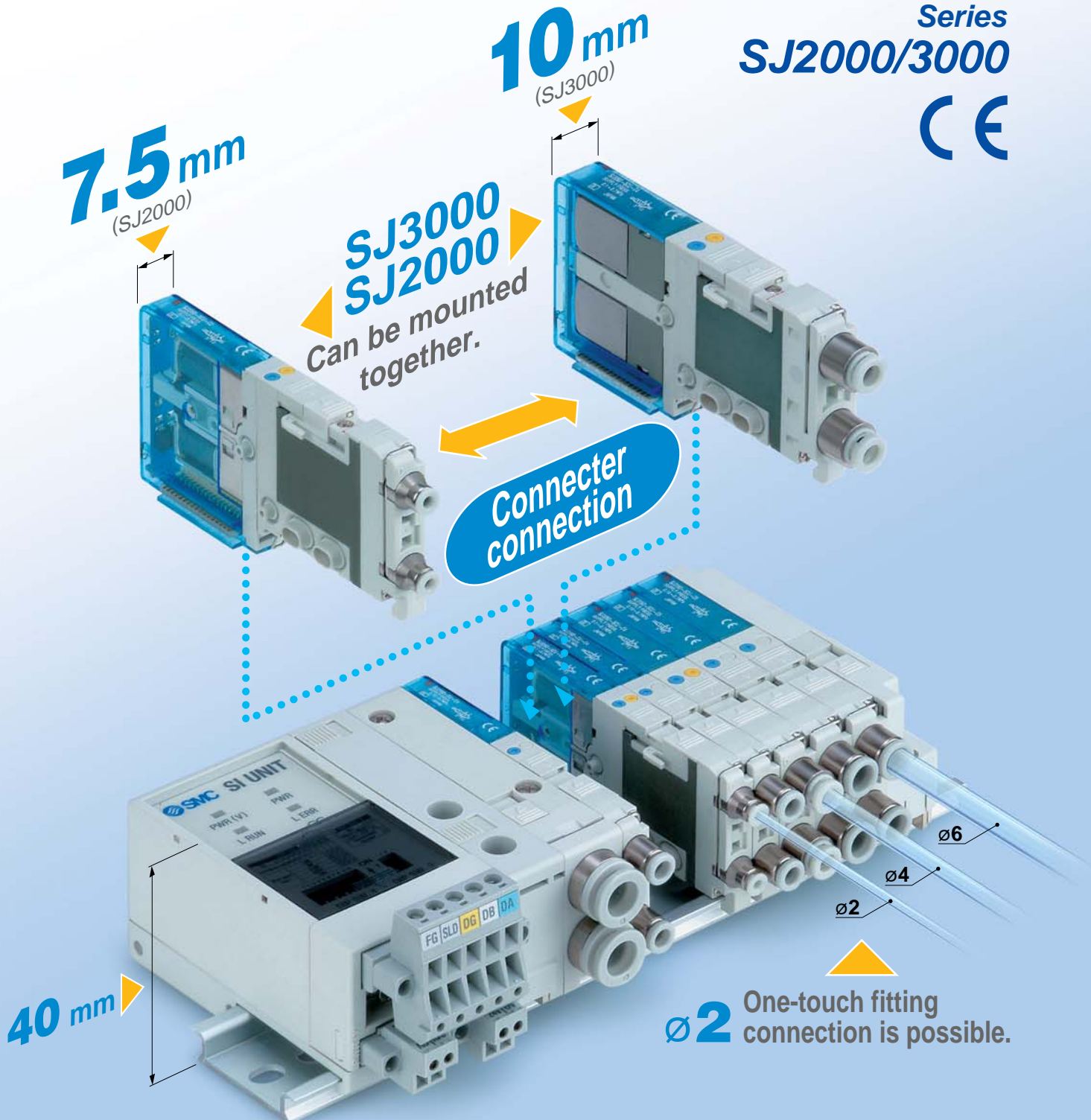


4 Port Solenoid Valve Cassette Type Connector Type Manifold

Series
SJ2000/3000



CAT.EUS11-87A-UK

Power consumption

0.15 W (SJ3000 with power saving circuit)

0.23 W (SJ2000 with power saving circuit)

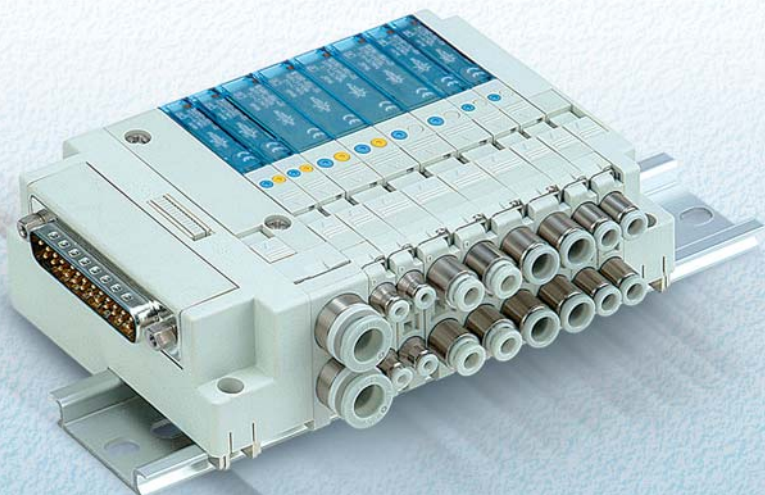
Service life of 50 million cycles or more

(Based on SMC life test conditions)

Connector type (Card edge type)

- Can easily increase or decrease stations and replace valves.
- 34 pin connector allows up to 16 stations with double solenoids, 32 stations with single solenoids.

For D-sub connector/Flat ribbon cable
Manifold uses a halogen-free lead wire.



Piping variations

With one-touch fittings	Thread type	Series	1(P), 3/5(E) port		4(A), 2(B) port				
			ø8	ø2	ø4	ø6	M3	M5	
		SJ2000	●	●	●	—	●	—	
		SJ3000	●	●	●	●	—	●	

Thread type is not available for 1(P), 3/5(E) port.

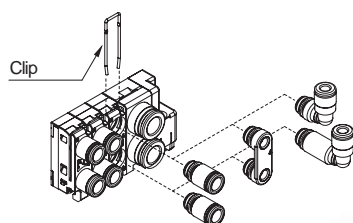
Manual locking

Accidental operation can be prevented by sliding the switch to avoid the manual override button from being pressed.



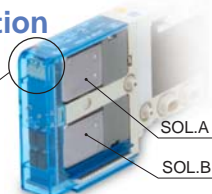
Fittings are replaceable.

Fittings (including type and size) can be easily changed by removing a clip.



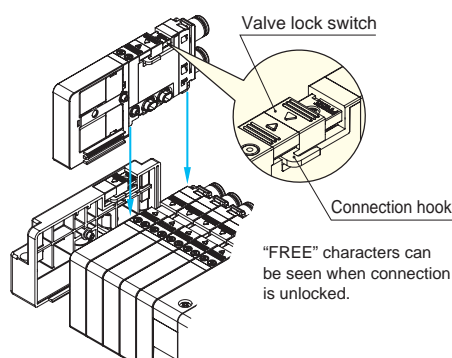
Light indication

SOL.A: ON Orange
SOL.B: ON Green



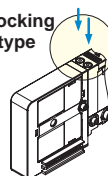
Valve connection mechanism

Connection between valves can be fixed by the valve lock switch. Connection can be confirmed after the connection hook has been inserted into the connection groove of the adjacent valve.

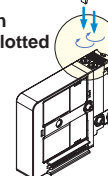


Type of manual override

Non-locking push type



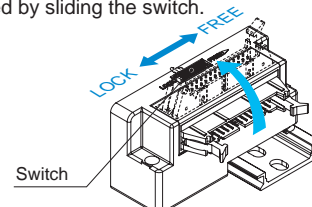
Push-turn locking slotted type



Manual button will hold the pushed (ON) status.

Connector mounting direction

Connector mounting direction can be changed by sliding the switch.



4 Port Solenoid Valve Cassette Type Connector Type Manifold

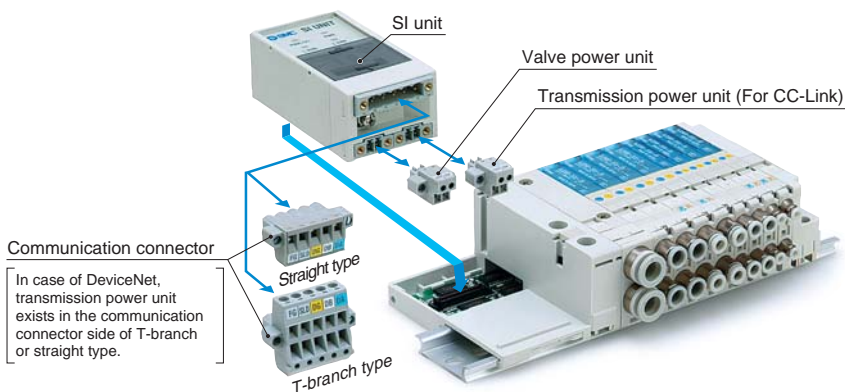


Actual size

Series SJ2000/3000

EX180 serial wiring

- CC-Link (32 outputs), DeviceNet (32,16 outputs)
- Easy attaching/detaching of the SI unit and wiring by connectors.
- Separated valve power unit and transmission power unit / Ensuring safety at maintenance.
- Selectable between T-branch and straight type of communication connector.



4 position dual 3 port valve

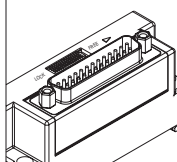
- 3 port valves integrated into a single valve.
- Possible to control 4(A), 2(B) ports individually.
- Can be mounted on the same manifold with a 4-port valve.
- 3 types of combinations are prepared.
- Label with the same colours of the manual override is attached to show the functions of A side and B side.

A side	B side	JIS symbol
N.C. valve	N.C. valve	<p>4(A) 2(B) SOL.a SOL.b 5(EA) 1(P) 3(EB)</p>
N.O. valve	N.O. valve	<p>4(A) 2(B) SOL.a SOL.b 5(EA) 1(P) 3(EB)</p>
N.C. valve	N.O. valve	<p>4(A) 2(B) SOL.a SOL.b 5(EA) 1(P) 3(EB)</p>

Wiring variations

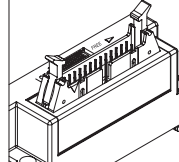
D-sub connector

(25 pins)

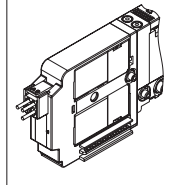


Flat ribbon cable

(26 pins, 20 pins, 10 pins)

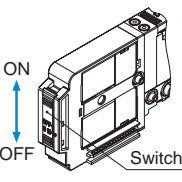


Individual wiring



With switch

Possible to shut the signal of each individual valve.

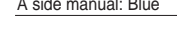


The valve coil is kept in a de-energised state even when there is an electric signal from the manifold side connector.

B side manual: Yellow



A side manual: Blue



A side coil



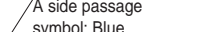
B side coil



B side passage symbol: Yellow



A side passage symbol: Blue



4 Port Solenoid Valve Cassette Type Connector Type Manifold



Series SJ2000/3000

Manifold Specifications

Model			D-sub connector Type 60F	Flat ribbon cable Type 60P□		
				Type 60P	Type 60PG	Type 60PH
Manifold type			Connector type			
1(P: SUP), 3/5(E: EXH)			Common SUP/EXH			
Valve stations			2 to 24 stations		2 to 18 stations	2 to 8 stations
Applicable connector			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
Internal wiring			Non-polar, +COM			
4(A), 2(B) port piping spec.		Location	Valve			
		Direction	Horizontal, Upward, Downward (with elbow fittings when using upward or downward)			
Port size	1(P), 3/5(E) port		C6, C8			
	4(A), 2(B) port	SJ2000	C2, C4, M3			
		SJ3000	C2, C4, C6, M5			
Weight W (g) 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 2 for the appropriate number of stations. Refer to page 35 for the weight of DIN rail. (Please contact SMC for the weight of external pilot specifications, elbow fittings.)

Flow Characteristics

Series SJ2000

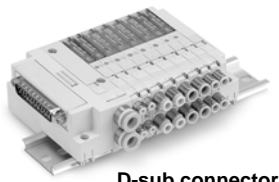
Port size		Flow characteristics					
1(P) 3/5(E)	4, 2 (A, B)	1→2/4 (P→A/B)			4/2→3/5 (A/B→E)		
		C [dm ³ (s/bar)]	b	Cv	C [dm ³ (s/bar)]	b	Cv
C8	C2	0.13	0.55	0.04	0.13	0.50	0.04
	C4	0.33	0.16	0.08	0.36	0.13	0.08
	M3	0.18	0.52	0.06	0.20	0.29	0.06

Series 3000

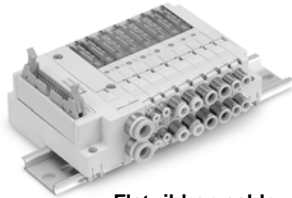
Port size		Flow characteristics					
1(P) 3/5(E)	4, 2 (A, B)	1→2/4 (P→A/B)			4/2→3/5 (A/B→E)		
		C [dm ³ (s/bar)]	b	Cv	C [dm ³ (s/bar)]	b	Cv
C8	C2	0.13	0.56	0.04	0.14	0.51	0.04
	C4	0.42	0.17	0.11	0.45	0.16	0.11
	C6	0.55	0.10	0.12	0.56	0.11	0.12
	M5	0.40	0.28	0.11	0.45	0.15	0.11

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.

4 Port Solenoid Valve Cassette Type Connector Type Manifold **Series SJ2000/3000**



D-sub connector



Flat ribbon cable



Serial transmission

Solenoid Valve Specifications

Fluid			Air
Internal pilot operating pressure range (MPa)	2 position single		0.15 to 0.7
	4 position dual 3 port valve		
	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	
		3 position	
Ambient and fluid temperature (°C)			Max. 50
Maximum operating frequency (Hz)	2 position single, double		10
	4 position dual 3 port valve		
	3 position		3
Manual override (Manual operation)			Non-locking push type
			Push-turn locking slotted type
Pilot exhaust method	Internal pilot	Common exhaust (pilot and main valve)	
	External pilot	Pilot valve individual exhaust	
Lubrication			Not required
Mounting orientation			Unrestricted
Shock/Vibration resistance (m/s ²)			150/30
Enclosure			Dustproof

Note) 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 energised and de-energised states every once for each condition. (Value in the initial state)

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

Response Time

Type of actuation	Response time ms (at 0.5 MPa)	
	SJ2000	SJ3000
2 position single	16 or less	16 or less
2 position double	10 or less	10 or less
3 position	34 or less	22 or less
4 position dual 3 port valve	30 or less	30 or less

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

Solenoid Specifications

Coil rated voltage		24 V DC, 12 V DC	
Allowable voltage fluctuation		±10% of rated voltage*	
Power consumption (W)	Standard	SJ2000	0.55
		SJ3000	0.4
	With power saving circuit (Continuous duty type)	SJ2000	0.23
		SJ3000	0.15
Surge voltage suppressor		Diode	
Indicator light		LED	

* For the allowable voltage fluctuation for T type (with power saving circuit), please observe the following range because they have voltage drop due to internal circuit.

24 V DC: -5 to +10% 12 V DC: -6 to +10%

Weight

Model/Series SJ2000

Valve model	Type of actuation		Port size 4(A), 2(B)	Weight (g)
SJ2□60-C2	2 position	Single	C2 (ø2 one-touch fitting)	43
		Double		46
	3 position	Closed centre		50
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		46
SJ2□60-C4	2 position	Single	C4 (ø4 one-touch fitting)	41
		Double		44
	3 position	Closed centre		48
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		44
SJ2□60-M3	2 position	Single	M3	39
		Double		42
	3 position	Closed centre		46
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		39

Note) Please contact SMC for the weight of elbow fittings.

