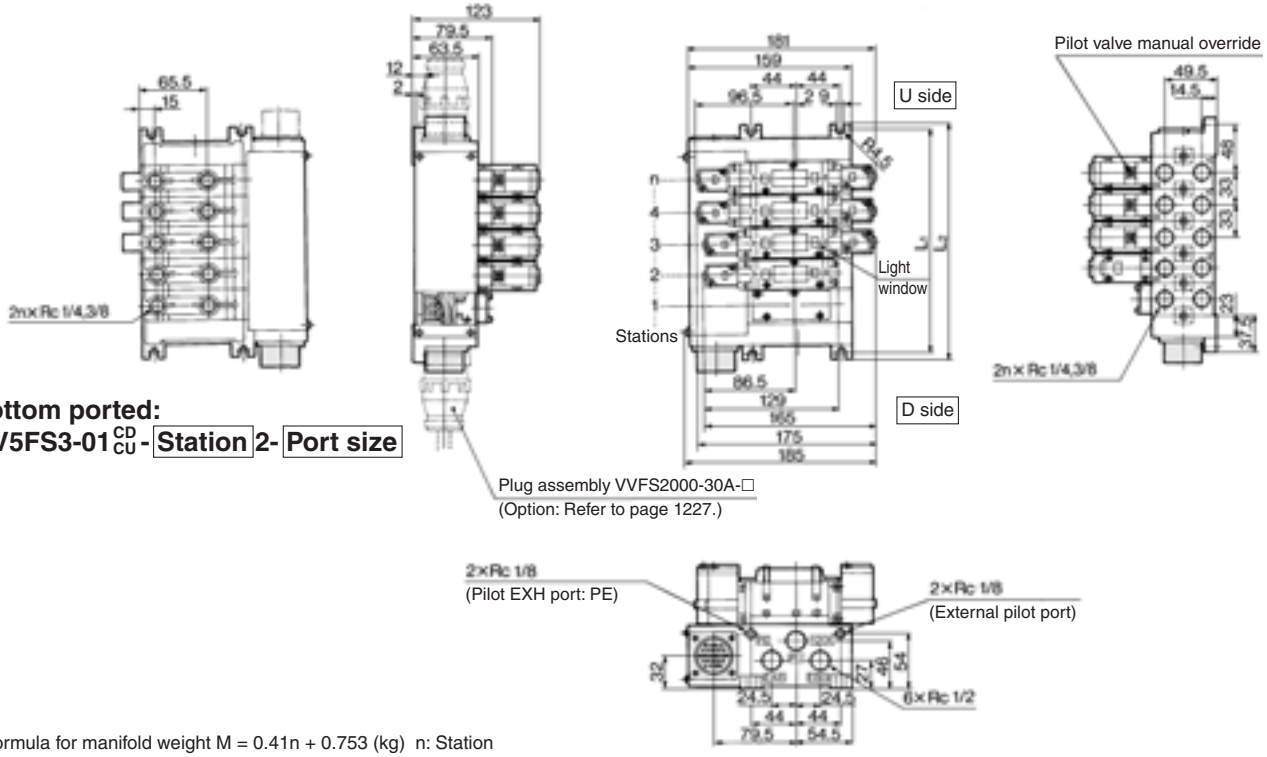
Bottom ported:
VV5FS3-10- Station 1- Port size

Formula for manifold weight M = 0.309n + 0.532 (kg) n: Stations

L \ Stations	2	3	4	5	6	7	8	9	10	Formula
L1	129	162	195	228	261	294	327	360	393	L1 = 33 x n + 63
L2	141	174	207	240	273	306	339	372	405	L2 = 33 x n + 75

Manifold — Plug-in type with multi-connector/D-sub connector

Plug-in type with multi-connector: VV5FS3-01CD- Station 1- Port size , VV5FS3-01CU- Station 1- Port size

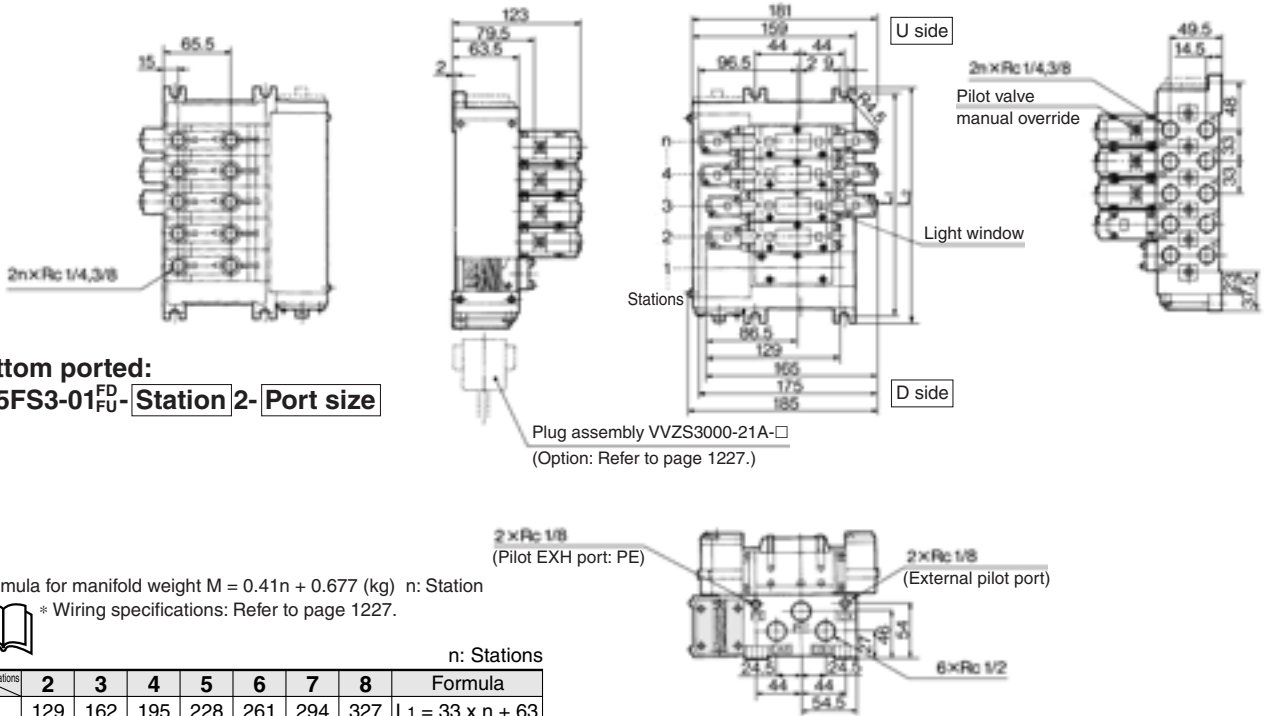


Bottom ported:
VV5FS3-01 $^{CD}_{CU}$ - Station 2- Port size

Formula for manifold weight M = 0.41n + 0.753 (kg) n: Station

∗ Wiring specifications: Refer to page 1227.

Plug-in type with D-sub connector: VV5FS3-01FD- Station 1- Port size , VV5FS3-01FU- Station 1- Port size



Bottom ported:
VV5FS3-01 $^{FD}_{FU}$ - Station 2- Port size

Formula for manifold weight M = 0.41n + 0.677 (kg) n: Station

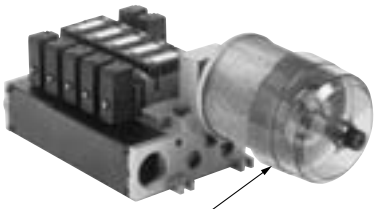
∗ Wiring specifications: Refer to page 1227.

n: Stations

L \ Stations	2	3	4	5	6	7	8	Formula
L_1	129	162	195	228	261	294	327	$L_1 = 33 \times n + 63$
L_2	141	174	207	240	273	306	339	$L_2 = 33 \times n + 75$

Manifold with Exhaust Cleaner

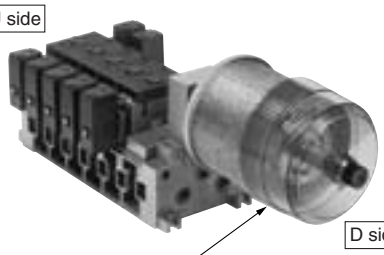
- **Serves to protect working environment.**
- **Valve exhaust noise dampening: 35 dB or more.**
- **Collection rate of drainage and oil mist: 99.9% or more.**
- **Piping work is reduced.**



Plug-in type

Exhaust cleaner AMC610-10
(Option)

U side



D side

Non plug-in type

Exhaust cleaner AMC610-10
(Option)

Manifold Specifications

Manifold	Plug-in type: VV5FS3-01□		Non plug-in type: VV5FS3-10
Wiring	With terminal blocks With multi-connector With D-sub connector		DIN terminal Grommet terminal
Applicable valve model	VFS3□00-□F		VFS3□10-□D, VFS3□10-□E
Porting specifications Rc	Common SUP, Common EXH		
	2(B), 4(A) port	1/4, 3/8	
	1(P), 3(R2), 5(R1) port	P: 1/2, EXH: 1	
Stations	2 to 10 (1)		
Applicable exhaust cleaners	AMC610-10 (Connecting port size R 1) (2)		

Note 1) With multi-connector, or with D-sub connector: 8 stations max.
Note 2) Exhaust cleaner "AMC610-10" is not attached.

How to Order

VV5FS3 - 10 □ - 06 1 - 03 □ - CD

Series VFS3000 Manifold

Base type/Electrical entry

01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10
D	D side mounting	01C, 01F
U	U side mounting	

Stations

02	2 stations
⋮	⋮
10	10 stations

Base type 01T, 10: 2-10 stations
Base type 01C, 01F: 2-8 stations

Symbol

Symbol	Passage P	Passage R1, R2	Porting specifications (A, B)
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Exhaust cleaner mounting direction

Symbol	Exhaust cleaner mounting direction	
CD	D side	D side mounting
CU	U side	U side mounting

⚠ Caution

When using an exhaust cleaner, mount it downwards.

* For details about exhaust cleaners, refer to Best Pneumatic Vol. 6.

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

<Example>

- Plug-in type with terminal block (6 stations)

(Manifold base) **VV5FS3-01T-061-03-CD** ····· **1**
(2 position single) * **VFS3100-5FZ** ····· **3**
(2 position double) * **VFS3200-5FZ** ····· **2**
(Blanking plate) * **VVFS3000-10A** ····· **1**
(Exhaust cleaner) **AMC610-10** ····· **1**

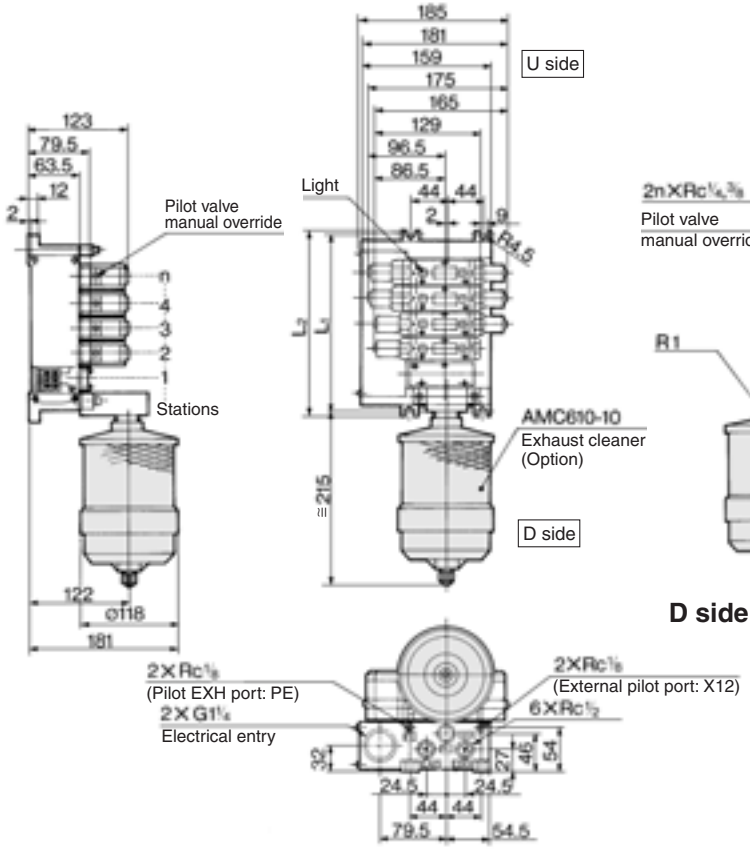
- Non plug-in type (6 stations)

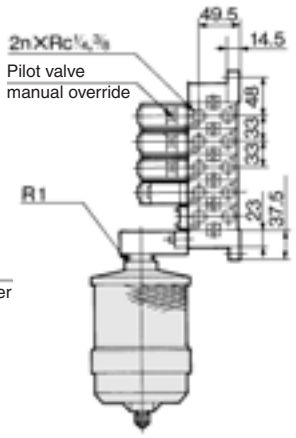
(Manifold base) **VV5FS3-10-061-03-CU** ····· **1**
(2 position single) * **VFS3110-5E** ····· **3**
(2 position double) * **VFS3210-5E** ····· **2**
(Blanking plate) * **VVFS3000-10A** ····· **1**
(Exhaust cleaner) **AMC610-10** ····· **1**

→ The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

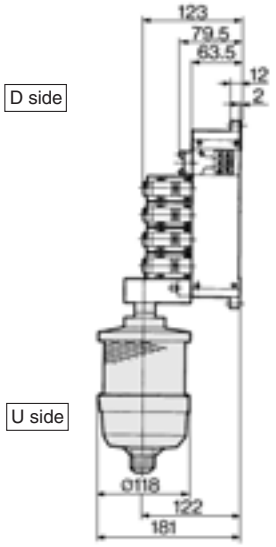
Manifold with Exhaust — Plug-in type, Non plug-in type

Plug-in type: VV5FS3-01T-Station 1-Port size-$^{CD}_{CU}$



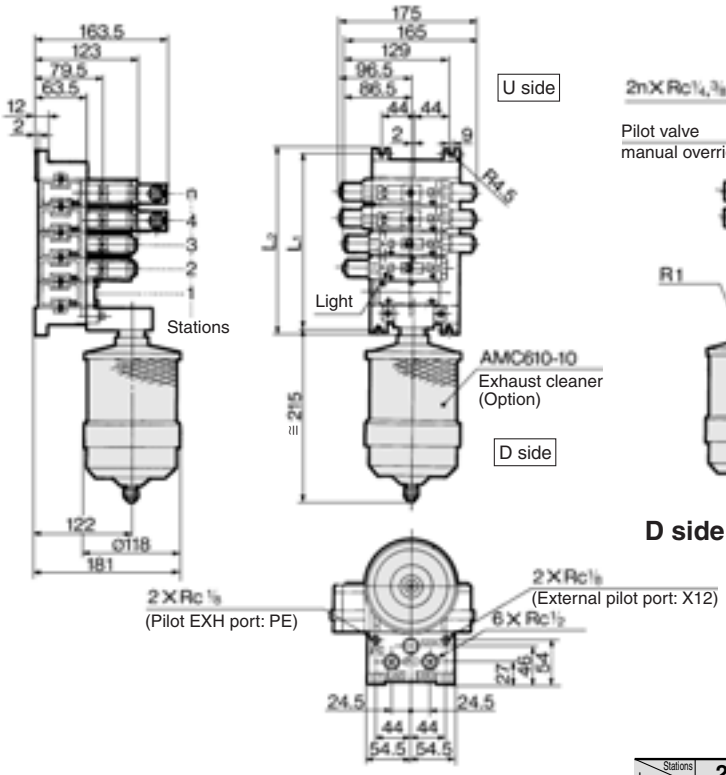


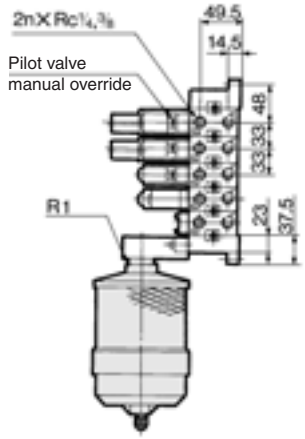
D side mounting



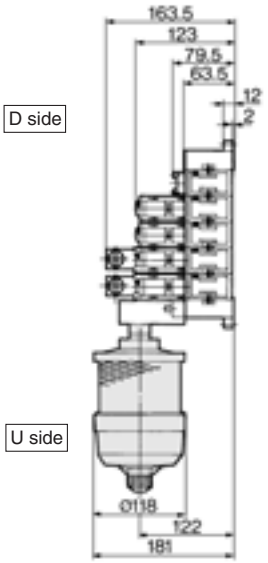
U side mounting

Non plug-in type: VV5FS3-10-Station 1-Port size-$^{CD}_{CU}$





D side mounting



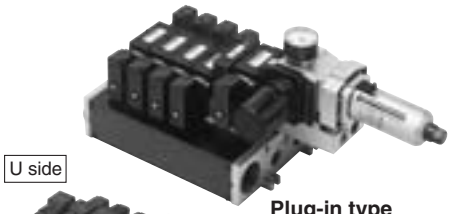
U side mounting

n: Stations

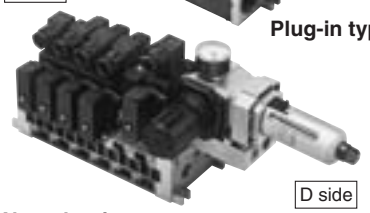
L \ Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	129	162	195	228	261	294	327	360	393	$L_1 = 33 \times n + 63$
L_2	141	174	207	240	273	306	339	372	405	$L_2 = 33 \times n + 75$

Manifold with Control Unit

- **Control unit (Filter, Regulator, Pressure switch, Air release valve) are all standardized to the one unit, and can be mounted on the manifold base without any attachments.**
- **Piping processes are eliminated.**



Plug-in type



Non plug-in type

⚠ Caution

When using an air filter with auto-drain or manual drain, mount the filter vertically.

Manifold Specifications

Manifold	Plug-in type: VV5FS3-01□	Non plug-in type: VV5FS3-10
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal
Applicable valve model	VFS3□00-□F	VFS3□10-□D, VFS3□10-□E
Porting specifications Rc	Common SUP, Common EXH	
	2(B), 4(A) port	1/4, 3/8
	1(P), 3(R2), 5(R1) port	1/2
Stations	2 to 10 *	

* With multi-connector, or with D-sub connector: 8 stations max.

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration degree	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch(1)	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa or less
Contact	1a
Indicator light	LED (RED)
Max. switch capacity	2 VA AC, 2 W DC
Max. operating current	24 VAC/DC or less: 50 mA 100 VAC/DC: 20 mA
Air release valve (Single only)	
Operating pressure range	0.1 to 1.0 MPa

Control Unit/Option

Air release valve spacer (2)	<Plug-in type> VVFS3000-24A-1R (D side mounting)	
	<Non plug-in type> VVFS3000-24A-2R (D side mounting)	
Pressure switch (3)	IS1000P-2-1	
Blanking plate	Filter regulator	MP2-3
	Pressure switch	MP3-2
	Release valve	VVFS3000-24A-10
Filter element	INA-13-854-12-5B	

Note 1) Voltage: 24 VDC to 100 VAC
Inner voltage drop: 4 V
Note 2) Combination of valve VFS31□□ (single) and a release valve spacer can be used an air release valve.
Note 3) The non plug-in type cannot be mounted afterwards.

How to Order

VV5FS3 - 10 □ - 08 1 - 02 □ - AP □

Series VFS3000 Manifold

Base type/Electrical entry

01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10
D	D side mounting	01C, 01F
U	U side mounting	

Stations

02	2 stations
⋮	⋮
10	10 stations

Base type 01T, 10:
2 to 10 stations
Base type 01C, 01F:
2 to 8 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Air release valve coil rating

Nil	None (F, G type only)
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

Control unit type

Symbol / Control equipment	Nil	A	AP	M	MP	F	G	C	E
Air filter with auto-drain		●	●			●			
Air filter with manual drain				●	●		●		
Regulator		●	●	●	●	●	●		
Air release valve		●	●	●	●			●	●
Pressure switch			●		●				
Blanking plate (Air release valve)						●	●		
Blanking plate (Filter, Regulator)							●	●	
Blanking plate (Pressure switch)		●		●		●	●	●	
Number of manifold blocks required for mounting (stations)		2	2	2	2	2	2	2	1

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

<Example>

- Plug-in type with terminal block — In order to mount control unit, it requires 2 stations.

(Manifold base) **VV5FS3-01T-081-03-AP5** ····· **1**
(2 position single) * **VFS3100-5FZ** ····· **4**
(2 position double) * **VFS3200-5FZ** ····· **2**

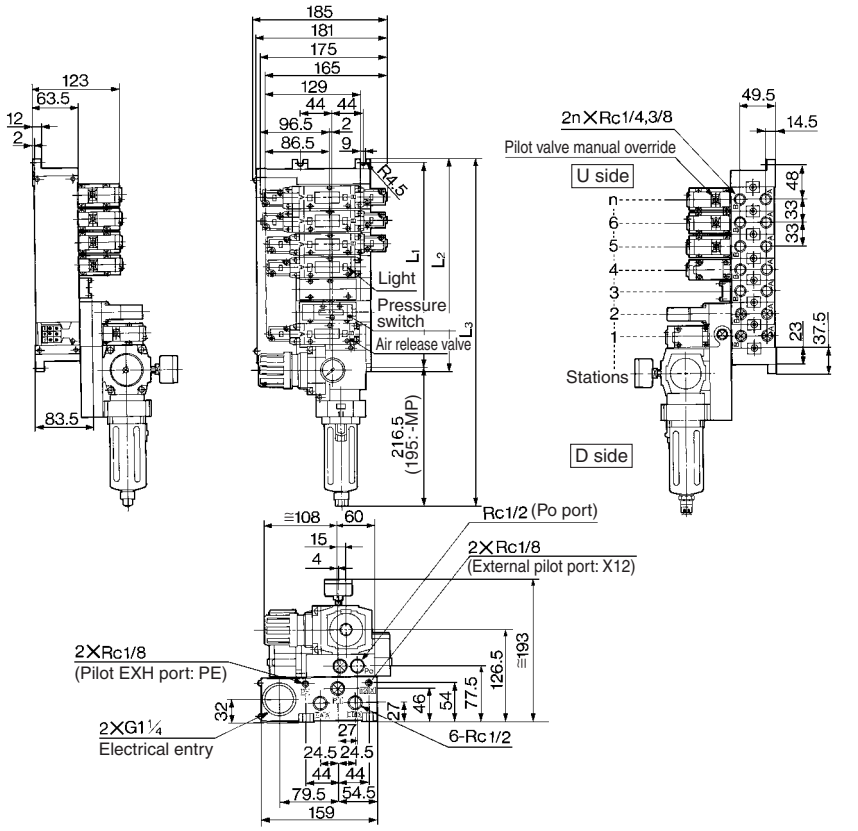
- Non plug-in type — In order to mount control unit, it requires 2 stations.

(Manifold base) **VV5FS3-10-061-03-A** ····· **1**
(2 position single) * **VFS3110-5D** ····· **4**

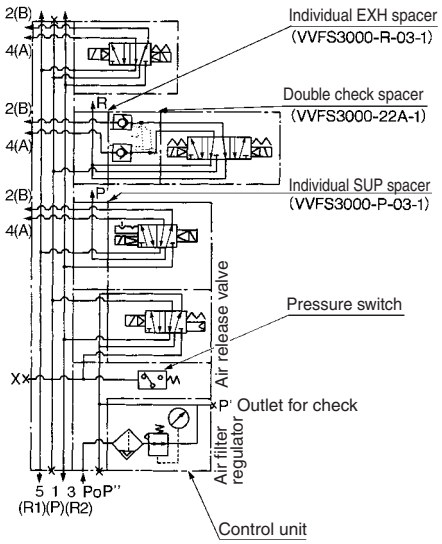
The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

Manifold with Control unit — Plug-in type, Non plug-in type

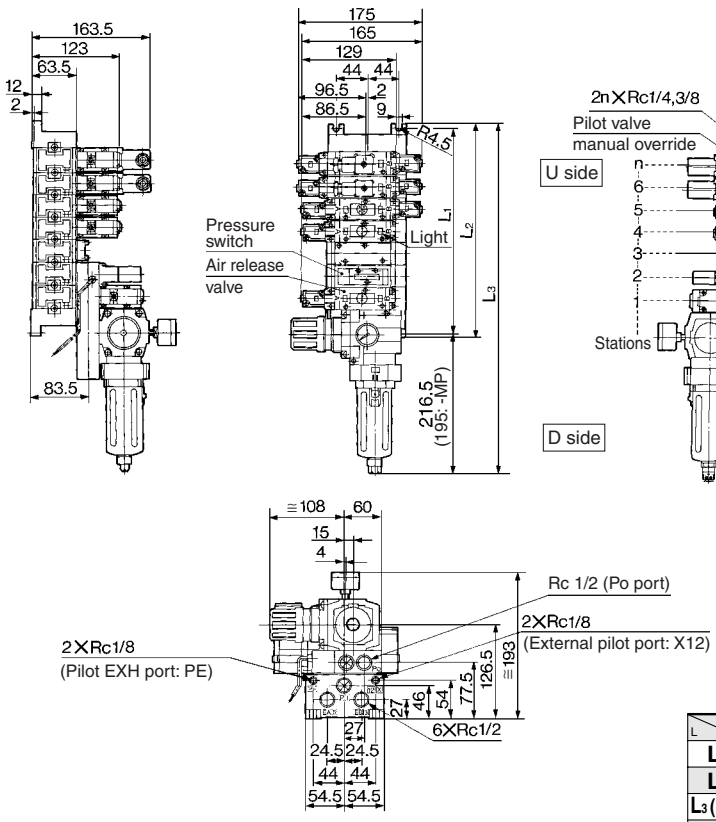
Plug-in type: VV5FS3-01T- Station 1- Port size -AP Voltage for release valve



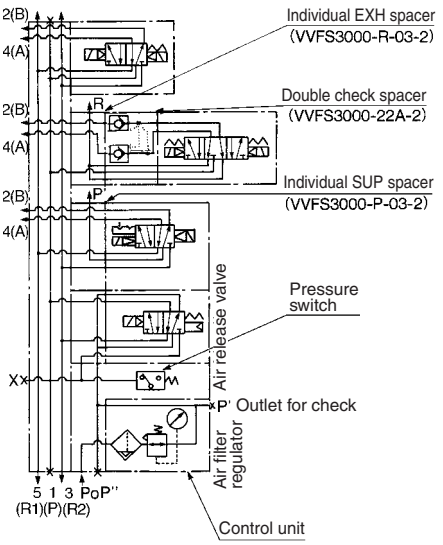
Example for manifold



Non plug-in type: VV5FS3-10- Station 1- Port size -AP Voltage for release valve



Example for manifold



L / Stations	3	4	5	6	7	8	9	10	Formula
L1	162	195	228	261	294	327	360	393	L1 = 33 x n + 63
L2	174	207	240	273	306	339	372	405	L2 = 33 x n + 75
L3 (MP)	363	396	429	462	495	528	561	594	L3 = 33 x n + 264
L3 (AP)	384.5	417.5	450.5	483.5	516.5	549.5	582.5	615.5	L3 = 33 x n + 285.5

Made to Order

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output)
Serial Transmission System

How to Order

How to Order Manifold

VV5FS3 − 01S V − 08 1 − 02 □ − X279

Plug-in type
Serial transmission kit

Stations

2	2 stations
⋮	⋮
17	17 stations

Note 1) Max. 17 stations. Add 1 station for serial unit mounting.
Note 2) Max. 17 stations for all-single wiring. (No. of valves: 16)
For the standard double wiring, the maximum number of stations is 9. (No. of valves: 8)

Port size

Symbol	P, R1, R2	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

∗ For bottom ported: Rc 1/8 only

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Combination symbol

Symbol	Port specification		Piping specification
	P	R1, R2	A, B
1	Common	Common	Side
2∗			Bottom

∗ Option

Compatible with SI unit U side mounating only

Applicable models

Symbol	SI unit part no.	Description
0	—	Without SI unit
F1	EX123U-SUW1	NKE Corporation: Uni-wire System (16 outputs)
H	EX123U-SUH1	NKE Corporation: Uni-wire H System (16 outputs)
J1	EX123U-SSL1	SUNX Corporation: S-LINK System (16 outputs)
J2	EX123U-SSL2	SUNX Corporation: S-LINK System (8 outputs)
Q	EX124U-SDN1	DevieNet (2 power supply systems)
R1	EX124U-SCS1	OMRON Corporation: CompoBus/S (16 outputs) (2 power supply systems)
R2	EX124U-SCS2	OMRON Corporation: CompoBus/S (8 outputs) (2 power supply systems)
V	EX124U-SMJ1	CC-Link (2 power supply systems)

Refer to pages 1653 to 1655 for the details of the EX123/124 integrated type (for output) serial transmission system.

● Correspondence of SI unit output numbers and solenoid valve coils

<Wiring Example 1> Double wiring (Standard)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9
	Double	Double	Single	Single	Single	Double	Single	Single	SI unit
	A B	A B	A B	A B	A B	A B	A B	A B	
	0 1	2 3	4 5	6 7	8 9	10 11	12 13	14 15	

<Wiring Example 2> Single/Double mixed wiring (Option)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9	10
	Double	Double	Single	Single	Single	Double	Single	Double	Single	SI unit
	A B	A B	A	A	A	A B	A	A B	A	
	0 1	2 3	4	5	6	7 8	9	10 11	11	

∗ Mixed wiring is available as an option. Use the manifold specification sheet to specify this.

How to Order Valves

VFS3 □ 00 □ − 5 F □ □

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Pilot type

Nil	Internal pilot
R	External pilot

24 VDC

Pilot valve manual override

Nil	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Locking type (Tool required)
C	Locking type (Lever)

Option

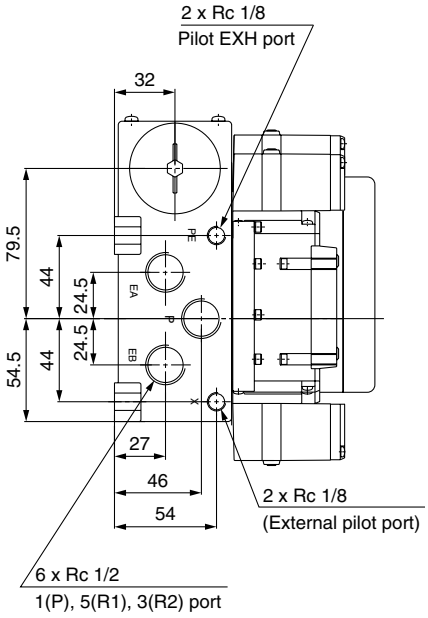
Nil	None
Z	With light/surge voltage suppressor

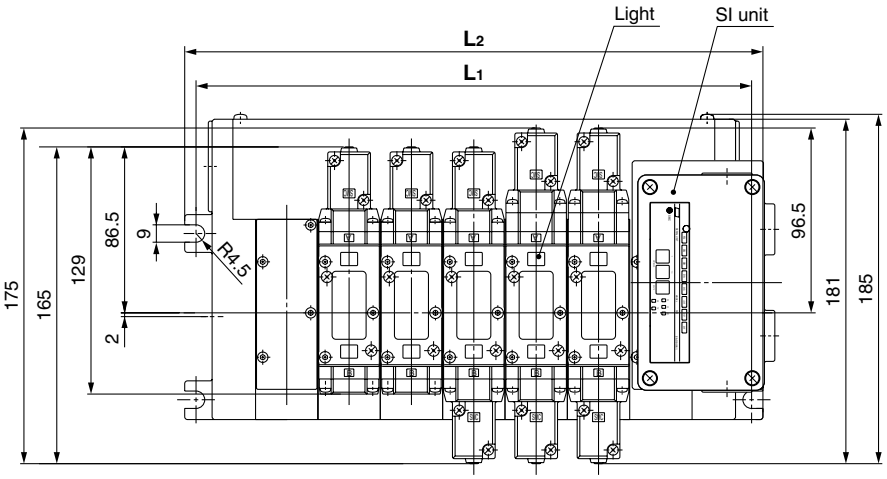
Coil rated voltage

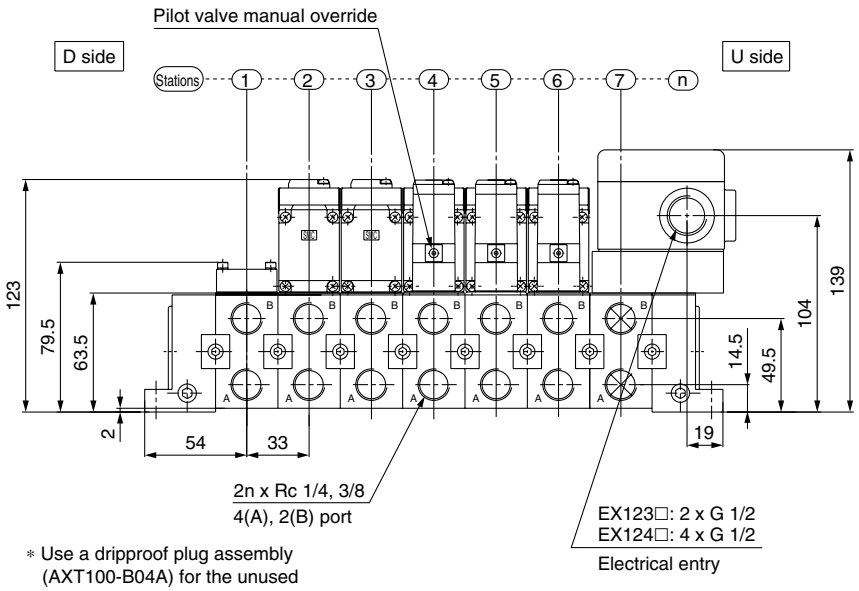
Nil	None

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output) Serial Transmission System

VV5FS3-01S Model - Stations Symbol - Port size Thread -X279







∗ Use a dripproof plug assembly (AXT100-B04A) for the unused conduit port (G 1/2).

