

# 4 Port Solenoid Valve Common Specifications

# Series SJ2000/3000



## Manifold Specifications

Model	D-sub connector		Flat ribbon cable			Serial wiring		Individual wiring
	Type 60F	Type 60P	Type 60PG Type 60J Type 60G	Type 60PH	Type 60S□ (EX180)	Type 60S6B (EX510)	Type 60	
<b>Manifold type</b>	Plug-in, Connector type							Non-plug-in
<b>1(P: SUP), 3/5(E: EXH)</b>	Common SUP, EXH							
<b>Valve stations</b>	2 to 24 stations		2 to 18 stations (Type PG) 2 to 16 stations (Type J, Type G)	2 to 8 stations	2 to 32 stations	2 to 16 stations	2 to 20 stations	
<b>Applicable connector</b>	D-sub connector Conforming to 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	—	—	—	
<b>Internal wiring</b>	Non-polar, +COM							
<b>4(A), 2(B) port piping spec.</b>	<b>Location</b>	Valve						
	<b>Direction</b>	Horizontal, Upward, Downward (Using elbow fittings for upward or downward)						
<b>Port size</b>	<b>1(P), 3/5(E) port</b>		C6, C8, N7, N9 (Inch size elbow fitting is not available.)					
	<b>4(A), 2(B) port</b>	<b>SJ2000</b>	C2, C4, N1, N3, M3					
		<b>SJ3000</b>	C2, C4, C6, N1, N3, N7, M5					
<b>Weight W (g)</b> <sup>Note 2)</sup> n: Number of SUP/EXH blocks m: Weight of DIN rail		$W = 51n + m + 133$						

Note 1) When many valves are operated simultaneously, use B type (SUP/EXH both sides), applying pressure to the 1(P) ports on both sides and exhaust from the 3/5(E) ports on both sides.

Note 2) The weight W is the value for the D-sub connector manifold only with internal pilot, SUP/EXH block straight fittings specifications. To obtain the weight with solenoid valves attached, add the solenoid valve weights given on page 3 for the appropriate number of stations. Refer to page 61 for the weight of DIN rail. (Please contact SMC for the weight of external pilot specifications, elbow fittings.)

## Flow Characteristics

### SJ2000

Port size		Flow characteristics					
1(P) 3/5(E)	4, 2 (A, B)	1→2/4 (P→A/B)			4/2→3/5 (A/B→E)		
		C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv
C8	C2	0.13	0.55	0.04	0.13	0.50	0.04
	C4	0.33	0.16	0.08	0.36	0.13	0.08
	M3	0.18	0.52	0.06	0.20	0.29	0.06

### SJ3000

Port size		Flow characteristics					
1(P) 3/5(E)	4, 2 (A, B)	1→2/4 (P→A/B)			4/2→3/5 (A/B→E)		
		C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv
C8	C2	0.13	0.56	0.04	0.14	0.51	0.04
	C4	0.42	0.17	0.11	0.45	0.16	0.11
	C6	0.55	0.10	0.12	0.56	0.11	0.12
	M5	0.40	0.28	0.11	0.45	0.15	0.11

Note) The value is for manifold base with 5 stations and individually operated 2 position type.  
Please contact SMC for 4 position dual 3 port valves.

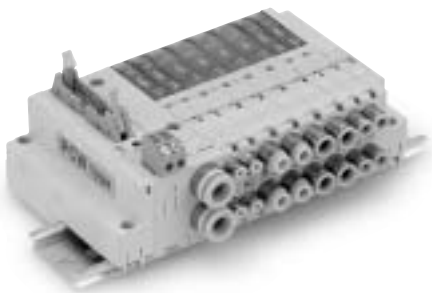
# Plug-in Connector Type Manifold

## *Series SJ2000/3000*

### **P.10** D-sub Connector / Flat Ribbon Cable / PC Wiring



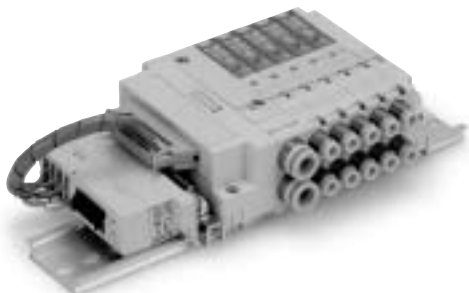
### **P.26** PC Wiring System with Power Supply Terminal



### **P.34** Serial Wiring: EX180



### **P.42** Gateway System Serial Transmission System: EX510



# Plug-in Connector Type

## D-sub Connector / Flat Ribbon Cable / PC Wiring

# Series SJ2000/3000



### How to Order

#### ● Connector type manifold

SS5J **3** - **60** **F** **D** **1** - **05** **U** □ □ □

Series	
2	SJ2000
3	SJ3000 (SJ2000/3000 mixed)

#### ● DIN rail length specified

Nil	Standard length	
3	3 stations	Specify a longer rail than the standard length.
⋮	⋮	
24	24 stations	

\* Specify the valve stations not exceeding the maximum stations.

#### ● Mixed mounting type

Nil	Standard <small>Note 1)</small>
M	Mixed mounting <small>Note 2)</small>

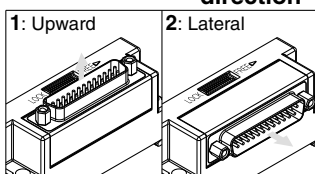
Note 1) There is no need to enter anything when you operate either the SJ2000 or SJ3000 series alone.

Note 2) Enter "M" when the SJ2000 or SJ3000 series will be mounted on the same manifold base together.