Model/Series SJ3000

Valve model	Type of actuation		Port size 4(A), 2(B)	Weight (g)
SJ3□60-C2	2 position	Single	C2 (ø2 one-touch fitting)	63
		Double		71
	3 position	Closed centre		75
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		71
SJ3□60-C4	2 position	Single	C4 (ø4 one-touch fitting)	65
		Double		73
	3 position	Closed centre		77
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		73
SJ3□60-C6	2 position	Single	C6 (ø6 one-touch fitting)	61
		Double		69
	3 position	Closed centre		73
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		69
SJ3□60-M5	2 position	Single	M5	57
		Double		65
	3 position	Closed centre		69
		Exhaust centre		
		Pressure centre		
	4 position	Dual 3 port valve		65

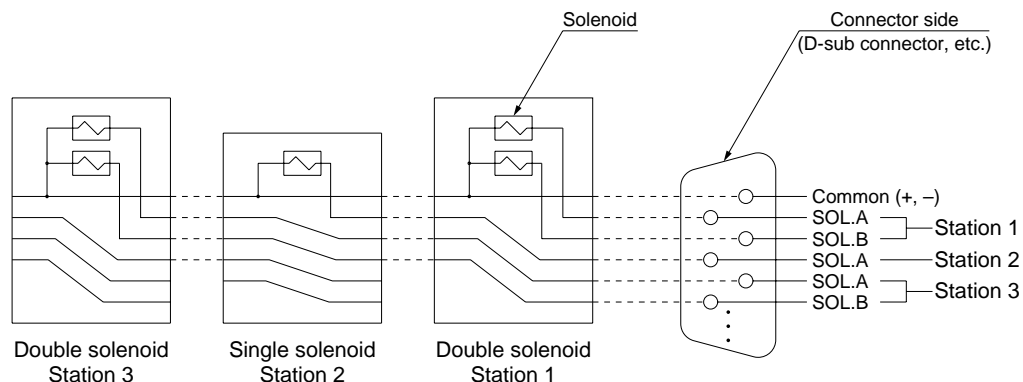
Note) Please contact SMC for the weight of elbow fittings.

Series SJ2000/3000

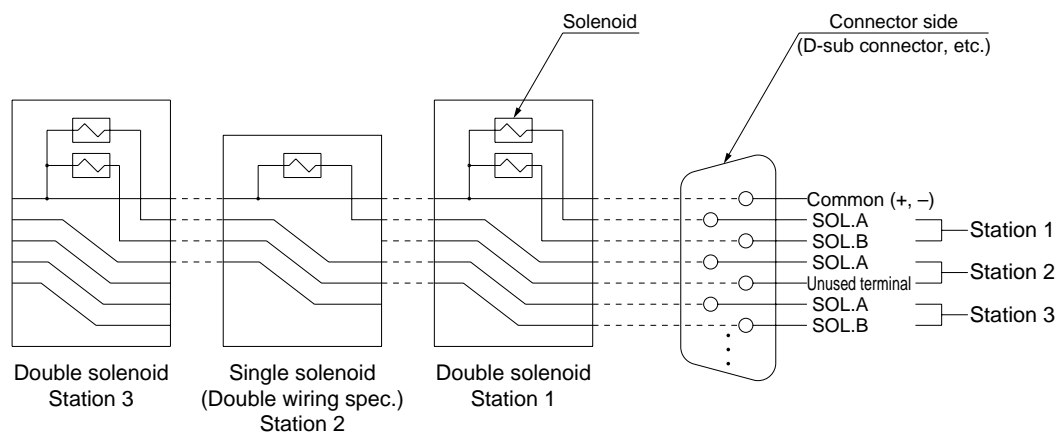
Connector Wiring Diagram

For both serial and parallel wiring, additional valves are sequentially assigned pins on the connector. This makes it completely unnecessary to disassemble the connector unit.

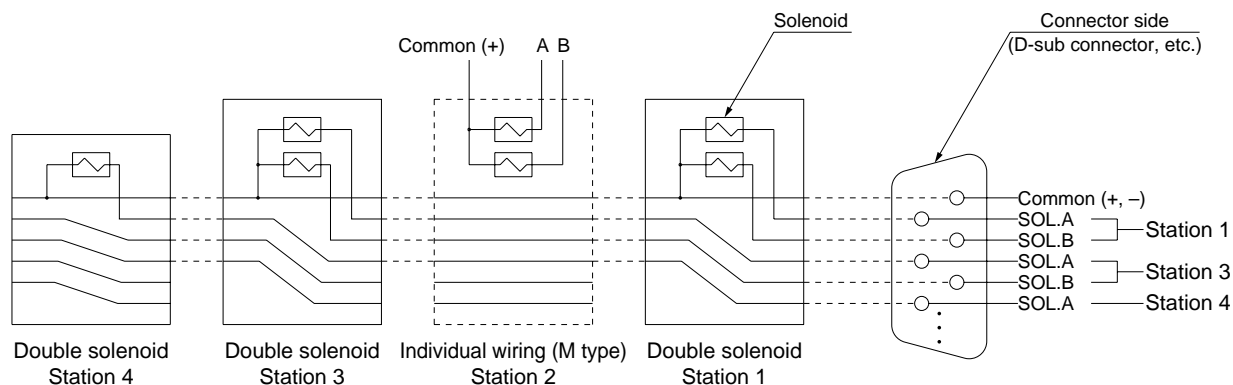
■ Single solenoid and double solenoid



■ Single solenoid with double wiring spec.



■ Mounting a valve with individual wiring

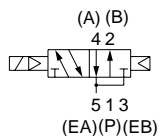


4 Port Solenoid Valve Cassette Type Connector Type Manifold **Series SJ2000/3000**

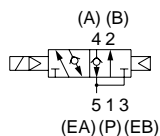
Construction: SJ2000

JIS symbol

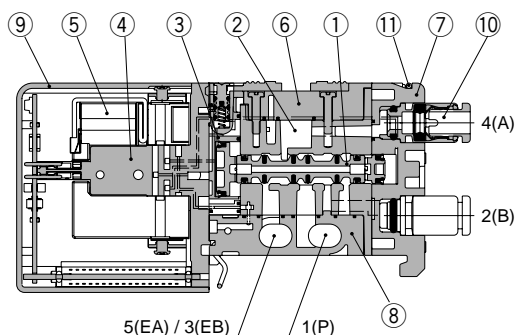
2 position single



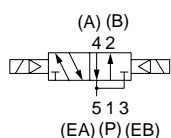
2 position single with back pressure check valve



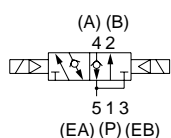
2 position single



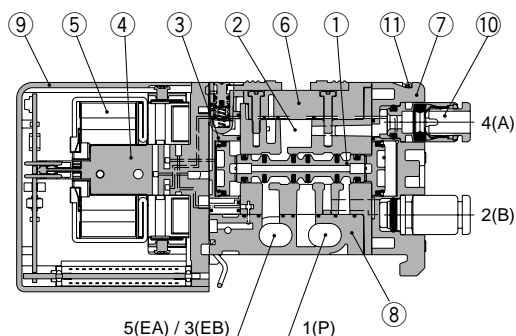
2 position double



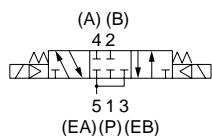
2 position double with back pressure check valve



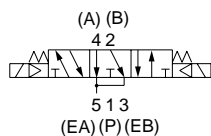
2 position double



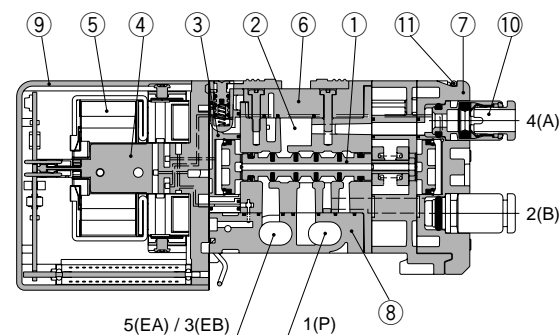
3 position closed centre



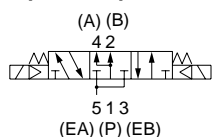
3 position exhaust centre



3 position closed centre/exhaust centre/pressure centre



3 position pressure centre



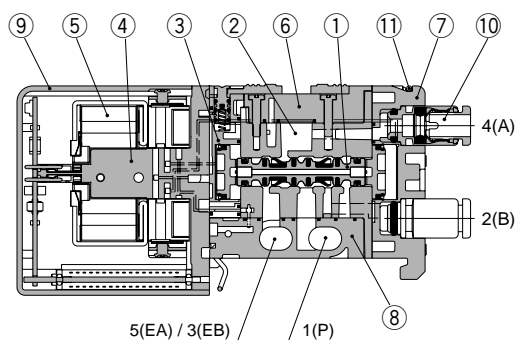
Component Parts

No.	Description	Material	Note
1	Spool valve assembly	Resin/H-NBR (3 position solenoid valve: Aluminum/H-NBR)	—
2	Body	Zinc die-cast	—
3	Adaptor plate	Resin	White
4	Pilot adaptor	Resin	White
5	Pilot valve assembly	—	—
6	Body cover	Resin	White
7	Port block	Resin	White
8	Bottom cover	Resin	White
9	Light cover	Resin	Light blue

Replacement Parts

No.	Description	Part no.
10	One-touch fitting	Refer to the one-touch fitting part no. on back page 4.
11	Clip	SJ2000-CL-1 (10 pcs.)

SJ2260K with back pressure check valve

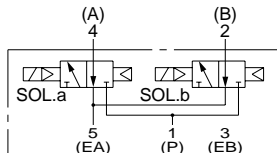


Series SJ2000/3000

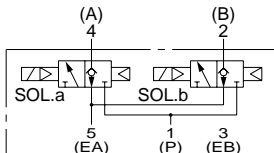
Construction: SJ2000

JIS symbol

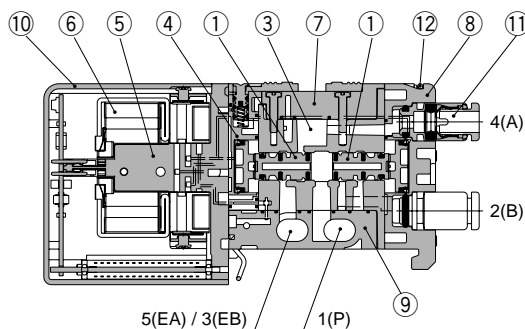
4 position dual 3 port valve SJ2A60 [N.C. valve x 2]



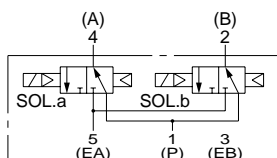
SJ2A60K with back pressure check valve



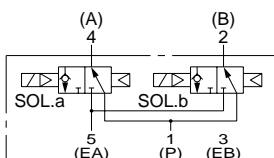
SJ2A60 [N.C. valve x 2]



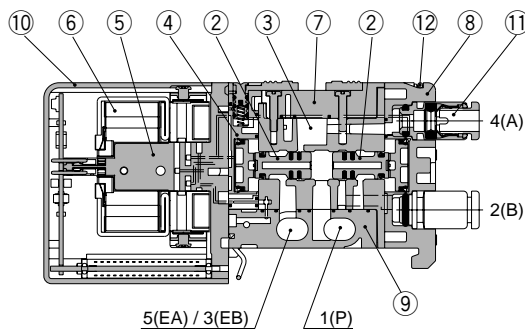
SJ2B60 [N.O. valve x 2]



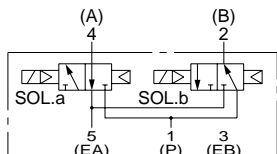
SJ2B60K with back pressure check valve



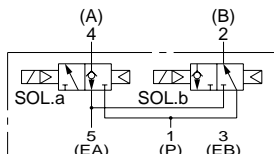
SJ2B60 [N.O. valve x 2]



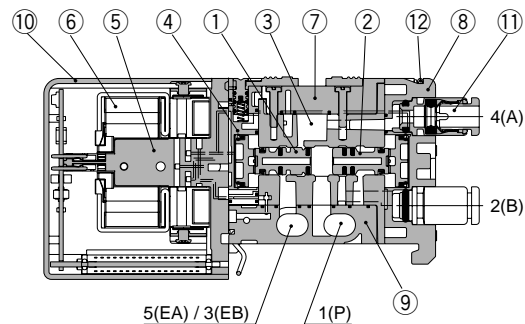
SJ2C60 [N.C., N.O. valve x 1(each)]



SJ2C60K with back pressure check valve



SJ2C60 [N.C. valve, N.O. valve x 1 (each)]



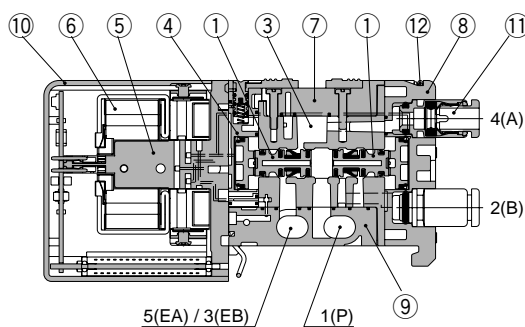
Component Parts

No.	Description	Material	Note
1	Spool valve assembly	Resin/H-NBR	N.C. (Normally closed)
2	Spool valve assembly	Resin/H-NBR	N.O. (Normally open)
3	Body	Zinc die-cast	—
4	Adaptor plate	Resin	White
5	Pilot adaptor	Resin	White
6	Pilot valve assembly	—	—
7	Body cover	Resin	White
8	Port block	Resin	White
9	Bottom cover	Resin	White
10	Light cover	Resin	Light blue

Replacement Parts

No.	Description	Part no.
11	One-touch fitting	Refer to the one-touch fitting part no. on back page 4.
12	Clip	SJ2000-CL-1 (10 pcs.)

SJ2A60K with back pressure check valve

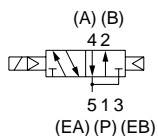


4 Port Solenoid Valve Cassette Type Connector Type Manifold **Series SJ2000/3000**

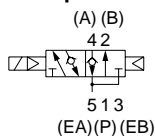
Construction: SJ3000

JIS symbol

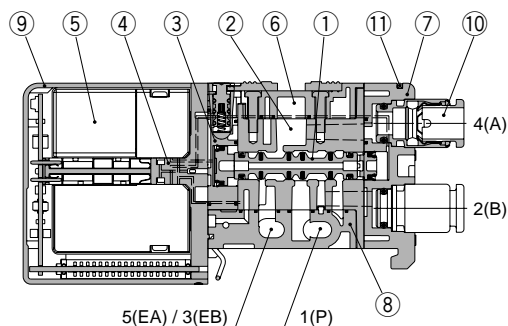
2 position single



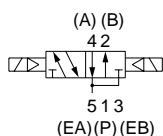
2 position single with back pressure check valve



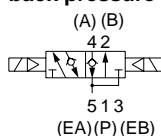
2 position single



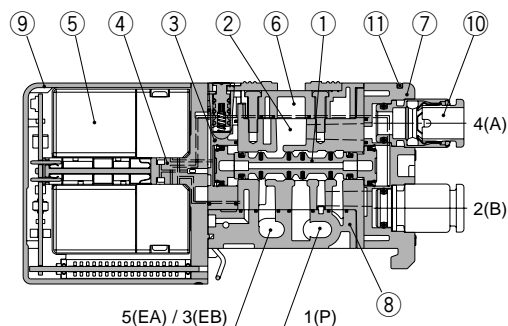
2 position double



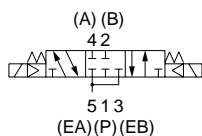
2 position double with back pressure check valve



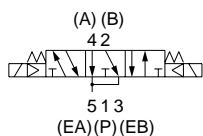
2 position double



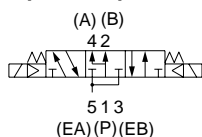
3 position closed centre



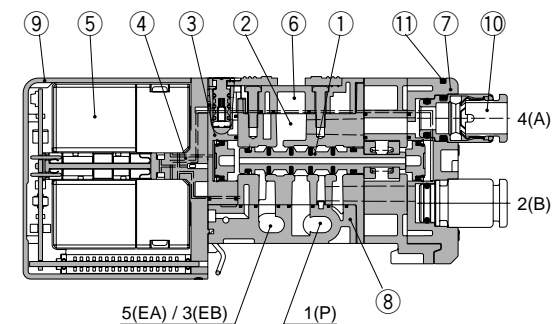
3 position exhaust centre



3 position pressure centre



3 position closed centre/exhaust centre/pressure centre



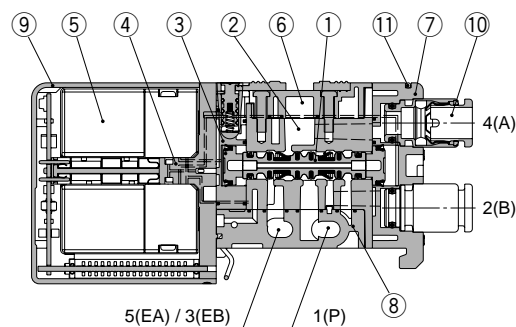
Component Parts

No.	Description	Material	Note
1	Spool valve assembly	Resin/H-NBR (3 position solenoid valve: Aluminum/H-NBR)	—
2	Body	Zinc die-cast	—
3	Adaptor plate	Resin	White
4	Pilot adaptor	Resin	White
5	Pilot valve assembly	—	—
6	Body cover	Resin	White
7	Port block	Resin	White
8	Bottom cover	Resin	White
9	Light cover	Resin	Light blue

Replacement Parts

No.	Description	Part no.
10	One-touch fitting	Refer to the one-touch fitting part no. on back page 4.
11	Clip	SJ3000-CL-1 (10 pcs.)