Dimensions

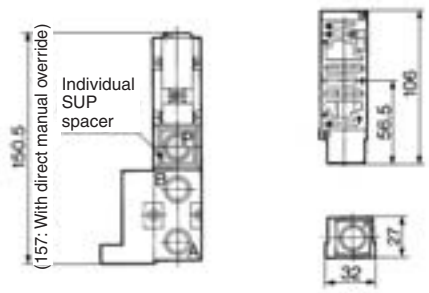
Formula $L_1 = 33n + 63$ $L_2 = 33n + 75$
n: Stations (Max. 17stations)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
L_1	129	162	195	228	261	294	327	360	393	426	459	492	525	558	591	624
L_2	141	174	207	240	273	306	339	372	405	438	471	504	537	570	603	636

Note) Actual number of manifold base stations: Add 1 SI unit mounting station to the number of valve stations.

Manifold Option Parts — Plug-in type, Non plug-in type

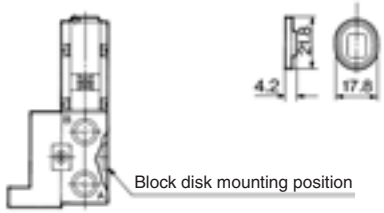
Individual SUP spacer:
VVFS3000-P-03-1 (Plug-in type)
VVFS3000-P-03-2 (Non plug-in type)



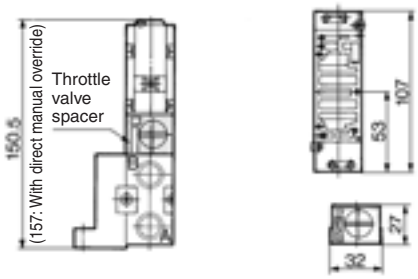
Individual EXH spacer:
VVFS3000-R-03-1 (Plug-in type)
VVFS3000-R-03-2 (Non plug-in type)



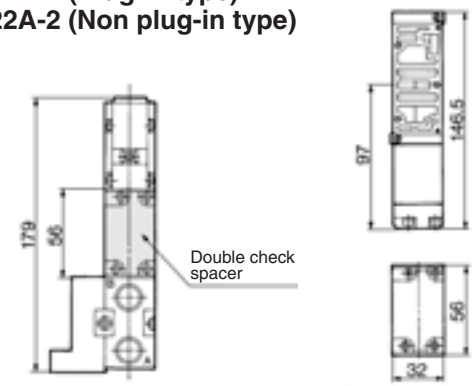
SUP/EXH block plate: AXT636-1A



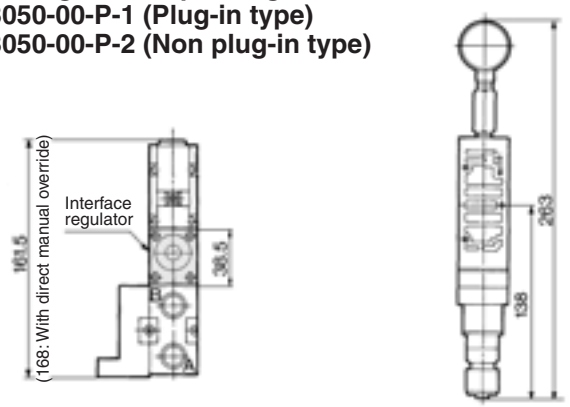
Throttle valve spacer:
VVFS3000-20A-1 (Plug-in type)
VVFS3000-20A-2 (Non plug-in type)



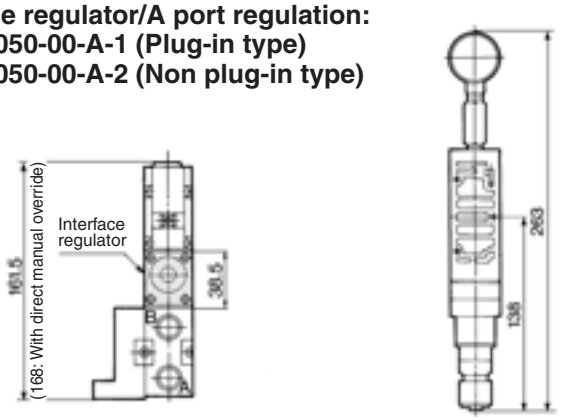
Double check spacer:
VVFS3000-22A-1 (Plug-in type)
VVFS3000-22A-2 (Non plug-in type)



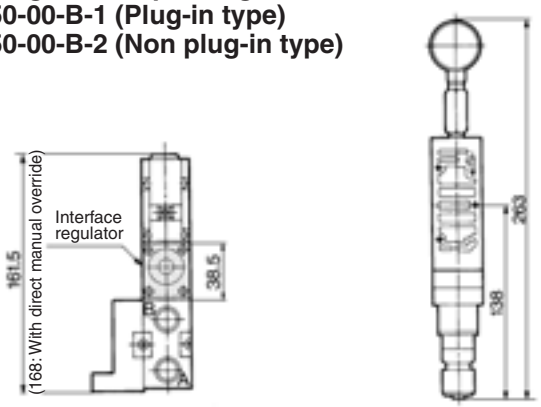
Interface regulator/P port regulation:
ARBF3050-00-P-1 (Plug-in type)
ARBF3050-00-P-2 (Non plug-in type)



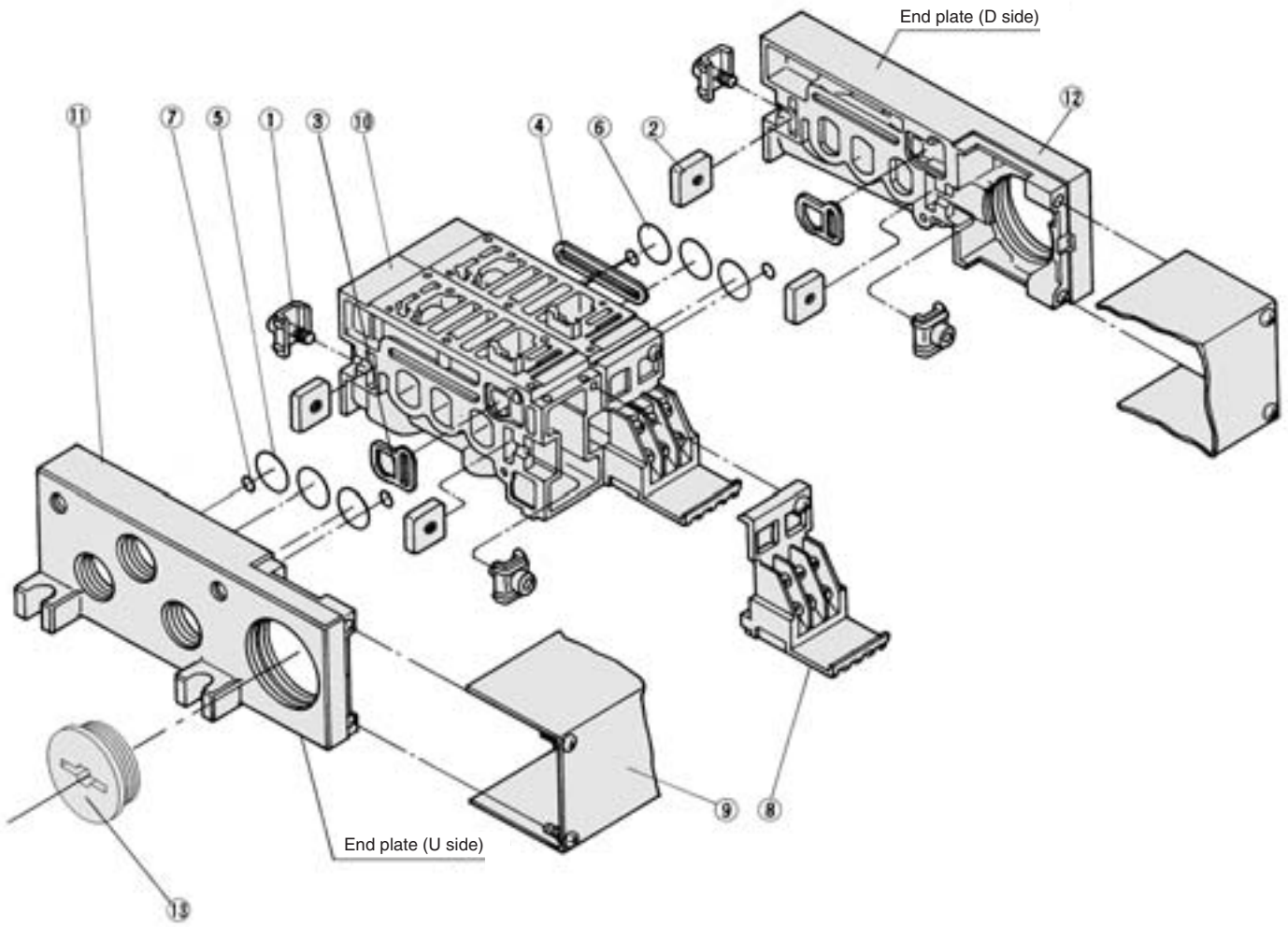
Interface regulator/A port regulation:
ARBF3050-00-A-1 (Plug-in type)
ARBF3050-00-A-2 (Non plug-in type)



Interface regulator/B port regulation:
ARBF3050-00-B-1 (Plug-in type)
ARBF3050-00-B-2 (Non plug-in type)



Manifold Base Construction — Plug-in type, Non plug-in type



Replacement Parts

No.	Description	Material	Part no.
1	**Connection fitting A**	Steel plate	VVFS3000-5-1A
2	**Connection fitting B**	Steel plate	VVFS3000-5-2
3	**Gasket**	NBR	VVFS3000-7-1
4	**Gasket**	NBR	VVFS3000-8
5	**O-ring**	NBR	19.8 x 16.6 x 1.6 (End plate)
6	**O-ring**	NBR	20 x 16 x 2 (Manifold block)
7	**O-ring**	NBR	6.2 x 3 x 1.6
8	**Terminal assembly**	—	VVFS3000-6A
9	**Junction cover assembly**	For 01T	VVFS3000-4A-Stations
		For 01S□	AZ738-22A-Stations
13	**Rubber plug**	NBR	AXT336-9

- For increasing the manifold bases, please order the manifold block assembly number of the principal part assembly ⑩.
  For plug-in type: The manifold base with terminal stand (integrated with a junction cover) is required with the ⑨ junction cover assembly.

Replacement Parts: Sub Assembly

Note) Manifold Base/Construction: Plug-in with terminal block.

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	**Manifold block assembly**	VVFS3000-1A-1-$^{02}_{03}$	Manifold block ⑩, Terminal ⑧, Metal joint ①, ②, Gasket ③, ④, O-ring ⑥, ⑦, Receptacle assembly	Plug-in type
		VVFS3000-1A-2-$^{02}_{03}$	Manifold block ⑩, Metal joint ①, ②, Gasket ③, ④, O-ring ⑥, ⑦	Non plug-in type
11	**End plate (U side) assembly**	VVFS3000-2A-1	End plate (U) ⑪, Metal joint ①, ②, O-ring ⑤, ⑥	Plug-in type
		VVFS3000-2A-2	End plate (U) ⑪, Metal joint ①, ②, O-ring ⑤, ⑥	Non plug-in type
12	**End plate (D side) assembly**	VVFS3000-3A-1	End plate (D) ⑫, Metal joint ①, ②, Gasket ③	Plug-in type
		VVFS3000-3A-2	End plate (D) ⑫, Metal joint ①, ②, Gasket ③	Non plug-in type

5 Port Pilot Operated Solenoid Valve
Metal Seal, Plug-in/Non Plug-in
Series VFS4000

NRTL /C

Model

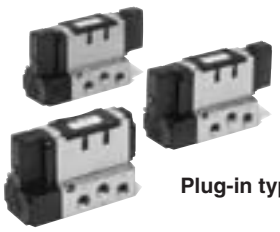
Type of actuation		Model: Plug-in	Model: Non plug-in	Port size	Flow characteristics (1): 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics (1): 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Max. (1) operating cycle (cpm)	Response (2) time (ms)	Mass (3)(4) (kg)
2 position	Single	**VFS4100**	**VFS4110**	3/8	11	0.18	2.6	12	0.20	2.8	1,000	40 or less	0.63
				1/2	12	0.15	2.8	12	0.22	3.1			
	Double	**VFS4200**	**VFS4210**	3/8	11	0.18	2.6	12	0.20	2.8	1,200	15 or less	0.75
				1/2	12	0.15	2.8	12	0.22	3.1			
3 position	Closed center	**VFS4300**	**VFS4310**	3/8	10	0.18	2.5	10	0.14	2.3	600	50 or less	0.82
				1/2	11	0.18	2.7	11	0.22	2.6			
	Exhaust center	**VFS4400**	**VFS4410**	3/8	11	0.16	2.6	10	0.15	2.3	600	50 or less	0.82
				1/2	12	0.15	2.9	10	0.15	2.4			
	Pressure center	**VFS4500**	**VFS4510**	3/8	11	0.22	2.7	11	0.22	2.7	600	50 or less	0.82
				1/2	12	0.22	2.9	11	0.22	2.8			
	Double check	**VFS4600**	**VFS4610**	3/8	6.3	—	—	6.5	—	—	200	55 or less	1.71
				1/2	6.8	—	—	6.8	—	—			

Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency. Note 2) Based on JIS B 8375-1981 (The value at supply press. 0.5 MPa).
Note 3) The figures in the above list are for without sub-plate. In the case of with plug-in sub-plate and with non plug-in sub-plate, add 0.50 kg and 0.43 kg respectively. Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

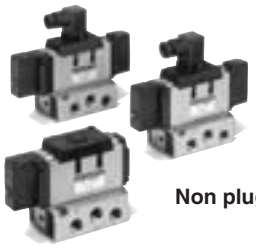
Compact yet provides a large flow capacity
1/2: C: 12 dm³/(s·bar)

Low power consumption: 1.8 W DC

Easy maintenance
2 types of sub-plates:
Plug-in and non plug-in

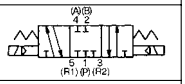
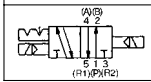
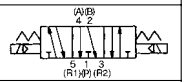
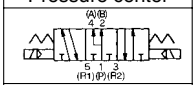
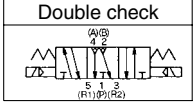


Plug-in type



Non plug-in type

JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Double check
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimum operating pressure	**2 position**	0.1 MPa
		3 position	0.15 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C (1)
	Lubrication		Non-lube (2)
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² (3)
	Enclosure		Type E: Dustproof (level 0), Type F: Dripproof (level 2), Type D: Splashproof (level 4) (4)
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) (5)
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA/50 Hz, 5.0 VA/60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption DC		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Plug-in type: Conduit terminal
			Non plug-in type: Grommet terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920.
Note 5) Based on JIS C 4003.

Option Specifications

Pilot type		External pilot Note)
Manual override	**Main valve**	Direct manual override
	Pilot valve	Non-locking push type (Extended), Locking type (Tool required), Locking type (Lever)
Coil rated voltage		110 to 120, 220, 240 VAC, 50/60 Hz
		12, 100 VDC
Porting specifications		Bottom ported
Option		With light/surge voltage suppressor, Non-rotating DIN terminal

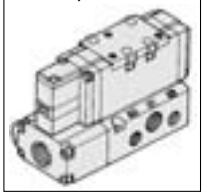
Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure 2 position: 0.1 to 1.0 MPa, 3 position: 0.15 to 1.0 MPa

How to Order



Body type

O: Plug-in type sub-plate



Electrical entry

F: Plug-in type conduit terminal



Porting specifications

Nil	Side ported
B*	Bottom ported

* In the case of external pilot (Option), bottom piping is not available.

Port size

Nil	Without sub-plate
03	Rc 3/8
04*	Rc 1/2

* EA, EB: Rc 3/8

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in VFS4 2 0 0 □ – 5 F □ □ – □ 03 □

Non plug-in VFS4 2 1 0 □ – 1 E □ □ – □ 03 □



Symbol

1	2 position single	5	3 position pressure center
2	2 position double	6	3 position double check
3	3 position closed center		
4	3 position exhaust center		

* Reverse pressure: Can be used by external pilot specifications.

Body type

1: Non plug-in type sub-plate



Body option

0	Standard
1*	Direct manual override

* Option

Pilot type

Nil	Internal pilot
R*	External pilot

* Option

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Option

Nil	None
Z	With light/surge voltage suppressor
P*	Non-rotating DIN terminal

* In the case of w/ "Z", enter "ZP".
* Type "P" is available for DIN type only.

Electrical entry

E: Grommet terminal



D: DIN terminal



Pilot valve Manual override

Nil: Non-locking push type (Flush)



A*: Non-locking push type (Extended)



B*: Locking type (Tool required)



C*: Locking type (Lever)



* Option

How to Order Pilot Valve Assembly

SF4 – 1 F □ – 30

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Manual override

Nil	Non-locking push type (Flush)
A*	Non-locking push type (Extended)
B*	Locking type (Tool required)
C*	Locking type (Lever)

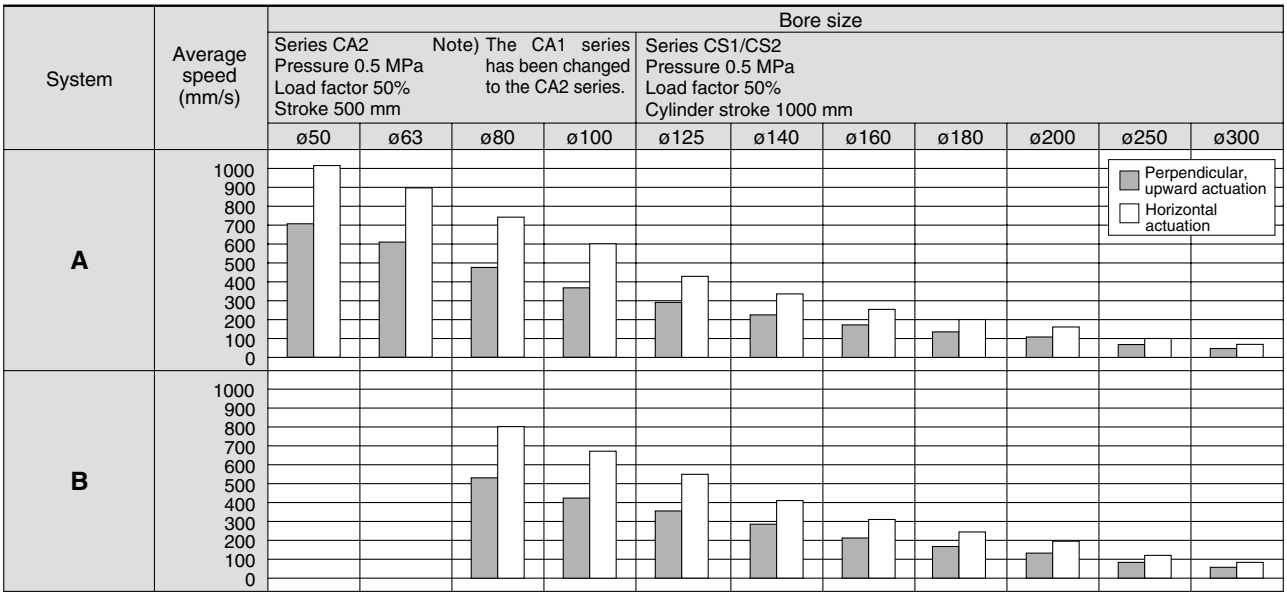
* Option

** Refer to page 1224 for voltage conversion.

SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.



System Components

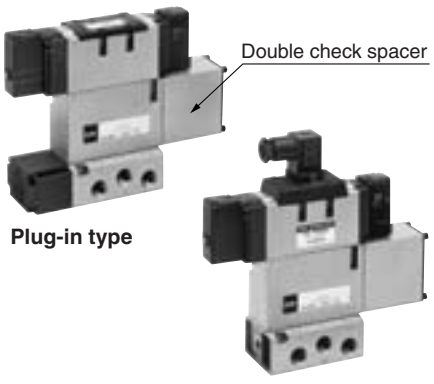
System	Solenoid valve	Speed controller	Silencer	SGP (Steel pipe) Port size x Length
A	Series VFS4000 Rc 3/8	AS420-03 (S = 73 mm²)	AN300-03 (S = 60 mm²)	10A x 1
B	Series VFS4000 Rc 1/2	AS420-04 (S = 97 mm²)	AN400-04 (S = 90 mm²)	15A x 1

∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is what the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Double Check Spacer/Specifications

Can hold an intermediate cylinder position for an extended time

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.



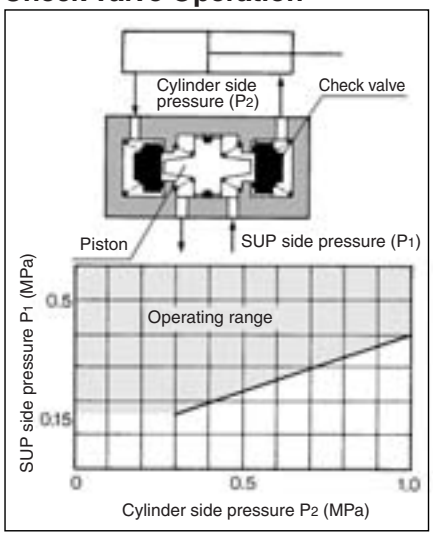
Specifications

Double check spacer part no.	Plug-in type	Non plug-in type
	VVFS4000-22A-1	**VVFS4000-22A-2**
Applicable valve model	VFS4400-□F	VFS4410-□D VFS4410-□E

⚠ Caution

- In the case of 3 position double check valve (VFS46□0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

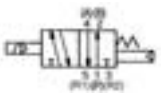
Check Valve Operation

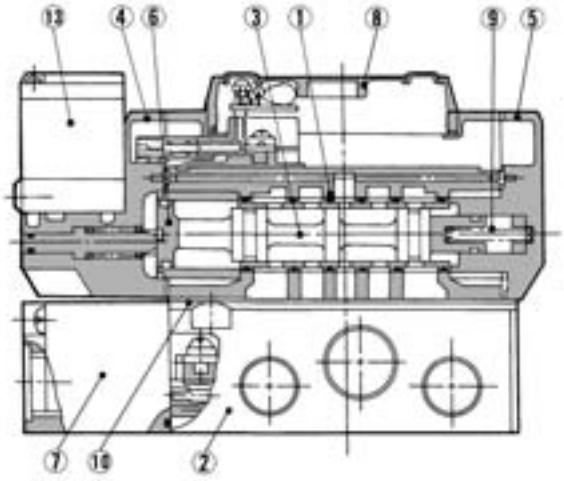


- The combination of VFS41$^{0}_{1}$0, VFS42$^{0}_{1}$0 and Double check spacer for prevention of falling at the stroke end but cannot hold the intermediate position of the cylinder.

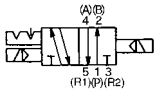
Construction

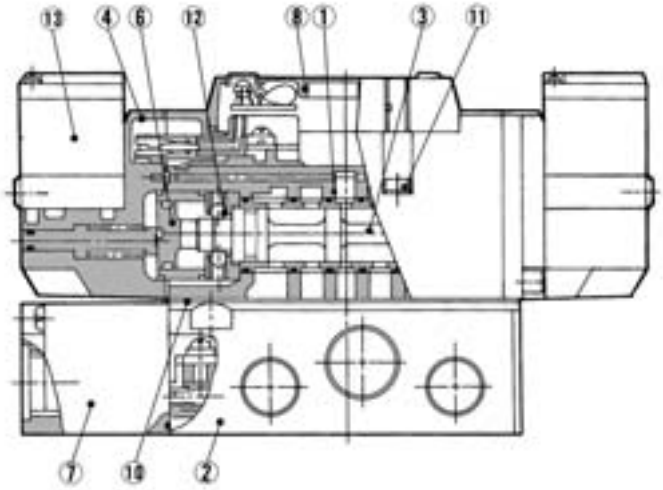
2 position single





2 position double





3 position closed center/exhaust center/pressure center

Closed center

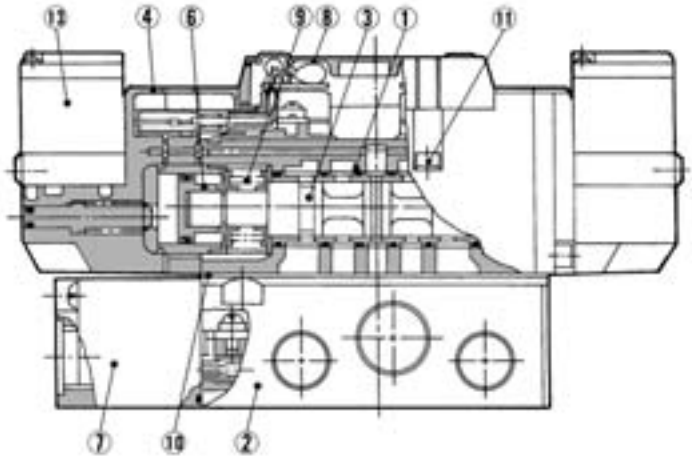


Exhaust center



Pressure center





Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Sub-plate**	Aluminum die-casted	Platinum silver
3	**Spool/Sleeve**	Stainless steel	—
4	**Adapter plate**	Resin	Black
5	**End plate**	Resin	Black
6	**Piston**	Resin	—
7	**Junction cover**	Resin	—
8	**Light cover**	Resin	—
9	**Return spring**	Stainless steel	—
10	**Gasket**	NBR	—
11	**Hexagon socket head screw**	Steel	—
12	**Detent assembly**	—	—
13	**Pilot valve assembly**	—	—

∗ Refer to “How to Order Pilot Valve Assembly” on page 1183.

Sub-plate Assembly Part No.

Plug-in	VFS4000-P-$^{03}_{04}$
Non plug-in	VFS4000-S-$^{03}_{04}$

∗ Mounting bolt and gasket are not included.

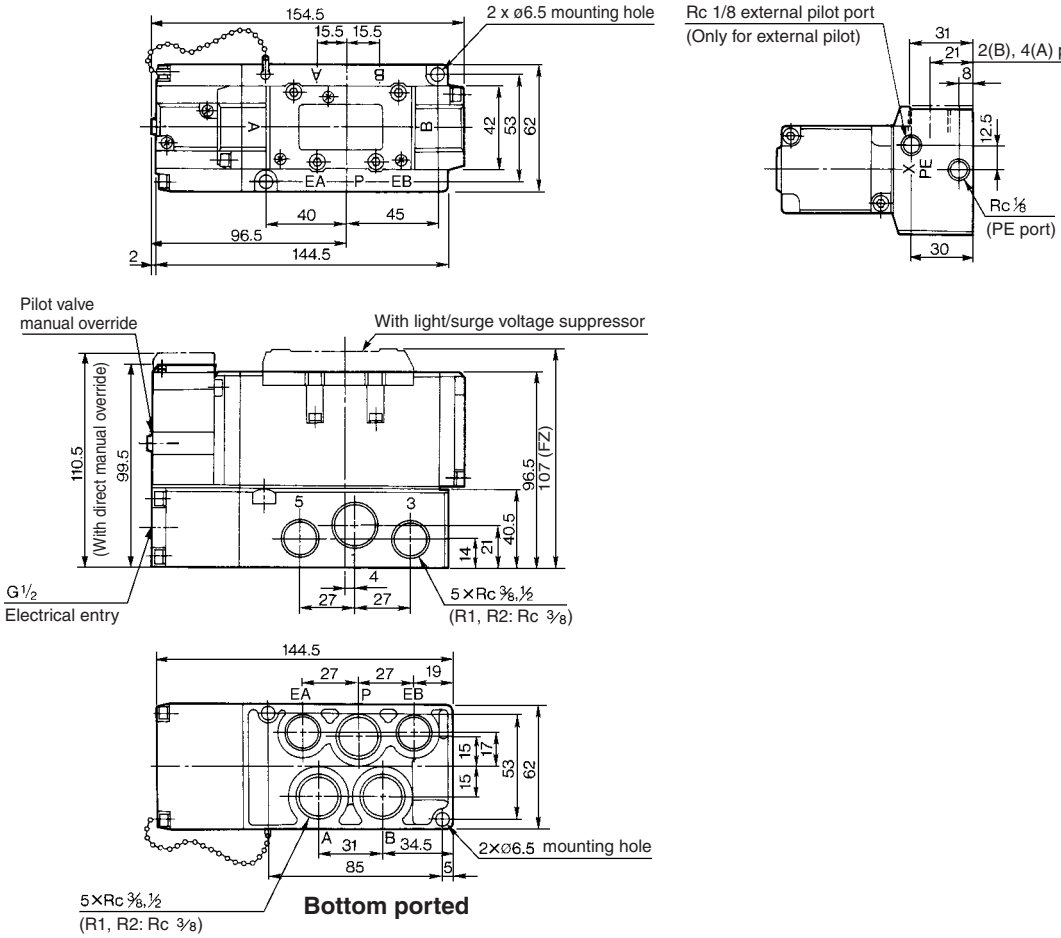
Sub-plate Assembly (For External Pilot) Part No.