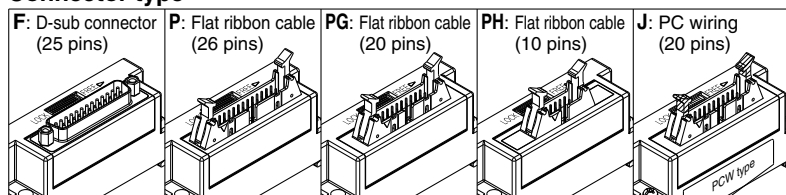
#### ● Connector mounting position

Symbol	Mounting position
D	D side

#### ● Connector entry direction



#### ● Connector type



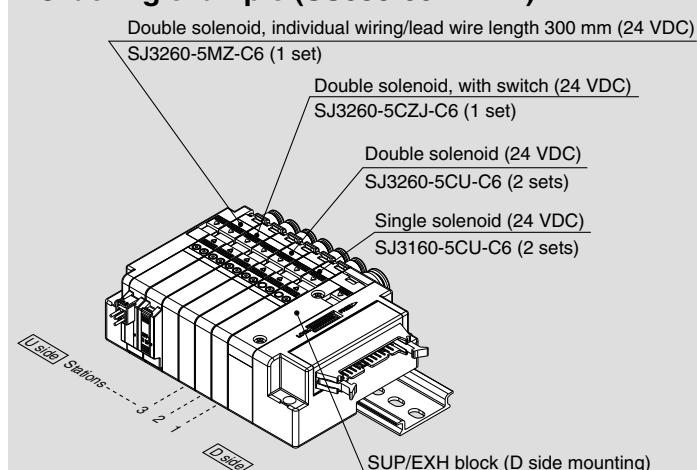
#### ● SUP/EXH block fitting spec.

	Straight fitting	
Nil	With external pilot spec. X, PE port	
L	Elbow fitting (Upward) With external pilot spec. X, PE port	
B	Elbow fitting (Downward) With external pilot spec. X, PE port	

\* There is no need to enter anything when the SUP/EXH block mounting position "M" is selected.

### How to Order Valve Manifold Assembly

#### Ordering example (SS5J3-60PD2-□)



SS5J3-60PD2-06D ..... 1 set (Manifold part no.)  
 \* SJ3160-5CU-C6 ..... 2 sets (Single solenoid part no.)  
 \* SJ3260-5CU-C6 ..... 2 sets (Double solenoid part no.)  
 \* SJ3260-5CZJ-C6 ..... 1 set (Double solenoid, with switch part no.)  
 \* SJ3260-5MZ-C6 ..... 1 set (Double solenoid, individual wiring/lead wire length 300 mm part no.)

→ The asterisk denotes the symbol for assembly.  
 Prefix to the part no. of the solenoid valve, etc.

- The valve arrangement is numbered as the 1st station from D side.
- Indicate the valves to be attached below the manifold part number, in order starting from station 1 as shown in the drawing. In the case of complex arrangement, specify them in the manifold specification sheet.

#### ● Pilot spec.

Nil	Internal pilot
S	Internal pilot / Built-in silencer
R	External pilot
RS	External pilot / Built-in silencer

\* There is no need to enter anything when the SUP/EXH block mounting position "M" is selected.

\* For built-in silencers, the 3/5(E) ports are plugged.

#### ● SUP/EXH block mounting position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)
M*	Special specifications

\* Specify the required specifications (including port sizes other than ø8) by means of the manifold specification sheet.

#### ● Valve stations

##### F: D-sub connector

Symbol	Stations	Note
02	2 stations	Up to 24 solenoids possible.
⋮	⋮	
24	24 stations	

##### PG: Flat ribbon cable (20 pins)

Symbol	Stations	Note
02	2 stations	Up to 18 solenoids possible.
⋮	⋮	
18	18 stations	

##### P: Flat ribbon cable (26 pins)

Symbol	Stations	Note
02	2 stations	Up to 24 solenoids possible.
⋮	⋮	
24	24 stations	

##### PH: Flat ribbon cable (10 pins)

Symbol	Stations	Note
02	2 stations	Up to 8 solenoids possible.
⋮	⋮	
08	8 stations	

##### J: PC wiring (20 pins)

Symbol	Stations	Note
02	2 stations	Up to 16 solenoids possible.
⋮	⋮	
16	16 stations	

\* The number of the blanking block assembly is also included. Since single and double wiring are available with the blanking block assembly, select a model compatible with the valve wiring spec. planned for the future. (Refer to page 61.)

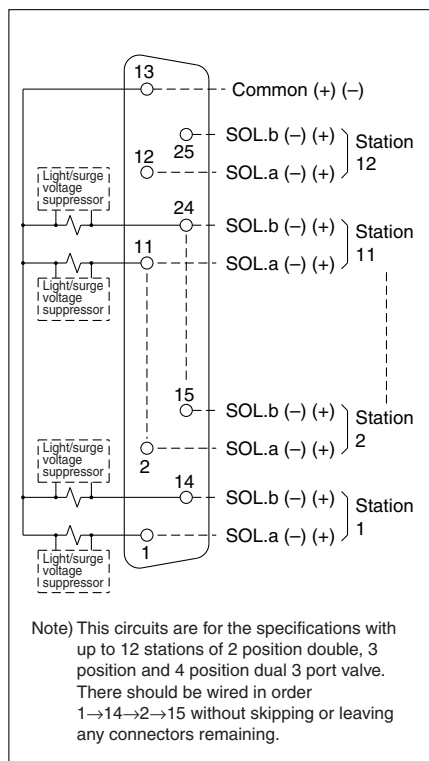


\* Refer to page 26 through to 33 for PCW type with power supply terminal.