SJ3260K with back pressure check valve

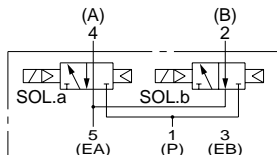


Series SJ2000/3000

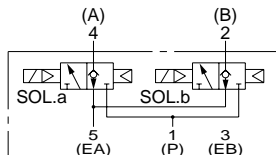
Construction: SJ3000

JIS symbol

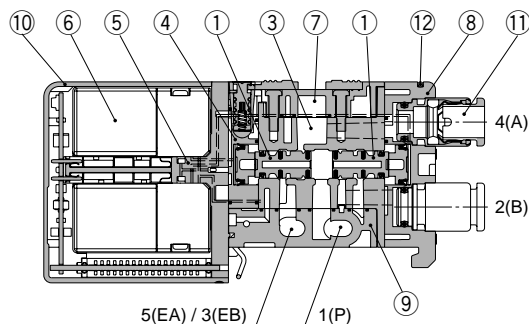
4 position dual 3 port valve SJ3A60 [N.C. valve x 2]



SJ3A60K with back pressure check valve

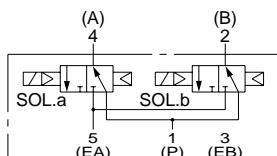


SJ3A60 [N.C. valve x 2]

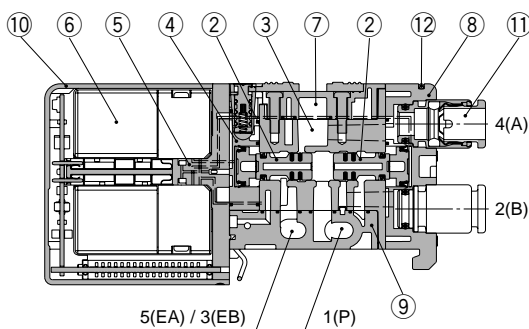
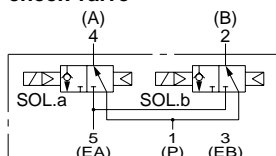


SJ3B60 [N.O. valve x 2]

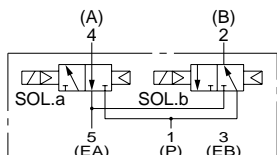
SJ3B60 [N.O. valve x 2]



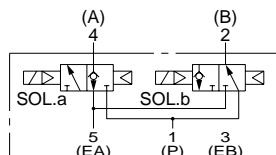
SJ3B60K with back pressure check valve



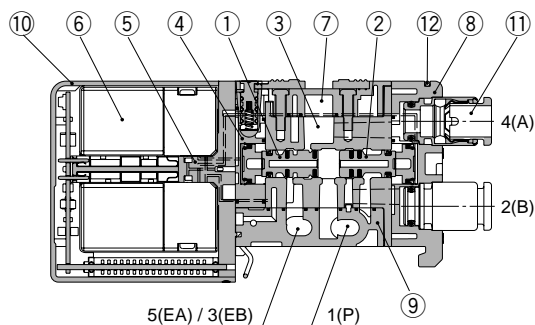
SJ3C60 [N.C., N.O. valve x 1(each)]



SJ3C60K with back pressure check valve



SJ3C60 [N.C. valve, N.O. valve x 1 (each)]



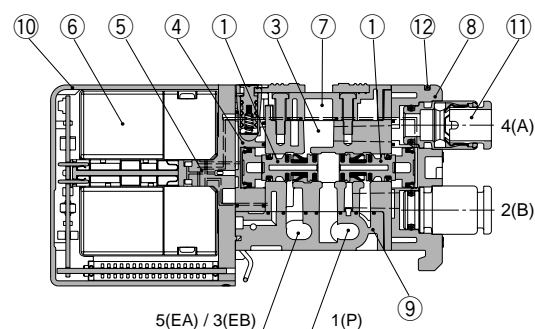
Component Parts

No.	Description	Material	Note
1	Spool valve assembly	Resin/H-NBR	N.C. (Normally closed)
2	Spool valve assembly	Resin/H-NBR	N.O. (Normally open)
3	Body	Zinc die-cast	—
4	Adaptor plate	Resin	White
5	Pilot adaptor	Resin	White
6	Pilot valve assembly	—	—
7	Body cover	Resin	White
8	Port block	Resin	White
9	Bottom cover	Resin	White
10	Light cover	Resin	Light blue

Replacement Parts

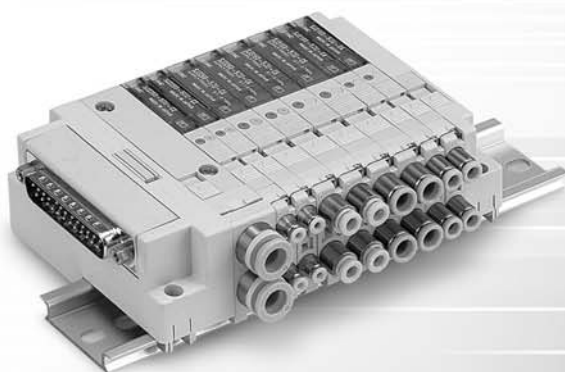
No.	Description	Part no.
11	One-touch fitting	Refer to the one-touch fitting part no. on back page 4.
12	Clip	SJ3000-CL-1(10 pcs.)

SJ3A60K with back pressure check valve



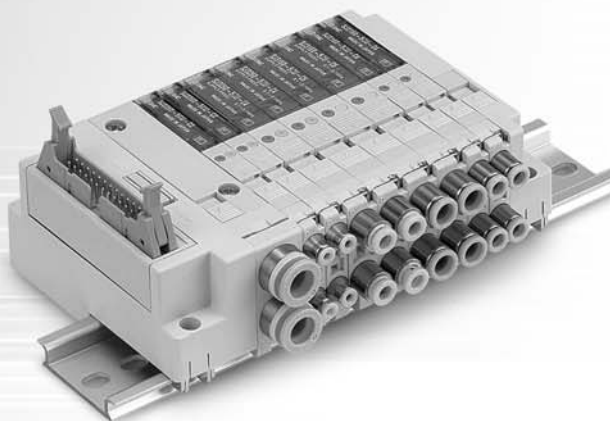
For D-sub Connector / Flat Ribbon Cable

D-sub connector



Series SJ2000/3000
Connector: 25 pins

Flat ribbon cable



Series SJ2000/3000
Connector: 10, 20, 26 pins

For D-sub Connector / Flat Ribbon Cable

Series SJ2000/3000

How to Order

● Connector type manifold

SS5J3 — **60** **F** **D** **1** — **05** **U** — — —

2	SJ2000
3	SJ3000 (SJ2000, 3000 mixed)

Mixed mounting type

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

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

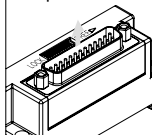
Note 2) Enter "M" when the SJ2000 or SJ3000 series will be mounted on the same manifold base together.

Connector mounting position

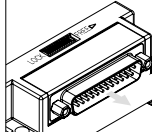
Symbol	Mounting position
D	D side

Connector entry direction

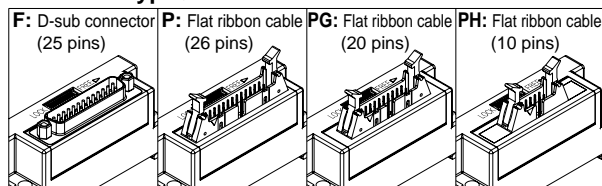
1: Upward



2: Lateral



Connector type



DIN rail length specified

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

SUP/EXH block fitting spec.

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

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

Pilot spec.

-	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.

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 specification

* Specify the required specifications (Including port sizes other than ø8) by using a manifold specification sheet.

Valve stations

F: D-sub connector

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

P: Flat ribbon cable (26 pins)

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	

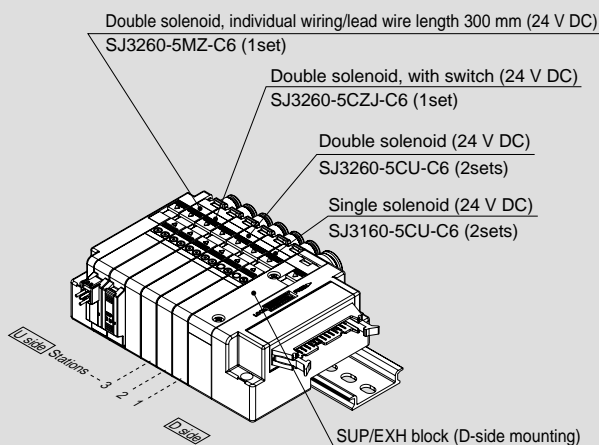
PH: Flat ribbon cable (10 pins)

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

* The number of 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 35)

How to Order Valve Manifold Assembly

Ordering example (SJ3000)



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 it on a manifold specification sheet.

How to Order Solenoid Valves

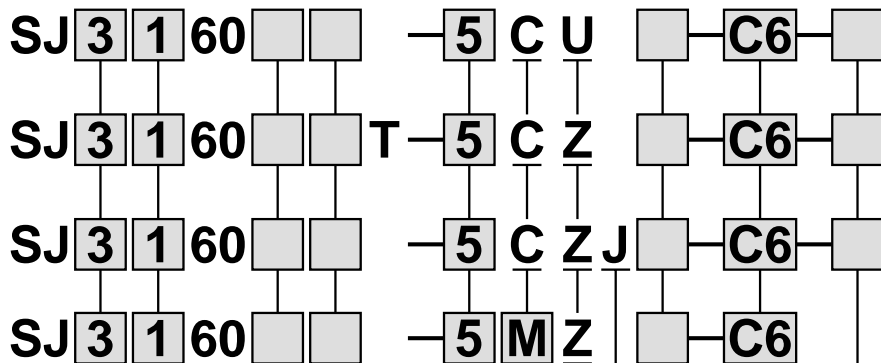
Standard (Non-polar) type

With power saving circuit (with polarity)
[Continuous duty type] Note)

With switch (with polarity)

Individual wiring (with polarity)

Note) Be sure to select "with power saving circuit" when the solenoid valve will be energised continuously for long periods.



Series

2	SJ2000
3	SJ3000

Rated voltage

5	24 V DC
6	12 V DC

Single solenoid wiring spec.

-	Single wiring
D	Double wiring

* There is no need to enter anything for 2 position double, 3 position and 4 position type solenoid valves.

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre
A	Dual 3 port valve: N.C./N.C.
B	Dual 3 port valve: N.O./N.O.
C	Dual 3 port valve: N.C./N.O.

* Refer to page 4 to 7 about the JIS symbol.

Pilot spec.

-	Internal pilot
R	External pilot

* External pilot spec. is not applicable for 4 position dual 3 port valves.

Back pressure check valve

-	Without
K	Built-in

* Back pressure check valve is not applicable for 3 position valve.

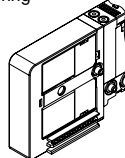
Light/surge voltage suppressor

U	With light/surge voltage suppressor Standard (non-polar) only
Z	With light/surge voltage suppressor, with power saving, with switch and individual wiring

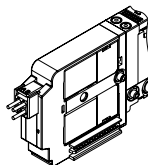
* "Z" is +COM. spec.

Connector entry

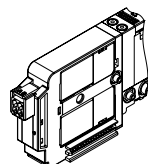
C: Dedicated for centralised wiring



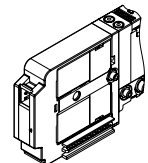
M: Individual wiring, Lead wire length 300 mm



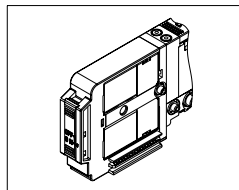
MN: Individual wiring, Without lead wire



MO: Individual wiring, Without connector

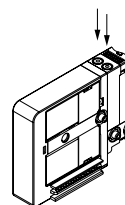


With switch

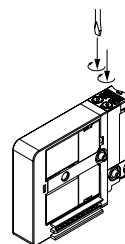


Manual override

-: Non-locking push type

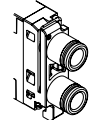


D: Push-turn locking slotted type

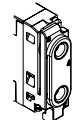


A, B port size

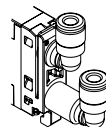
Straight
C2: ø2 one-touch fitting
C4: ø4 one-touch fitting
C6: ø6 one-touch fitting (SJ3000 only)



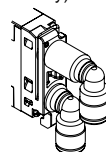
M3: M3 (SJ2000 only)
M5: M5 (SJ3000 only)



Elbow fitting assembly (Upward entry)
L2: ø2 elbow fitting assembly
L4: ø4 elbow fitting assembly
L6: ø6 elbow fitting assembly (SJ3000 only)



Elbow fitting assembly (Downward entry)
B2: ø2 elbow fitting assembly
B4: ø4 elbow fitting assembly
B6: ø6 elbow fitting assembly (SJ3000 only)



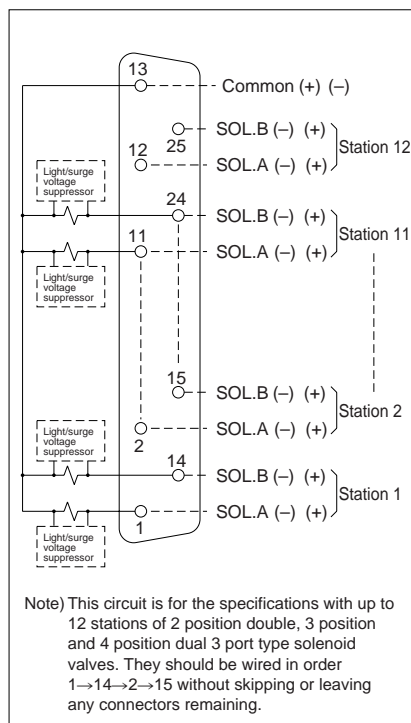
* Connector entries with the symbol "M□" can not use the switch signal from the common wiring on the manifold.