Plug-in	VFS4000-P-R$^{03}_{04}$
Non plug-in	VFS4000-S-R$^{03}_{04}$

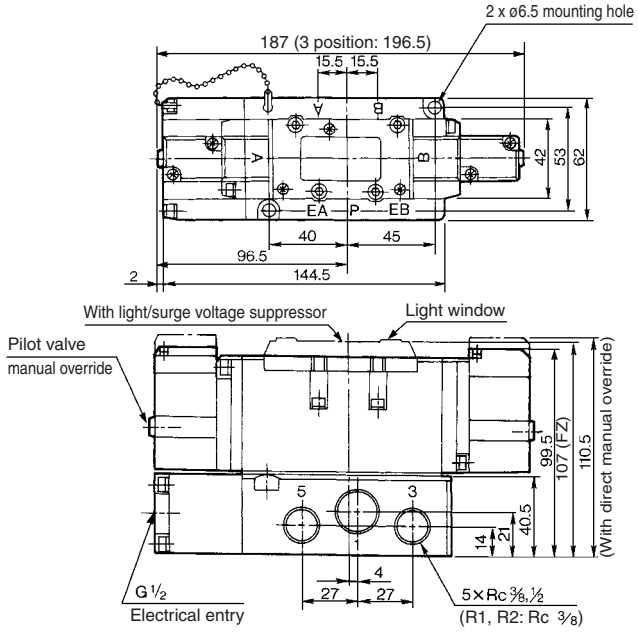
Part no. for mounting bolt and gasket
BG-VFS4000

Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

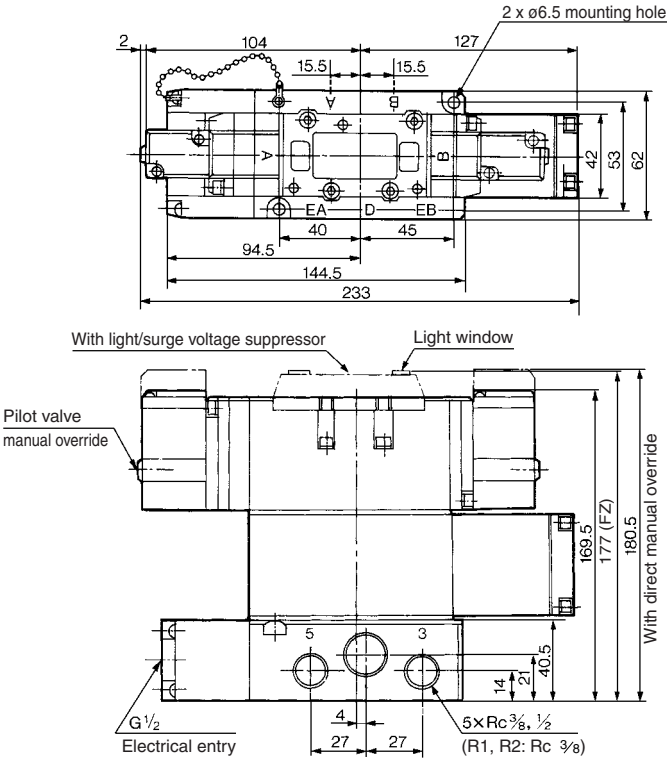
2 position single: VFS4100-□F



2 position double: VFS4200-□F
3 position closed center: VFS4300-□F
3 position exhaust center: VFS4400-□F
3 position pressure center: VFS4500-□F

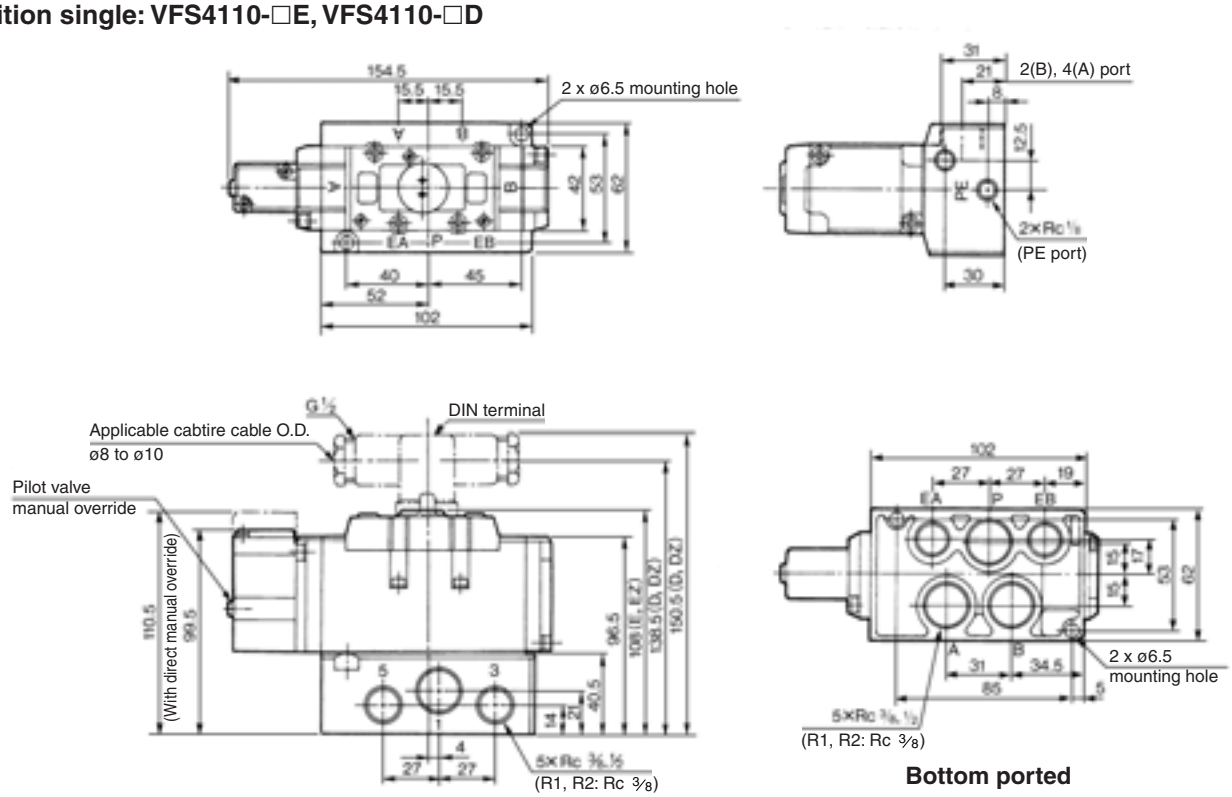


3 position double check: VFS4600-□F



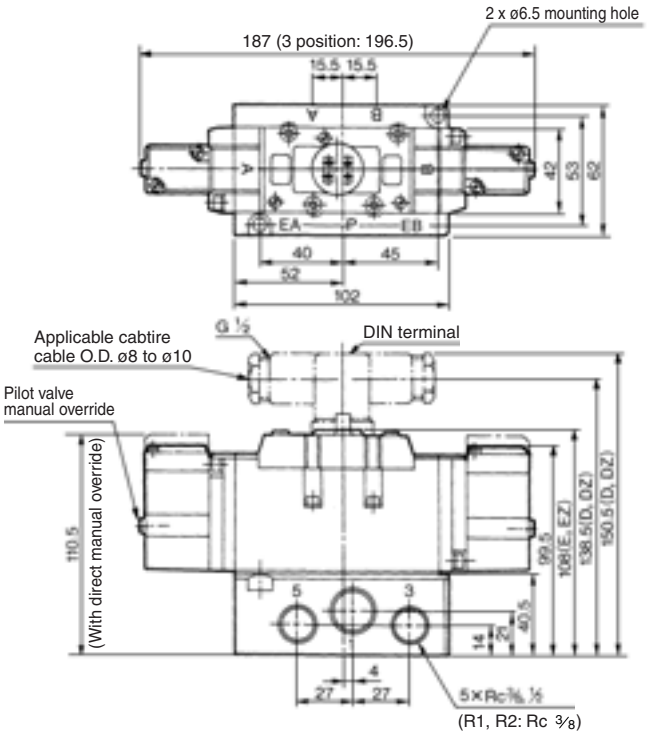
Non Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

2 position single: VFS4110-□E, VFS4110-□D

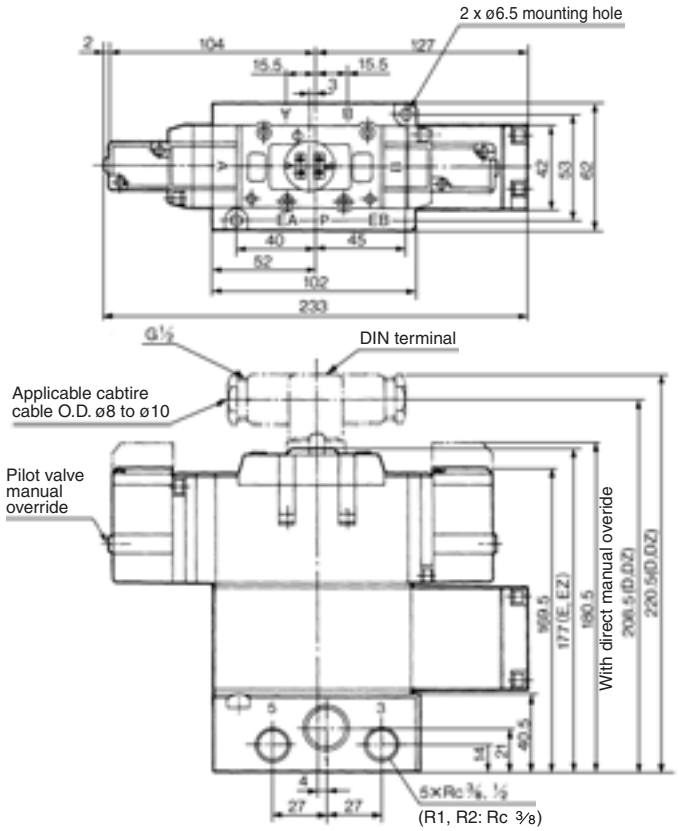


Bottom ported

2 position double: VFS4210-□E, VFS4210-□D
3 position closed center: VFS4310-□E, VFS4310-□D
3 position exhaust center: VFS4410-□E, VFS4410-□D
3 position pressure center: VFS4510-□E, VFS4510-□D



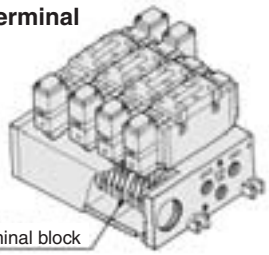
3 position double check: VFS4610-□E, VFS4610-□D



Series VFS4000
Manifold Specifications

Plug-in Type: With Terminal Block

- **Since lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.**



VV5FS4 - 01T - 06 1 - 03

- **Series VFS4000 Manifold**
- **Plug-in type with terminal block**
- **Stations**

02	2 stations
⋮	⋮
10	10 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, R1, R2	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

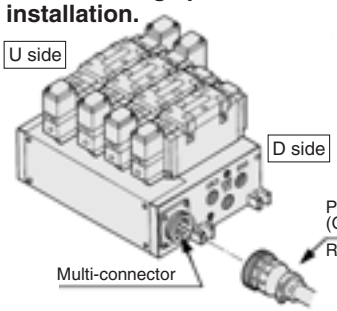
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in Type: With Multi-connector (Wiring specifications: Refer to page 1227.)

- **Master connection of power and solenoid valves.**
- **Quick wiring permits easier installation.**



VV5FS4 - 01C D - 05 2 - 03

- **Series VFS4000 Manifold**
- **Plug-in type with multi-connector**
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Stations**

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, R1, R2	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

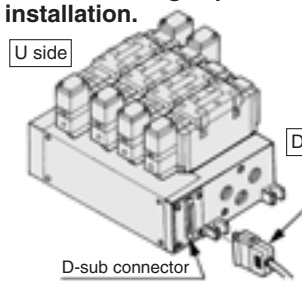
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in Type With: D-sub Connector (Wiring specifications: Refer to page 1227.)

- **Wide range of interchangeability (MIL Spec D-sub connector terminal 25 pcs attached.)**
- **Quick wiring permits easier installation.**



VV5FS4 - 01F D - 06 1 - 03

- **Series VFS4000 Manifold**
- **Plug-in type with D-sub connector**
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Stations**

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, R1, R2	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

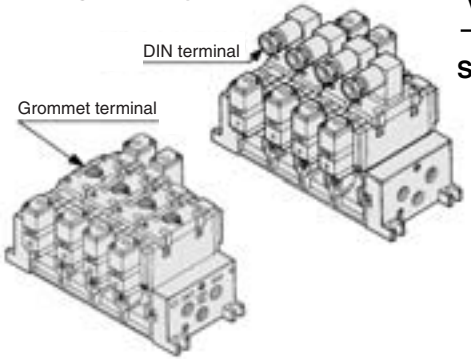
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- **Wiring for every valve.**



VV5FS4 - 10 - 05 2 - 03

- **Series VFS4000 Manifold**
- **Non plug-in type**
- **Stations**

02	2 stations
⋮	⋮
10	10 stations

- **Symbol**

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

- **Port size**

Symbol	P, R1, R2	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

<Example>

- Plug-in type with terminal block: 6 stations
  (Manifold base) VV5FS4-01T-061-03 ·····1
  (2 position single) VFS4100-5FZ ·····3
  (2 position double) VFS4200-5FZ ·····2
  (Blanking plate) VVFS4000-10A ·····1
- Non plug-in type: 6 stations
  (Manifold base) VV5FS4-10-061-04 ·····1
  (2 position single) VFS4110-5D ·····5
  (3 position exhaust center) VFS4410-5D ····1
  (Individual EXH spacer) VVFS4000-R-04-2·····1

Manifold Specifications

Base model	Wiring	Porting specifications	Port size Rc		Stations	Applicable valve model
		A, B port	P, R1, R2	A, B		
Plug-in type **VV5FS4-01□**	• With terminal block • With multi-connector • With D-sub connector	Side/ Bottom	1/2	3/8, 1/2	2 to 10*	VFS4□00-□F
Non plug-in type **VV5FS4-10**	• DIN terminal • Grommet terminal					VFS4□10-□D VFS4□10-□E

∗ With multi-connector, or with D-sub connector: 8 stations max.

Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations		Station 1	Station 5	Station 10
VV5FS4	1 → 4/2 (P → A/B)	C [dm³/(s·bar)]	10.5	10.5	10.5
		b	0.20	0.20	0.20
		Cv	2.5	2.5	2.5
	4/2 → 5/3 (A/B → R1/R2)	C [dm³/(s·bar)]	11	11	11
		b	0.20	0.20	0.20
		Cv	2.9	2.9	2.9

∗ Port size: Rc 1/2

Manifold Option Parts Assembly

Individual SUP spacer

An individual SUP spacer set on manifold block can form SUP port for every valve.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-P-03-1	VVFS4000-P-03-2



Individual EXH spacer

An individual EXH spacer set on manifold block can form EXH port for every valve. (common EXH type)

Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-R-04-1	VVFS4000-R-04-2



∗ SUP block plate

When supplying manifold with more than two different pressures, high and low, insert a block plate in between stations subjected to Plug-in different pressures.

Body type	Plug-in type	Non plug-in type
Part no.	AXT634-10A	

∗ EXH block plate

When valve exhaust affects the other stations on the circuit or when a reverse pressure valve is used to a standard manifold valve, insert EXH block plate in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	AXT634-11A	



EXH block plate **SUP block plate**

Throttle valve spacer

Needle valve set on the manifold block can control cylinder speed by throttling exhaust.

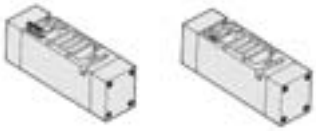
Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-20A-1	VVFS4000-20A-2



Double check spacer

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.

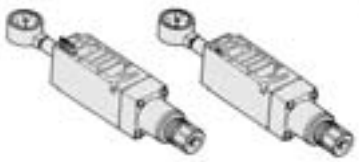
Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-22A-1	VVFS4000-22A-2



Interface regulator

Interface regulator set on manifold block can regulate the pressure to each valve. (Refer to page 1225 for “Flow Characteristics”.)

Body type	Plug-in type	Non plug-in type
P port regulation	ARBF4050-00-P-1	ARBF4050-00-P-2
A port regulation	ARBF4050-00-A-1	ARBF4050-00-A-2
B port regulation	ARBF4050-00-B-1	ARBF4050-00-B-2



Blanking plate

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.

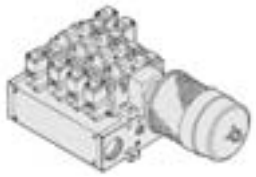
Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-10A	

Manifold Option

With exhaust cleaner

Plug-in type/Non Plug-in type

- **Valve exhaust noise dampening: 35 dB or more.**
- **Oil mist collection: Rate of collection 99.9% or more.**
- **Piping process reduced.**

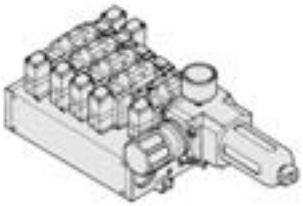


For details, refer to page 1193.

With control unit

Plug-in type/Non Plug-in type

- **Filter, regulation valve, pressure switch and air release valve are all combined to form one unit.**
- **Piping processes are eliminated.**



For details, refer to page 1195.

Made to Order
Manifold with serial transmission kit

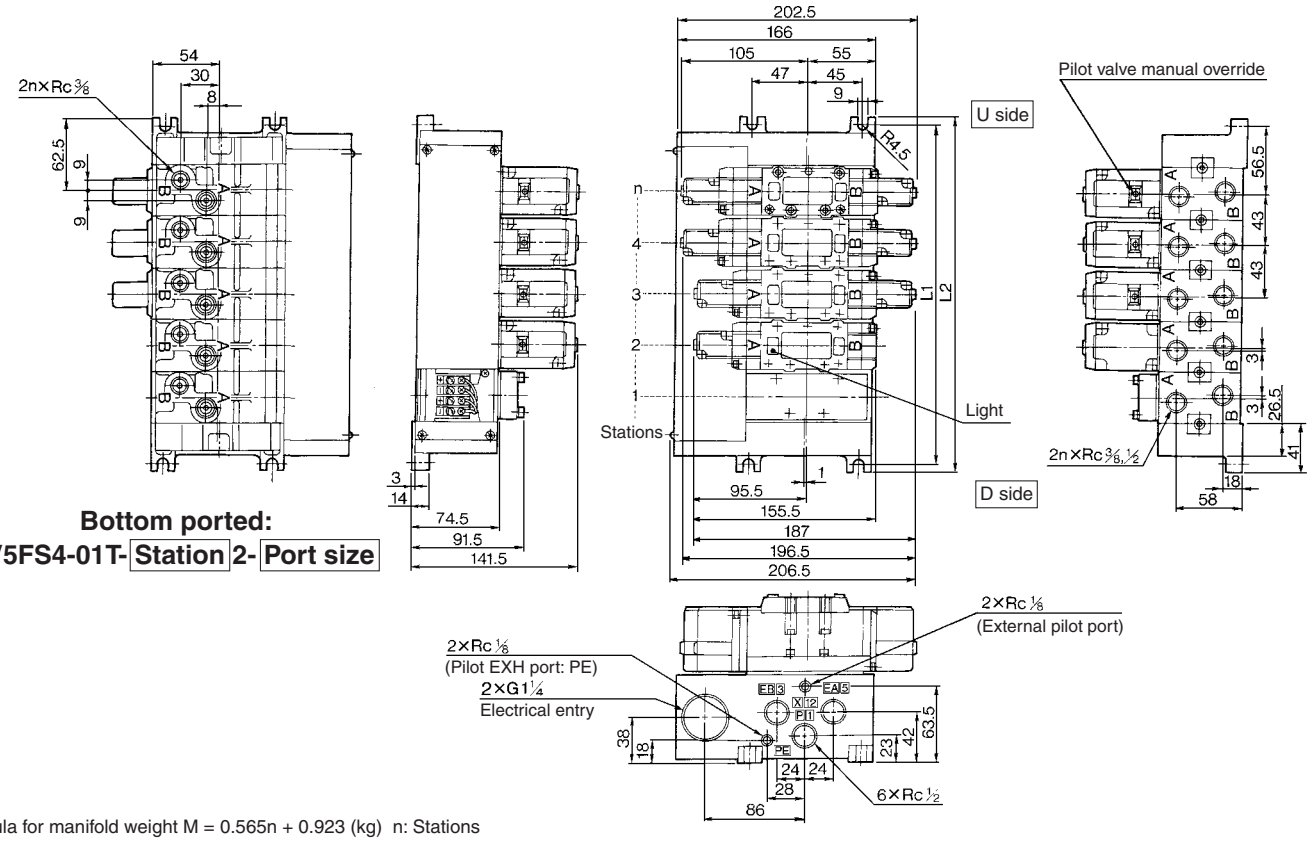
Plug-in type

- **Solenoid valve wiring process reduced considerably.**

For details, refer to page 1198.

Manifold — Plug-in type, Non plug-in type

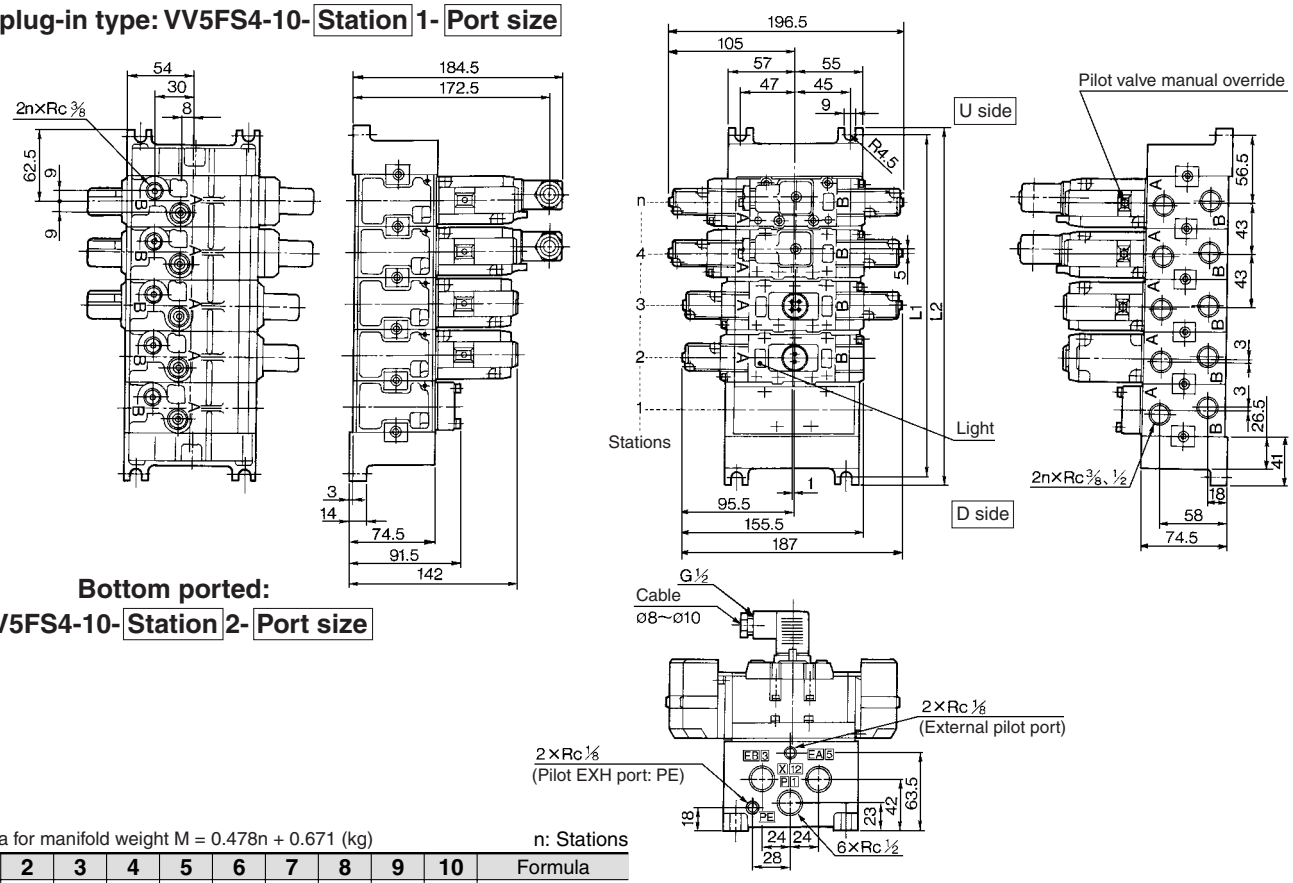
Plug-in type (With terminal block): VV5FS4-01T-[Station]1-[Port size]



Bottom ported:
VV5FS4-01T-[Station]2-[Port size]

Formula for manifold weight M = 0.565n + 0.923 (kg) n: Stations

Non plug-in type: VV5FS4-10-[Station]1-[Port size]



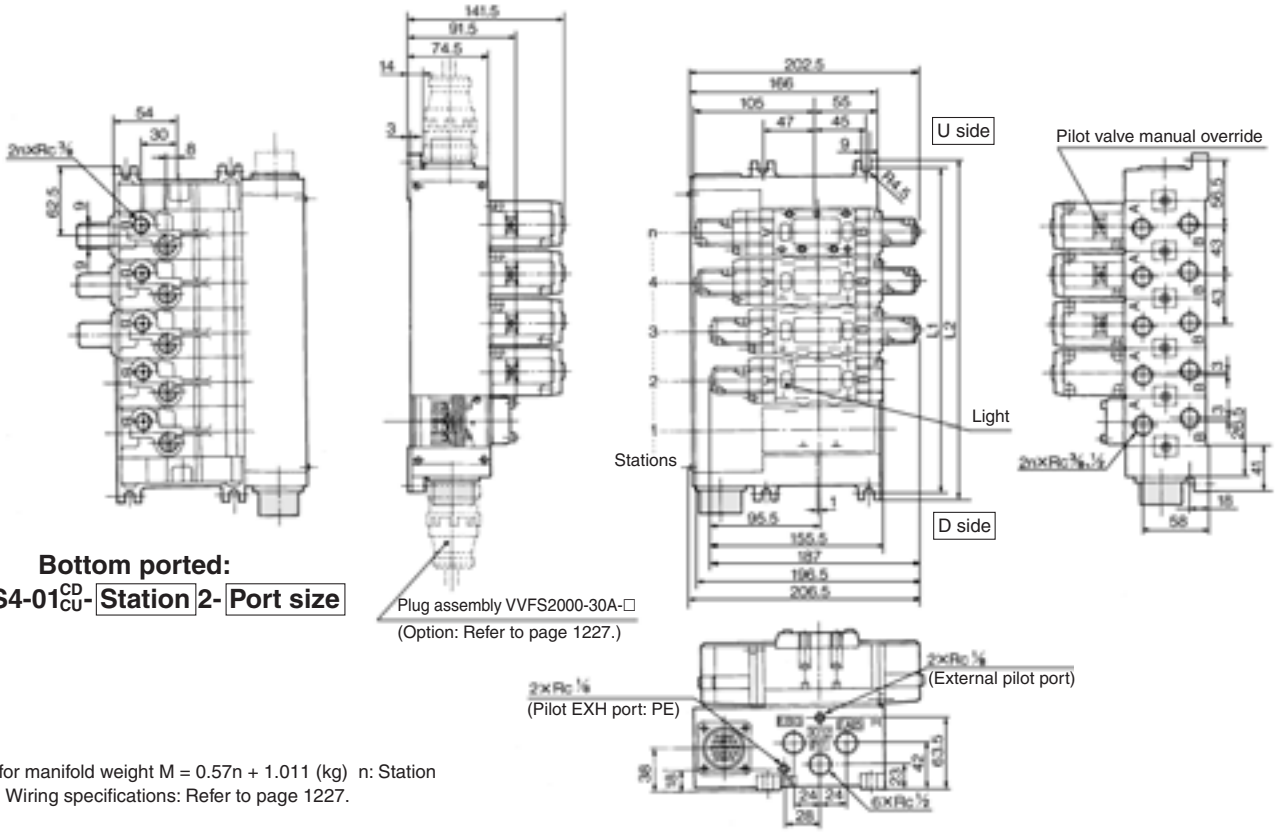
Bottom ported:
VV5FS4-10-[Station]2-[Port size]

Formula for manifold weight M = 0.478n + 0.671 (kg) n: Stations

L \ Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	156	199	242	285	328	371	414	457	500	L_1 = 43 x n + 70
L_2	168	211	254	297	340	383	426	469	512	L_2 = 43 x n + 82

Manifold — Plug-in type with multi-connector/D-sub connector

Plug-in type with multi-connector: VV5FS4-01CD-Station 1-Port size, VV5FS4-01CU-Station 1-Port size

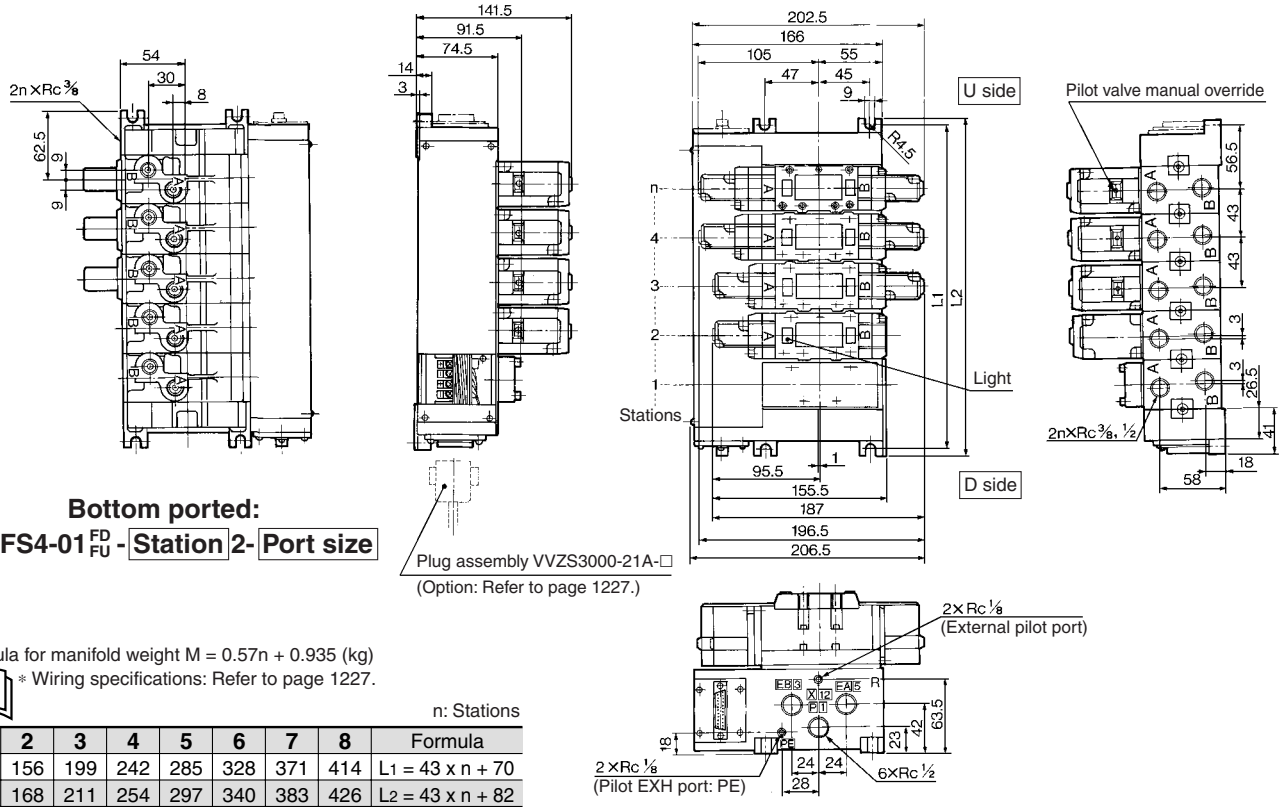


Bottom ported:
VV5FS4-01$^{CD}_{CU}$-Station 2-Port size

Formula for manifold weight M = 0.57n + 1.011 (kg) n: Station

∗ Wiring specifications: Refer to page 1227.

Plug-in type with D-sub connector: VV5FS4-01FD-Station 1-Port size, VV5FS4-01FU-Station 1-Port size



Bottom ported:
VV5FS4-01$^{FD}_{FU}$-Station 2-Port size

Formula for manifold weight M = 0.57n + 0.935 (kg)

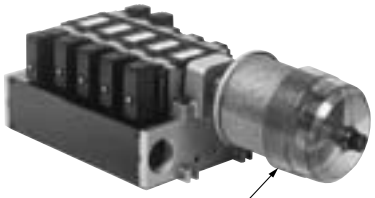
∗ Wiring specifications: Refer to page 1227.

n: Stations

L / Stations	2	3	4	5	6	7	8	Formula
L_1	156	199	242	285	328	371	414	$L_1 = 43 \times n + 70$
L_2	168	211	254	297	340	383	426	$L_2 = 43 \times n + 82$

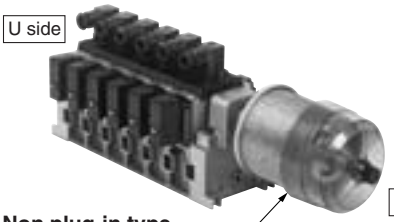
Manifold with Exhaust Cleaner

- **Serves to protect working environment.**
- **Valve exhaust noise dampening: 35 dB or more.**
- **Collection rate of drainage and oil mist: 99.9% or more.**
- **Piping work is reduced.**



Plug-in type

Exhaust cleaner
(Option)



Non plug-in type

Exhaust cleaner
(Option)

Manifold Specifications

Manifold	Plug-in type: VV5FS4-01□		Non plug-in type: VV5FS4-10
Wiring	With terminal block With multi-connector With D-sub connector		DIN terminal Grommet terminal
Applicable valve model	VFS4□00-□F		VFS4□10-□D, VFS4□10-□E
Porting specifications Rc	Common SUP/Common EXH		
	2(B), 4(A) port	Side: 3/8, 1/2, Bottom: 3/8 (Option)	
	1(P), 3(R2), 5(R1) port	P: 1/2, EXH: 1, 1 1/2	
Stations	2 to 10 (1)		
Applicable exhaust cleaners	AMC610-10 (Connecting port size R 1), AMC810-14 (Connecting port size R 1 1/2) (2)		

Note 1) With multi-connector, or with D-sub connector: 8 stations max.
Note 2) Stations of 5 or more and high frequency of operation should be used with AMC810-14.
Exhaust cleaners AMC610-10 and AMC810-14 are not attached.

How to Order

VV5FS4 - 10 □ - 06 1 - 03 □ - CD

Series VFS4000 Manifold

Base type/Electrical entry

01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10
D	D side mounting	01C, 01F
U	U side mounting	

Stations

02	2 stations
⋮	⋮
10	10 stations

Base type 01T, 10: 2 to 10 stations
Base type 01C, 01F: 2 to 8 stations

Symbol

Symbol	Passage P	Passage R1, R2	Porting specifications (A, B)
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Exhaust cleaner mounting direction

Symbol	Exhaust cleaner mounting direction	
CD	D side	D side mounting
CU	U side	U side mounting

* Please indicate exhaust cleaner size or port size.

⚠ Caution

When using an exhaust cleaner, mount it downwards.

* Refer to Best Pneumatics Vol. 6 for Exhaust Cleaner details.