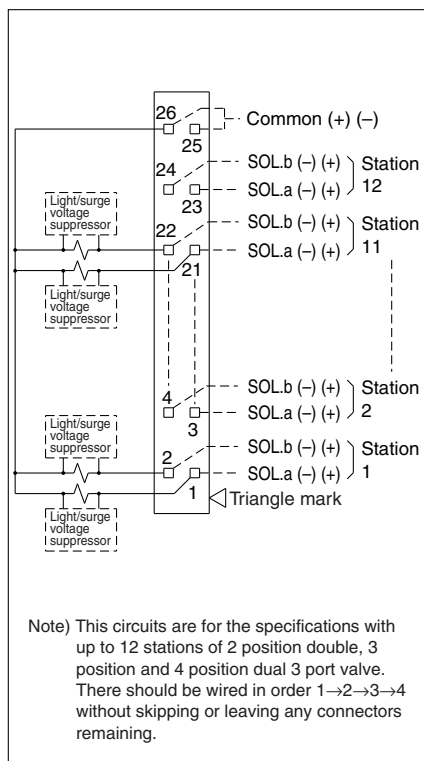
# Series SJ2000/3000

## Manifold Electrical Wiring (Non-polar type)

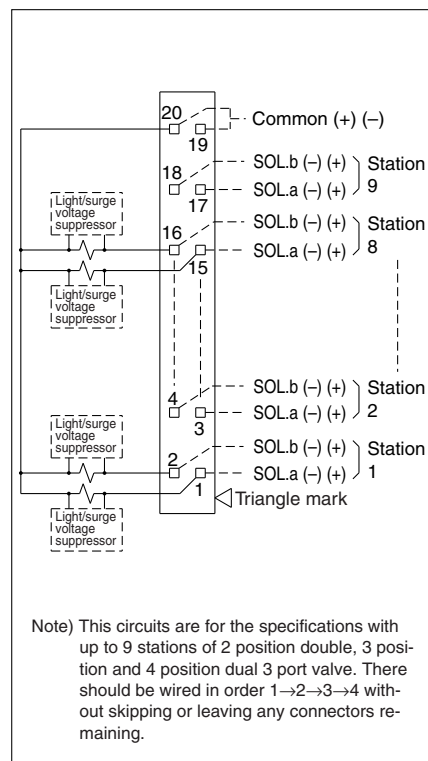
**Type 60F: D-sub connector (25 pins)**



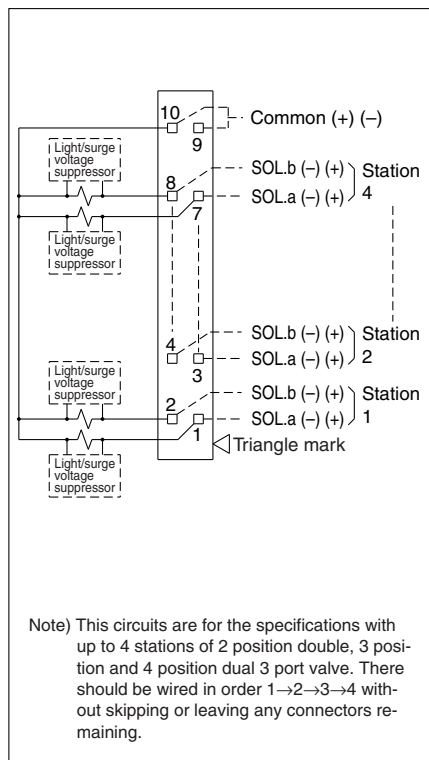
**Type 60P: Flat ribbon cable (26 pins)**



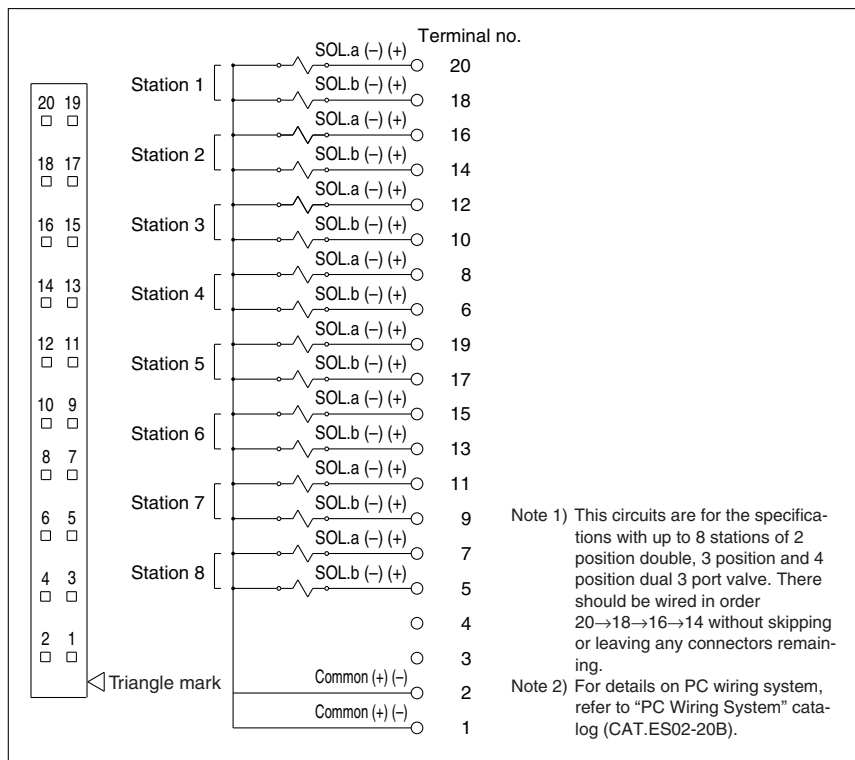
**Type 60PG: Flat ribbon cable (20 pins)**