The electrical connection to the manifold will be +COM. spec. when a valve with power saving circuit or switch is selected.

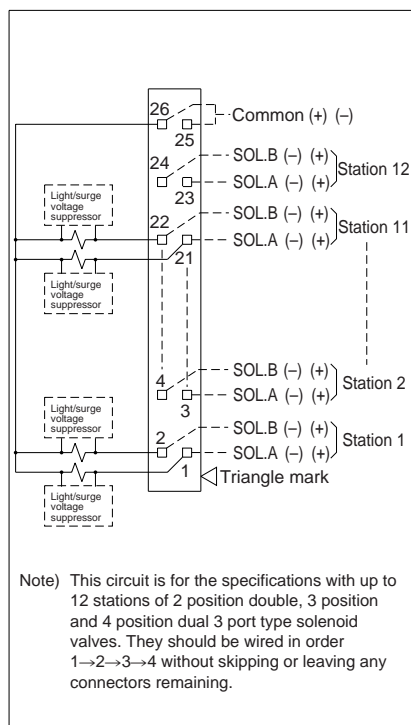
Series SJ2000/3000

Manifold Electrical Wiring (Non-polar type)

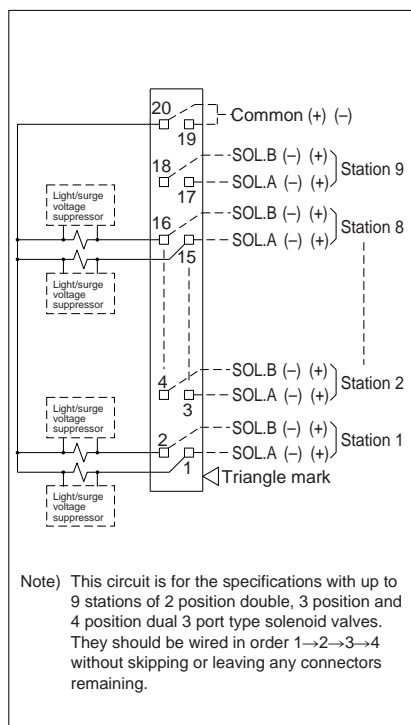
Type 60F: D-sub connector (25 pins)



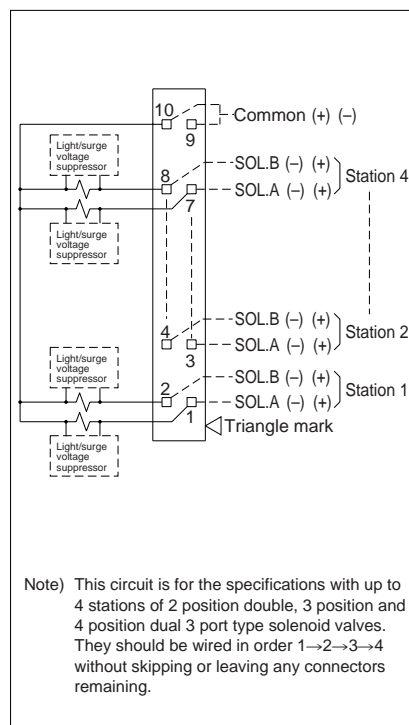
Type 60P: Flat ribbon cable (26 pins)



Type 60PG: Flat ribbon cable (20 pins)



Type 60PH: Flat ribbon cable (10 pins)



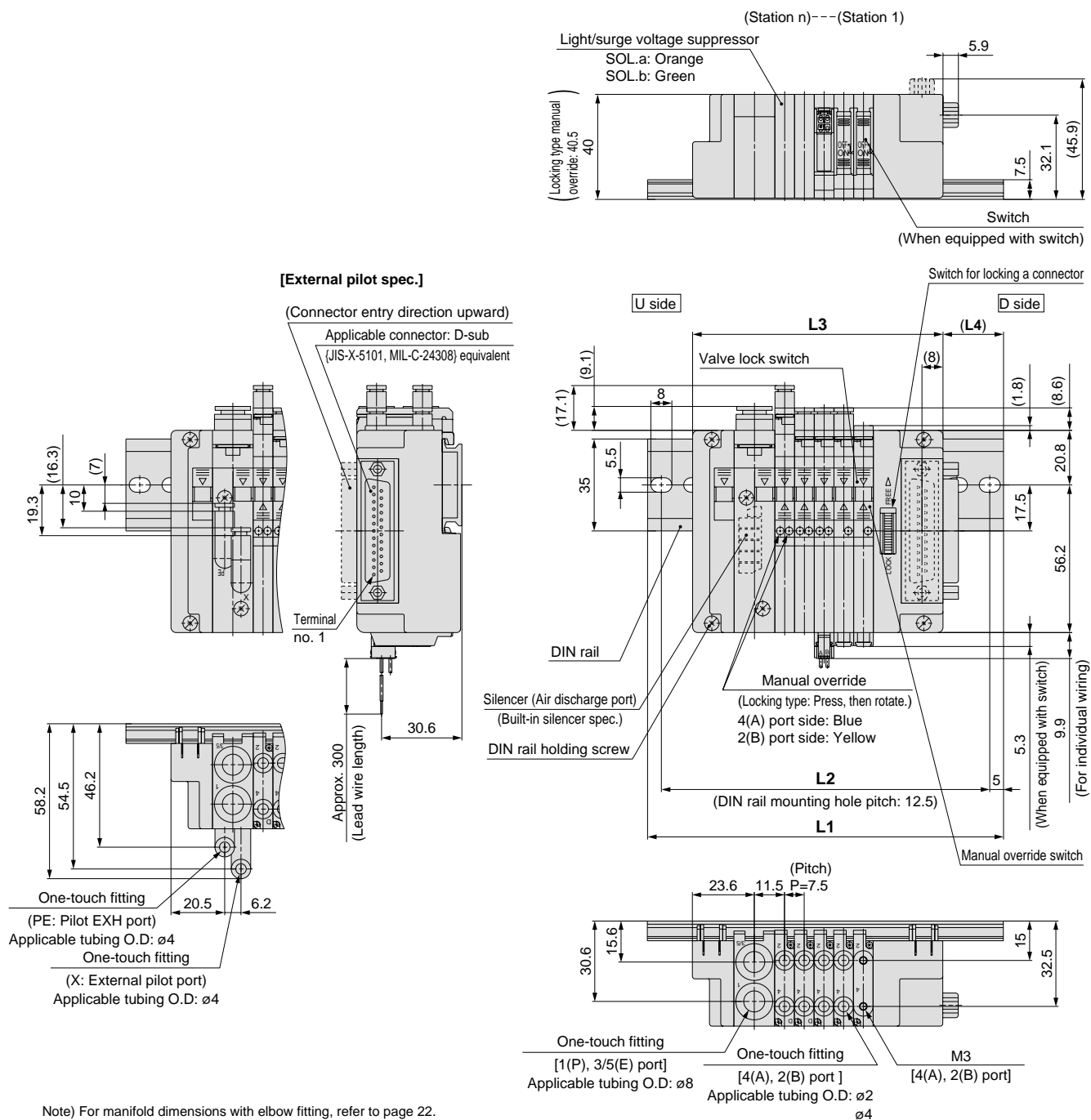
⚠ Caution

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.

For D-sub Connector / Flat Ribbon Cable **Series SJ2000/3000**

Dimensions: Series SJ2000 for D-sub Connector

SS5J2-60FD_{1/2} – Stations U (S, R, RS)



Note) For manifold dimensions with elbow fitting, refer to page 22.

L: Dimensions

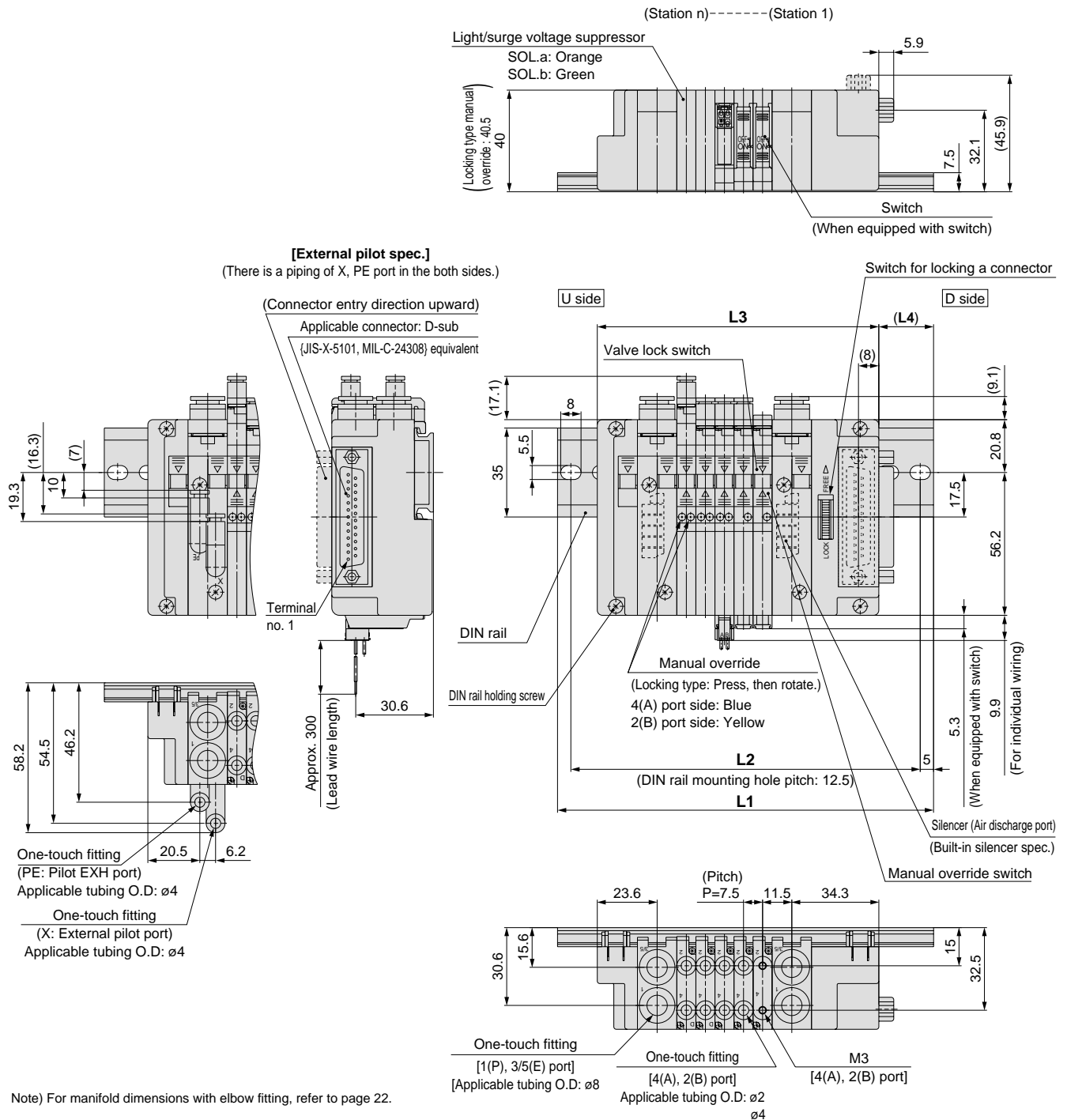
n: Stations

L \ n	2	3	4	5	6	7	8	9	10
L1	110.5	110.5	123	135.5	135.5	148	148	160.5	173
L2	100	100	112.5	125	125	137.5	137.5	150	162.5
L3	72.8	80.3	87.8	95.3	102.8	110.3	117.8	125.3	132.8
L4	22	18	20.5	23	19.5	22	18	20.5	23

Series SJ2000/3000

Dimensions: Series SJ2000 for D-sub Connector

SS5J2-60FD₁ – Stations B (S, R, RS)



Note) For manifold dimensions with elbow fitting, refer to page 22.

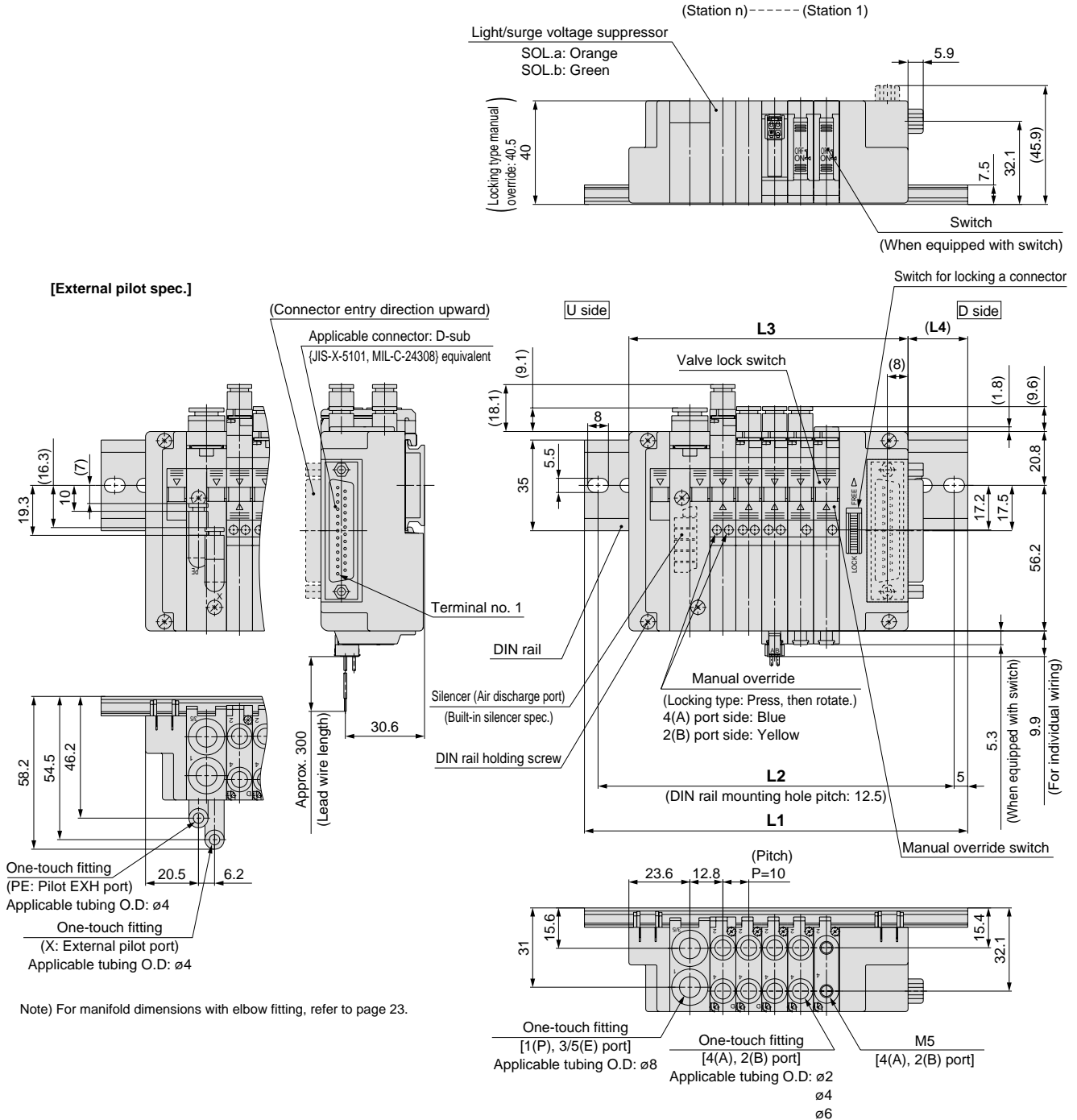
L: Dimensions

n: Stations

L \ 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	135.5	148	148	160.5	173	173	185.5	185.5	198	210.5	210.5	223	223	235.5	248	248	260.5	260.5	273	285.5	285.5
L2	112.5	125	125	137.5	137.5	150	162.5	162.5	175	175	187.5	200	200	212.5	212.5	225	237.5	237.5	250	250	262.5	275	275
L3	88.3	95.8	103.3	110.8	118.3	125.8	133.3	140.8	148.3	155.8	163.3	170.8	178.3	185.8	193.3	200.8	208.3	215.8	223.3	230.8	238.3	245.8	253.3
L4	20.5	23	19	21.5	18	20.5	23	19	21.5	18	20.5	23	19	21.5	18	20.5	23	19	21.5	18	20.5	23	19