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

<Example>

- Plug-in type with terminal block (6 stations)

(Manifold base)	**VV5FS4-01T-061-03-CD**	**1**
(2 position single)	* **VFS4100-5FZ**	**3**
(2 position double)	* **VFS4200-5FZ**	**2**
(Blanking plate)	* **VVFS4000-10A**	**1**
(Exhaust cleaner)	**AMC610-10**	**1**

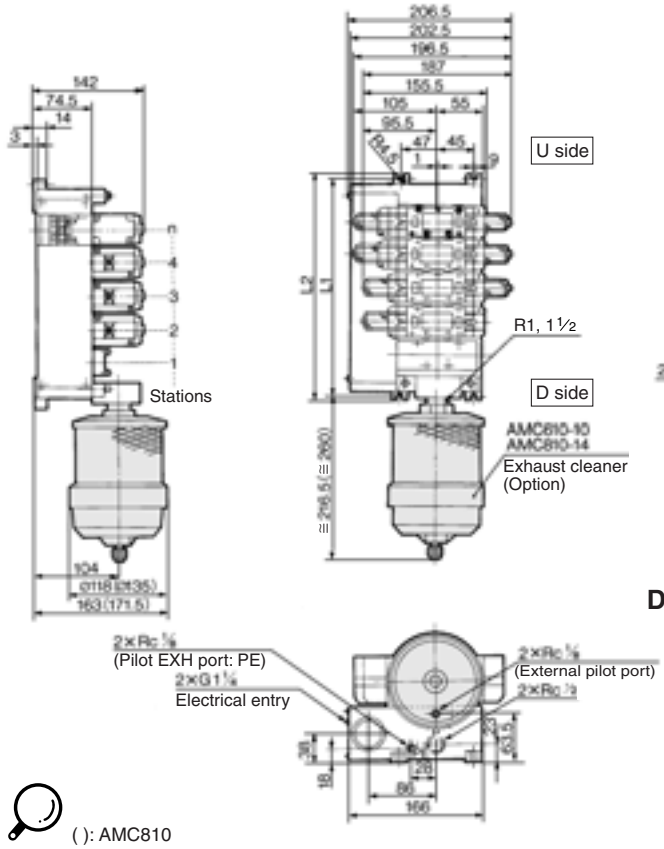
- Non plug-in type (6 stations)

(Manifold base)	**VV5FS4-10-061-04-CU**	**1**
(2 position single)	* **VFS4110-5E**	**3**
(2 position double)	* **VFS4210-5E**	**2**
(Blanking plate)	* **VVFS4000-10A**	**1**
(Exhaust cleaner)	**AMC810-14**	**1**

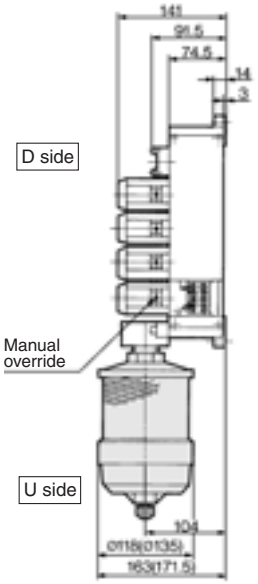
The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

Manifold with Exhaust Cleaner — Plug-in type, Non plug-in type

Plug-in type: VV5FS4-01T-Station 1-Port size-CD CU



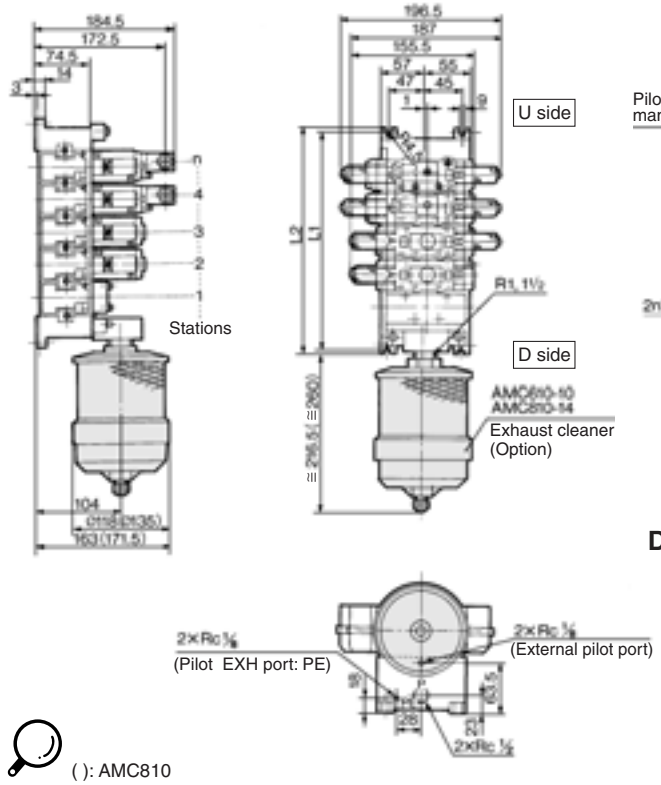
D side mounting



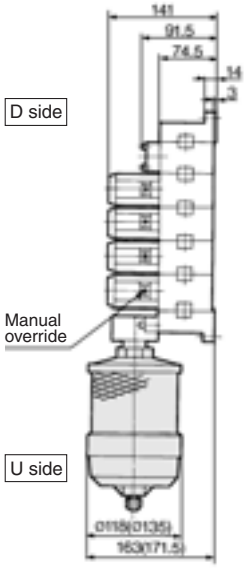
U side mounting

( ): AMC810

Non plug-in type: VV5FS4-10-Station 1-Port size-CD CU



D side mounting



U side mounting

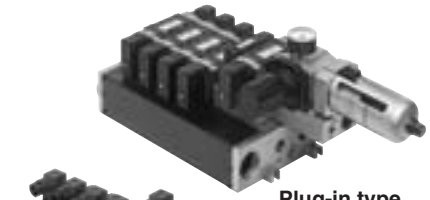
( ): AMC810

n: Stations

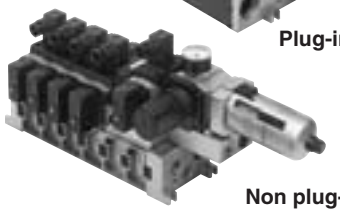
L / Stations	2	3	4	5	6	7	8	9	10	Formula
L1	156	199	242	285	328	371	414	457	500	L1 = 43 x n + 70
L2	168	211	254	297	340	383	426	469	512	L2 = 43 x n + 82

Manifold with Control Unit

- **Control unit (Filter, Regulator, Pressure switch, Air release valve) are all standardized to the one unit, and can be mounted on the manifold base without any attachments.**
- **Piping processes are eliminated.**



Plug-in type



Non plug-in type

⚠ Caution

When using an air filter with auto-drain or manual drain, mount the filter vertically.

Manifold Specifications

Manifold	Plug-in type: VV5FS4-01□	Non plug-in type: VV5FS4-10
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal
Applicable valve model	VFS4□00-□F	VFS4□10-□D, VFS4□10-□E
Porting specifications Rc (PT)	Common SUP, Common EXH	
	2(B), 4(A) port	Side: 3/8, 1/2, Bottom: 3/8
	1(P), 3(R2), 5(R1) port	Side: 1/2
Stations	2 to 10 *	

* With multi-connector, or with D-sub connector: 8 stations max.

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration degree	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch (1)	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa or less
Contact	1a
Indicator light	LED (RED)
Max. switch capacity	2 VA AC, 2 W DC
Max. operating current	24 VAC/DC or less: 50 mA 48 VAC/DC: 40 mA 100 VAC/DC: 20 mA
Air release valve (Single only)	
Operating pressure range	0.1 to 1.0 MPa

Control Unit/Option

Air release valve spacer (2)	<Plug-in type> VVFS4000-24A-1R (D side mounting)	
	<Non plug-in type> VVFS4000-24A-2R (D side mounting)	
Pressure switch	IS1000P-2-1	
Blanking plate (3)	Filter regulator	MP2-3
	Pressure switch	MP3-2
	Release valve	VVFS4000-24A-10
Filter element	11104-5B	

Note 1) Voltage: 24 VDC to 100 VAC
Inner voltage drop: 4 V
Note 2) Combination of a valve VFS41□□ (single) and a release valve spacer can be used as an air release valve.
Note 3) The non plug-in type cannot be mounted afterwards.

How to Order

VV5FS4 - 01C D - 08 1 - 03 □ - AP □

Series VFS4000 Manifold

Base type/Electrical entry

01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10
D	D side mounting	01C, 01F
U	U side mounting	

Stations

02	2 stations
⋮	⋮
10*	10 stations

* Base type 01T, 10: 2 to 10 stations
Base type 01C, 01F: 2 to 8 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, R1, R2	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Air release valve coil rating

Nil	None (F, G type only)
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

Control unit type

Control equipment \ Symbol	Nil	A	AP	M	MP	F	G	C	E
Air filter with auto-drain		●	●			●			
Air filter with manual drain				●	●		●		
Regulator		●	●	●	●	●	●		
Air release valve		●	●	●	●			●	●
Pressure switch			●		●				
Blanking plate (Air release valve)						●	●		
Blanking plate (Filter, Regulator)								●	
Blanking plate (Pressure switch)		●		●		●	●	●	
Number of manifold blocks required for mounting (stations)		2	2	2	2	2	2	2	1

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

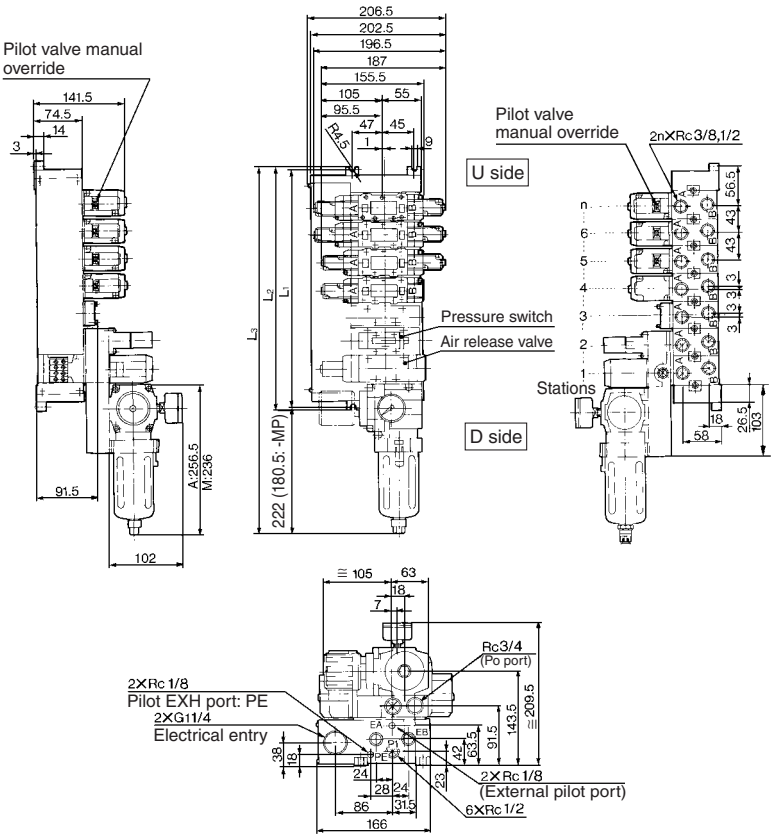
<Example>

- Plug-in type with terminal block: In order to mount control unit, it requires 2 stations.
  (Manifold base) **VV5FS4-01T-081-03-AP5** ····· **1**
  (2 position single) * **VFS4100-5FZ** ····· **4**
  (2 position double) * **VFS4200-5FZ** ····· **2**
- Non plug-in type: In order to mount control unit, it requires 2 stations.
  (Manifold base) **VV5FS4-10-061-03-A** ····· **1**
  (2 position single) * **VFS4110-5D** ····· **4**

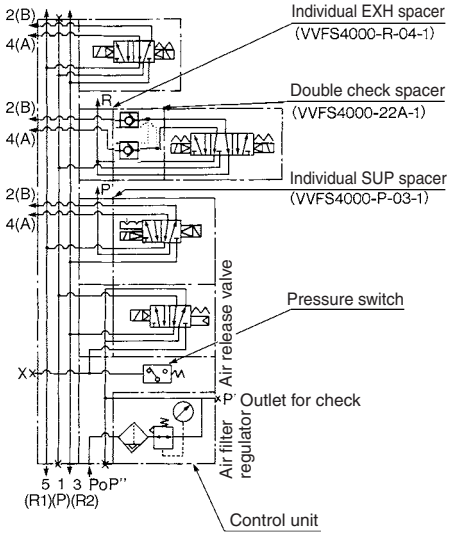
The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

Manifold with Control Unit — Plug-in type, Non plug-in type

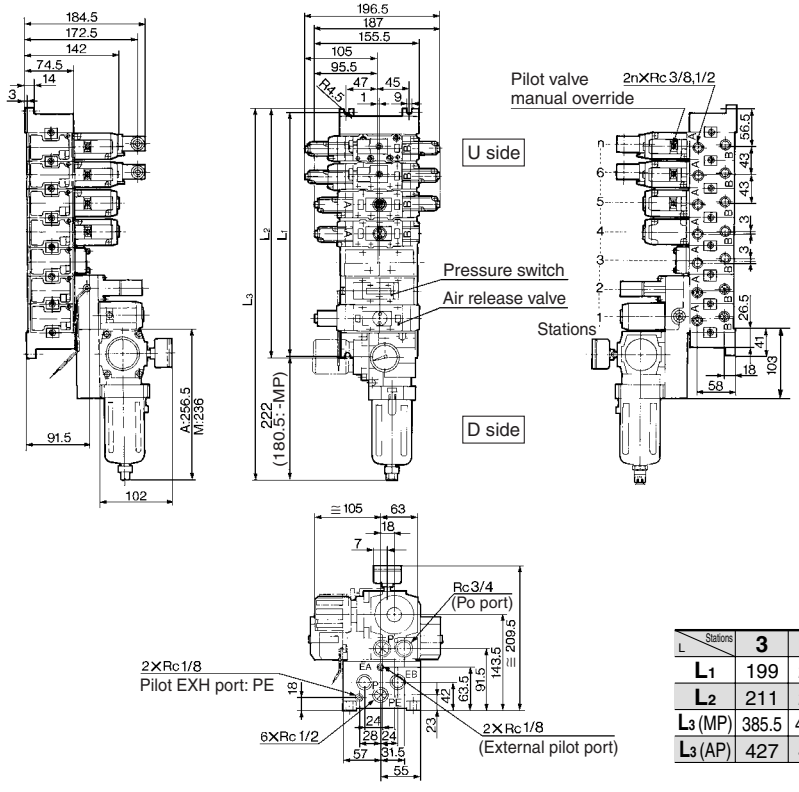
Plug-in type: VV5FS4-01T-[Station]1-[Port size]-AP[Voltage for release valve]



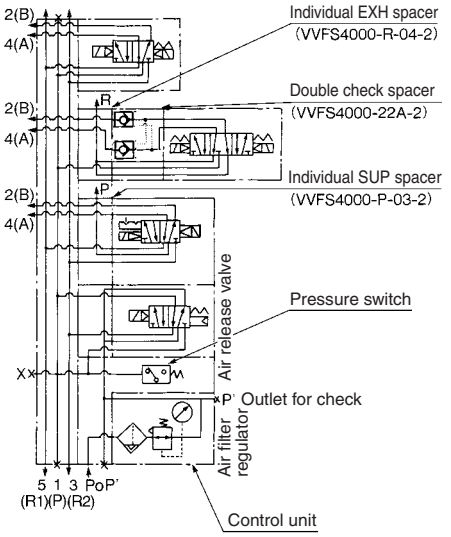
Example for manifold



Non plug-in type: VV5FS4-10-[Station]1-[Port size]-AP[Voltage for release valve]



Example for manifold



n: Stations

L / Stations	3	4	5	6	7	8	9	10	Formula
L1	199	242	285	328	371	414	457	500	L1 = 43 x n + 70
L2	211	254	297	340	383	426	469	512	L2 = 43 x n + 82
L3 (MP)	385.5	428.5	471.5	514.5	557.5	600.5	643.5	686.5	L3 = 43 x n + 256.5
L3 (AP)	427	470	513	556	599	642	685	728	L3 = 43 x n + 298

Made to Order

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output)
Serial Transmission System

How to Order

How to Order Manifold

VV5FS4 − 01S U V − 08 1 − 03 □ − X199

Plug-in type
Serial transmission kit

SI unit mounting position

D	D side mounting
U	U side mounting

Stations

2	2 stations
⋮	⋮
10	10 stations

Note 1) Max. 10 stations. Add 1 station for serial unit mounting.
Note 2) Max. 10 Stations: For single and double mixed wiring. (No. of valves: 9)
Max. 9 stations: For standard double wiring (No. of valves: 8)

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Port size

Symbol	P, R1, R2	A, B
03	Rc 1/2	Rc 3/8
04		Rc 1/2
M		Mixed

∗ For bottom ported: Rc 1/8 only

SI unit can be mounted on either U or D side.

Combination symbol

Symbol	Port specification		Piping specification A, B
	P	R1, R2	
1	Common	Common	Side
2∗			Bottom

∗ Option

Applicable models

Symbol	SI unit part no.		Description
	For U side mouning	For D side mouning	
0	—	—	Without SI unit
F1	EX123U-SUW1	EX123D-SUW1	NKE Corporation: Uni-wire System (16 outputs)
H	EX123U-SUH1	EX123D-SUH1	NKE Corporation: Uni-wire H System (16 outputs)
J1	EX123U-SSL1	EX123D-SSL1	SUNX Corporation: S-LINK System (16 outputs)
J2	EX123U-SSL2	EX123D-SSL2	SUNX Corporation: S-LINK System (8 outputs)
Q	EX124U-SDN1	EX124D-SDN1	DevieNet (2 power supply systems)
R1	EX124U-SCS1	EX124D-SCS1	OMRON Corporation: CompoBus/S (16 outputs) (2 power supply systems)
R2	EX124U-SCS2	EX124D-SCS2	OMRON Corporation: CompoBus/S (8 outputs) (2 power supply systems)
V	EX124U-SMJ1	EX124D-SMJ1	CC-Link (2 power supply systems)

Refer to pages 1653 to 1655 for the details of the EX123/124 integrated type (for output) serial transmission system.

● Correspondence of SI unit output numbers and solenoid valve coils

<Wiring Example 1> Double wiring (Standard)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9
	Double	Double	Single	Single	Single	Double	Single	Single	SI unit
	A B	A B	A B	A B	A B	A B	A B	A B	
	0 1	2 3	4 5	6 7	8 9	10 11	12 13	14 15	

<Wiring Example 2> Single/Double mixed wiring (Option)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9	10
	Double	Double	Single	Single	Single	Double	Single	Double	Single	SI unit
	A B	A B	A	A	A	A B	A	A B	A	
	0 1	2 3	4	5	6	7 8	9	10 11	11	

∗ Mixed wiring is available as an option. Use the manifold specification sheet to specify this.

How to Order Valves

VFS4 □ 00 □ − 5 F □ □

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Pilot type

Nil	Internal pilot
R	External pilot

24 VDC

Pilot valve manual override

Nil	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Locking type (Tool required)
C	Locking type (Lever)

Option

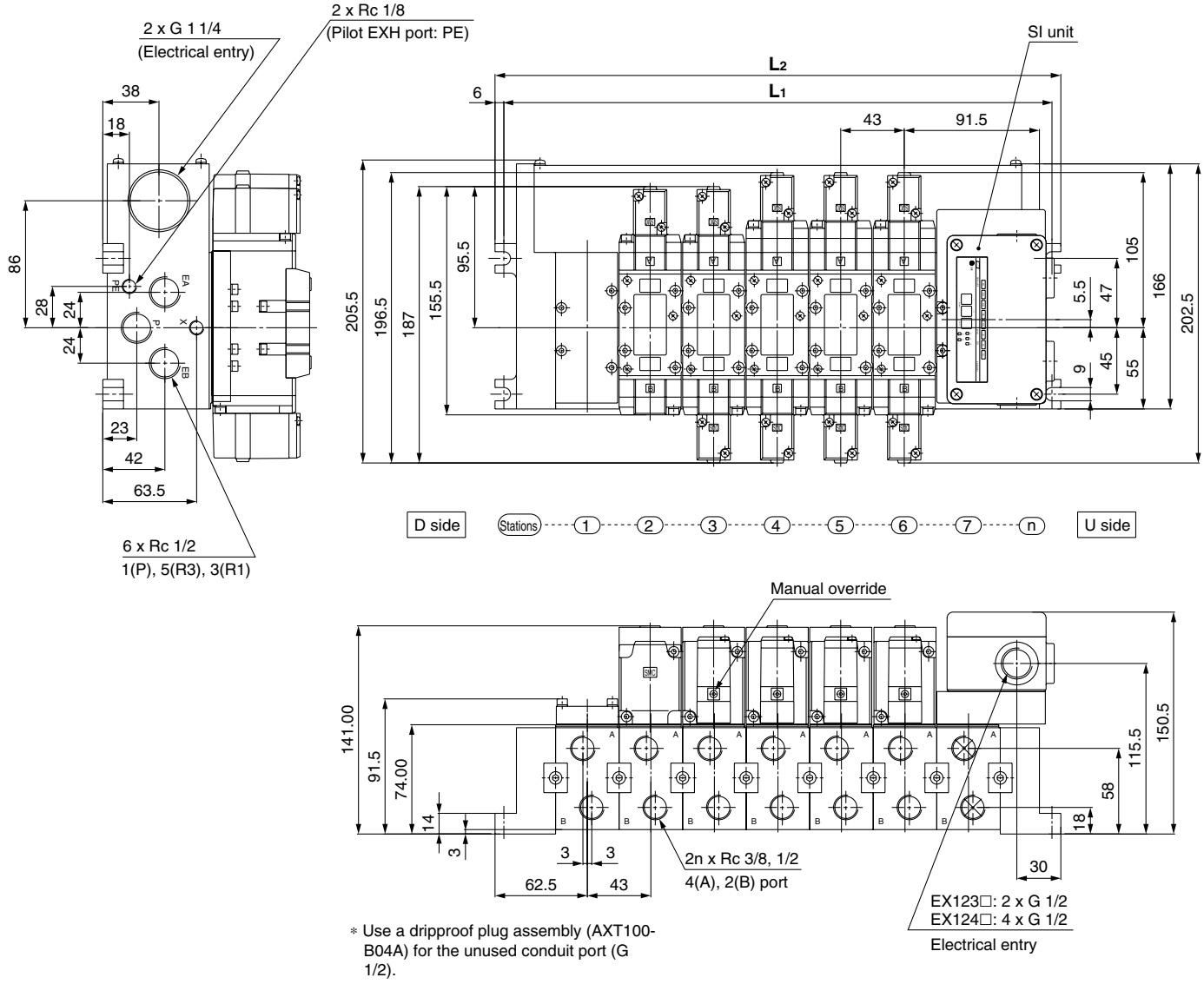
Nil	None
Z	With light/surge voltage suppressor

Coil rated voltage

Nil	None

Serial Transmission Kit Manifold (EX123/124): Plug-in Type

VV5FS4-01S **Mounting position** **Model** - **Stations** **Symbol** - **Port size** **Thread** **-X199**



∗ Use a dripproof plug assembly (AXT100-B04A) for the unused conduit port (G 1/2).

Dimensions

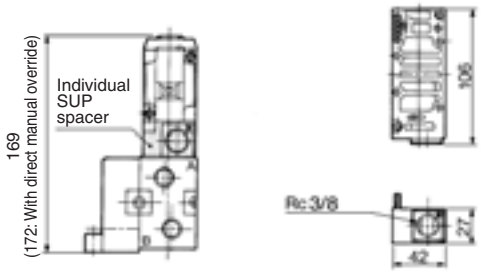
Formula $L_1 = 43n + 70$ $L_2 = 43n + 82$
n: Stations (Max. 10 stations)

L \ n	2	3	4	5	6	7	8	9	10
L_1	156	199	242	285	328	371	414	457	500
L_2	168	211	254	297	340	383	426	469	512

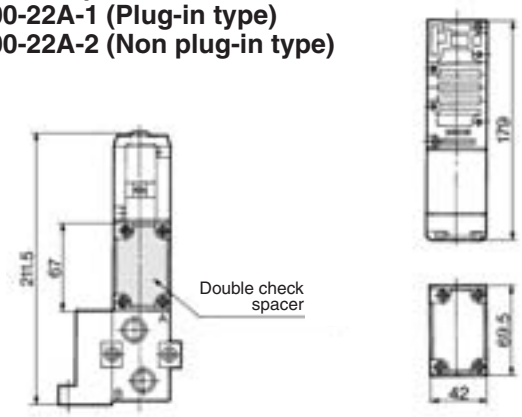
Note) Actual number of manifold base stations: Add 1 SI unit mounting station to the number of valve stations.

Manifold Option Parts — Plug-in type, Non plug-in type

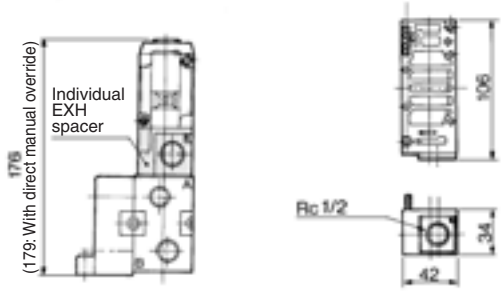
Individual SUP spacer:
VVFS4000-P-03-1 (Plug-in type)
VVFS4000-P-03-2 (Non plug-in type)



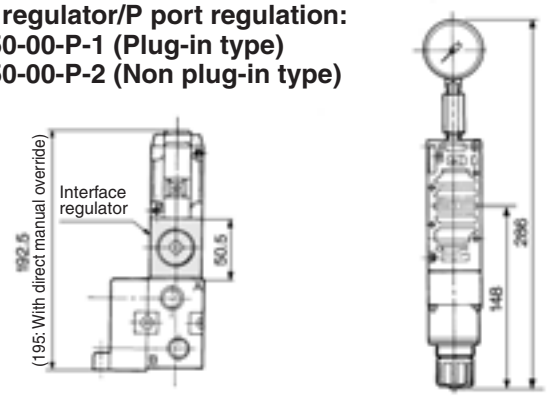
Double check spacer:
VVFS4000-22A-1 (Plug-in type)
VVFS4000-22A-2 (Non plug-in type)



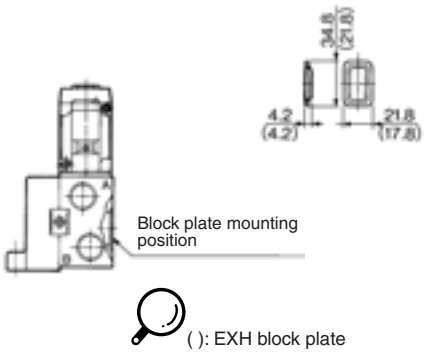
Individual EXH spacer:
VVFS4000-R-04-1 (Plug-in type)
VVFS4000-R-04-2 (Non plug-in type)



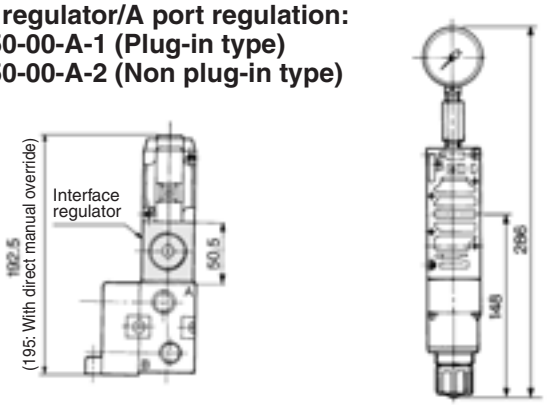
Interface regulator/P port regulation:
ARBF4050-00-P-1 (Plug-in type)
ARBF4050-00-P-2 (Non plug-in type)



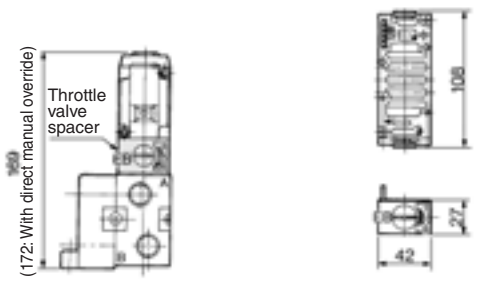
SUP block plate: AXT634-10A
EXH block plate: AXT634-11A



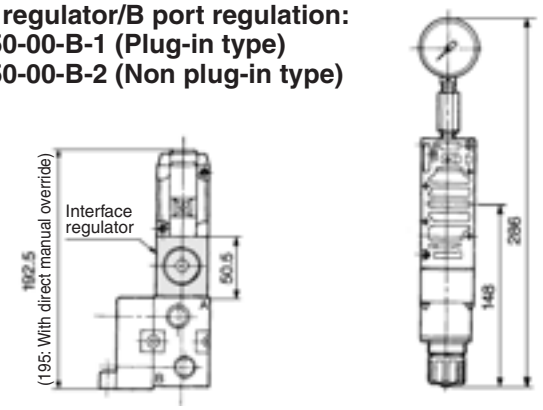
Interface regulator/A port regulation:
ARBF4050-00-A-1 (Plug-in type)
ARBF4050-00-A-2 (Non plug-in type)



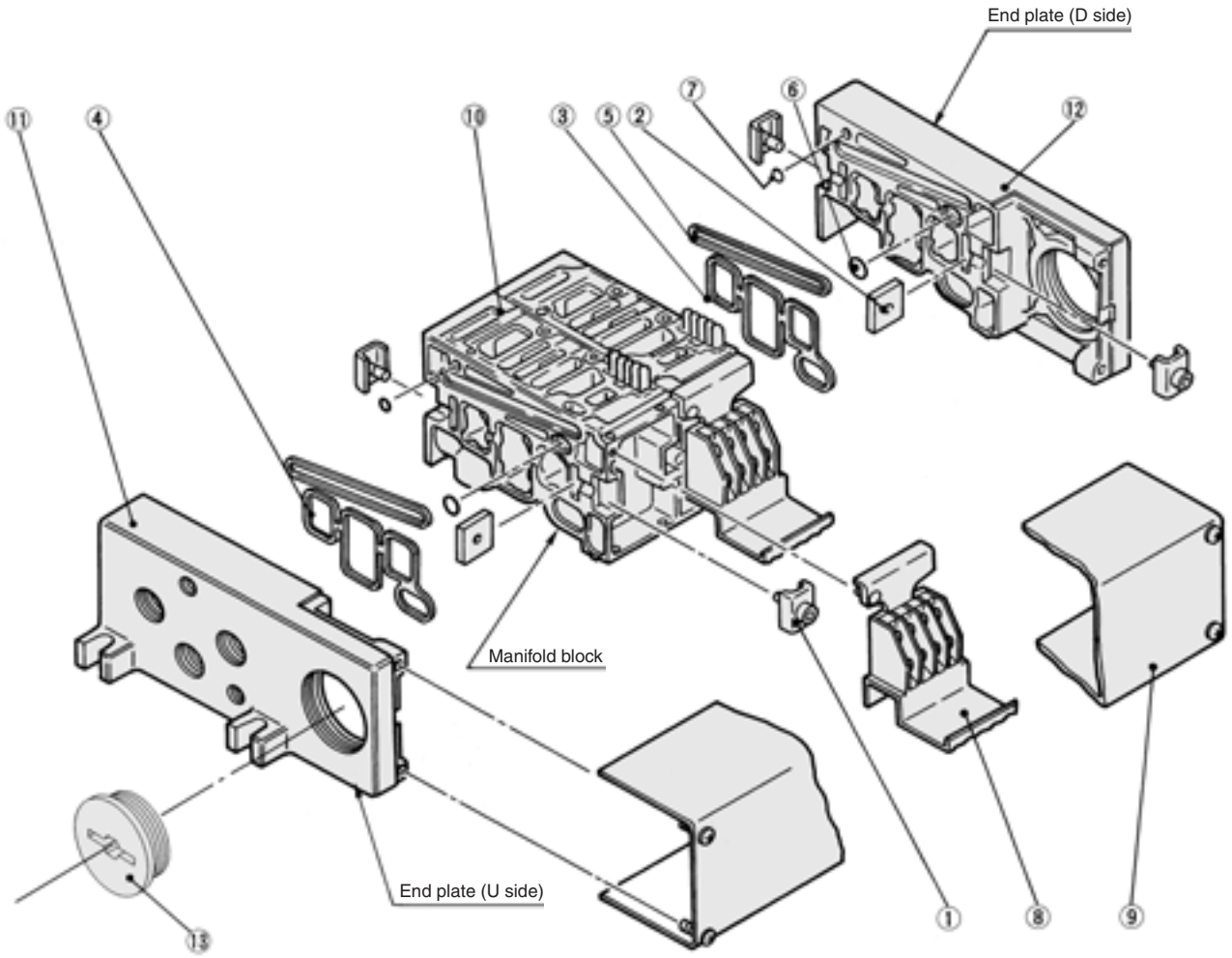
Throttle valve spacer:
VVFS4000-20A-1 (Plug-in type)
VVFS4000-20A-2 (Non plug-in type)



Interface regulator/B port regulation:
ARBF4050-00-B-1 (Plug-in type)
ARBF4050-00-B-2 (Non plug-in type)



Manifold Base Construction — Plug-in type, Non Plug-in type



Replacement Parts

No.	Description	Material	Part no.
1	**Connection fitting A**	Steel plate	VVF4000-5-1A
2	**Connection fitting B**	Steel plate	VVF4000-5-2
3	**Gasket**	NBR	VVF4000-7 (End plate)
4	**Gasket**	NBR	VVF4000-7-1 (Manifold block)
5	**Gasket**	NBR	VVF4000-8
6	**O-ring**	NBR	AS568-011
7	**O-ring**	NBR	P-3
8	**Terminal assembly**	—	VVF4000-6A
9	**Junction cover assembly**	For 01T	VVF4000-4A- Stations
		For 01SU	AZ738-30A- Stations
13	**Rubber plug**	NBR	AXT336-9

- For increasing the manifold bases, please order the manifold block assembly number of the principal part assembly ⑩.
  For plug-in type: The manifold base with terminal stand (integrated with a junction cover) is required with the ⑨ junction cover assembly.