**Type 60PH: Flat ribbon cable (10 pins)**



**Type 60J: Flat ribbon cable (20 pins, PC wiring)**

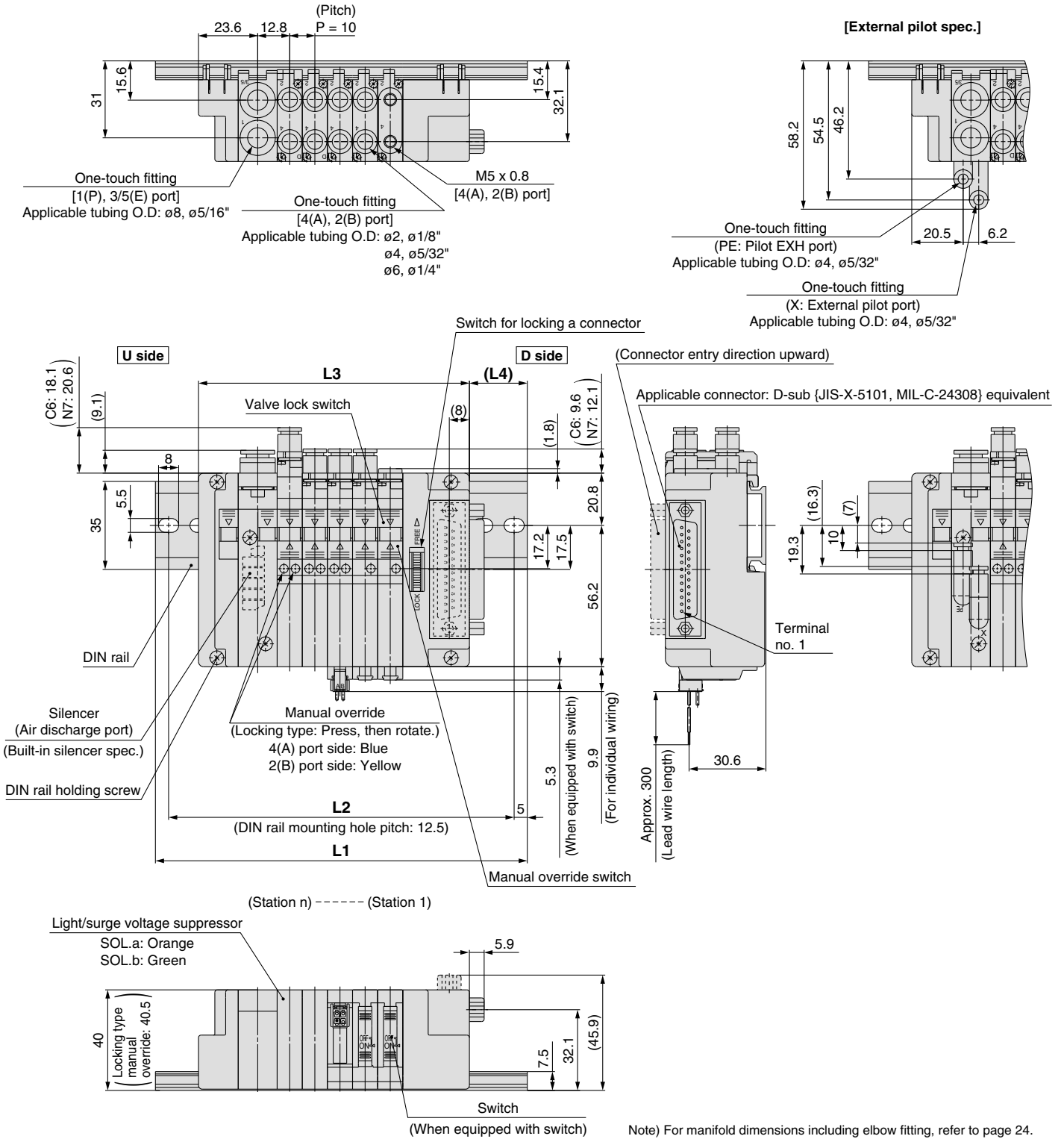


### ⚠ Caution

When the non-polar U type valves are used, either negative COM or positive COM wiring of the manifold is possible. However, the valve does not switch with negative COM if a Z type is used. Be sure to use positive COM.

**Dimensions: SJ3000 for D-sub Connector**

**SS5J3-60FD<sub>2</sub>- Stations U (S, R, RS)**



Note) For manifold dimensions including elbow fitting, refer to page 24.