Dimensions: Series SJ3000 for D-sub Connector

SS5J3-60FD₁ – Stations U (S, R, RS)



L: Dimensions

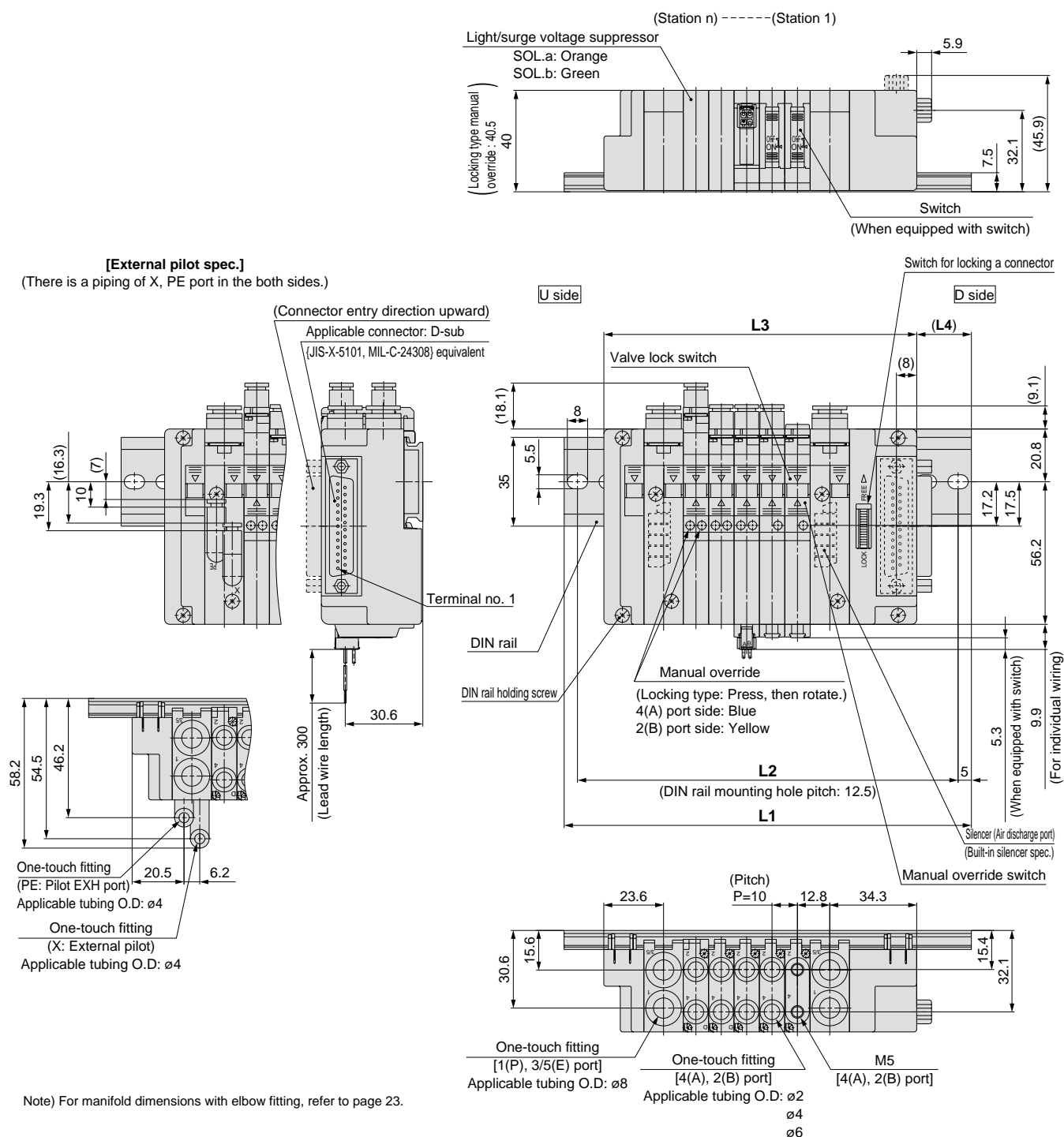
n: Stations

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: Series SJ3000 for D-sub Connector

SS5J3-60FD₁—[Stations] B (S, R, RS)



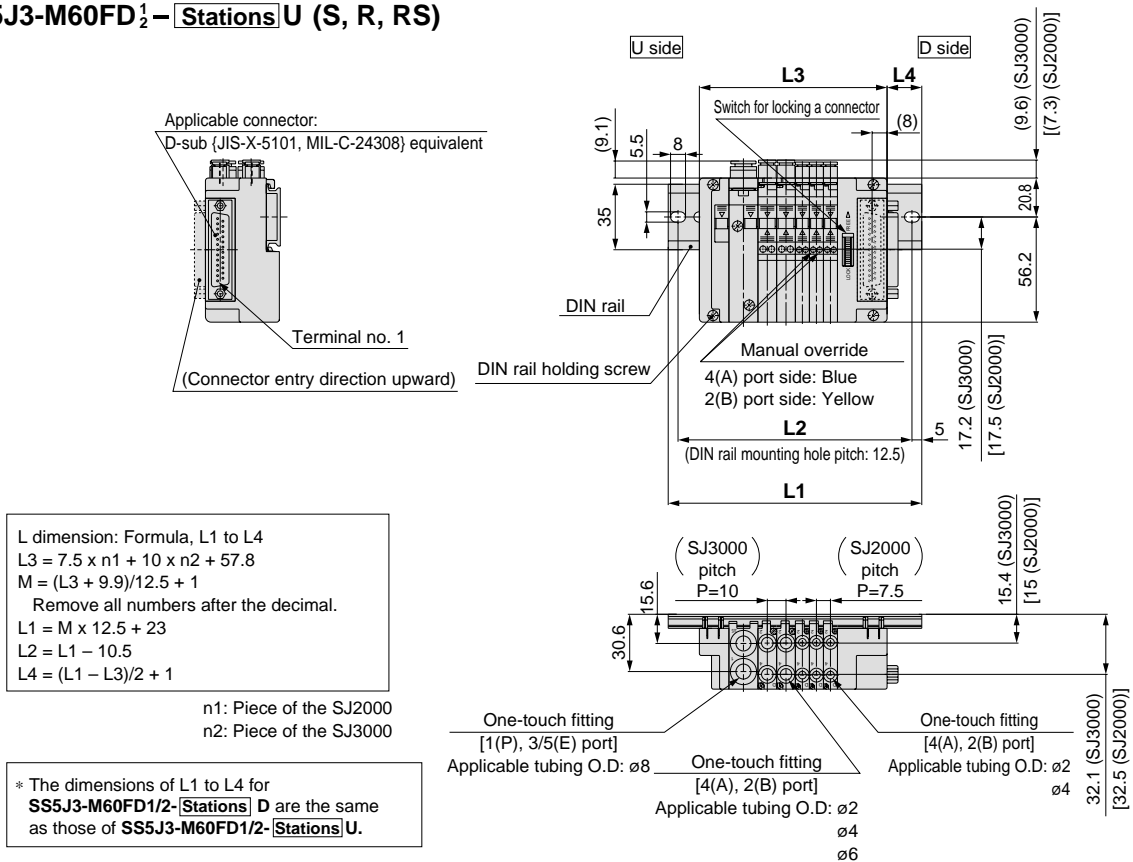
L: Dimensions

n: Stations

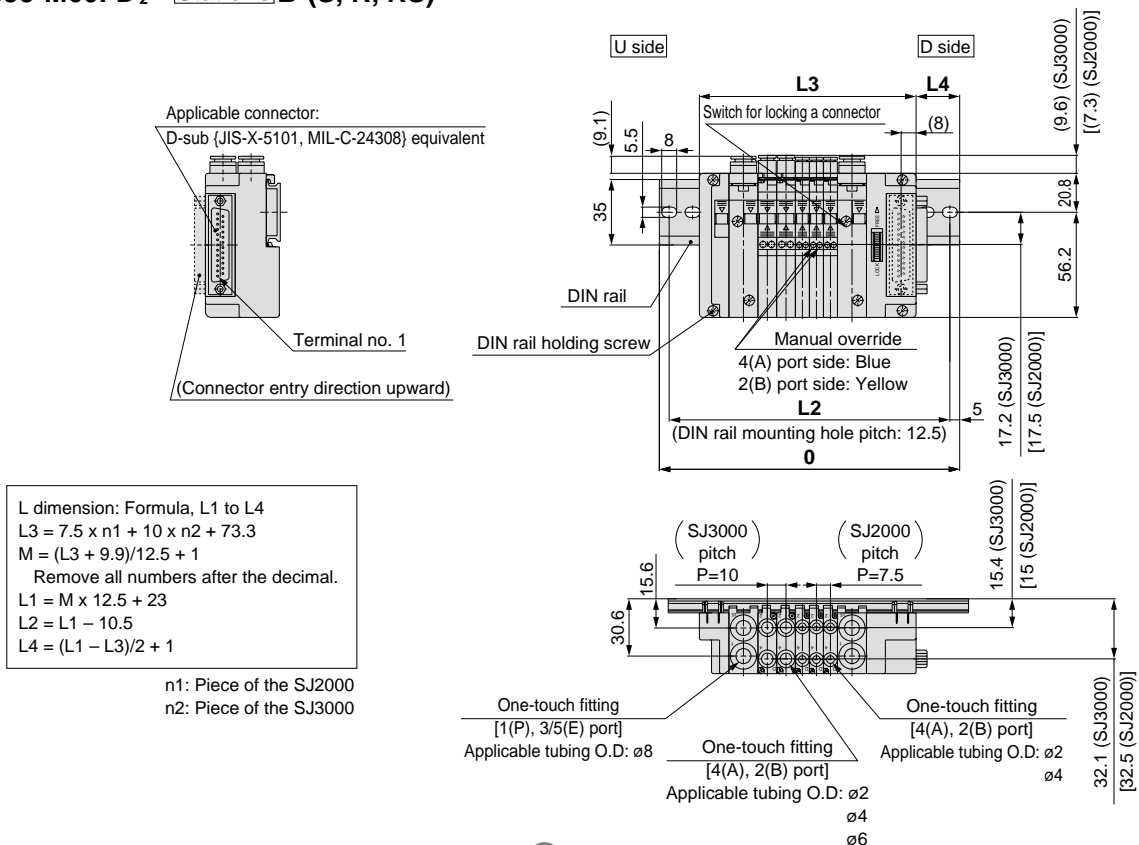
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1	123	135.5	148	160.5	173	185.5	185.5	198	210.5	223	235.5	235.5	248	260.5	273	285.5	298	298	310.5	323	335.5	348	348
L2	112.5	125	137.5	150	162.5	175	175	187.5	200	212.5	225	225	237.5	250	262.5	275	287.5	287.5	300	312.5	325	337.5	337.5
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

Dimensions: SJ2000/3000 Mixed Manifold

SS5J3-M60FD₂ – Stations U (S, R, RS)



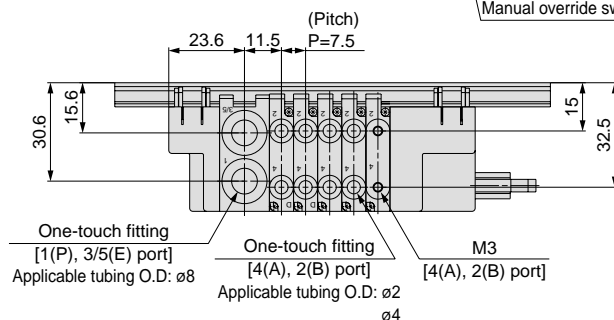
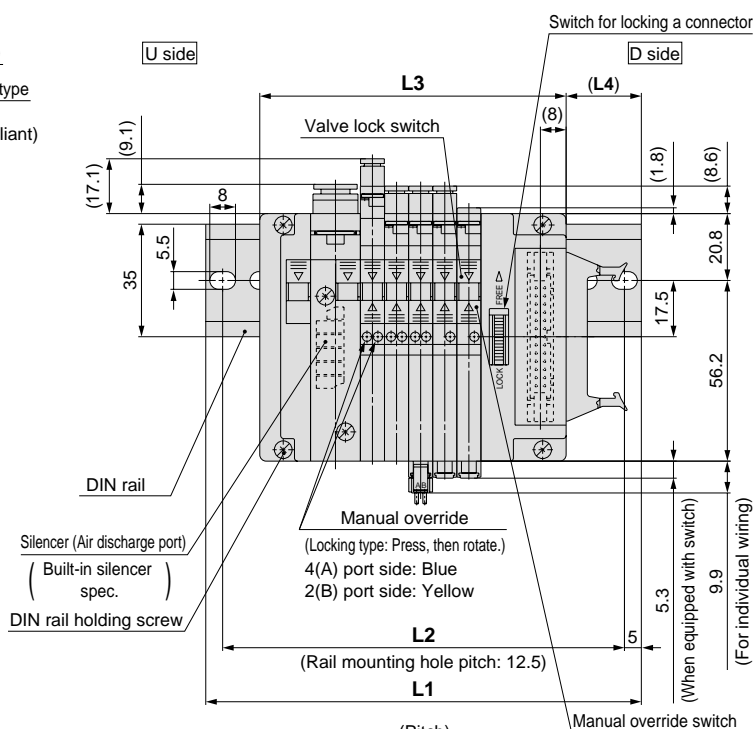
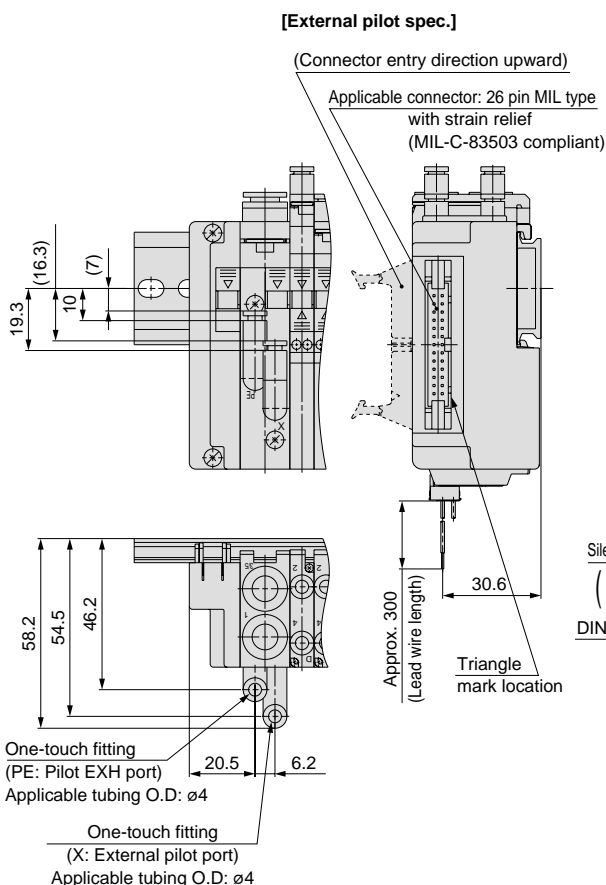
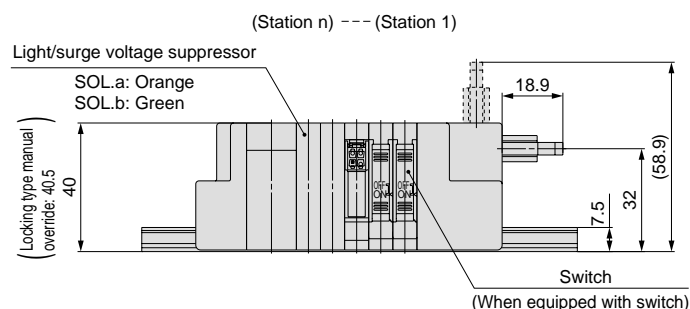
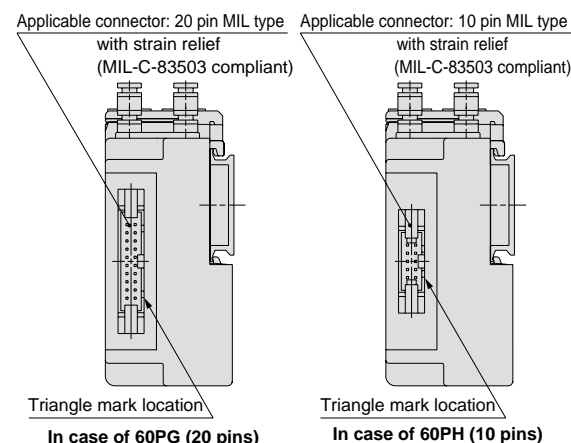
SS5J3-M60FD₂ – Stations B (S, R, RS)