Replacement Parts: Sub Assembly

Note) Manifold Base/Construction: Plug-in type with terminal block.

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	**Manifold block assembly**	VVF4000-1A-1-$^{03}_{04}$	Manifold block ⑩, Terminal ⑧, Metal joint ①, ②, Gasket ④, Receptacle assembly	Plug-in type
		VVF4000-1A-2-$^{03}_{04}$	Manifold block ⑩, Metal joint ①, ②, Gasket ④	Non plug-in type
11	**End plate (U side) assembly**	VVF4000-2A-1	End plate (U) ⑪, Metal joint ①, ②	Plug-in type
		VVF4000-2A-2	End plate (U) ⑪, Metal joint ①, ②	Non plug-in type
12	**End plate (D side) assembly**	VVF4000-3A-1	End plate (D) ⑫, Metal joint ①, ②, Gasket ③, ⑤, O-ring ⑥, ⑦	Plug-in type
		VVF4000-3A-2	End plate (D) ⑫, Metal joint ①, ②, Gasket ③, ⑤, O-ring ⑤, ⑥	Non plug-in type

5 Port Pilot Operated Solenoid Valve
Metal Seal, Plug-in/Non Plug-in
Series VFS5000

NRTL /C

Model

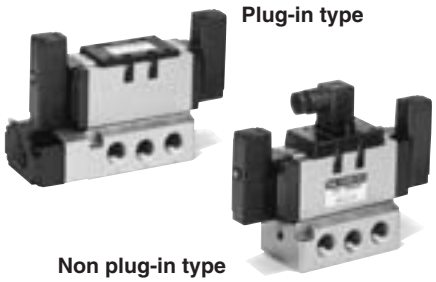
Type of actuation		Model: Plug-in	Model: Non plug-in	Port size Rc	Flow characteristics: 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics: 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Max.(1) operating cycle (cpm)	Response time (ms)(2)	Mass (kg)(3)
2 position	Single	**VFS5100**	**VFS5110**	3/8	15	0.30	3.7	15	0.30	4.1	600	45 or less	0.88
				1/2	16	0.15	3.7	19	0.15	4.5			
				3/4	17	0.15	3.9	20	0.13	4.7			
	Double	**VFS5200**	**VFS5210**	3/8	15	0.30	3.7	15	0.30	4.1	600	25 or less	1.06
				1/2	16	0.15	3.7	19	0.15	4.5			
				3/4	17	0.15	3.9	20	0.13	4.7			
3 position	Closed center	**VFS5300**	**VFS5310**	3/8	14	0.25	4.0	14	0.24	4.1	300	55 or less	1.16
				1/2	16	0.25	4.1	16	0.24	4.1			
				3/4	16	0.25	4.1	16	0.23	4.1			
	Exhaust center	**VFS5400**	**VFS5410**	3/8	14	0.32	3.8	14	0.25	3.5	300	55 or less	1.14
				1/2	16	0.17	3.8	16	0.18	4.1			
				3/4	17	0.20	4.2	17	0.13	4.1			
	Pressure center	**VFS5500**	**VFS5510**	3/8	14	0.30	3.7	14	0.31	3.8	300	55 or less	1.14
				1/2	16	0.23	3.9	16	0.22	4.1			
				3/4	18	0.25	4.6	17	0.22	4.3			
	Double check	**VFS5600**	**VFS5610**	3/8	9.0	—	—	9.0	—	—	180	60 or less	1.99
				1/2	9.0	—	—	9.0	—	—			
				3/4	9.0	—	—	9.0	—	—			

Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency. Note 2) Based on JIS B8375-1981. (The value at supply pressure 0.5 MPa.)
Note 3) The figures in the above list are without sub-plate. In the case of with plug-in sub-plate and, with non plug-in sub-plate add Rc 3/8, 1/2—0.744 kg, Rc 3/4—0.966 kg and Rc 3/8, 1/2—0.577 kg, Rc 3/4—0.823 kg respectively.
Note 4) "Note 1) " and "Note 2) " are with controlled clean air.

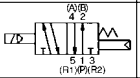
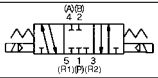
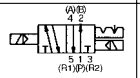
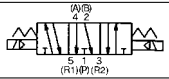
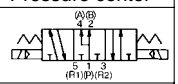
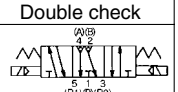
Compact yet provides a large flow capacity
3/4: C: 20 dm³/(s·bar)

Low power consumption: 1.8 W DC

Easy maintenance
2 types of sub-plates:
Plug-in and non plug-in



JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Double check
	

Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimum operating pressure		0.1 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C (1)
	Lubrication		Non-lube (2)
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² (3)
	Enclosure		Type E: Dustproof (Level 0), Type F: Dripproof (Level 2), Type D: Splashproof (Level 4) (4)
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) (5)
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA/50 Hz, 5.0 VA/60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption DC		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Plug-in type: Conduit terminal
			Non plug-in type: Grommet terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option Specifications

Pilot type		External pilot Note)
Manual override	**Main valve**	Direct manual override
	Pilot valve	Non-locking push type (Extended), Locking type (Tool required), Locking type (Lever)
Coil rated voltage		110 to 120, 220, 240 VAC (50/60 Hz)
		12, 100 VDC
Porting specifications		Bottom ported
Option		With light/surge voltage suppressor, Non-rotating DIN terminal

Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure: 0.1 to 1.0 MPa

How to Order



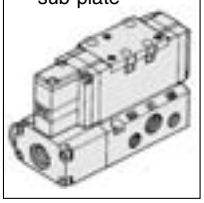
Plug-in VFS5 **1** **0** **0** □ – **2** **F** □ □ – □ **04** □

Non plug-in VFS5 **1** **1** **0** □ – **5** **D** □ □ – □ **06** □



Body type

O: Plug-in type sub-plate



Electrical entry

F: Plug-in type conduit terminal



Porting specifications

Nil	Side ported
B*	Bottom ported

* In the case of external pilot (Option), bottom piping is not available.

Port size

Nil	Without sub-plate
03	Rc 3/8
04	Rc 1/2
06	Rc 3/4

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Symbol

1	2 position single	**5**	3 position pressure center
2	2 position double	**6**	3 position double check
3	3 position closed center		
4	3 position exhaust center		

Body type

1: Non plug-in type sub-plate



Body option

0	Standard
1*	Direct manual override

* Option

Pilot type

Nil	Internal pilot
R*	External pilot

* Option

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Electrical entry

E: Grommet terminal



D: DIN terminal



Option

Nil	None
Z	With light/surge voltage suppressor
P*	Non-rotating DIN terminal
ZP*	Light/Surge Voltage Suppressor Non-rotating DIN terminal

* Type "P", "ZP" is available for DIN type only.

Pilot valve Manual override

Nil: Non-locking push type (Flush)



A*: Non-locking push type (Extended)



B*: Locking type (Tool required)



C*: Locking type (Lever)



* Option

How to Order Pilot Valve Assembly

SF4 – 1 F □ – 30

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Manual override

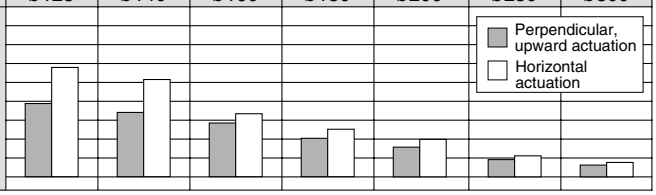
Nil	Non-locking push type (Flush)
A*	Non-locking push type (Extended)
B*	Locking type (Tool required)
C*	Locking type (Lever)

* Option

** Refer to page 1224 for voltage conversion.

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Series	Average speed (mm/s)	Bore size Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm						
		ø125	ø140	ø160	ø180	ø200	ø250	ø300
VFS5100-06	800 700 600 500 400 300 200 100 0							

* It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
* The average velocity of the cylinder is what the stroke is divided by the total stroke time.
* Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

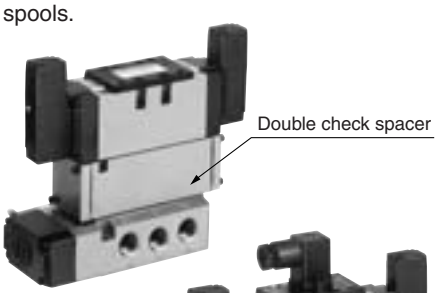
Conditions

		Series CS1
VFS5100-06	Tube bore x Length	SGP20A x 1 m
	Speed controller	AS500-06
	Silencer	AN500-06

Double Check Spacer/Specifications

Can hold an intermediate cylinder position for an extended time

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.



Plug-in type



Non plug-in type

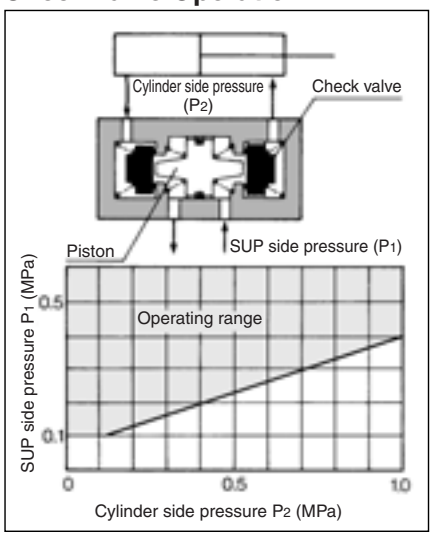
Specifications

Double check spacer part no.	Plug-in type	Non plug-in type
	VVFS5000-22A-1	**VVFS5000-22A-2**
Applicable valve model	VFS5400-□F	VFS5410-□D VFS5410-□E

⚠ Caution

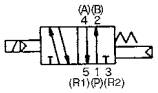
- In the case of 3 position double check valve (VFS56□0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

Check Valve Operation

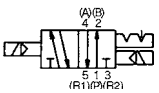


- The combination of VFS51$^{0}_{1}$0, VFS52$^{0}_{1}$0 and a double check spacer can be used as prevention of falling at the stroke end but cannot hold the intermediate position of the cylinder.

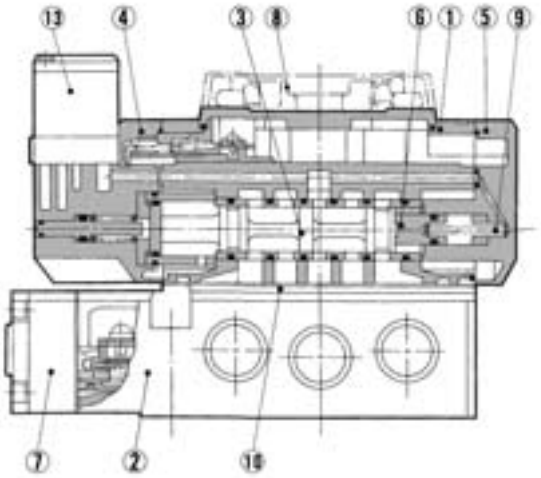
Construction

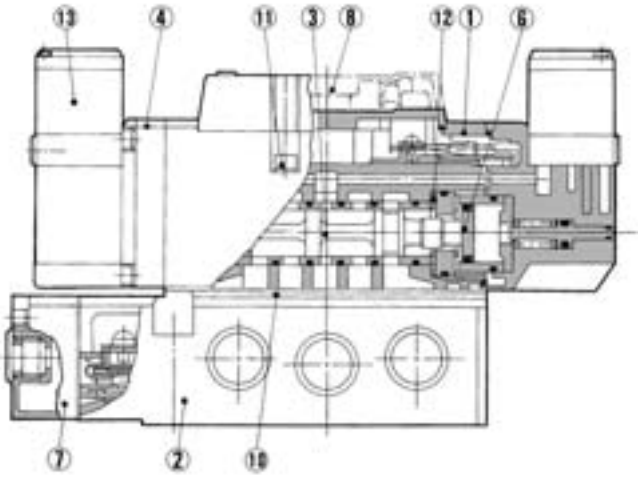


2 position single



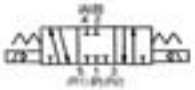
2 position double





3 position closed center/exhaust center/pressure center

Closed center

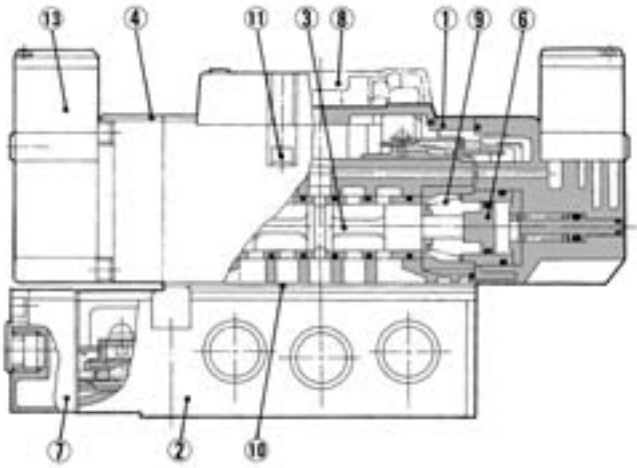


Exhaust center



Pressure center





Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Sub-plate**	Aluminum die-casted	Platinum silver
3	**Spool/Sleeve**	Stainless steel	—
4	**Adapter plate**	Resin	Black
5	**End plate**	Resin	Black
6	**Piston**	Resin	—
7	**Junction cover**	Resin	—
8	**Light cover**	Resin	—
9	**Return spring**	Stainless steel	—
10	**Gasket**	NBR	—
11	**Hexagon socket head screw**	Steel	—
12	**Detent assembly**	—	—
13	**Pilot valve assembly**	—	—

∗ Refer to “How to Order Pilot Valve Assembly” on page 1203.

Sub-plate Assembly Part No.

Plug-in	VFS5000-P-$^{03}_{04}_{06}$
Non plug-in	VFS5000-S-$^{03}_{04}_{06}$

∗ Mounting bolt and gasket are not included.

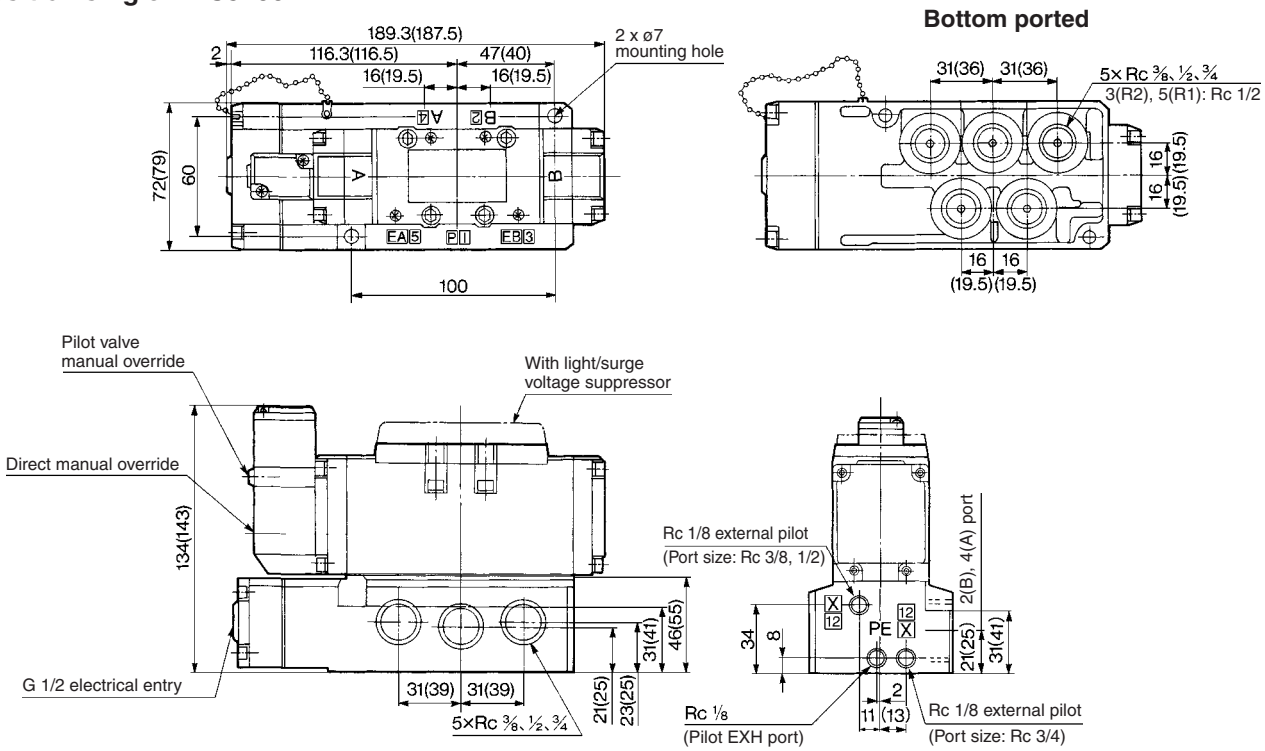
Sub-plate Assembly (For External Pilot) Part No.

Plug-in	VFS5000-P-R$^{03}_{04}_{06}$
Non plug-in	VFS5000-S-R$^{03}_{04}_{06}$

Part no. for mounting bolt and gasket
BG-VFS5000

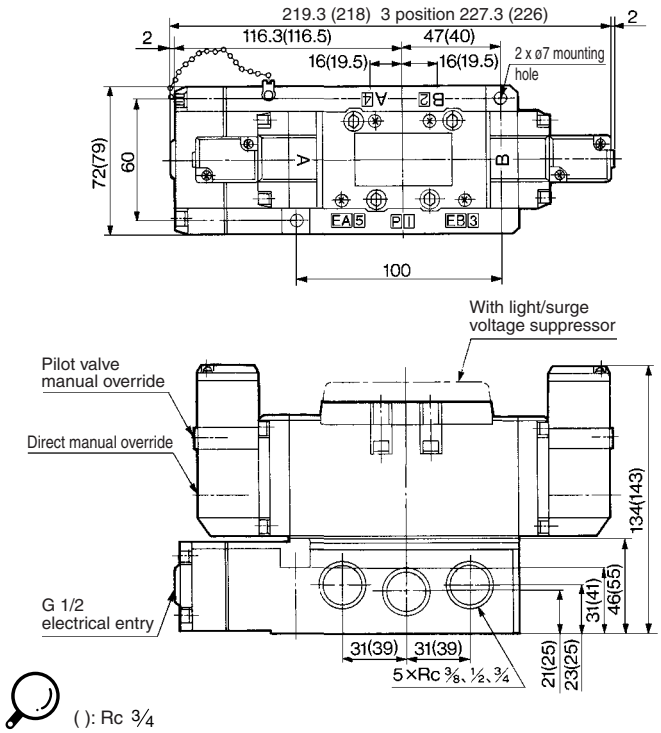
Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

2 position single: VFS5100-□F



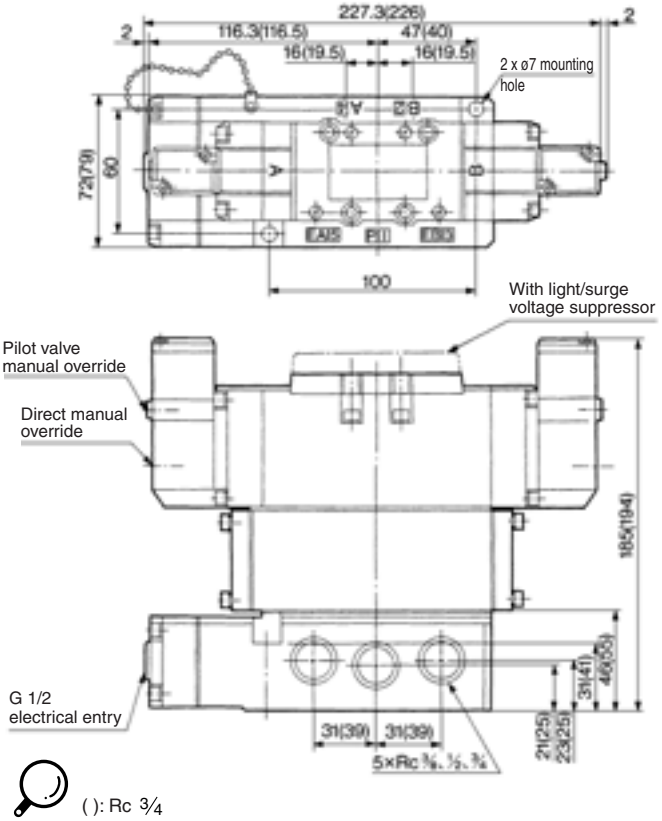
( ): Rc 3/4

2 position double: VFS5200-□F
3 position closed center: VFS5300-□F
3 position exhaust center: VFS5400-□F
3 position pressure center: VFS5500-□F



( ): Rc 3/4

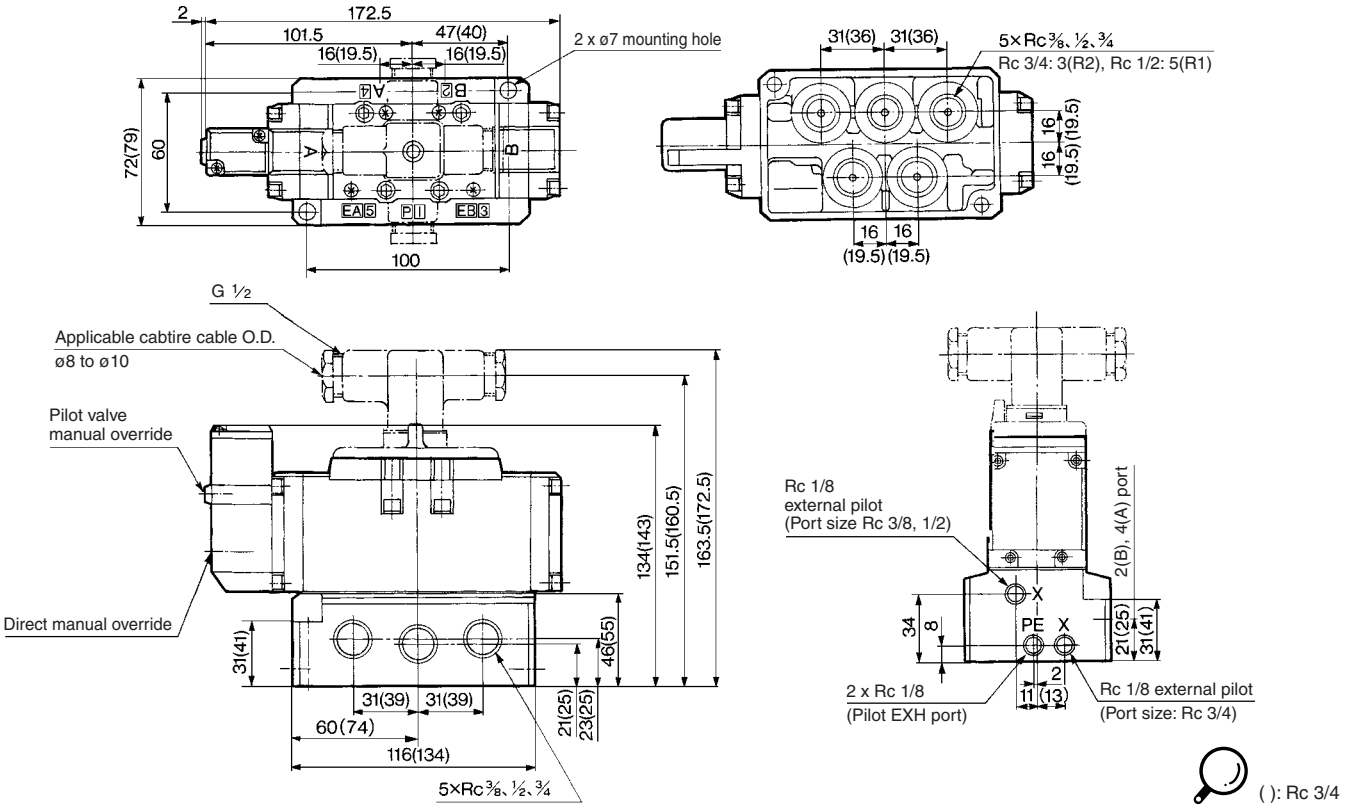
3 position double check: VFS5600-□F



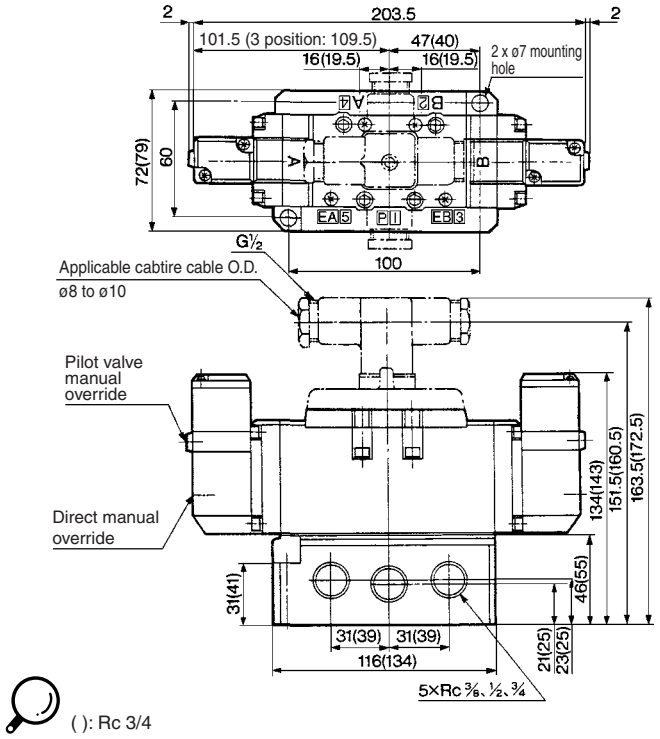
( ): Rc 3/4

Non Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

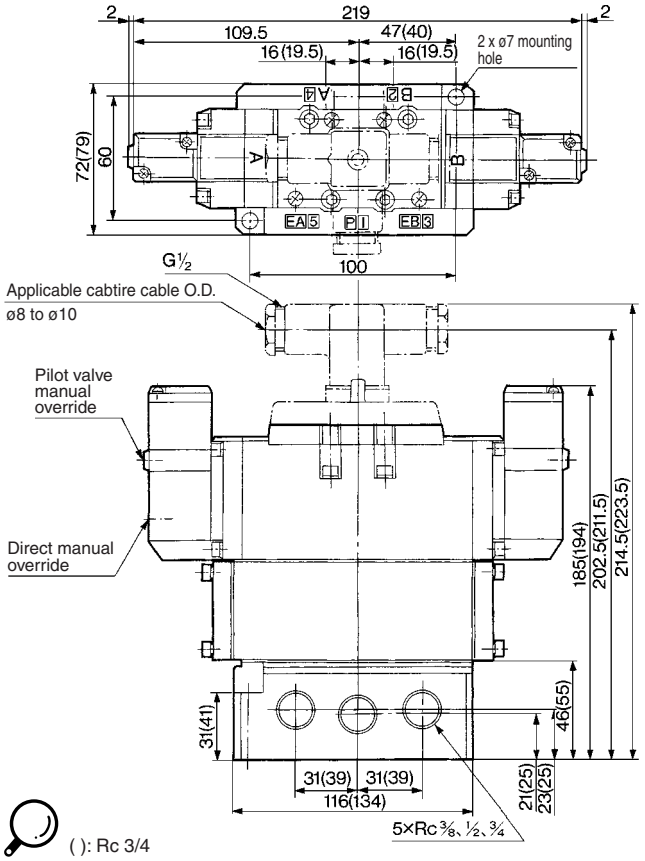
2 position single: VFS5110-□E, VFS5110-□D



2 position double: VFS5210-□E, VFS5210-□D
3 position closed center: VFS5310-□E, VFS5310-□D
3 position exhaust center: VFS5410-□E, VFS5410-□D
3 position pressure center: VFS5510-□E, VFS5510-□D



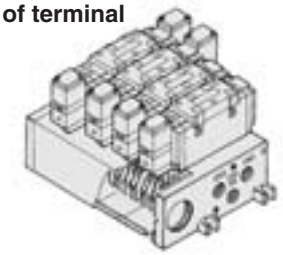
3 position double check: VFS5610-□E, VFS5610-□D



Series VFS5000
Manifold Specifications

Plug-in Type: With Terminal Block

- **Since lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.**



VV5FS5 - 01T - 06 1 - 04 ☐

Series VFS5000 Manifold

Plug-in type with terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, R1, R2	A, B
04	Rc 3/4	Rc 1/2
06		Rc 3/4
M		Mixed

* For bottom ported, Rc 1/2 is only available.

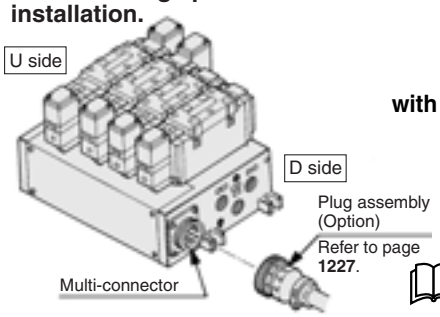
Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in Type: With Multi-connector (Wiring specifications: Refer to page 1227.)

- **Master connection of power and solenoid valves.**
- **Quick wiring permits easier installation.**



VV5FS5 - 01C D - 05 2 - 04 ☐

Series VFS5000 Manifold

Plug-in type with multi-connector

Connector mounting direction

D	D side mounting
U	U side mounting

Stations

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, R1, R2	A, B
04	Rc 3/4	Rc 1/2
06		Rc 3/4
M		Mixed

* For bottom ported, Rc 1/2 is only available.

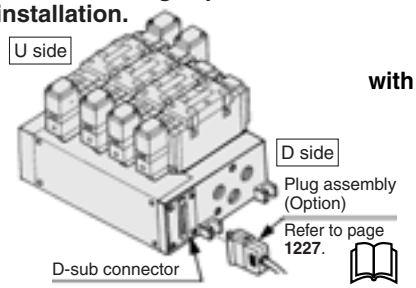
Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in Type: With D-sub Connector (Wiring specifications: Refer to page 1227.)

- **Wide range of interchangeability (MIL Spec. D-sub connector terminal 25 pcs attached.)**
- **Quick wiring permits easier installation.**



VV5FS5 - 01F D - 06 1 - 04 ☐

Series VFS5000 Manifold

Plug-in type with D-sub connector

Connector mounting direction

D	D side mounting
U	U side mounting

Stations

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, R1, R2	A, B
04	Rc 3/4	Rc 1/2
06		Rc 3/4
M		Mixed

* For bottom ported, Rc 1/2 is only available.

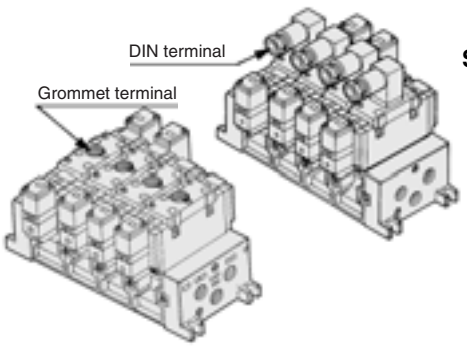
Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- **Wiring for every valve.**



VV5FS5 - 10 - 05 2 - 04 ☐

Series VFS5000 Manifold

Non plug-in type

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, R1, R2	A, B
04	Rc 3/4	Rc 1/2
06		Rc 3/4
M		Mixed

* For bottom ported, Rc 1/2 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

<Example>

- Plug-in type with terminal block: 6 stations
  (Manifold base) VV5FS5-01T-061-04 ·····1
  (2 position single) VFS5100-5FZ ····· 3
  (2 position double) VFS5200-5FZ ·····2
  (Blanking plate) VVFS5000-10A ·····1
- Non plug-in type: 6 stations
  (Manifold base) VV5FS5-10-061-04 ·····1
  (2 position single) VFS5110-5D ·····5
  (3 position exhaust center) VFS5410-5D ·····1
  (Individual EXH center) VVFS5000-R-04-2····1

Manifold Specifications

Base model	Wiring	Porting specifications	Port size Rc		Stations	Applicable valve model
		A, B port	P, R1, R2	A, B		
Plug-in type **VV5FS5-01□**	• With terminal block • With multi-connector • With D-sub connector	Side/ Bottom	Rc 3/4	Rc 1/2, 3/4	2 to 10*	VFS5□00-□F
Non plug-in type **VV5FS5-10**	• DIN terminal • Grommet terminal					VFS5□10-□D VFS5□10-□E

*With multi-connector, or with D-sub connector: 8 stations max.

Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations		Station 1	Station 5	Station 10
VV5FS5	1 → 4/2 (P → A/B)	C [dm³/(s·bar)]	6.0	6.0	6.0
		b	0.20	0.20	0.20
		Cv	1.4	1.4	1.4
	4/2 → 5/3 (A/B → R1/R2)	C [dm³/(s·bar)]	7.0	7.0	7.0
		b	0.20	0.20	0.20
		Cv	1.8	1.8	1.8

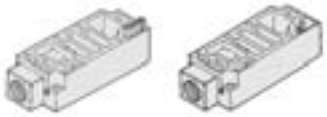
* Port size: Rc 1/2, 3/4

Manifold Option Parts Assembly

Individual SUP spacer

An individual SUP spacer set on manifold block can form SUP port for every valve.