**L: Dimensions**

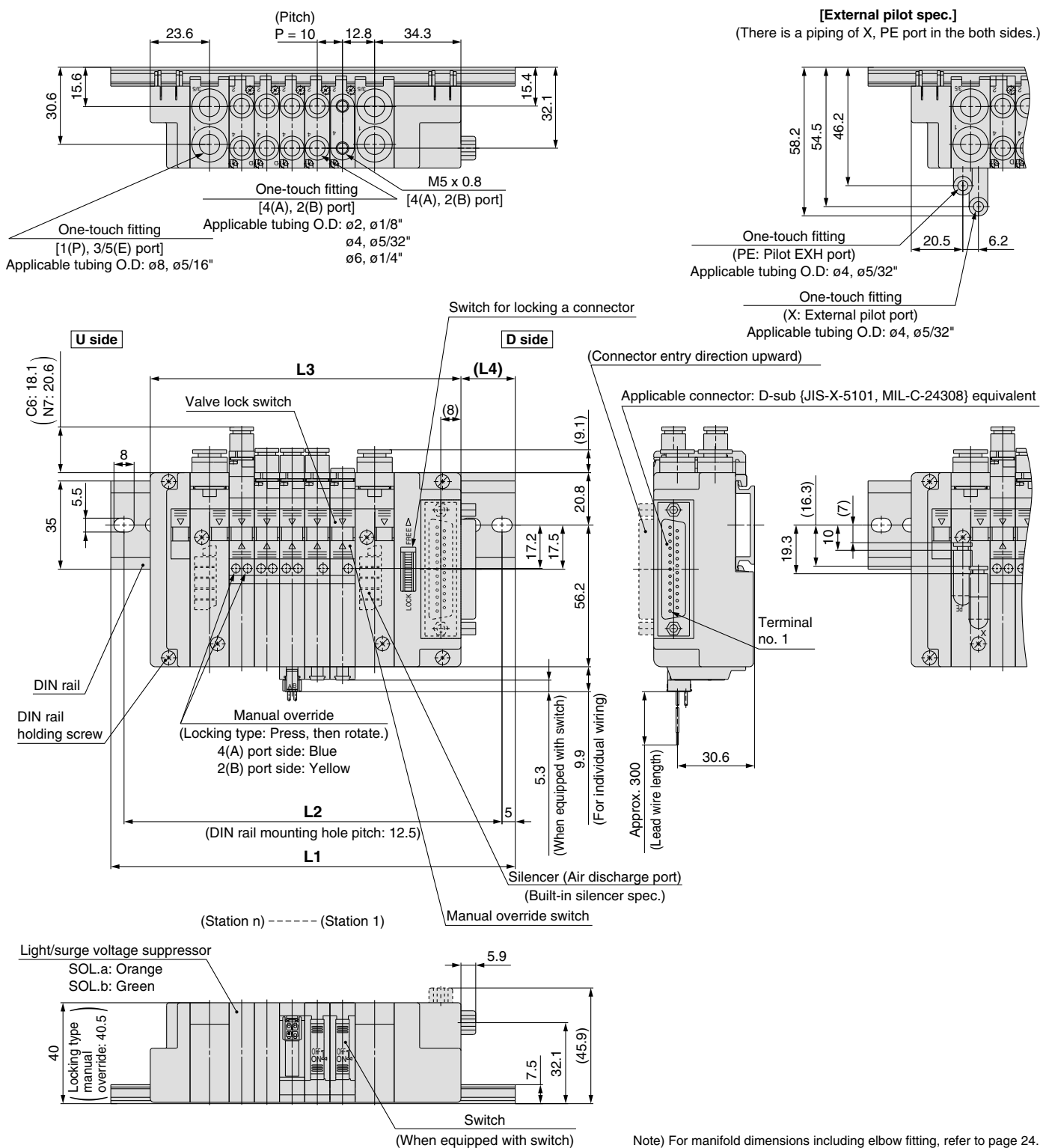
n: Stations

L \ n	2	3	4	5	6	7	8	9	10
L1	110.5	123	135.5	148	148	160.5	173	185.5	198
L2	100	112.5	125	137.5	137.5	150	162.5	175	187.5
L3	77.8	87.8	97.8	107.8	117.8	127.8	137.8	147.8	157.8
L4	19	20.5	21.5	22.5	17.5	18.5	20	21	22

# Series SJ2000/3000

## Dimensions: SJ3000 for D-sub Connector

### SS5J3-60FD<sub>2</sub>- Stations B (S, R, RS)



Note) For manifold dimensions including elbow fitting, refer to page 24.