Series SJ2000/3000

Dimensions: Series SJ2000 for Flat Ribbon Cable

SS5J2-60PD₁ - Stations U (S, R, RS)



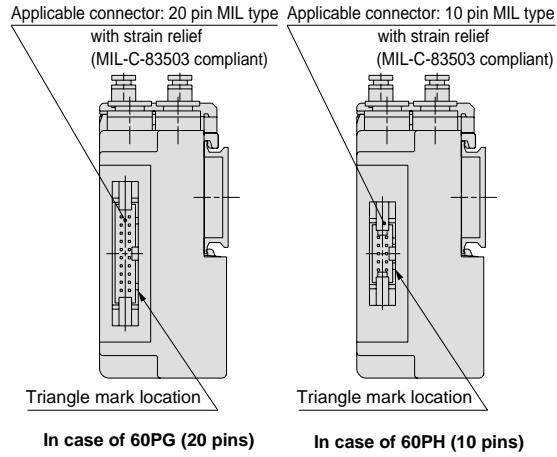
L: Dimensions		n: Stations									
L	n	2	3	4	5	6	7	8	9	10	
L1		110.5	110.5	123	135.5	135.5	148	148	160.5	173	
L2		100	100	112.5	125	125	137.5	137.5	150	162.5	
L3		72.8	80.3	87.8	95.3	102.8	110.3	117.8	125.3	132.8	
L4		22	18.5	21	23.5	19.5	22	18.5	21	23.5	

Note 1) Type 60PG and 60PH differ only in their connectors, and the L1 through L4 dimensions are the same as type 60P.

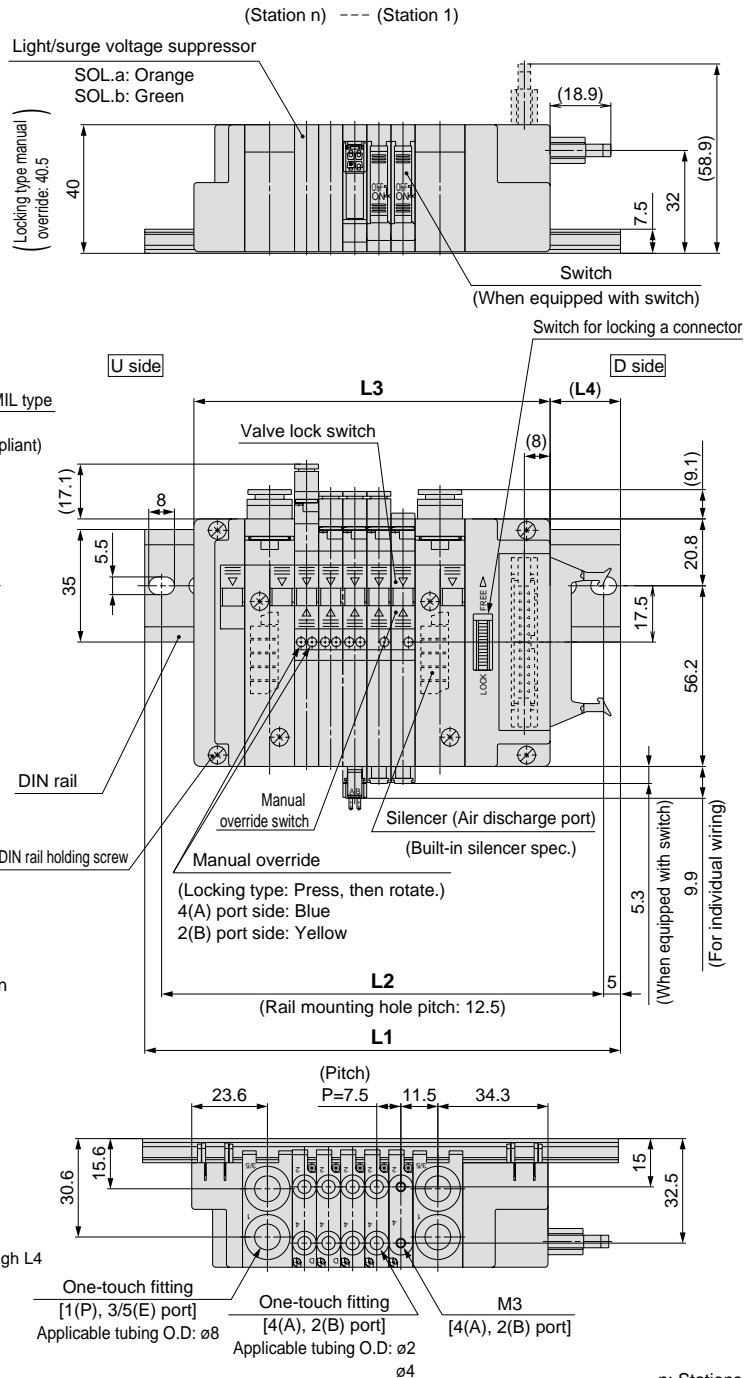
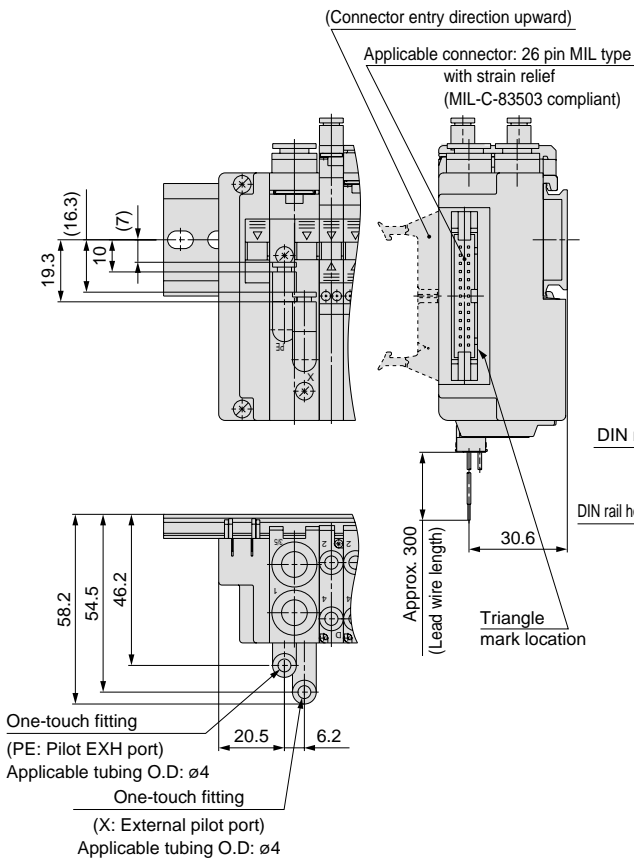
Note 2) For manifold dimensions with elbow fitting, refer to page 22.

Dimensions: Series SJ2000 for Flat Ribbon Cable

SS5J2-60PD₂ – Stations B (S, R, RS)



[External pilot spec.]
(There is a piping of X, PE port in the both sides.)



Note 1) Type 60PG and 60PH differ only in their connectors, and the L1 through L4 dimensions are the same as type 60P.

Note 2) For manifold dimensions with elbow fitting, refer to page 22.

L: Dimensions

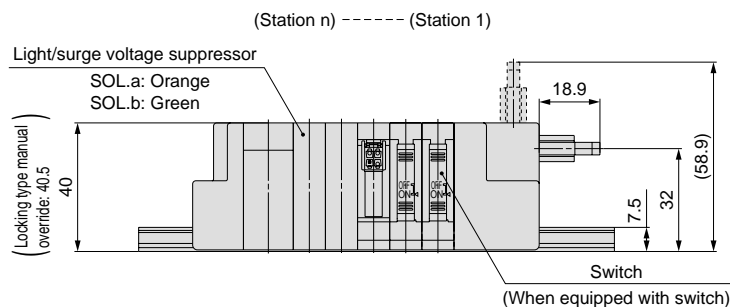
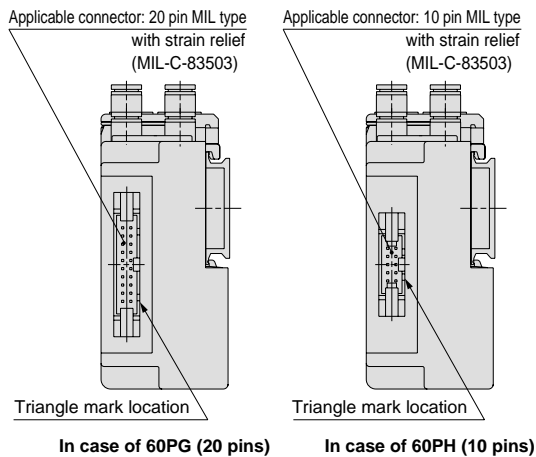
L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1		123	135.5	135.5	148	148	160.5	173	173	185.5	185.5	198	210.5	210.5	223	223	235.5	248	248	260.5	260.5	273	285.5	285.5
L2		112.5	125	125	137.5	137.5	150	162.5	162.5	175	175	187.5	200	200	212.5	212.5	225	237.5	237.5	250	250	262.5	275	275
L3		88.3	95.8	103.3	110.8	118.3	125.8	133.3	140.8	148.3	155.8	163.3	170.8	178.3	185.8	193.3	200.8	208.3	215.8	223.3	230.8	238.3	245.8	253.3
L4		20.5	23	19.5	22	18	20.5	23	19.5	22	18	20.5	23	19.5	22	18	20.5	23	19.5	22	18	20.5	23	19.5

n: Stations

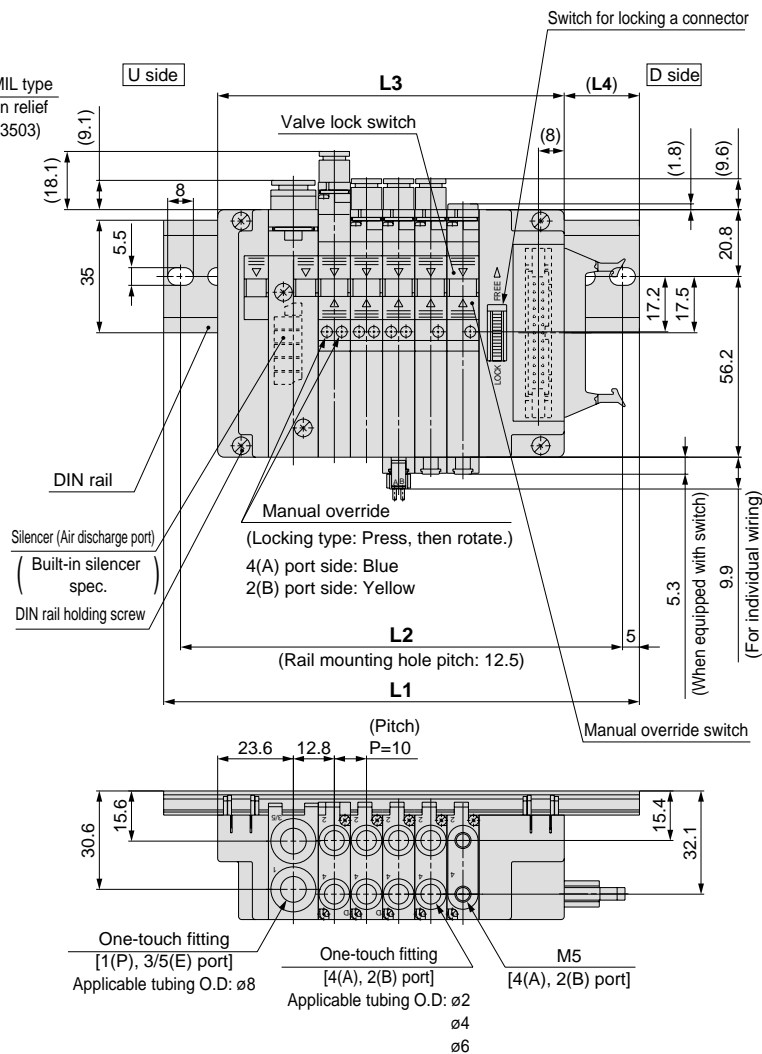
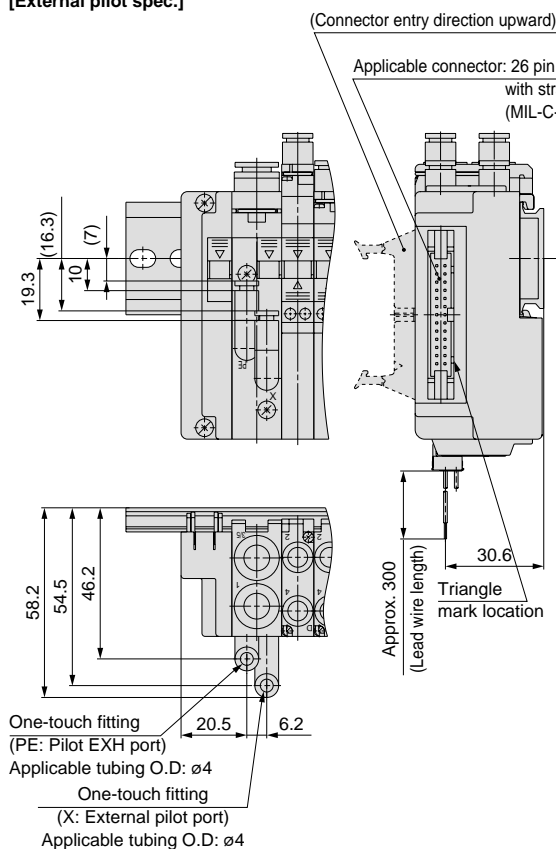
Series SJ2000/3000

Dimensions: Series SJ3000 for Flat Ribbon Cable

SS5J3-60PD₂ – Stations U (S, R, RS)



[External pilot spec.]



L: Dimensions

n: Stations

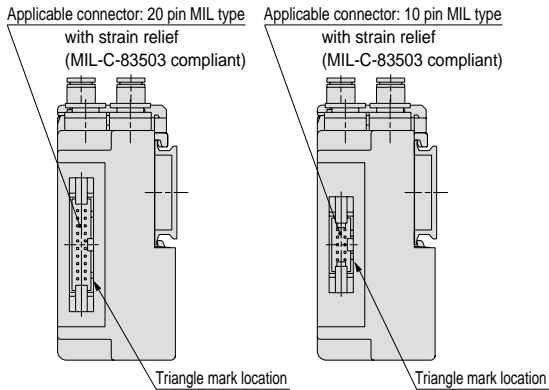
L \ n	2	3	4	5	6	7	8	9	10
L1	110.5	123	135.5	148	160.5	160.5	173	185.5	198
L2	100	112.5	125	137.5	150	150	162.5	175	187.5
L3	77.8	87.8	97.8	107.8	117.8	127.8	137.8	147.8	157.8
L4	19.5	20.5	22	23	24	19	20	21.5	22.5

Note 1) Type 60PG and 60PH differ only in their connectors, and the L1 through L4 dimensions are the same as type 60P.