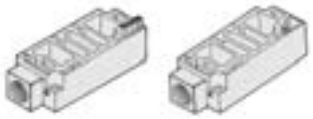
Body type	Plug-in type	Non plug-in type
Part no.	VVFS5000-P-04-1	VVFS5000-P-04-2



Individual EXH spacer

An individual EXH spacer set on manifold block can form EXH port for every valve. (common EXH type)

Body type	Plug-in type	Non plug-in type
Part no.	VVFS5000-R-04-1	VVFS5000-R-04-2



SUP block plate

When supplying manifold with more than two different pressures, high and low, insert a block plate in between stations subjected to different pressures.

Body type	Plug-in type	Non plug-in type
Part no.	AXT628-12A	

EXH block plate

When valve exhaust affects the other stations on the circuit or when a reverse pressure valve is used on a standard manifold valve, insert EXH block plate in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	AXT512-14-1A	

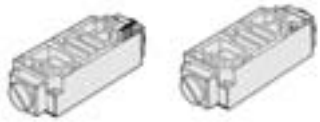


EXH block plate **SUP block plate**

Throttle valve spacer

Needle valve set on the manifold block can control cylinder speed by throttling exhaust.

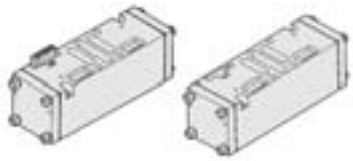
Body type	Plug-in type	Non plug-in type
Part no.	VVFS5000-20A-1	VVFS5000-20A-2



Double check spacer

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.

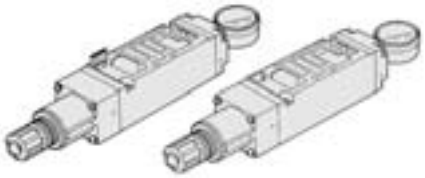
Body type	Plug-in type	Non plug-in type
Part no.	VVFS5000-22A-1	VVFS5000-22A-2



Interface regulator

Interface regulator set on manifold block can regulate the pressure to each valve. (In the event of using, refer to "Flow Characteristics" on page 1225).

Body type	Plug-in type	Non plug-in type
P port regulation	ARBF5050-00-P-1	ARBF5050-00-P-2
A port regulation	ARBF5050-00-A-1	ARBF5050-00-A-2
B port regulation	ARBF5050-00-B-1	ARBF5050-00-B-2



Blanking plate

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.

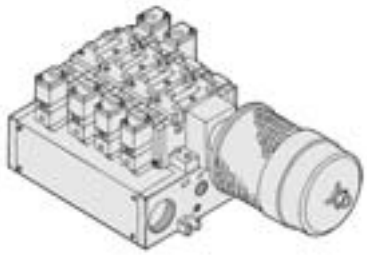
Body type	Plug-in type	Non plug-in type
Part no.	VVFS5000-10A	

Manifold Option

With exhaust cleaner

Plug-in type/Non plug-in type

- **Valve exhaust noise dampening: 35 dB or more.**
- **Oil mist collection: Rate of collection 99.9% or more.**
- **Piping process reduced.**



For details, refer to page 1212.

Made to Order

Manifold with serial transmission kit

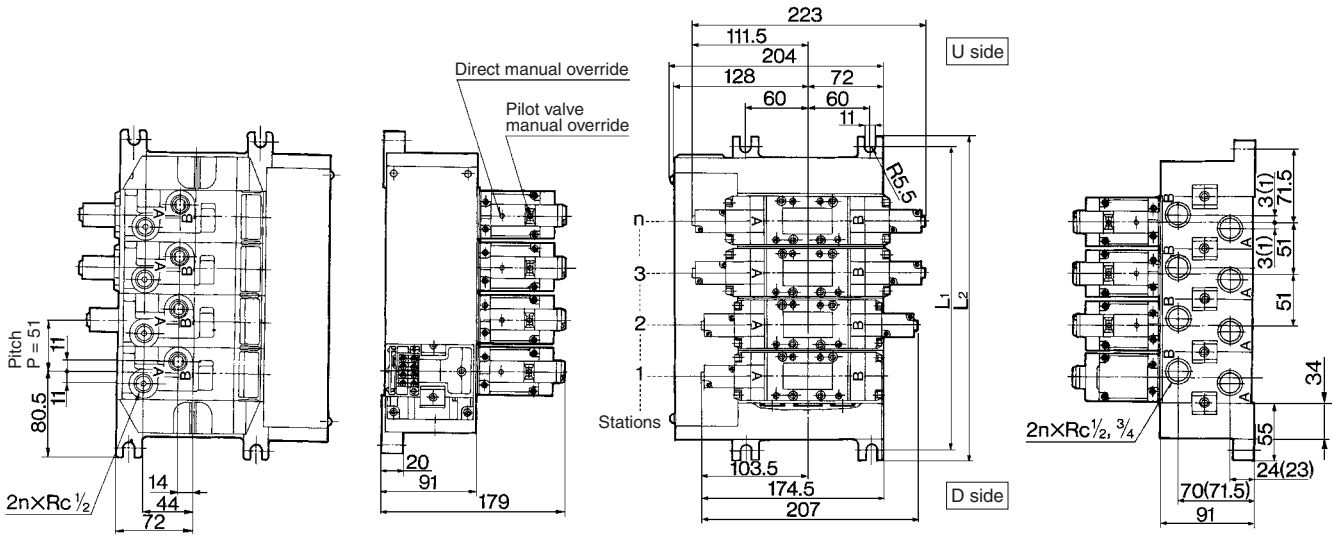
Plug-in type

- **Solenoid valve wiring process reduced considerably.**

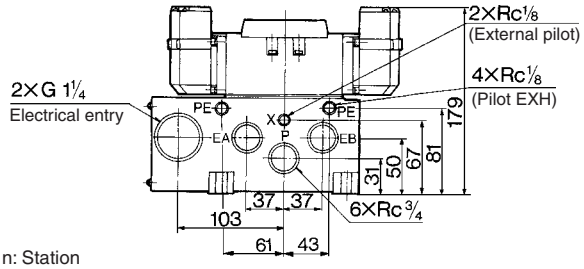
For details, refer to page 1214.

Manifold — Plug-in type, Non plug-in type

Plug-in type (With terminal block): VV5FS5-01T-Station 1-Port size



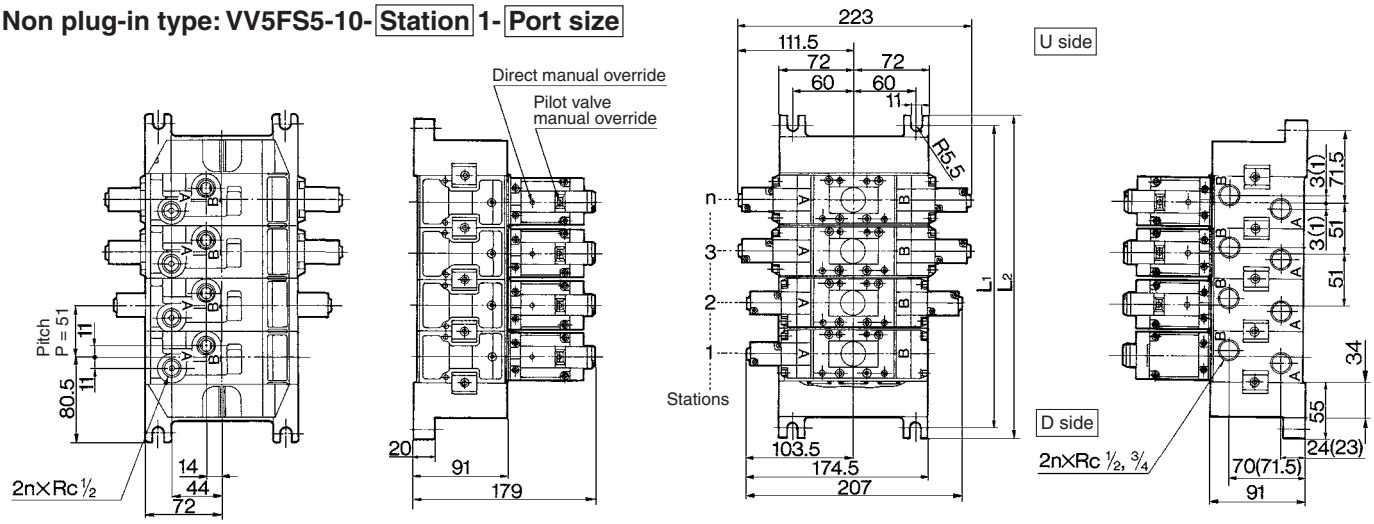
Bottom ported: VV5FS5-01T-Station 2-Port size



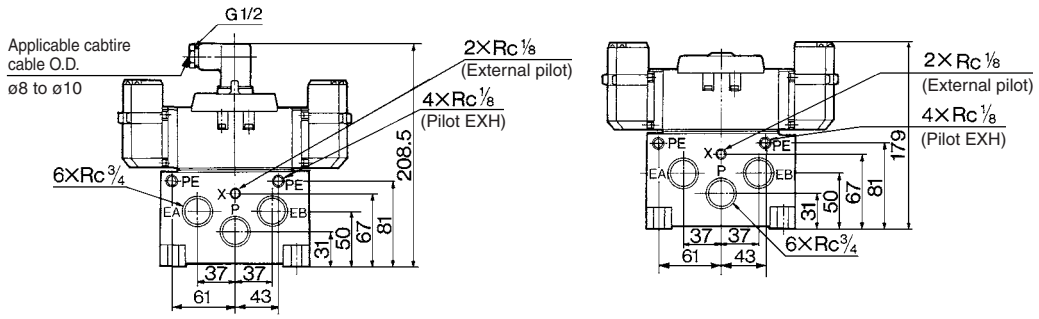
Formula for manifold weight M = 0.911n + 1.621 (kg) n: Station

( ): 2(B)/4(A) port Rc 3/4

Non plug-in type: VV5FS5-10-Station 1-Port size



DIN terminal VV5FS5-10-Station 2-Port size



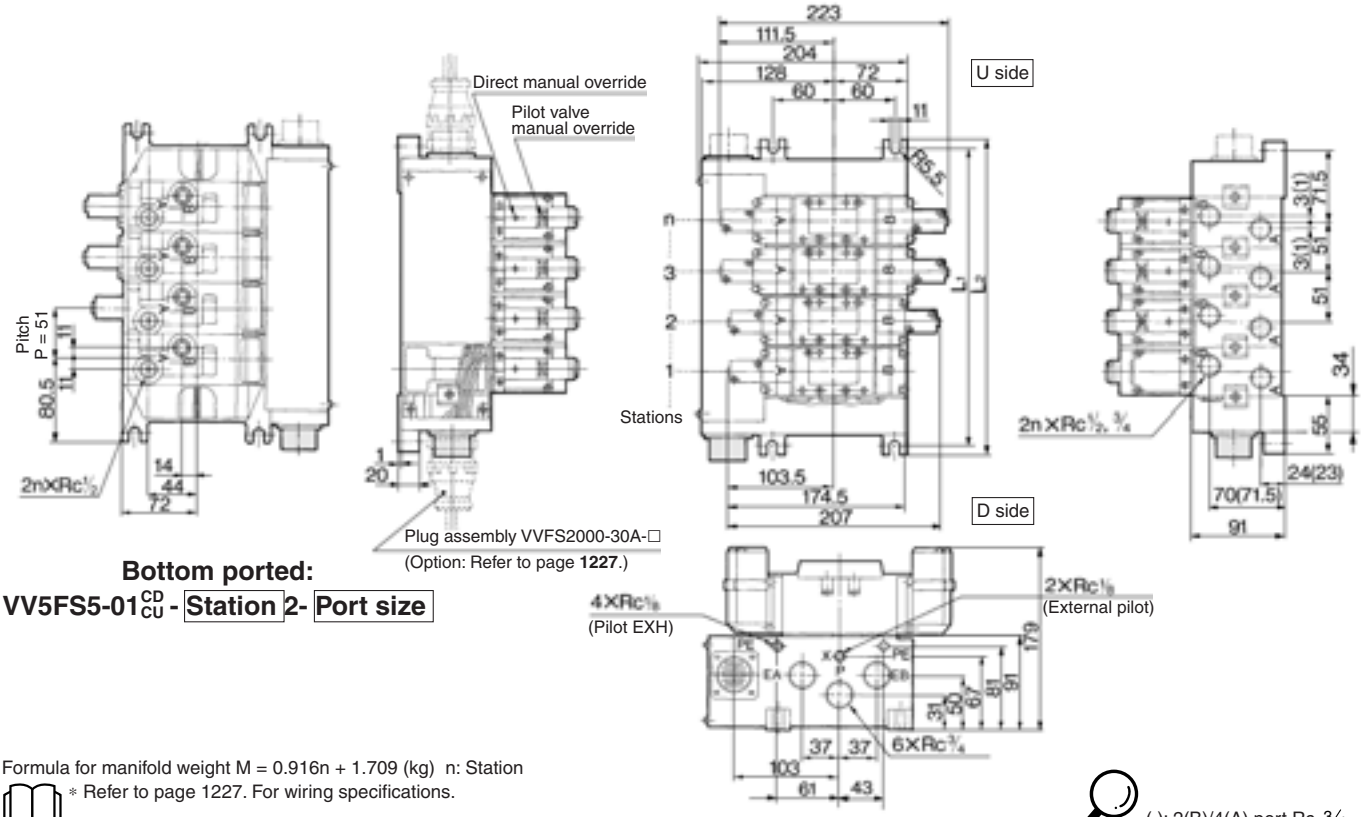
L / Stations	2	3	4	5	6	7	8	9	10	Formula
L1	194	245	296	347	398	449	500	551	602	L1 = 51 x n + 92
L2	212	263	314	365	416	467	518	569	620	L2 = 51 x n + 110

Formula for manifold weight M = 0.811n + 1.231 (kg) n: Station

( ): 2(B)/4(A) port Rc 3/4

Manifold — Plug-in type with multi-connector/D-sub connector

Plug-in type with multi-connector: VV5FS5-01CD-Station 1-Port size, VV5FS5-01CU-Station 1-Port size



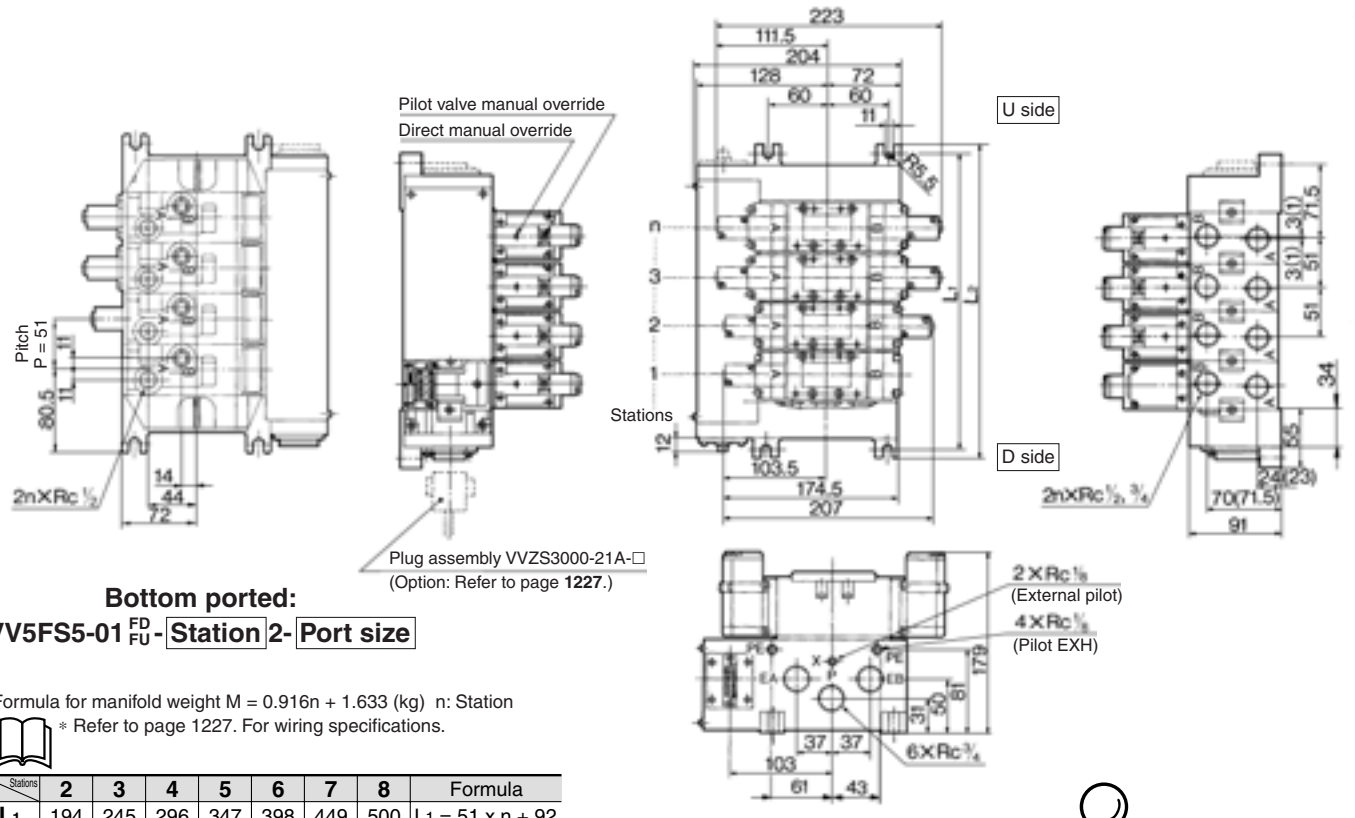
Bottom ported:
VV5FS5-01$^{CD}_{CU}$-Station 2-Port size

Formula for manifold weight M = 0.916n + 1.709 (kg) n: Station

∗ Refer to page 1227. For wiring specifications.

( ): 2(B)/4(A) port Rc 3/4

Plug-in type with D-sub connector: VV5FS5-01FD-Station 1-Port size, VV5FS5-01FU-Station 1-Port size



Bottom ported:
VV5FS5-01$^{FD}_{FU}$-Station 2-Port size

Formula for manifold weight M = 0.916n + 1.633 (kg) n: Station

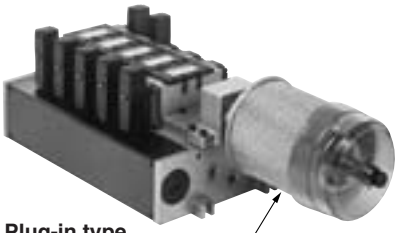
∗ Refer to page 1227. For wiring specifications.

( ): 2(B)/4(A) port Rc 3/4

L \ Stations	2	3	4	5	6	7	8	Formula
L_1	194	245	296	347	398	449	500	$L_1 = 51 \times n + 92$
L_2	212	263	314	365	416	467	518	$L_2 = 51 \times n + 110$

Manifold with Exhaust Cleaner

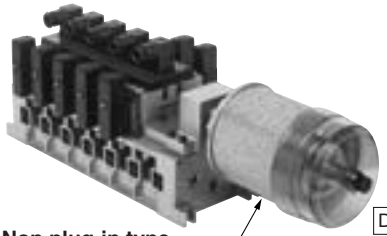
- **Serves to protect working environment.**
- **Valve exhaust noise dampening: 35 dB or more.**
- **Collection rate of drainage and oil mist: 99.9% or more.**
- **Piping work is reduced.**



Plug-in type

Exhaust cleaner (Option)

U side



D side

Non plug-in type

Exhaust cleaner (Option)

Manifold Specifications

Manifold	Plug-in type: VV5FS5-01□		Non plug-in type: VV5FS5-10
Wiring	With terminal blocks With multi-connector With D-sub connector		DIN terminal Grommet terminal
Applicable valve model	VFS5□00-□F		VFS5□10-□D, VFS5□10-□E
Porting specifications Rc	Common SUP/Common EXH		
	2(B), 4(A) port	Side: 1/2, 3/4, Bottom: 1/2 (Option)	
	1(P), 3(R2), 5(R1)	P: 3/4, EXH: 1 1/2	
Stations	2 to 10 (1)		
Applicable exhaust cleaners	AMC810-14 (Connecting port size R 1 1/2) (2)		

Note 1) With multi-connector, or with D-sub connector: 8 stations max.
Note 2) Exhaust cleaner: Not attached.

How to Order

VV5FS5 - 10 □ - 06 1 - 04 □ - CD

Series VFS5000 Manifold

Base type/Electrical entry

01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10
D	D side mounting	01C, 01F
U	U side mounting	

Stations

02	2 stations
⋮	⋮
10	10 stations

Base type 01T, 10: 2 to 10 stations
Base type 01C, 01F: 2 to 8 stations

Symbol

Symbol	Passage P	Passage R1, R2	Porting specifications (A, B)
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P	A, B
04	Rc 3/4	Rc 1/2
06		Rc 3/4
M		Mixed

* For bottom ported, Rc 1/2 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Exhaust cleaner mounting direction

Symbol	Exhaust cleaner mounting direction	
CD	D side	D side mounting
CU	U side	U side mounting

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

<Example>

• Plug-in type with terminal block (6 stations)

(Manifold base) **VV5FS5-01T-061-04-CD** ····· **1**
(2 position single) * **VFS5100-5FZ** ····· **3**
(2 position double) * **VFS5200-5FZ** ····· **2**
(Blanking plate) * **VVFS5000-10A** ····· **1**
(Exhaust cleaner) **AMC810-14** ····· **1**

• Non plug-in type (6 stations)

(Manifold base) **VV5FS5-10-061-04-CU** ····· **1**
(2 position single) * **VFS5110-5E** ····· **3**
(2 position double) * **VFS5210-5E** ····· **2**
(Blanking plate) * **VVFS5000-10A** ····· **1**
(Exhaust cleaner) **AMC810-14** ····· **1**

→ The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

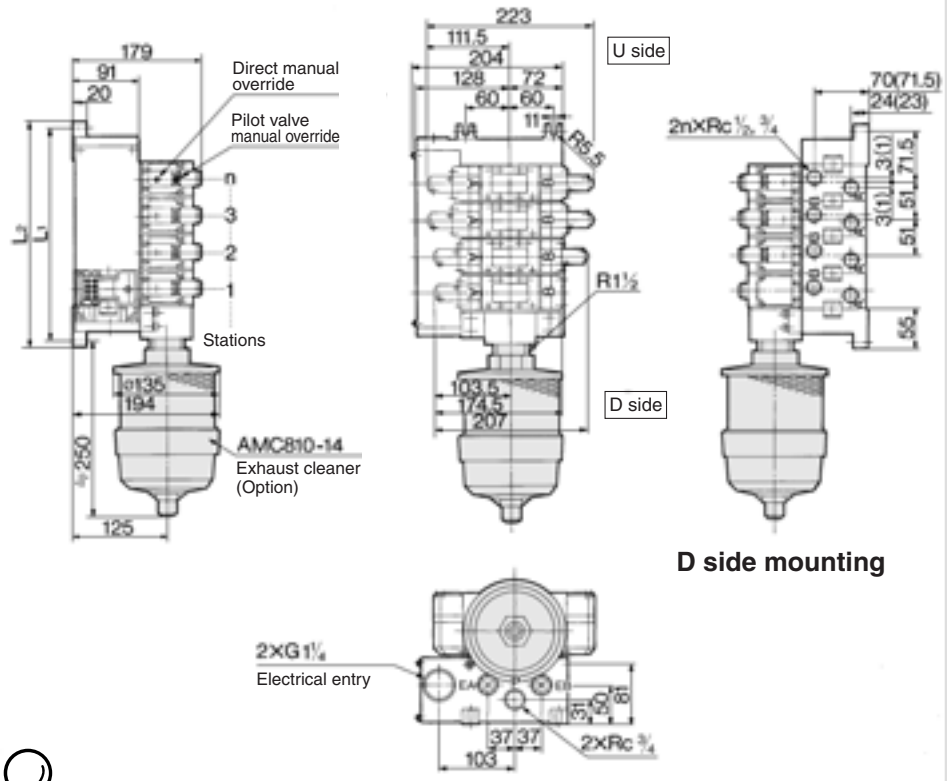
⚠ Caution

When using an exhaust cleaner, mount it downwards.

* Refer to Best Pneumatics Vol. 6 for Exhaust Cleaner details.

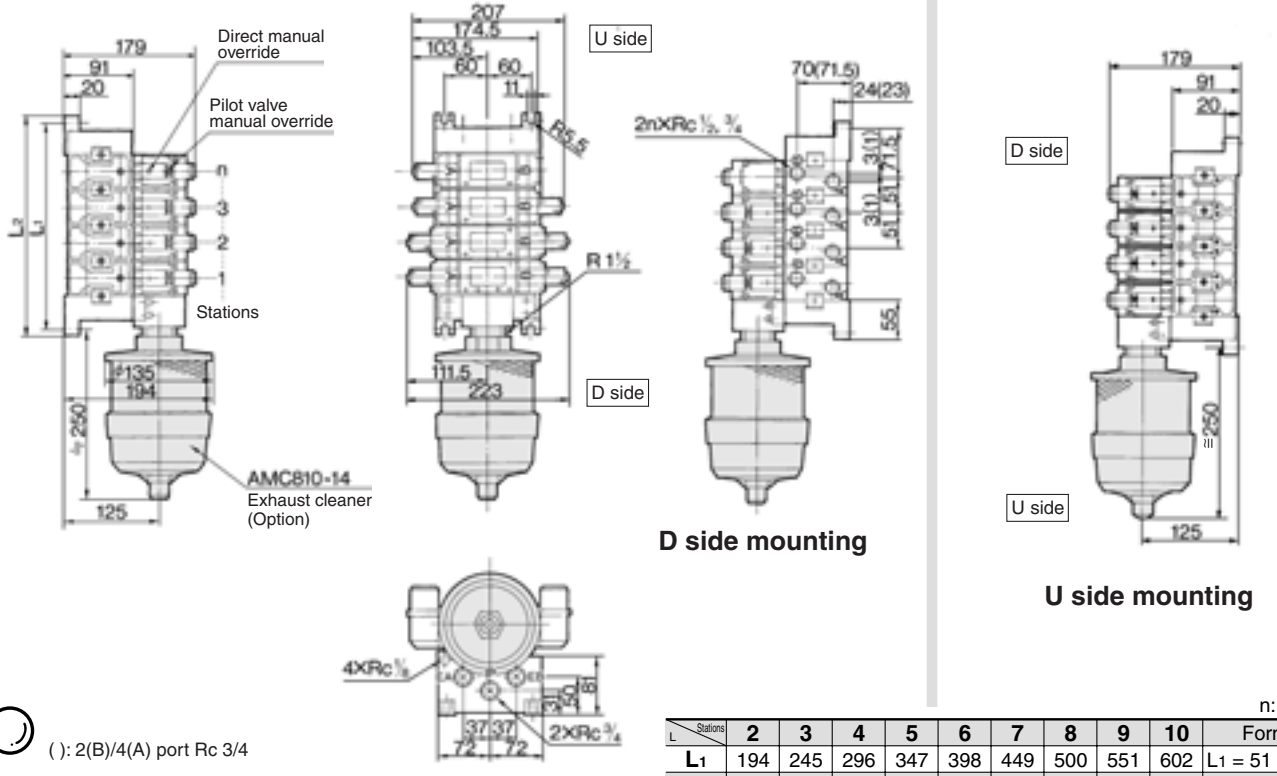
Manifold with Exhaust Cleaner — Plug-in type, Non plug-in type

Plug-in type: VV5FS5-01T-Station 1-Port size-$^{CD}_{CU}$



( ): 2(B)/4(A) port Rc 3/4

Non plug-in type: VV5FS5-10-Station 1-Port size-$^{CD}_{CU}$



( ): 2(B)/4(A) port Rc 3/4

n: Stations

L \ Stations	2	3	4	5	6	7	8	9	10	Formula
L1	194	245	296	347	398	449	500	551	602	L1 = 51 x n + 92
L2	212	263	314	365	416	467	518	569	620	L2 = 51 x n + 110

Made to Order

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output)
Serial Transmission System

How to Order

How to Order Manifold

VV5FS5 − 01S U V − 08 1 − 04 □ − X199

Plug-in type
Serial transmission kit

SI unit mounting position

D	D side mounting
U	U side mounting

Stations

2	2 stations
⋮	⋮
10	10 stations

Note 1) Max. 10 stations. Add 1 station for serial unit mounting.
Note 2) Max. 10 Stations: For single and double mixed wiring. (No. of valves: 9)
Max. 9 stations: For standard double wiring (No. of valves: 8)

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Port size

Symbol	P, R1, R2	A, B
04	Rc 3/4	Rc 1/2
06		Rc 3/4
M		Mixed

∗ For bottom ported: Rc 1/8 only

SI unit can be mounted on either U or D side.

Combination symbol

Symbol	Port specification		Piping specification A, B
	P	R1, R2	
1	Common	Common	Side
2∗			Bottom

∗ Option

Applicable models

Symbol	SI unit part no.		Description
	For U side mouning	For D side mouning	
0	—	—	Without SI unit
F1	EX123U-SUW1	EX123D-SUW1	NKE Corporation: Uni-wire System (16 outputs)
H	EX123U-SUH1	EX123D-SUH1	NKE Corporation: Uni-wire H System (16 outputs)
J1	EX123U-SSL1	EX123D-SSL1	SUNX Corporation: S-LINK System (16 outputs)
J2	EX123U-SSL2	EX123D-SSL2	SUNX Corporation: S-LINK System (8 outputs)
Q	EX124U-SDN1	EX124D-SDN1	DevieNet (2 power supply systems)
R1	EX124U-SCS1	EX124D-SCS1	OMRON Corporation: CompoBus/S (16 outputs) (2 power supply systems)
R2	EX124U-SCS2	EX124D-SCS2	OMRON Corporation: CompoBus/S (8 outputs) (2 power supply systems)
V	EX124U-SMJ1	EX124D-SMJ1	CC-Link (2 power supply systems)

Refer to pages 1653 to 1655 for the details of the EX123/124 integrated type (for output) serial transmission system.

● Correspondence of SI unit output numbers and solenoid valve coils

<Wiring Example 1> Double wiring (Standard)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9
	Double	Double	Single	Single	Single	Double	Single	Single	SI unit
	A B	A B	A B	A B	A B	A B	A B	A B	
	0 1	2 3	4 5	6 7	8 9	10 11	12 13	14 15	

<Wiring Example 2> Single/Double mixed wiring (Option)

D side — U side

SI unit output no.	1	2	3	4	5	6	7	8	9	10
	Double	Double	Single	Single	Single	Double	Single	Double	Single	SI unit
	A B	A B	A	A	A	A B	A	A B	A	
	0 1	2 3	4	5	6	7 8	9	10 11	11	

∗ Mixed wiring is available as an option. Use the manifold specification sheet to specify this.

How to Order Valves

VFS5 □ 00 □ − 5 F □ □

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Pilot type

Nil	Internal pilot
R	External pilot

24 VDC

Pilot valve manual override

Nil	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Locking type (Tool required)
C	Locking type (Lever)

Option

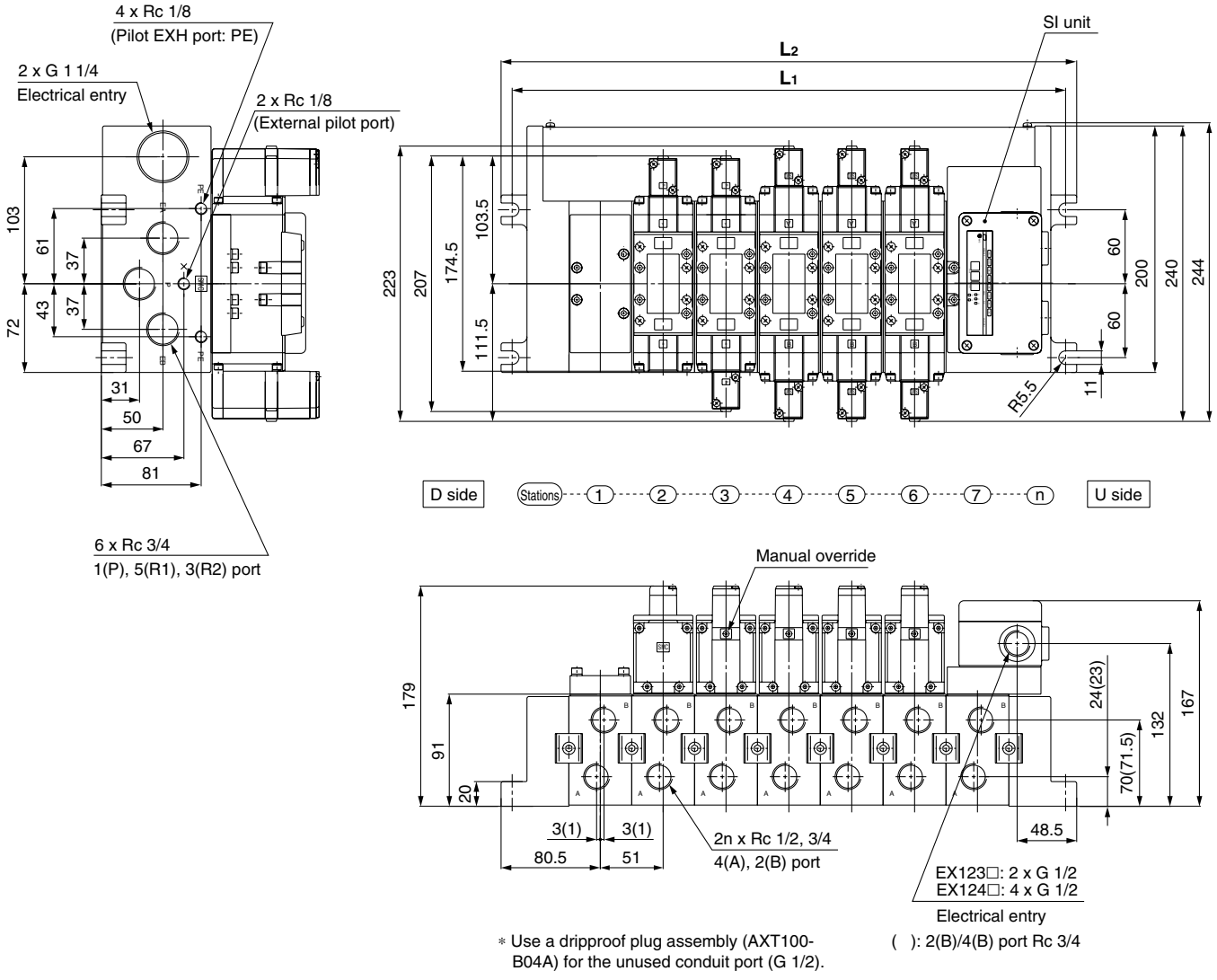
Nil	None
Z	With light/surge voltage suppressor

Coil rated voltage

Nil	None

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output) Serial Transmission System

VV5FS5-01S **Mounting position** **Model** - **Stations** **Symbol** - **Port size** **Thread** **-X199**



∗ Use a dripproof plug assembly (AXT100-B04A) for the unused conduit port (G 1/2).