### L: Dimensions

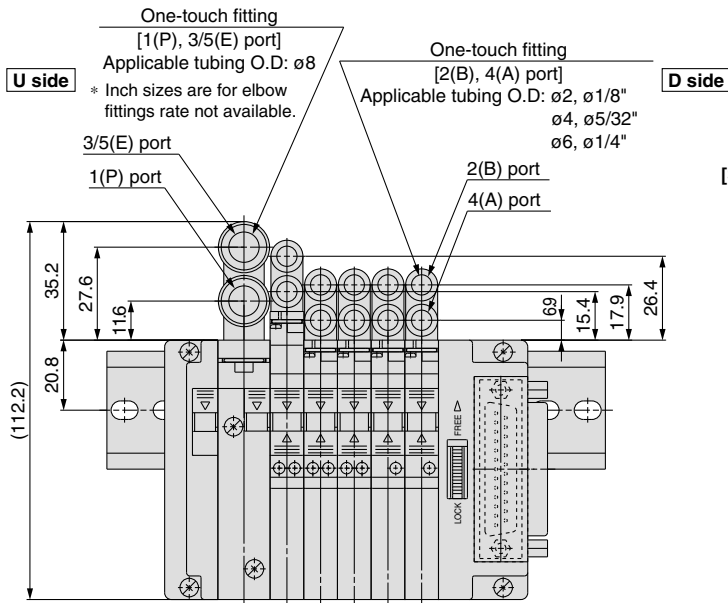
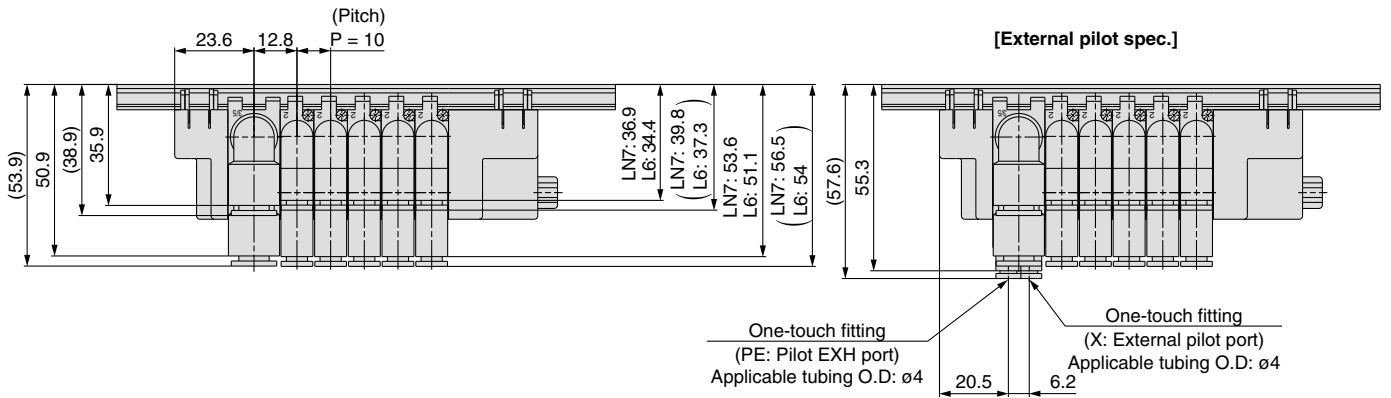
n: Stations

n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	123	135.5	148	160.5	173	185.5	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5	348	348
L2	112.5	125	137.5	150	162.5	175	175	187.5	200	212.5	225	225	237.5	250	262.5	275	287.5	287.5	300	312.5	325	337.5	337.5
L3	93.3	103.3	113.3	123.3	133.3	143.3	153.3	163.3	173.3	183.3	193.3	203.3	213.3	223.3	233.3	243.3	253.3	263.3	273.3	283.3	293.3	303.3	313.3
L4	17.5	19	20	21	22	23.5	18.5	19.5	20.5	21.5	23	18	19	20	21	22.5	23.5	18.5	19.5	20.5	22	23	18

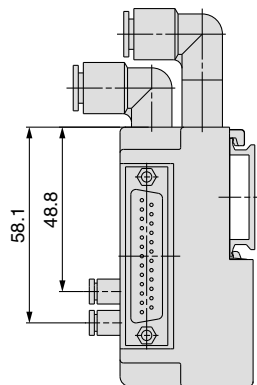
# Series SJ2000/3000

## Dimensions: SJ3000 with Elbow Fittings

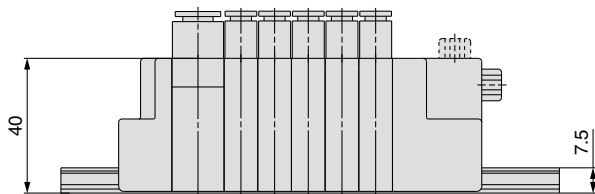
SS5J3-60FD<sub>2</sub>- Stations U<sub>B</sub>



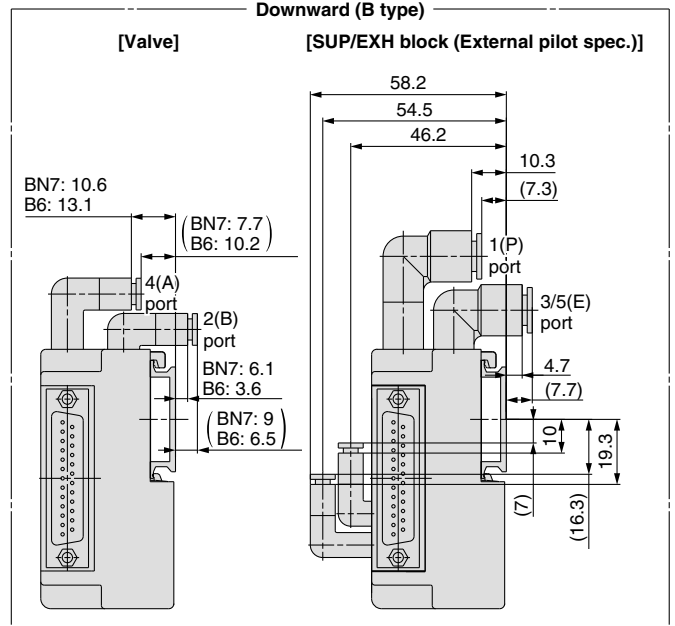
[SUP/EXH block (External pilot spec.)]