Note 2) For manifold dimensions with elbow fitting, refer to page 23.

Dimensions: Series SJ3000 for Flat Ribbon Cable

SS5J3-60PD₂ – Stations B (S, R, RS)

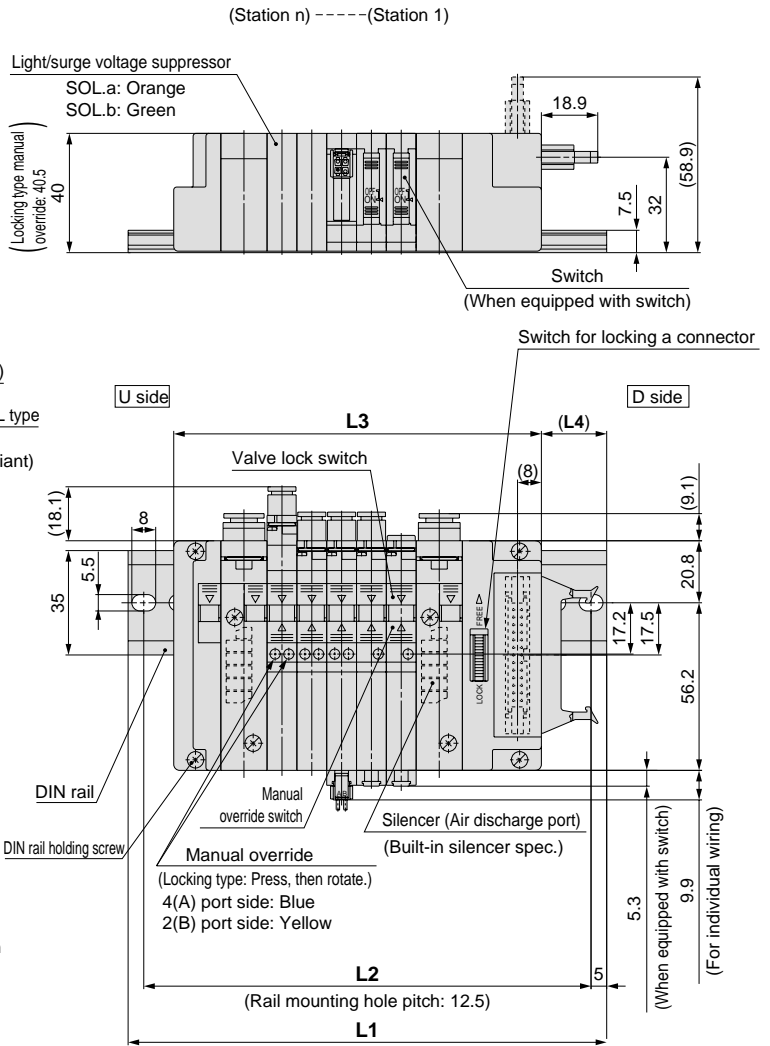
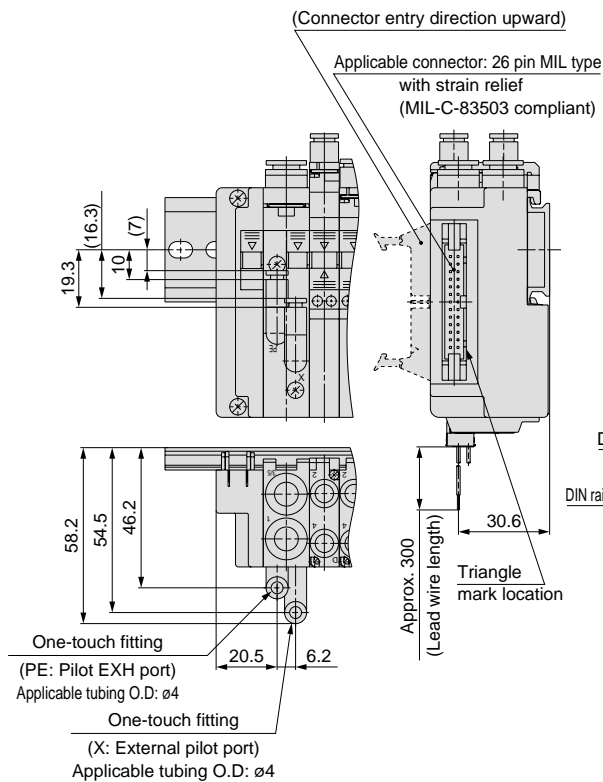


In case of 60PG (20 pins)

In case of 60PH (10 pins)

[External pilot spec.]

(There is a piping of X, PE port in the both sides.)



- Note 1) Type 60PG and 60PH differ only in their connectors, and the L1 through L4 dimensions are the same as type 60P.
- Note 2) For manifold dimensions with elbow fitting, refer to page 23.

L: Dimensions

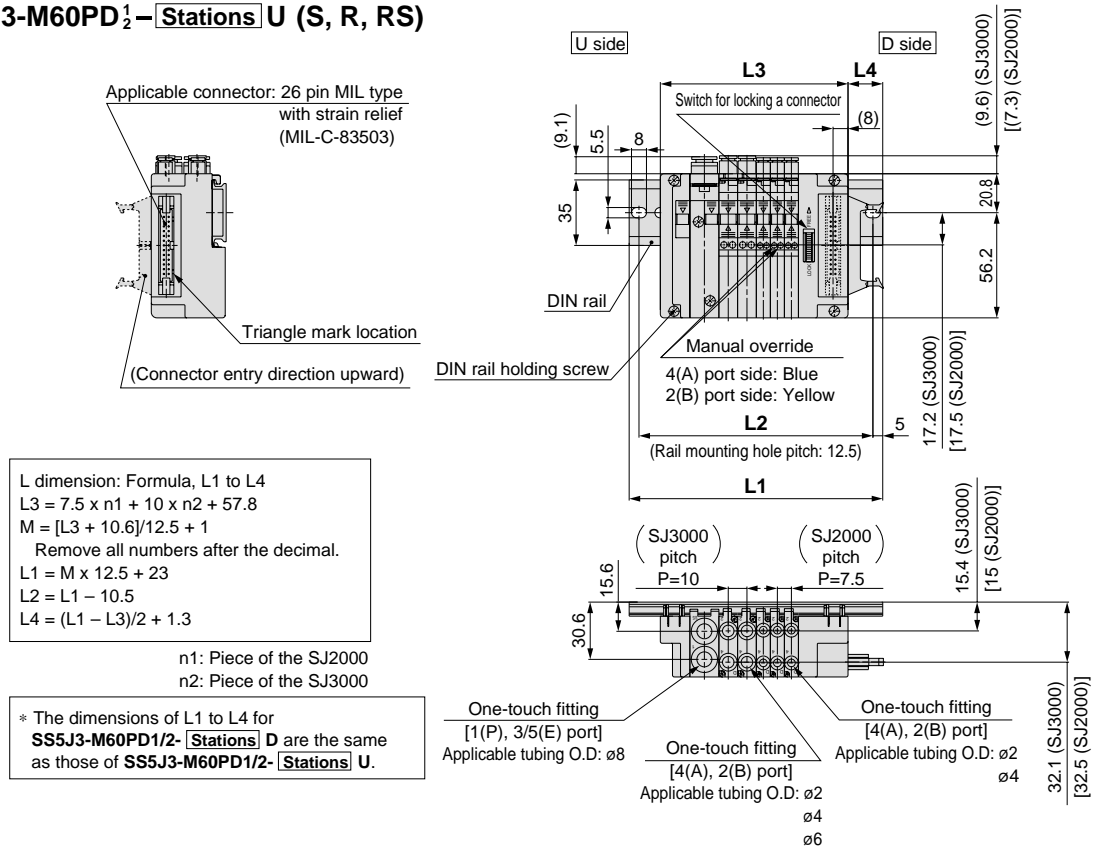
L	n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
L1		135.5	135.5	148	160.5	173	185.5	185.5	198	210.5	223	235.5	248	248	260.5	273	285.5	298	298	310.5	323	335.5	348	348
L2		125	125	137.5	150	162.5	175	175	187.5	200	212.5	225	237.5	237.5	250	262.5	275	287.5	287.5	300	312.5	325	337.5	337.5
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		24	19	20.5	21.5	22.5	23.5	18.5	20	21	22	23	24.5	19.5	20.5	21.5	22.5	24	19	20	21	22	23.5	18.5

n: Stations

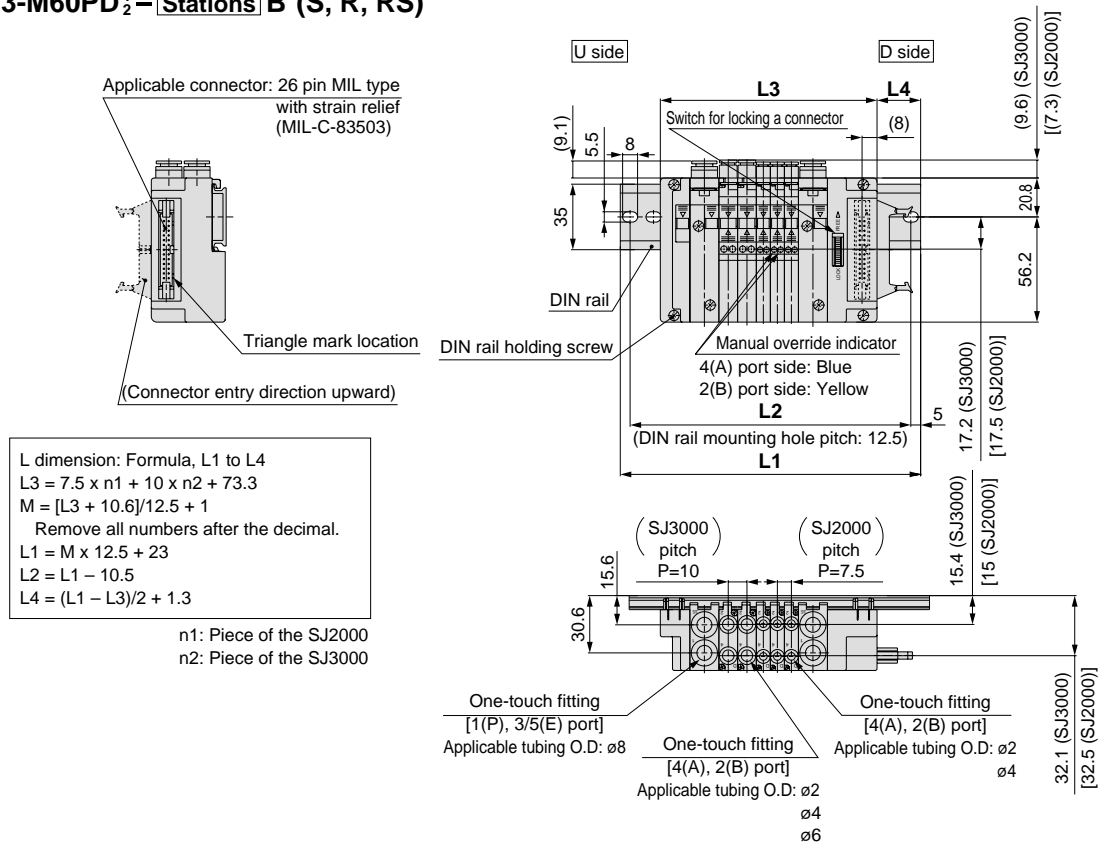
Series SJ2000/3000

Dimensions: SJ2000/3000 Mixed Manifold

SS5J3-M60PD₂- [Stations] U (S, R, RS)

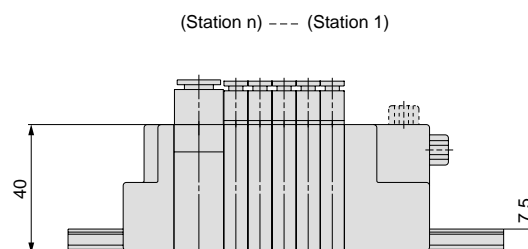
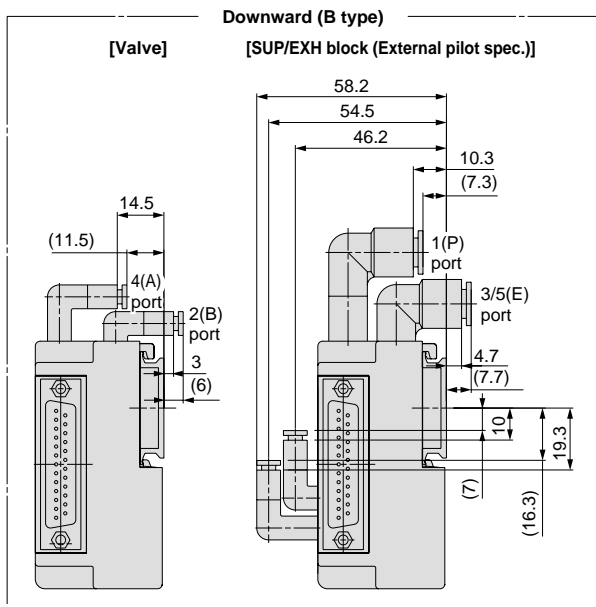


SS5J3-M60PD₂- [Stations] B (S, R, RS)

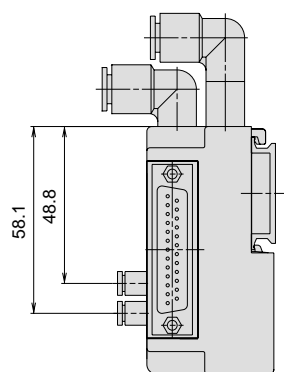


Dimensions: Series SJ2000 with Elbow Fittings

SS5J2-60FD₁² – [Stations] U_B^L

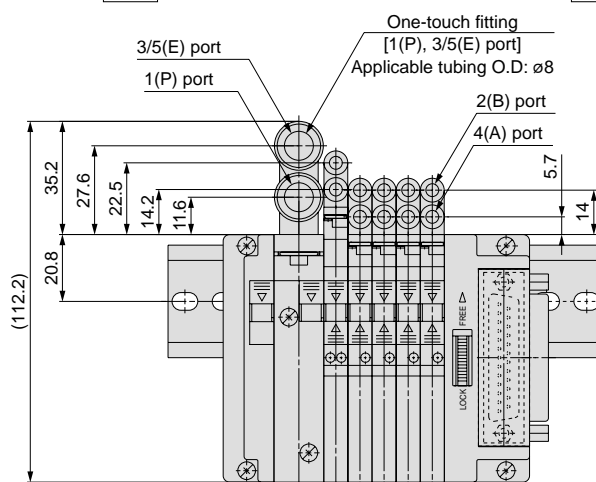


[SUP/EXH block (External pilot spec.)]

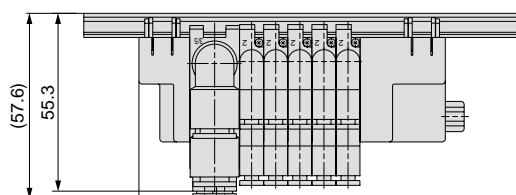


U side

D side

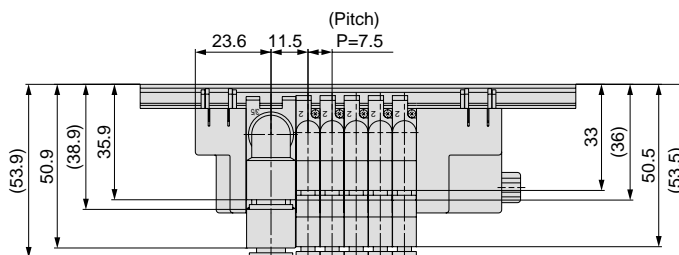


[External pilot spec.]