( ): 2(B)/4(B) port Rc 3/4

Formula $L_1 = 51n + 92$ $L_2 = 51n + 110$
n: Stations (Max. 10 stations)

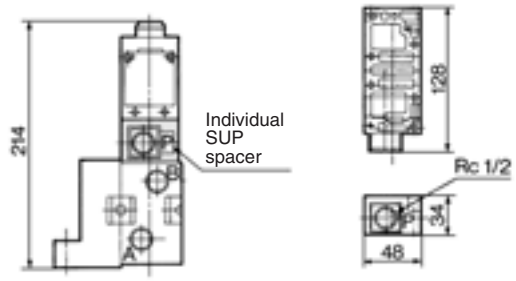
Dimensions

L \ n	2	3	4	5	6	7	8	9	10
L_1	194	245	296	347	398	449	500	551	602
L_2	212	263	314	365	416	467	518	569	620

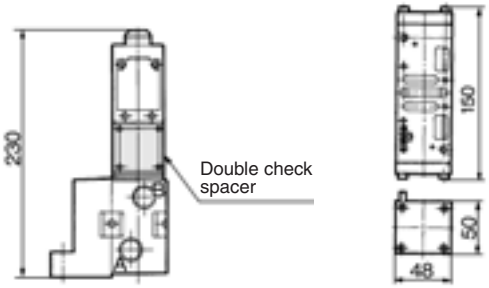
Note) Actual number of manifold base stations: Add 1 SI unit mounting station to the number of valve stations.

Manifold Option Parts — Plug-in type, Non plug-in type

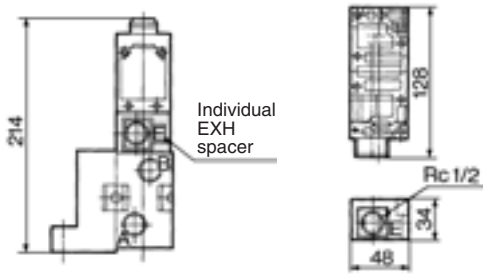
Individual SUP spacer:
VVFS5000-P-04-1 (Plug-in type)
VVFS5000-P-04-2 (Non plug-in type)



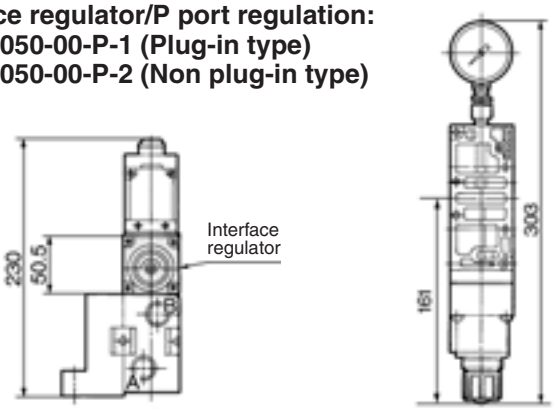
Double check spacer:
VVFS5000-22A-1 (Plug-in type)
VVFS5000-22A-2 (Non plug-in type)



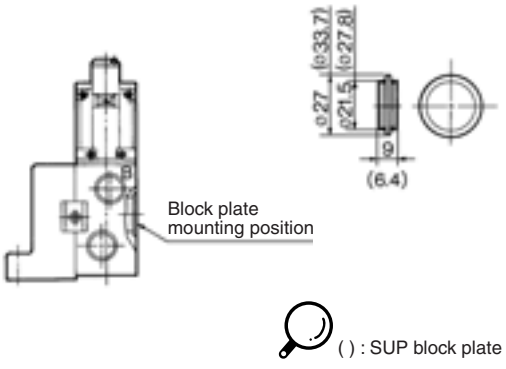
Individual EXH spacer:
VVFS5000-R-04-1 (Plug-in type)
VVFS5000-R-04-2 (Non plug-in type)



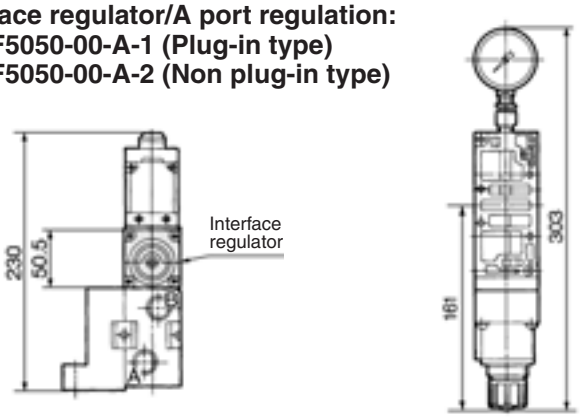
Interface regulator/P port regulation:
ARBF5050-00-P-1 (Plug-in type)
ARBF5050-00-P-2 (Non plug-in type)



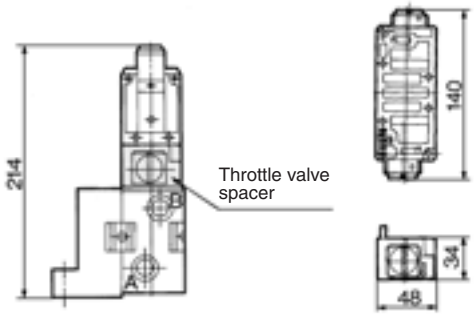
SUP block plate: AXT628-12A
EXH block plate: AXT512-14-1A



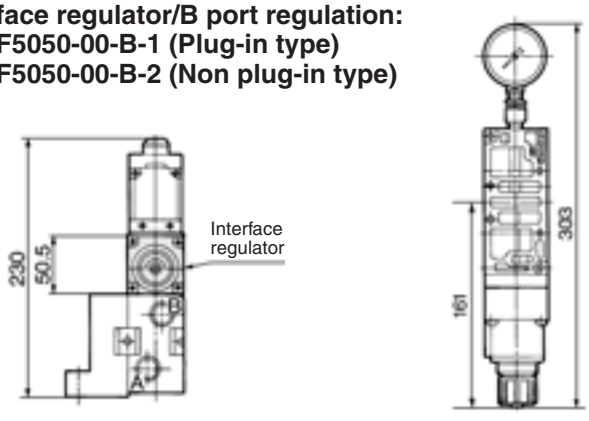
Interface regulator/A port regulation:
ARBF5050-00-A-1 (Plug-in type)
ARBF5050-00-A-2 (Non plug-in type)



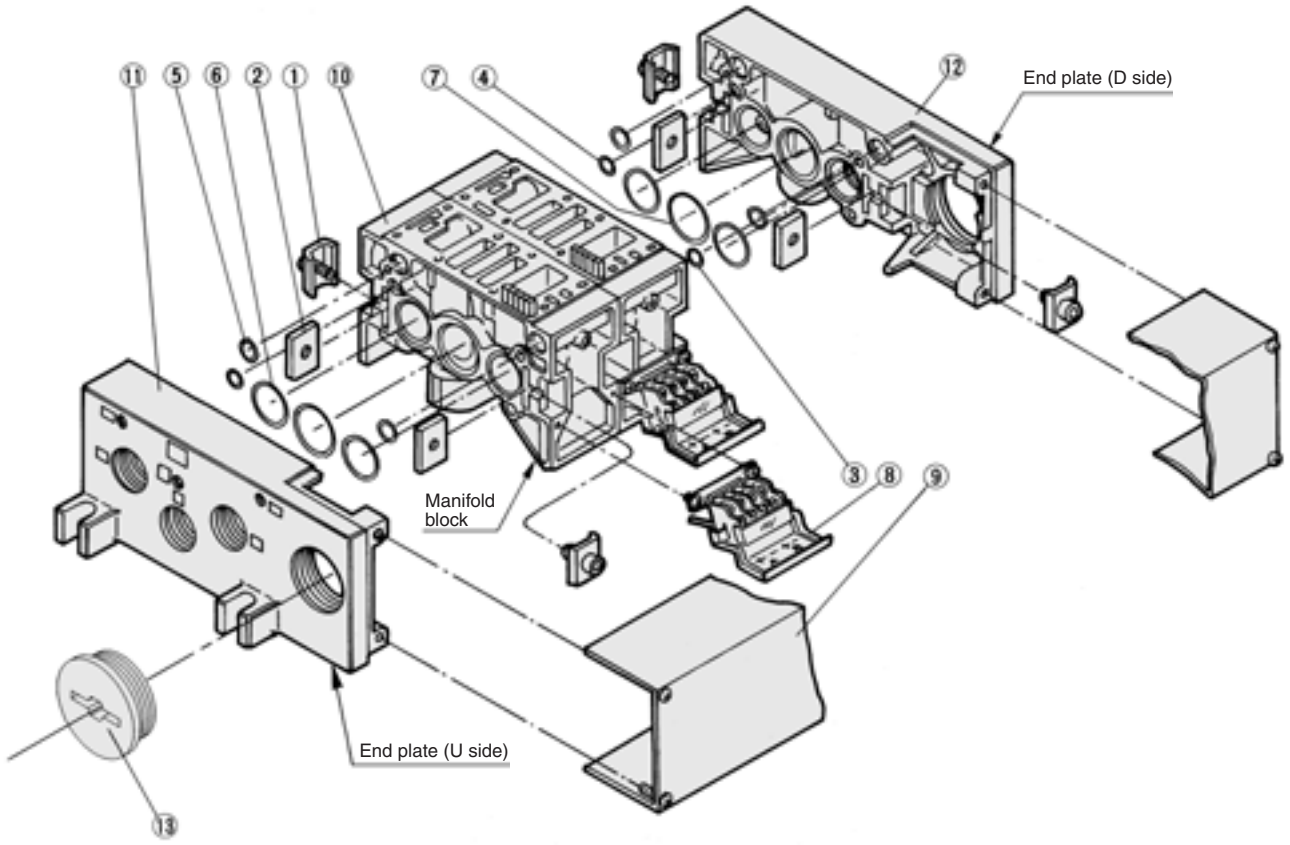
Throttle valve spacer:
VVFS5000-20A-1 (Plug-in type)
VVFS5000-20A-2 (Non plug-in type)



Interface regulator/B port regulation:
ARBF5050-00-B-1 (Plug-in type)
ARBF5050-00-B-2 (Non plug-in type)



Manifold Base Construction — Plug-in type, Non plug-in type



Replacement Parts

No.	Description	Material	Part no.
1	**Connection fitting A**	Steel plate	AXT628-6-1A
2	**Connection fitting B**	Steel plate	AXT628-6-2
3	**O-ring**	NBR	AS568-006
4	**O-ring**	NBR	AS568-010
5	**O-ring**	NBR	AS568-013
6	**O-ring**	NBR	AS568-022
7	**O-ring**	NBR	AS568-026
8	**Terminal assembly**	—	AXT628-5-1A
9	**Junction cover assembly**	For 01T	VVFS5000-4A- Stations
		For 01SU	AZ738-31A- Stations
13	**Rubber plug**	NBR	AXT336-9

- For increasing the manifold bases, please order the manifold block assembly number of the principal part assembly ⑩.
  For plug-in type: The manifold base with terminal stand (integrated with a junction cover) is required with the ⑨ junction cover assembly.

Replacement Parts: Sub Assembly

Note) Manifold Base/Construction: Plug-in type with terminal block.

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	**Manifold block assembly**	VVFS5000-1A-1-$^{04}_{06}$	Manifold block ⑩, Metal joint ①, ②, Terminal ⑧, O-ring ③, ④, ⑤, ⑥, ⑦, Receptacle assembly	Plug-in type
		VVFS5000-1A-2-$^{04}_{06}$	Manifold block ⑩, Metal joint ①, ②, O-ring ③, ④, ⑤, ⑥, ⑦	Non plug-in type
11	**End plate (U side) assembly**	VVFS5000-2A-1	End plate (U) ⑪, Metal joint ①, ②	Plug-in type
		VVFS5000-2A-2	End plate (U) ⑪, Metal joint ①, ②	Non plug-in type
12	**End plate (D side) assembly**	VVFS5000-3A-1	End plate (D) ⑫, Metal joint ①, ②, O-ring ③, ④, ⑤, ⑥, ⑦	Plug-in type
		VVFS5000-3A-2	End plate (D) ⑫, Metal joint ①, ②, O-ring ③, ④, ⑤, ⑥, ⑦	Non plug-in type

5 Port Pilot Operated Solenoid Valve
Metal Seal, Plug-in/Non Plug-in
Series VFS6000

NRTL /C

Model

Type of actuation		Model		Port size Rc	Flow characteristics						Max.[1] operating cycle (cpm)	Response time[2] (ms)	Mass[3] (kg)
		Plug-in	Non plug-in		1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)					
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv			
2 position	Single	**VFS6100**	**VFS6110**	3/4	29	0.10	6.8	38	0.10	9.0	180	160 or less	2.5
				1									
	Double	**VFS6200**	**VFS6210**	3/4	29	0.10	6.8	38	0.10	9.0	180	60 or less	2.75
				1									

Note 1) Based on JIS B 8375-1981 (once per 30 days) for the min. operating frequency.
Note 2) According to JIS B 8375-1981. (The value at supply pressure 0.5 MPa.)
Note 3) The figures in the above list are for without sub-plate. In case of with sub-plate, add 1.65 kg for Rc 3/4 and 1.5 kg for RC 1 respectively.
Note 4) "Note 1)" and "Note 2)" are with controlled clean air.
Note 5) The flow characteristics is for the port size Rc 4/3.

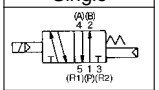
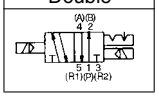
Compact yet provides a large flow capacity
3/4: C: 38 dm³/(s·bar)

Low power consumption: 1.8 W DC

Easy maintenance
2 types of sub-plates:
Plug-in and non plug-in



JIS Symbol

2 position
Single

Double


Standard Specifications

Valve specifications	**Fluid**		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimum operating pressure		0.1 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		–10 to 60°C [1]
	Lubrication		Non-lube [2]
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s² [3]
	Enclosure		Type E: Dustproof (Level 0), Type F: Dripproof (Level 2), Type D: Splashproof (Level 4) [4]
Electricity specifications	**Coil rated voltage**		100, 200 VAC, 50/60 Hz; 24 VDC
	Allowable voltage fluctuation		–15 to +10% of rated voltage
	Coil insulation type		Class B or equivalent (130°C) [5]
	Apparent power (Power consumption) AC	**Inrush**	5.6 VA/50 Hz, 5.0 VA/60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption DC		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry	Plug-in type	Conduit terminal
		Non plug-in type	Grommet terminal, DIN terminal

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 4) Based on JIS C 0920. Note 5) Based on JIS C 4003.

Option Specifications

Pilot type		External pilot Note)
Manual override	**Main valve**	Direct manual override
Coil rated voltage		110 to 120, 220, 240 VAC (50 Hz/60 Hz)
		12, 100 VDC
Porting specifications		Bottom ported
Option		With light/surge voltage suppressor, Non-rotating DIN terminal

Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure: 0.1 to 1.0 MPa

How to Order



Plug-in **VFS6 1 0 0 □ – 5 F Z – □ 10 □**

Non plug-in **VFS6 1 1 0 □ – 5 D Z – □ 10 □**



Porting specifications

Nil	Side ported

Port size

Nil	Without sub-plate
06	Rc 3/4
10	Rc 1

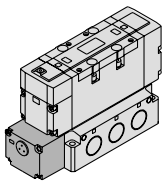
Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

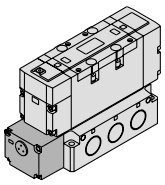
Body type

O: Plug-in type sub-plate



Electrical entry

F: Plug-in type conduit terminal

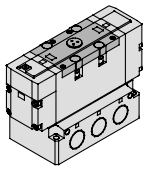


Option

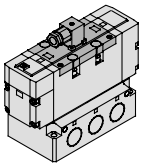
Nil	None
Z	With light/surge voltage suppressor

Electrical entry

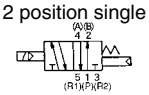
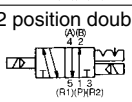
E: Grommet terminal



D: DIN terminal

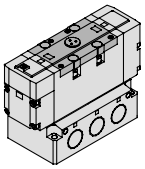


Symbol

1	2 position single 
2	2 position double 

Body type

1: Non plug-in type sub-plate



Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Body Option

0	Standard
1*	Direct manual override

* Option

Pilot type

Nil	Internal pilot
R*	External pilot

* Option

How to Order Pilot Valve Assembly

SF4 – 1 F – 22

Coil rated voltage

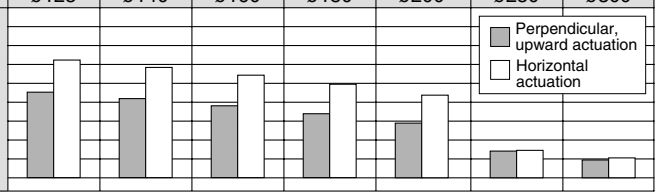
1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

* Refer to page 1224 for voltage conversion.

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

Series	Average speed (mm/s)	Bore size Series CS1/CS2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm						
		ø125	ø140	ø160	ø180	ø200	ø250	ø300
VFS6100-10	800 700 600 500 400 300 200 100 0							

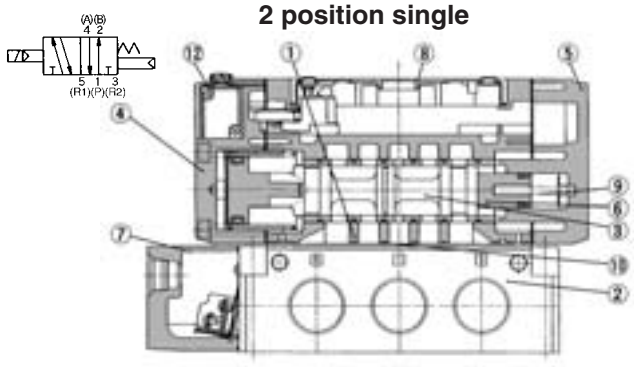
* It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
* The average velocity of the cylinder is what the stroke is divided by the total stroke time.
* Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

Conditions

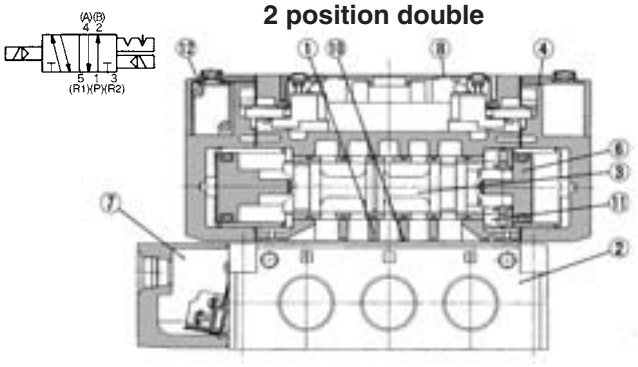
		Series CS1/CS2
VFS6100-10	Tube bore x Length	SGP25A x 1 m
	Speed controller	AS600-10
	Silencer	AN600-10

Construction

2 position single



2 position double



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Sub-plate**	Aluminum die-casted	Platinum silver
3	**Spool/Sleeve**	Stainless steel	—
4	**Adapter plate**	Aluminum die-casted	Black
5	**End plate**	Aluminum die-casted	Black
6	**Piston**	Resin	—
7	**Junction cover**	Resin	—
8	**Light cover**	Resin	—
9	**Return spring**	Stainless steel	—
10	**Gasket**	NBR	—
11	**Detent assembly**	—	—
12	**Pilot valve assembly**	—	—

* Refer to "How to Order Pilot Valve Assembly" on page 1219.

Sub-plate Assembly Part No.

Plug-in	VFS6000-P-$^{06}_{10}$
Non plug-in	VFS6000-S-$^{06}_{10}$

* Mounting bolt and gasket are not included.

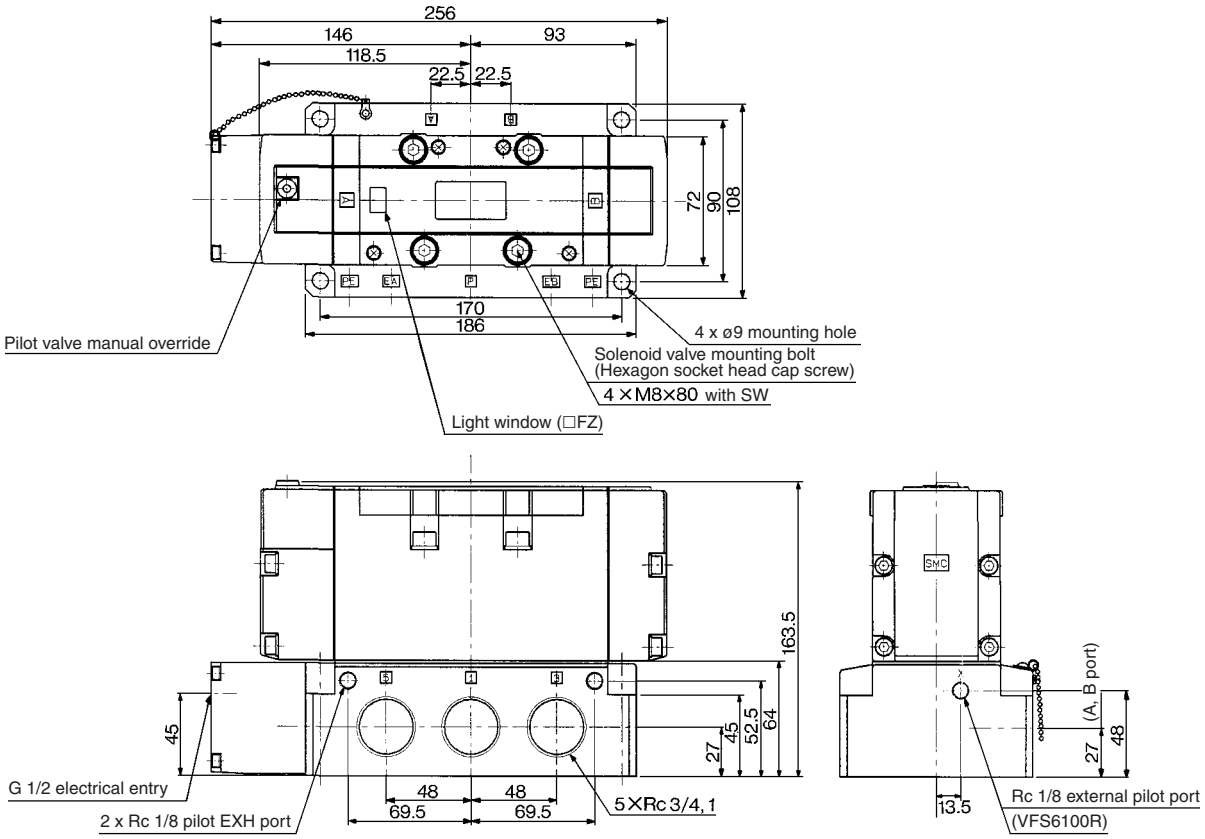
Sub-plate Assembly (For External Pilot) Part No.

Plug-in	VFS6000-P-R$^{01}_{02}$
Non plug-in	VFS6000-S-R$^{01}_{02}$

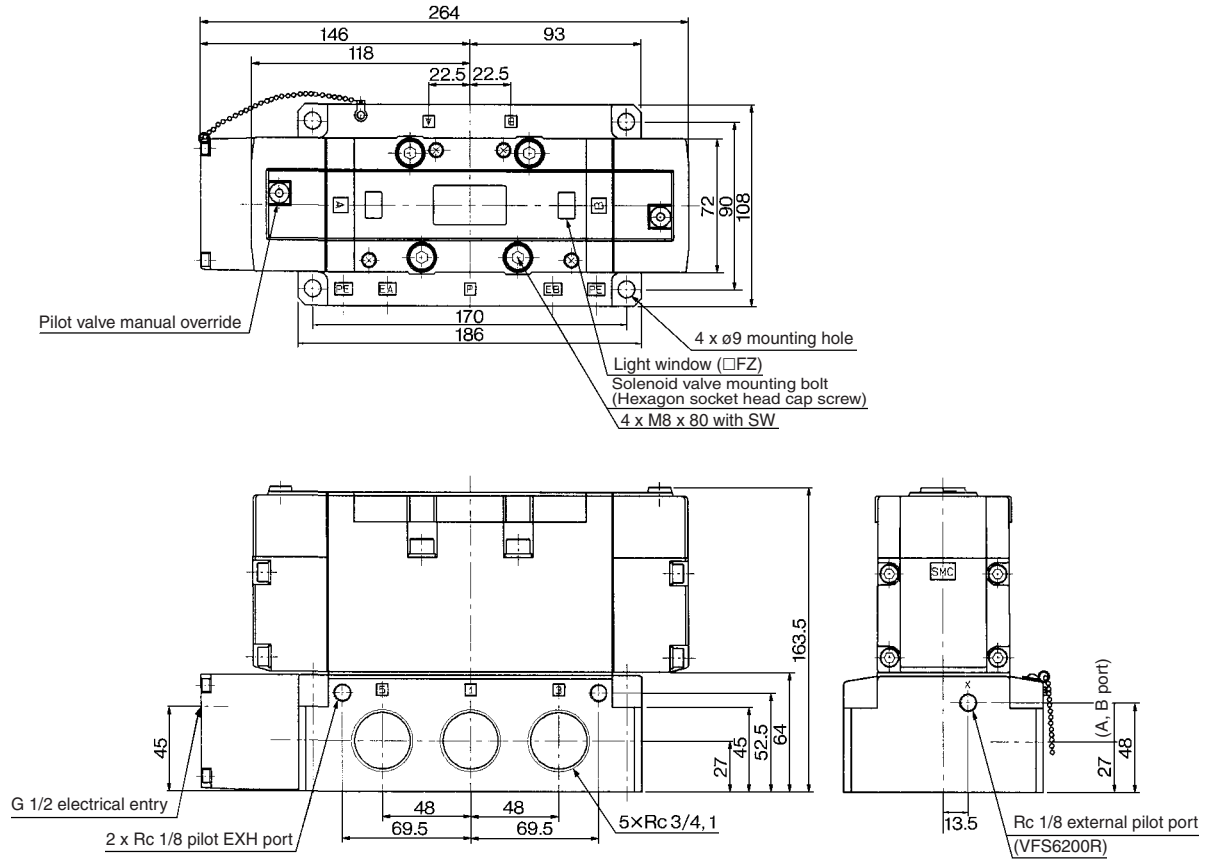
Part no. for mounting bolt and gasket
BG-VFS6000

Plug-in — 2 Position single/Double

2 position single: VFS6100-□F

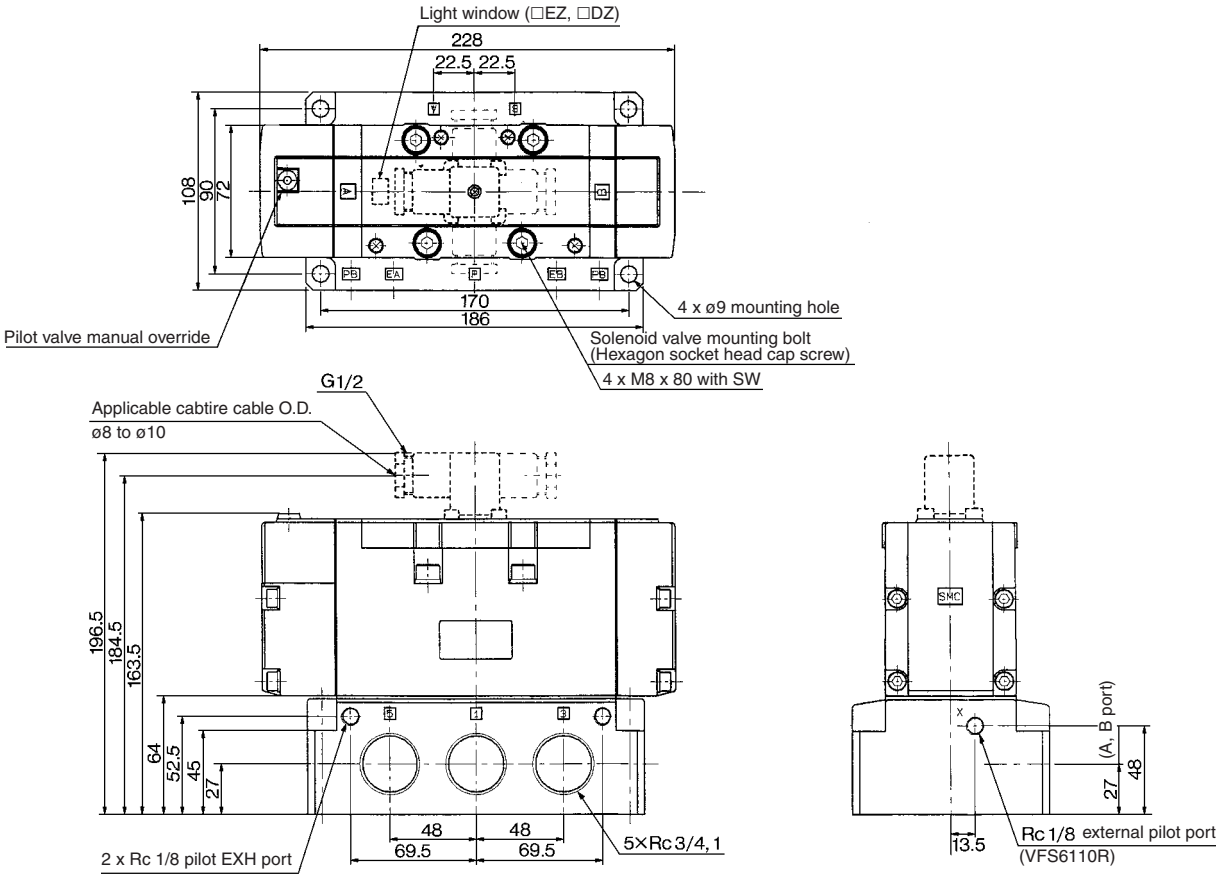


2 position double: VFS6200-□F

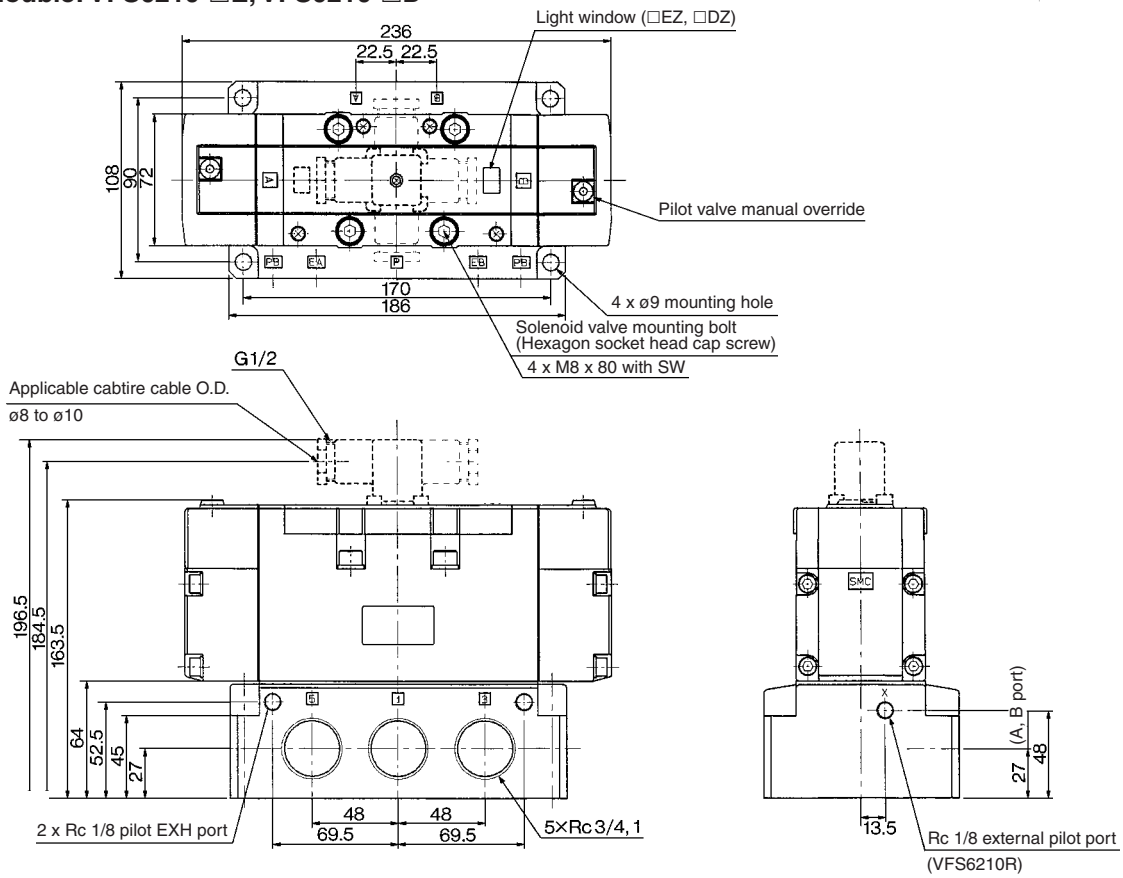


Non Plug-in — 2 Position single/Double

2 position single: VFS6110-□E, VFS6110-□D



2 position double: VFS6210-□E, VFS6210-□D



Series VFS
Specific Product Precautions 1

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

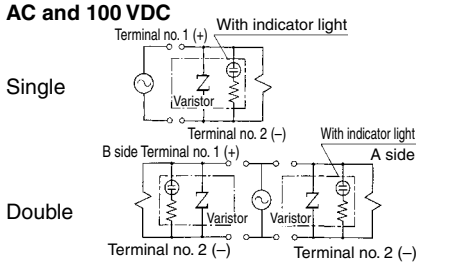
⚠ Caution

Light/Surge Voltage Suppressor, Electrical Entry — Single unit

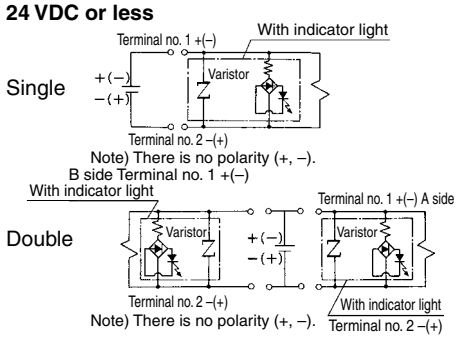
Body Ported — Series VFS1000/2000/3000

Light/Surge Voltage Suppressor

AC and 100 VDC



24 VDC or less

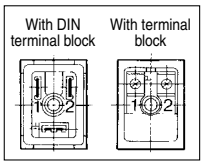


- Type G: Lead wire comes directly from the solenoid part. Connect it with the power source. Grommet with DC voltage surge voltage suppressor has polarity. Connect red lead wire to + (positive) side and black to – (negative) side.