(Station n) ----- (Station 1)



Downward (B type)

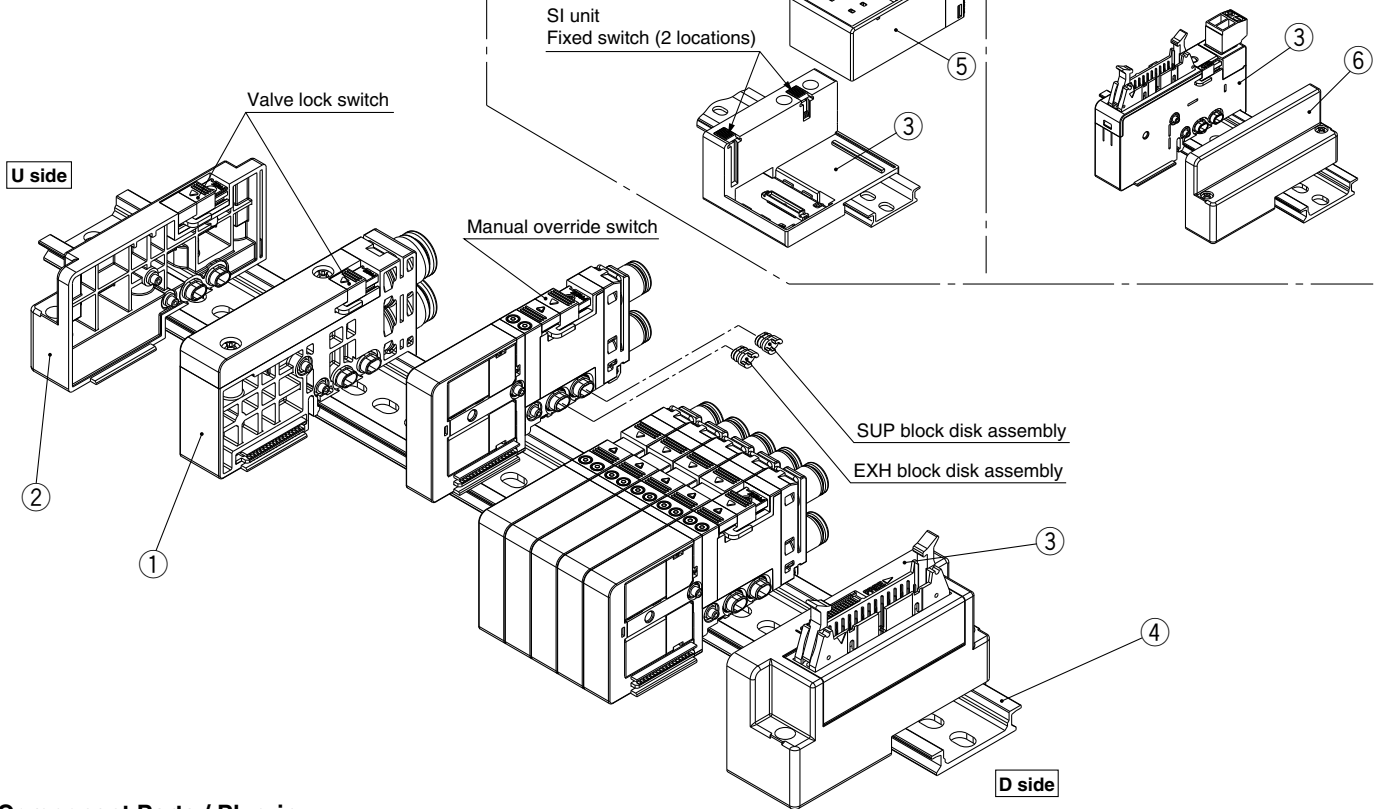


## Manifold Exploded View

Type 60P (Flat ribbon cable) manifold

Type 60S (Plug-in, EX180 Serial wiring) manifold

Type 60G (Plug-in, PC wiring with power supply terminal) manifold



### Component Parts / Plug-in

No.	Description	Part no.	Note
1	Internal pilot	SJ3000-50-1A-□□	(Metric size) C6: With ø6 one-touch fitting (straight) C8: With ø8 one-touch fitting (straight) L6: With ø6 one-touch fitting (elbow upward entry) L8: With ø8 one-touch fitting (elbow upward entry) B6: With ø6 one-touch fitting (elbow downward entry) B8: With ø8 one-touch fitting (elbow downward entry)
	Internal pilot / Built-in silencer	SJ3000-50-1AS-□□	
	External pilot	SJ3000-50-1AR-□□ (X, PE port: Metric size ø4 Inch size ø5/32")	
	External pilot / Built-in silencer	SJ3000-50-1ARS-□□ (X port: Metric size ø4 Inch size ø5/32")	
	For different pressures, internal pilot <sup>Note 1)</sup>	SJ3000-50-3A-□□	
	For different pressures <sup>Note 1)</sup> Internal pilot / Built-in silencer	SJ3000-50-3AS-□□	
2	End block assembly	SJ3000-53-1A	For U side
3	Connector block assembly	SJ3000-42-□A-□ SJ3000-76-2A-□	Refer to the connector block assembly part no. shown below.
4	DIN rail	VZ1000-11-1-□	Refer to page 61.
5	SI unit	EX180-□□	Refer to the SI unit part numbers on page 34.
6	End block assembly	SJ3000-53-2A	For D side

Note 1) The valves cannot be operated only with the SUP/EXH block assembly for different pressure, select them in combination with the SUP/EXH block assembly for internal/external pilot.

Note 2) Refer to page 60 about the SUP/EXH block disk assembly and method of handling of parts at different pressures.