Surge voltage suppressor	
DC	AC
Red + Black –	Varistor

Wiring

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

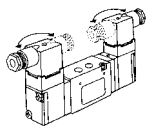


Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S, but in the case of with DIN terminal block, is not a terminal structure.

Note) There is no polarity.

Changing Direction of DIN Terminal/Cable Entry

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



Changing Direction of Electrical Entry and Manual Override

Loosen the set screw (M3–2 pcs.), take out pilot operator, turn solenoid valve 180° degrees to change the direction of lead wire and manual override. (Possible on Series VFS1000 only.)

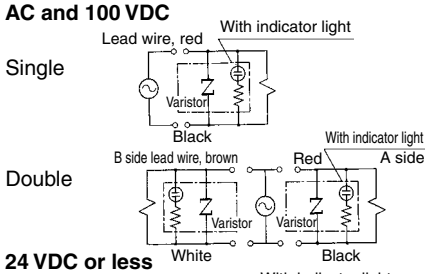


Base Mounted — Series VFS2000

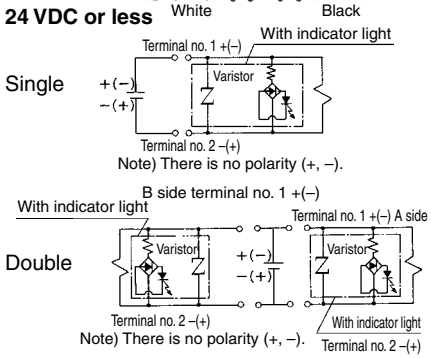
Light/Surge Voltage Suppressor

- In the case of surge voltage suppressor, surge voltage absorption device ZNR is attached to AC power.

AC and 100 VDC

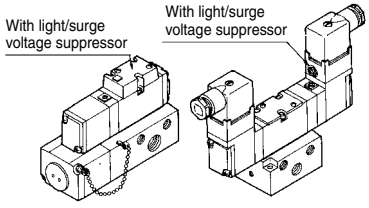


24 VDC or less



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

Surge voltage suppressor	
DC	AC
Red + Black –	Varistor

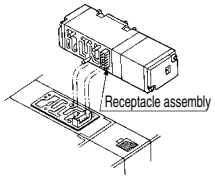


Plug-in type **Non plug-in type**

How to Exchange

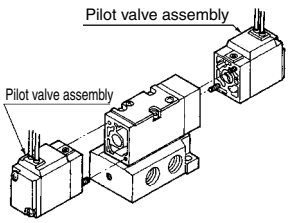
Solenoid valve

- Loosen 3 set screws (hexagonal socket head cap screw M3 x 31) and pull solenoid valve out vertically, otherwise it may cause damage to the solenoid valve. Never remove a valve at an angle.
- When mounting solenoid valve onto the base, plug pin assembly (base side) into receptacle assembly (body-side) vertically.



Exchange of pilot valve (Voltage exchange)

- When changing rated voltage and electrical entry etc., pilot valve assembly can be changed. But in case of a plug-in type with light/surge voltage suppressor, pilot valve assembly cannot be changed for changing rated voltage.



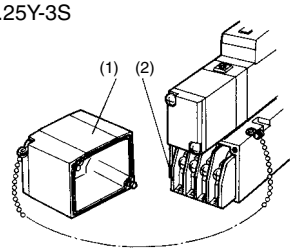
Electrical Connection

Single unit/Plug-in type sub-plate: T
Conduit terminal (With terminal block)

- If the junction cover (1) of the sub-plate is removed, you can see the plug-in type terminal block (2) (part no. NVF2000-27A-1) mounted inside the sub-plate.
  The following markings are on the terminal block board. Connect with corresponding power side.

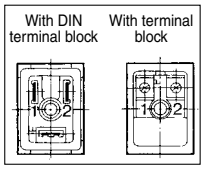
Description	Solenoid A side	Solenoid B side
Terminal block marking	A	B

- There is no polarity.
- When ground wiring and COM wiring are required, please specify separately.
- Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S



Single unit/Non plug-in type sub-plate: G, E, T, D

- **Type G**: Use lead wire from solenoid to connect with power side.
- **Type E, T, D**: In the case of a DIN terminal and terminal block (with light/surge voltage suppressor), the interior wiring is shown below. Connect with corresponding power side.



Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S, but in the case of with DIN connector board, is not a terminal structure.
Tightening torque for terminal: 0.6 N·m

Note) There is no polarity.

Changing Direction of DIN Terminal/Cable Entry

- **Change of the electrical entry of DIN type connector cable**
  Unscrew retaining screw, pull off outer cover, rotate connector board through 180°. Replace cover and tighten screw. Applicable cable: O.D. ø6 to ø8.

Series VFS
Specific Product Precautions 2

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

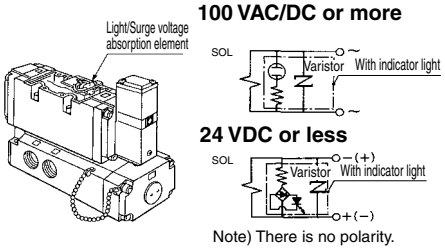
⚠ Caution

Light/Surge Voltage Suppressor, Electrical Entry — Single unit

Base Mounted — **Series VFS3000/4000/5000/6000**

Light/Surge Voltage Suppressor

In the case of surge voltage suppressor, surge voltage absorption element is attached to terminal block on body area.

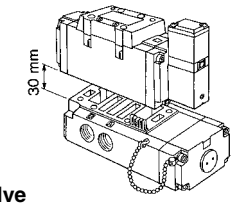


Note) There is no polarity.

How to Exchange

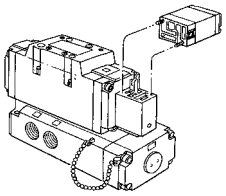
Solenoid valve

- Loosen set screw and take solenoid valve out vertically, otherwise it may cause damage to the solenoid valve. Never remove a valve at an angle.
- When mounting solenoid valve onto the base, plug pin assembly (base side) into receptacle assembly (body side) vertically.

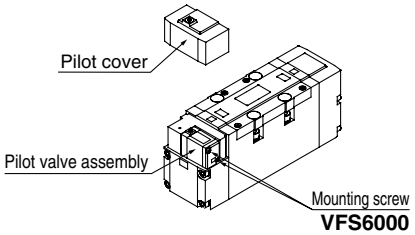


Pilot valve

- When changing the rated voltage, electrical entry, etc., pilot valve assembly can be exchanged easily since this is plug-in type. Then, when changing the rated voltage with indicator light/surge voltage suppressor, change of indicator light/surge voltage suppressor substrate is also needed. So, order together with pilot valve assembly.



VFS3000/4000/5000



VFS6000

Light/Surge Voltage Suppressor Substrate Part No.

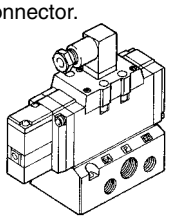
VFS3000		VFS3000-10A-□
VFS4000	100V or more	VF4000-9A-□
	24V or less	VF4000-9B-□
VFS5000	100V or more	AXT627-7A-□
	24V or less	AXT627-7B-□
VFS6000	100V or more	VF4000-9A-□
	24V or less	VF4000-9B-□

-□: Coil rated voltage Symbol: Refer to below.
1: 100 to 120 V 6: 12 V
2: 200 to 220 V 7: 240 V
5: 24 V

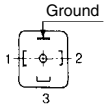
Lead Wire Connection

DIN terminal block type

- Male pin terminal of DIN terminal block board of solenoid valve and wires as shown below. Connect to corresponding terminal block on the connector.



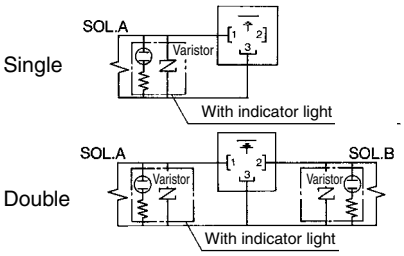
DIN terminal (Wiring)



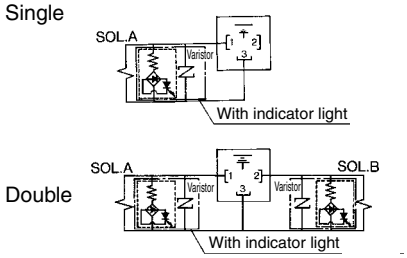
1	A side
2	B side
3	COM
⏚	Ground

- There is no polarity.

100 VAC/DC or more



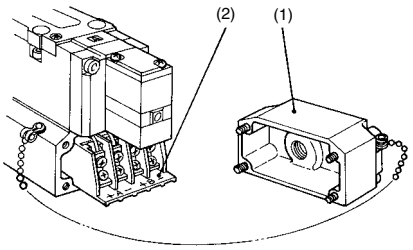
24 VDC or less



- Heavy-duty cord
  Applicable cable O. D.: ø8 to ø10
- Applicable terminal
  Applicable terminal on block board: 3 (kinds)
  1.25Y-3L, 1.25-3.5S, 1.25-4M
- Connector/Clamping torque
  Set screw 0.6 N·m
  Terminal screw 0.6 N·m
- Incorrect common (DIN terminal no. 3) causes damage on power side circuit.

Plug-in type (With terminal)

- If the junction cover (1) of the sub-plate is removed, you can see the plug-in type terminal block (2) mounted inside the sub-plate.



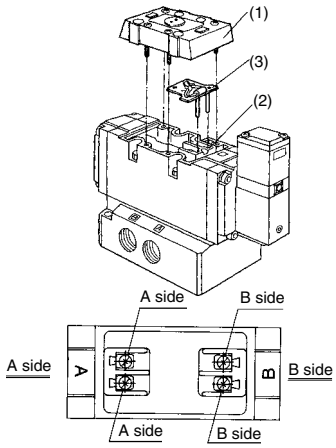
- The following markings are on the terminal block. Connect with corresponding power side.

	Solenoid A side	Solenoid B side
Terminal block marking	A + −	B + −

- Applicable terminal:
  VFS3000: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S
  VFS4000: 1.25-3.5M, 1.25Y-3L, 1.25Y-3M
  VFS5000: 1.25-4, 1.25-4M
  VFS6000: 1.25-3.5M, 1.25Y-3L, 1.25-3M
- There is no polarity.
- Tightening torque for terminal: 0.6 N·m

Non plug-in type (With terminal)

- Remove cover (1), over terminal block (2) attached to the inside of body. Connect with corresponding power side. For a type with indicator light and surge voltage suppressor, pull out the light and surge voltage suppressor substrate (3) in a straight direction and then connect them.



- Applicable terminal:
  VFS3000: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S
  VFS4000/5000/6000: 1.25-3.5M, 1.25Y-3L, 1.25Y-3M
- There is no polarity.
- Tightening torque for terminal: 0.6 N·m

SMC

Series VFS
Specific Product Precautions 3

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

⚠ Caution

Maintenance

1. A lot of carbon powder and oil waste from air sources (mostly from compressor) entering into the valve sometimes can lead to increased sliding resistance at the switching spool and cause valve malfunction.
In the worst case, spool can adhere to the valve. Therefore, supply air should be kept clean.
Also, if it is left for a long time exposed to an inferior quality of air under SUP pressure applied, carbon powders and oil wastes in the compressed air will be accumulated in the clearance of the spool and sleeve and can cause the spool to adhere to the valve.
The remedy for this case is to check the compressor lubrication oil and find out the least oxidizing compressor lubrication oil.
Meanwhile, a high filtration Mist Separator (Series AM) installed on the back of regular filter (Series AF) can prevent foreign particles from entering into the valve.
Besides, as lubricant for compressors, Faircoal A-80 (Nippon Mitsubishi Oil Corp.), Dafney CSS55, CS49 (Idemitsu Kosan Co., Ltd), etc. are commercially available on the market.

2. When disassembling and re-assembling, please ensure that all components are in proper positions. Prevent gaskets from slipping, and clamp bolts down equally.
Use torques listed below when mounting pilot valve assemblies and solenoid valve bodies.

Pilot Valve Assembly: SF4-□-□

Holding screw	Proper tightening torque (N·m)
M3	0.45 to 0.6

Solenoid Valve Body

Holding screw	Proper tightening torque (N·m)
M3	0.8 to 1.2
M4	1.4 to 2.5
M5	2.8 to 5

How to Calculate the Flow Rate

Refer to front matters 44 to 47 for How to Calculate the Flow Rate.

Interface Regulator Specifications

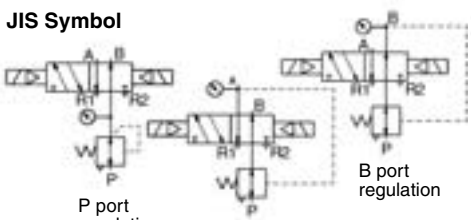
Interface regulator (3)		ARBF2000	ARBF3050			ARBF4050			ARBF5050		
Applicable solenoid valve series		VFS2000	VFS3000			VFS4000			VFS5000		
Regulating port		P	A	B	P	A	B	P	A	B	P
Proof pressure		1.5 MPa									
Maximum operating pressure		1.0 MPa									
Set pressure range (1)		0.05 to 0.83 MPa	0.1 to 0.83 MPa								
Ambient and fluid temperature		–5 to 60°C (No freezing)									
Port size for connection of pressure gauge		M5 x 0.8	Rc 1/8								
Weight (kg)		0.16	0.46			0.72			0.83		
Effective area at supply side (mm^2) (2) S at P_1 = 0.7 MPa, P_2 = 0.5 MPa	P → A	5.5	21	18.5	11	35	31	26	44	38	32
	P → B	5.1	18.5	22	12	31	31	24	38	40	31
Effective area at exhaust side (mm^2) (2) S at P_2 = 0.5 MPa	A → EA	12	40			55			90		
	B → EB	11	36			45			77		

Note 1) Set within the operating pressure range of solenoid valve.
Note 2) Synthesized effective area with solenoid valve 2 position single type.
Note 3) • Operate an interface regulator only by applying pressure from the "P" port of the base, except when using it as a reverse pressure valve.
• To combine a pressure center valve and the A and B port pressure reduction of an interface regulator, use the ARBF3000, 4000, or 5000 model.
• To combine a reverse pressure valve and an interface regulator, use the ARBF3000, 4000, or 5000 model. Furthermore, the P port pressure reduction cannot be used for the reverse pressure valve.
• When combining a double check valve and an interface regulator, use a manifold or sub-plate as a basis, and stack them in the following order; the perfect spacer → the interface regulator → the valve.
• When a closed center valve is combined with the interface regulator's A, B port regulation, note that it cannot be used for intermediate stops of a cylinder because there is leakage from relief port on the regulator.

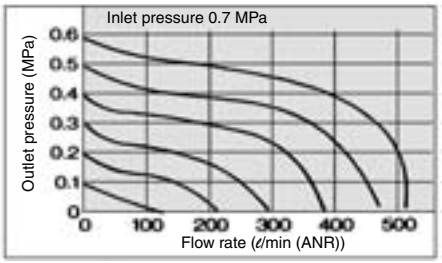
Flow Characteristics (P → A)

(Conditions: Inlet pressure 0.7 MPa. when 2 position solenoid valve is mounted.)

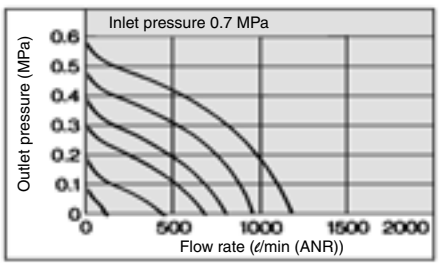
JIS Symbol



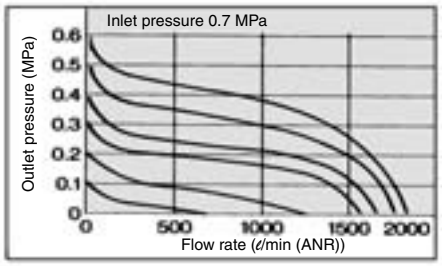
ARBF2000-00-P



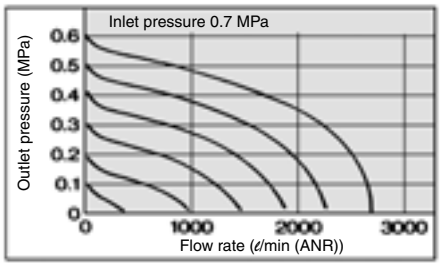
ARBF3050-00-P



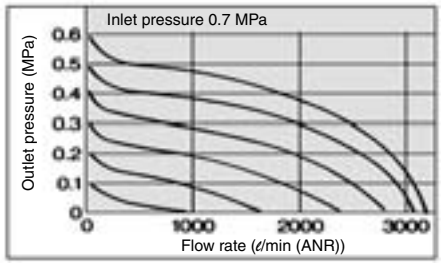
ARBF3050-00-A



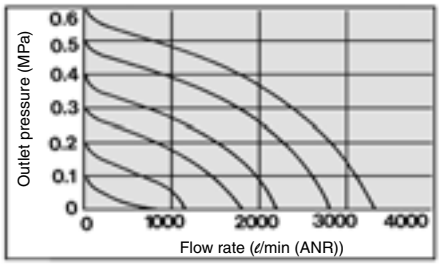
ARBF4050-00-P



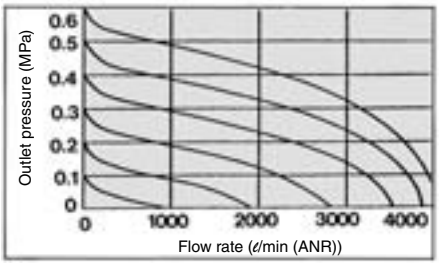
ARBF4050-00-A



ARBF5050-00-P



ARBF5050-00-A



Series VFS
Specific Product Precautions 4

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

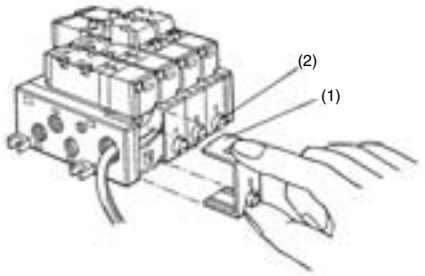
⚠ Caution

Lead Wire Connection Manifold/Plug-in

Type 01 Insert Plug with Lead Wire

Series VFS2000 (Insert plug with lead wire is not available for Series VF3000, 4000, and 5000.)

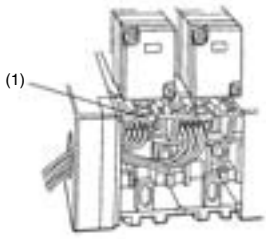
How to remove junction cover (Type 01)
Turn the knob (2) of junction cover (1) on the manifold block side by hand or slotted screwdriver to the C → O direction (counterclockwise) 90°. While holding the knob and upper part of junction cover, pull outward to remove junction cover.
When reassembling, do the opposite.



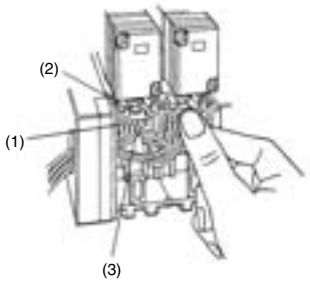
Wiring
The insert plug (1) is attached to the manifold block and lead wire is plugged in with valve side as shown in the following list.
(Single solenoid: AXT624-52A-S-1
Double solenoid: AXT624-52A-D-1)
Connect with corresponding power side.

Power supply	Valve model	Solenoid A	Solenoid B
AC DC	Single solenoid	Red, Black	—
	Double solenoid	Red, Black	Brown, White

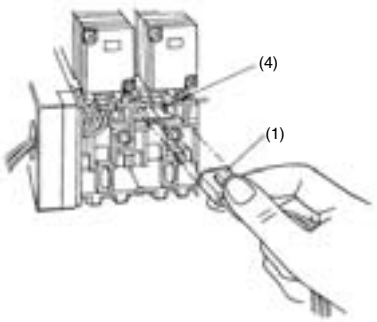
∗ There is no polarity.
∗ Lead wire length is 1 m.



How to Use Insert Plug
- When removing insert plug (1) from manifold base, push the lever area (2) of inset plug downward with thumb and pull it together with the lead wire (3) outward.



- When placing the inset plug (1) into the manifold base, push the lever area of inset plug with thumb and plug it in its place in the receptacle housing (4) horizontally.
After plugging, pull lead wire out a little bit to ensure that insert plug is secure.



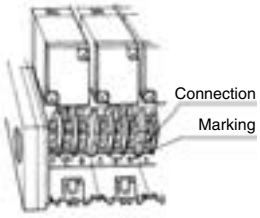
Type 01 with Terminal Block

Series VFS2000

- Remove junction cover of manifold, exposing terminal block attached to the manifold block. Lead wires from solenoid valve are connected with the terminals on upper side of terminal block. (On the terminal block, lead wire is connected with both A and B sides of solenoid valve in accordance with the corresponding markings A and B on the block.) Connect each lead wire of power side corresponding to respective solenoid valve on the lower terminal block.
VFS2000 has the marking + COM on the block board, but – COM specification is also available.

Model \ Terminal block marking	A	COM	B
VFS2100	A side	COM	
VFS2200	A side	COM	B side
VFS2$^{3}_{4}$00	A side	COM	B side

- Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S
- Plugging COM bridge (part no. AXT625-73: 5 stations) in between each + COM on the block board will make the specifications of all the stations + COM and enables you to understand the wiring process.
- There is no polarity.
- Tightening torque for terminal: 0.6 N·m



Series VFS3000

Model \ Terminal block marking	A	COM	B
VFS3100	A side	COM	
VFS3200	A side	COM	B side
VFS3$^{3}_{4}$00	A side	COM	B side

- Applicable terminal: 1.25-3.5M, 1.25Y-3L, 1.25-3M
- There is no polarity.
- VFS 3000 has the marking + COM on the block board, but – COM specification is also available.
- Tightening torque for terminal: 0.6 N·m

Series VFS4000/5000

Model \ Terminal block marking	A +	A–	B +	B–
VFS$^{4}_{5}$100	A side	A side		
VFS$^{4}_{5}$200	A side	A side	B side	B side
VFS4$^{3}_{4}$00 **VFS5$^{3}_{4}$00**	A side	A side	B side	B side

- Applicable terminal: 1.25-3.5M, 1.25Y-3L, 1.25Y-3M
- There is no polarity.
- Tightening torque for terminal: 0.6 N·m

Series VFS
Specific Product Precautions 5

Be sure to read before handling.
Refer to front matters 58 and 59 for Safety Instructions and pages 3 to 7 for 3/4/5 Port Solenoid Valve Precautions.

⚠ Caution

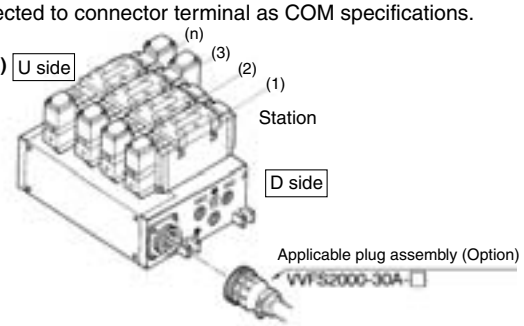
Lead Wire Connection — Manifold/Plug-in

Type 01C Circular Connector

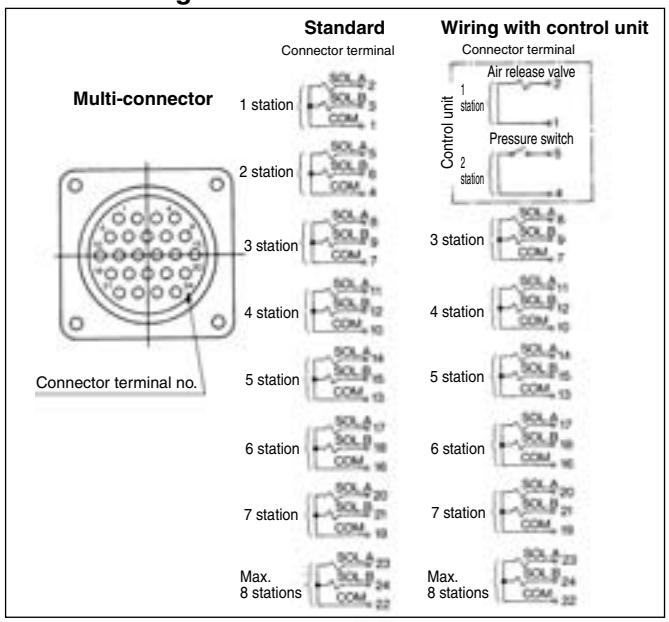
Series VFS2000/3000/4000/5000

• Wire connection specifications
Lead wire for both solenoid A and B sides in manifold are connected to connector terminal as COM specifications.

Fig. (1)



Internal Wiring of Manifold



Note 1) Maximum stations are 8.
Note 2) There is no polarity.
Note 3) Indication of stations are one station from D side regardless of the connector mounting side, D or U.

Applicable Plug Assembly (Option)

Assembly part no.	Cable length	Component parts
VVFS2000-30A-1	1.5 m	Plug 206837-1 1 pc. Cable clamp 206138-1 1 pc. Socket 66101-2 24 pcs. Cable VCTF 24 cores x 0.75 mm² made by Tyco Electronics AMP K.K.
VVFS2000-30A-2	3 m	
VVFS2000-30A-3	5 m	
VVFS2000-30A-4 *	7 m	
VVFS2000-30A-5 *	10 m	
VVFS2000-30A-6 *	15 m	
VVFS2000-30A-7 *	20 m	

* Option

Cable Color List of Each Terminal No.

Terminal no.	1	2	3	4	5	6	7	8	9	10	11	12
Lead wire color	Orange	Orange	Black	Black	Green	Green	Red	Red	Blue	Blue	Yellow	Yellow
Dot marking	—	Yes	—	Yes	—	Yes	—	Yes	—	Yes	—	Yes

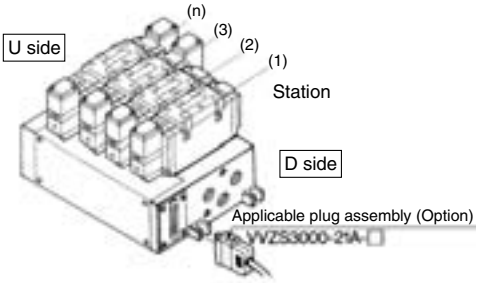
Terminal no.	13	14	15	16	17	18	19	20	21	22	23	24
Lead wire color	Brown	Brown	White	White	Pink	Pink	Gray	Gray	Sky blue	Sky blue	Light green	Light green
Dot marking	—	Yes	—	Yes	—	Yes	—	Yes	—	Yes	—	Yes

Type 01F D-sub Connector

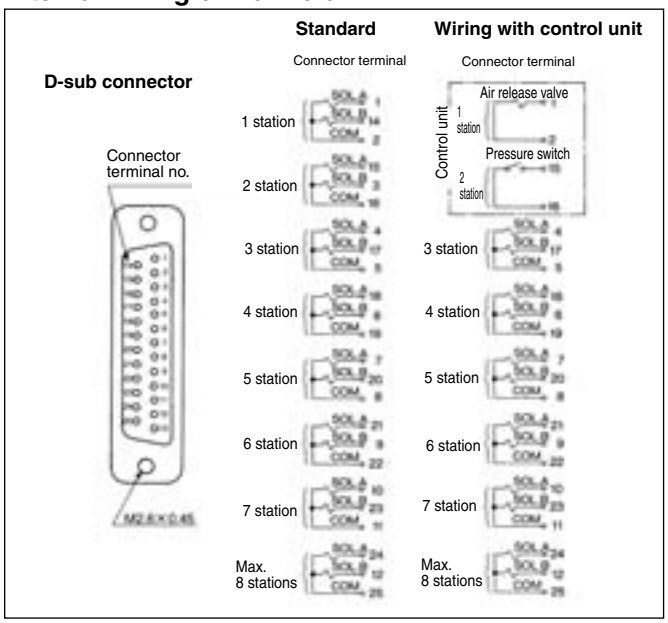
Series VFS2000/3000/4000/5000

• Wire connection specifications
Lead wire for both solenoid A and B sides in manifold are connected to connector terminal as COM specifications.

Fig. (2)



Internal Wiring of Manifold



Note 1) Maximum stations are 8.
Note 2) There is no polarity.
Note 3) Indication of stations are one station from D side regardless of the connector mounting side, D or U.

Applicable Plug Assembly (Option)

Assembly part no.	Cable length	Component parts
VVZS3000-21A-1	1.5 m	Plug: MIL standard D type connector 25 terminals Cable: 25 cores wire x 0.3 mm²
VVZS3000-21A-2	3 m	
VVZS3000-21A-3	5 m	
VVZS3000-21A-4 *	8 m	
VVZS3000-21A-5 *	10 m	
VVZS3000-21A-6 *	15 m	
VVZS3000-21A-7 *	30 m	
VVZS3000-21A-8 *	20 m	

* Option

Cable Color List of Each Terminal No.

Terminal no.	1	2	3	4	5	6	7	8	9	10	11	12	13
Lead wire color	Black	Brown	Red	Orange	Yellow	Pink	Blue	Purple	Gray	White	White	Yellow	Orange
Dot marking	—	—	—	—	—	—	—	White	Black	Black	Red	Red	Red

Terminal no.	14	15	16	17	18	19	20	21	22	23	24	25
Lead wire color	Yellow	Pink	Blue	Purple	Gray	Orange	Red	Brown	Pink	Gray	Black	White
Dot marking	Black	Black	White	—	—	Black	White	White	Red	Red	White	—