### Connector Block Assembly Part No.

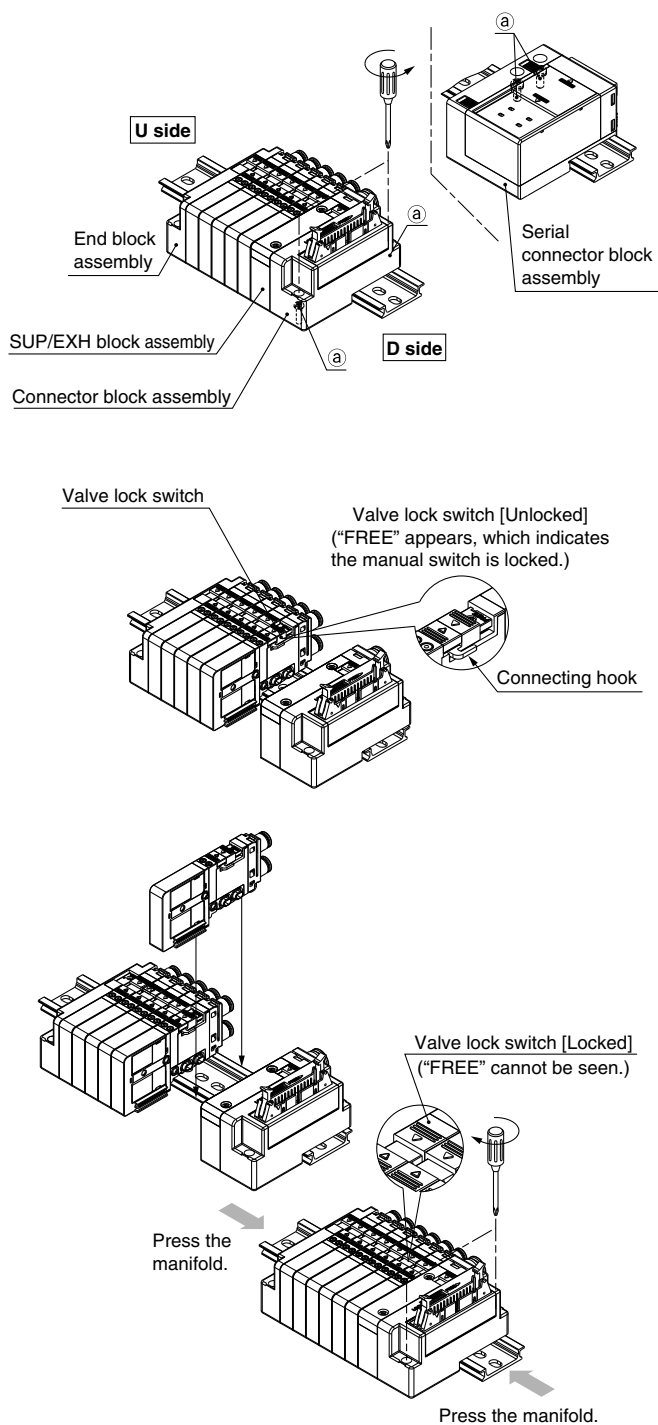
Connector specifications	Mounting position	Part no.	Note
For D-sub connector	D side	SJ3000-42-1A-□	□: 1 (Connector upward) □: 2 (Connector lateral)
For flat ribbon cable 26 pins		SJ3000-42-2A-□	
For flat ribbon cable 20 pins		SJ3000-42-3A-□	
For flat ribbon cable 10 pins		SJ3000-42-4A-□	
For PC wiring 20 pins		SJ3000-42-6A-□	
For EX180 serial wiring <sup>Note)</sup>		SJ3000-42-5A	
For PC wiring 20 pins with power supply terminal		SJ3000-76-2A-05	

Note) SI unit is not included.



# Series SJ2000/3000

## How to Add Manifold Stations

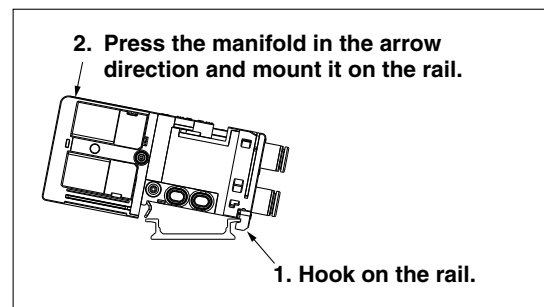


**1** Loosen threads (a), which are fixed onto the DIN rail (two locations on one side).

**2** In the direction of the coil, slide the valve where the station is desired to add and the valve lock switch on each block.

(If blocks are removed without completely releasing the valve lock switch, the connection hook of that switch could be damaged or deformed.)

**3** Install an additional valve or an SUP/EXH assembly on the DIN rail.



A manifold equipped with a valve or a block assembly can be mounted on the DIN rail. However, a serial connector block assembly cannot be mounted on the DIN rail when it is connected with another block; the serial connector block must be mounted separately.

**4** Press the valves and block assemblies to each other for connection. Press the valve lock switch in the cylinder port direction until it does not go any further. Fasten threads (a) onto the DIN rail.

(After fixing the connector block assembly, fasten the threads onto the end block assembly while holding it lightly by hand. This is necessary to improve sealing.)

**Caution** (D-sub, Connector block assembly for flat ribbon cable, End block assembly M3: 0.6 N·m  
Connector block assembly for EX180 serial wiring M4: 1.4 N·m  
Mounting bracket for EX510 serial wiring M4: 0.6 N·m)

### Caution

- When increasing the number of stations from 10 or below to 11 or above, increase the number of SUP/EXH assemblies as well.
- Be sure to turn off the power and stop the supply of air before disassembly. Furthermore, since air may remain inside the actuator, piping and manifold, confirm that the air is completely exhausted before performing any work.
- After assembly and disassembly, air leakage could occur if blocks are not well connected or a thread is not tightly fastened onto the end block assembly. Before supplying air, make sure that no gaps exist in between blocks and that the valve and block are tightly fastened onto the DIN rail. Also, make sure that air is not leaking before use.
- For the SJ3A6 series manifold with vacuum release valve with restrictor, there is no valve lock switch for connecting, so when mounting, tighten the screws after checking that there are no gaps between valves.