One-touch fitting
(PE: Pilot EXH port)
Applicable tubing O.D: ø4

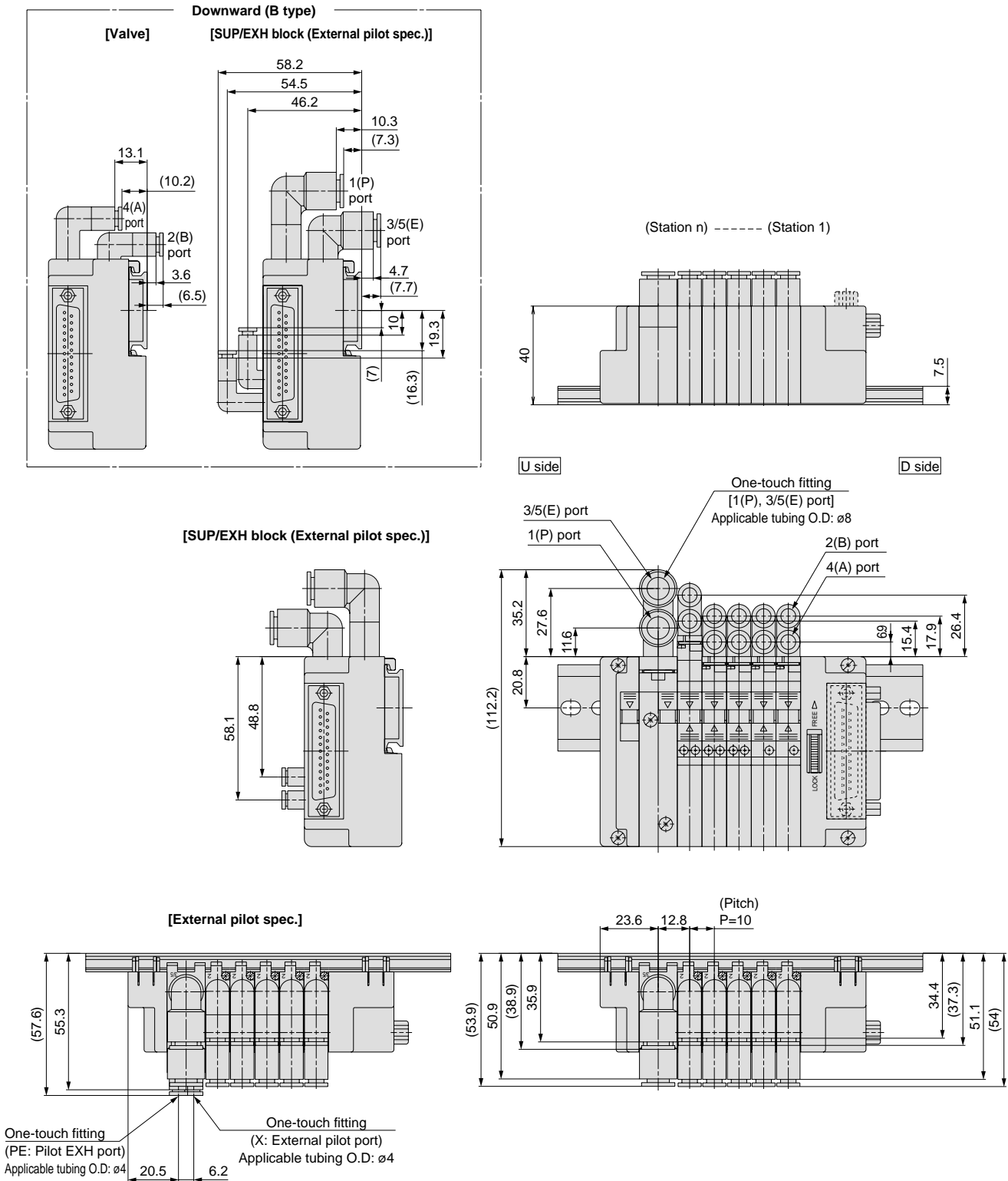
One-touch fitting
(X: External pilot port)
Applicable tubing O.D: ø4



Series SJ2000/3000

Dimensions: Series SJ3000 with Elbow Fittings

SS5J3-60FD¹/₂ – Stations U^L_B

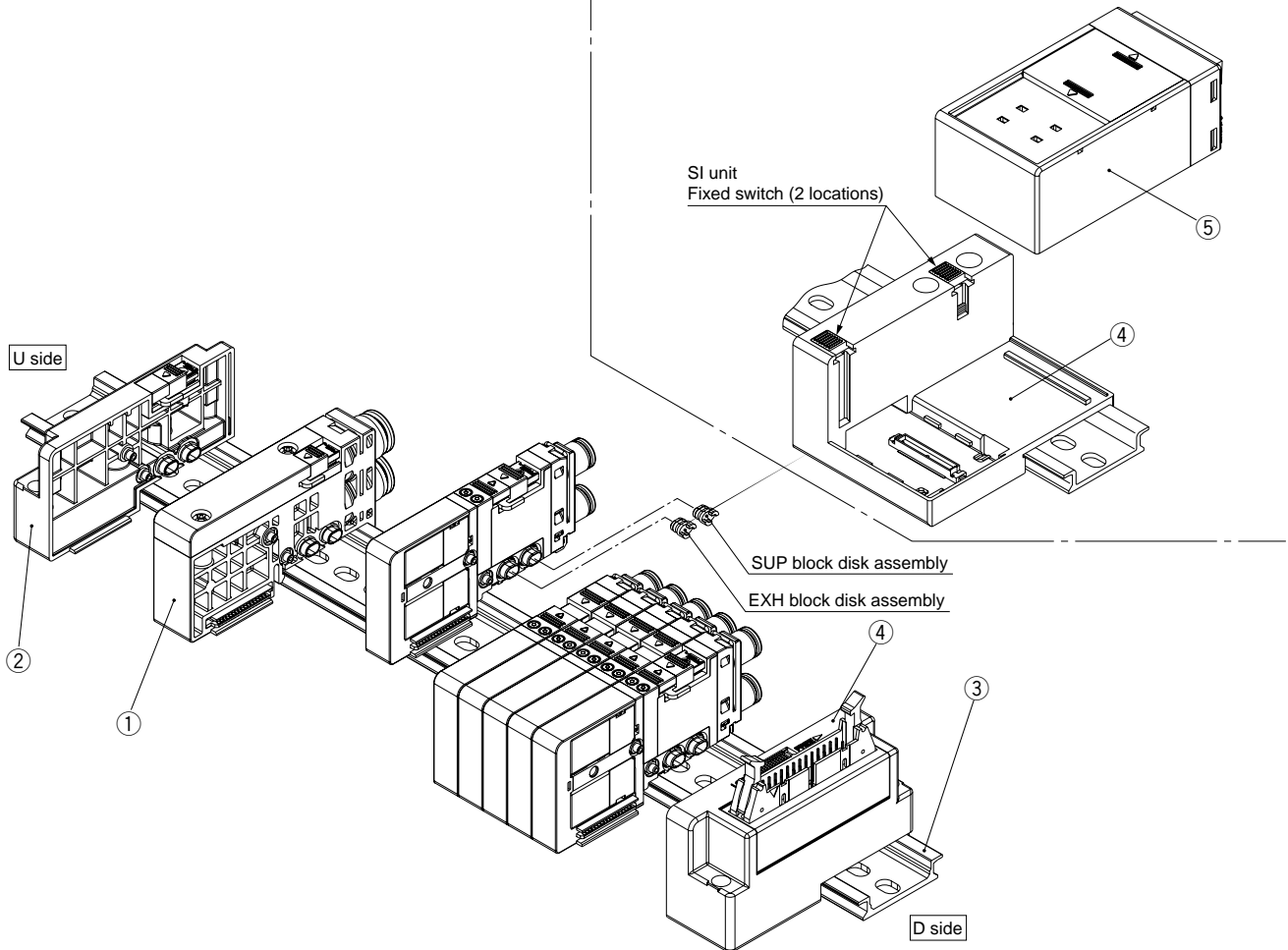


For D-sub Connector / Flat Ribbon Cable **Series SJ2000/3000**

Manifold Exploded View

Type 60P (Flat ribbon cable type) manifold

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



Component Parts

No.	Description	Part no.	Note
1	Internal pilot	SJ3000-50-1A-□□	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: ø4)	
	External pilot / Built-in silencer	SJ3000-50-1ARS-□□ (X port: ø4)	
	For different pressure, internal pilot	SJ3000-50-3A-□□	
	For different pressure Internal pilot / Built-in silencer	SJ3000-50-3AS-□□	
2	End block assembly	SJ3000-53-1A	
3	DIN rail	VZ1000-11-1-□	Refer to page 35.
4	Connector block assembly	SJ3000-42-□A-□	Refer to the connector block assembly part no. shown below.
5	SI unit	EX180-□□	Refer to the SI unit part numbers on page 27.

* Refer to page 34 about the SUP/EXH block disk assembly and the method for handling 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 serial wiring		SJ3000-42-5A	

Series SJ2000/3000

How to Add Manifold Stations

- 1** Loosen the screws (a), which are fixed to the DIN rail (two locations on one side).
- 2** In the direction of the coil, slide the valve lock switch on each block where the additional valve station is desired to be added.
 (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.

2. Press the manifold in the arrow direction and mount it on the rail.

1. Hook onto the 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 screws on 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 serial wiring M4: 1.4 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 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 the blocks are not well connected or if 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.

Serial Wiring

Series EX180



Series ***SJ2000/3000***

CC-Link compliant (32 points)

DeviceNet compliant (32, 16 points)

Type **60S**

EX180 Serial Wiring

Series **SJ2000/3000**



How to Order

SS5J 3 60S V 05 U

Series

2	SJ2000
3	SJ3000 (SJ2000, 3000 mixed)

Mixed mounting type

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

Note 1) There is no need to enter anything when you order 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.

Component module

0	Without SI unit
V	Mitsubishi Electric Corporation: CC-Link compliant (32 points)
Q	DeviceNet compliant (32 points)
Q1	DeviceNet compliant (16 points)

* Please contact SMC for a specification of the SI unit.

Communication connector spec.

-	T-branch type
A	Straight type

* Communication connector, power connector are shipped together with the manifold. Power connector is available for straight type only.

DIN rail length specified

-	Standard length	
3	3 stations	Specify a longer rail than the standard length.
...
32	32 stations	...

SUP/EXH block fitting spec.

-	Straight fitting	
L	Elbow fitting (Upward)	
B	Elbow fitting (Downward)	

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

Pilot spec.

-	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.

SUP/EXH block mounting position

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 32 stations)
M*	Special specification

* Specify the required specifications (Including port sizes other than ø8) by using a manifold specification sheet.

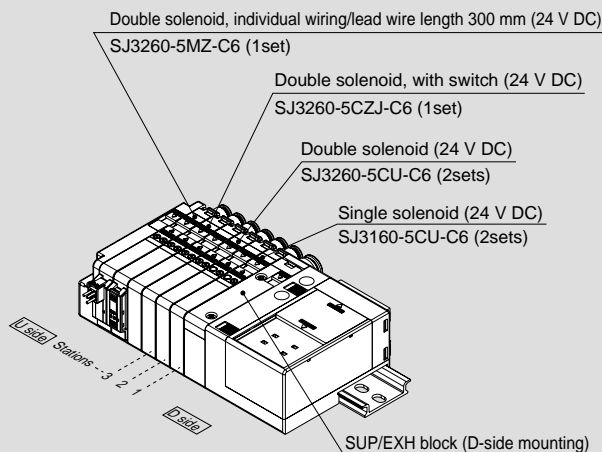
Valve stations

Symbol	Stations	Note
02	2 Stations	Up to 32 solenoids possible.
...	...	
32	32 Stations	

* The number of 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 35)

How to Order Valve Manifold Assembly

Ordering example (SJ3000)



SS5J3-60SV-06D1 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 it on a manifold specification sheet.

SI Unit Part No.

Symbol	Component module/Communication connector specifications	For SS5J□-60S
V	Mitsubishi Electric Corp. CC-LINK compliant, T-branch type	EX180-SMJ1
VA	Mitsubishi Electric Corp. CC-LINK compliant, Straight type	EX180-SMJ1A
Q	DeviceNet compliant (32 points), T-branch type	EX180-SDN1
QA	DeviceNet compliant (32 points), Straight type	EX180-SDN1A
Q1	DeviceNet compliant (16 points), T-branch type	EX180-SDN2
Q1A	DeviceNet compliant (16 points), Straight type	EX180-SDN2A

Item	Specifications
Power source	Non-polar
for driving valve	24 V DC+10%/-5%
With energy saving circuit (Continuous duty)	24 V DC+10%/0%

How to Order Solenoid Valves

Standard (Non-polar) type

With power saving circuit (with polarity)
[Continuous duty type] Note)

With switch (with polarity)

Individual wiring (with polarity)

Note) Be sure to select "with power saving circuit" when the solenoid valve will be energised continuously for long periods.

SJ 3 1 60 - 5 C U C6

SJ 3 1 60 T - 5 C Z C6

SJ 3 1 60 - 5 C Z J C6

SJ 3 1 60 - 5 M Z C6

Series	
2	SJ2000
3	SJ3000

Rated voltage	
5	24 V DC

Single solenoid wiring spec.

-	Single wiring
D	Double wiring

* There is no need to enter anything for 2 position double, 3 position and 4 position type solenoid valves.

Type of actuation

1	2 position single solenoid
2	2 position double solenoid
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre
A	Dual 3 port valve: N.C./N.C.
B	Dual 3 port valve: N.O./N.O.
C	Dual 3 port valve: N.C./N.O.

* Refer to page 4 to 7 about the JIS symbol.

Pilot specifications

-	Internal pilot
R	External pilot

* External pilot spec. is not applicable for 4 position dual 3 port valves.

Back pressure check valve

-	Without
K	Built-in

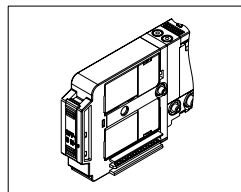
* Back pressure check valve is not applicable for 3 position valve.

Light/surge voltage suppressor

U	With light/surge voltage suppressor Standard (non-polar) only
Z	With light/surge voltage suppressor, with power saving, with switch and Individual wiring

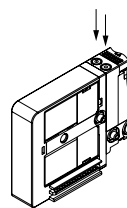
* "Z" is +COM. spec.

With switch

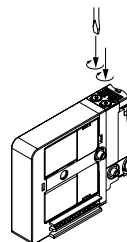


Manual override

-: Non-locking push type

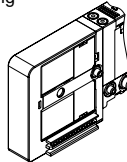


D: Push-turn locking slotted type

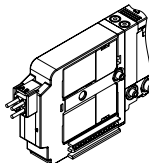


Connector entry

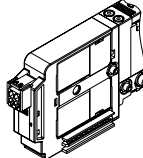
C: Dedicated for centralised wiring



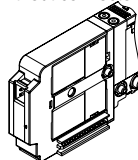
M: Individual wiring, Lead wire length 300 mm



MN: Individual wiring, Without lead wire



MO: Individual wiring, Without connector

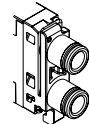


* Connector entries with the symbol "M□" can not use the switch signal from the common wiring on the manifold.

A, B port size

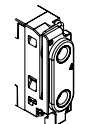
Straight

C2: ø2 one-touch fitting
C4: ø4 one-touch fitting
C6: ø6 one-touch fitting
(SJ3000 only)



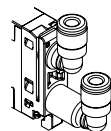
M3: M3 (SJ2000 only)

M5: M5 (SJ3000 only)



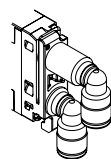
Elbow fitting assembly (Upward entry)

L2: ø2 elbow fitting assembly
L4: ø4 elbow fitting assembly
L6: ø6 elbow fitting assembly
(SJ3000 only)



Elbow fitting assembly (Downward entry)

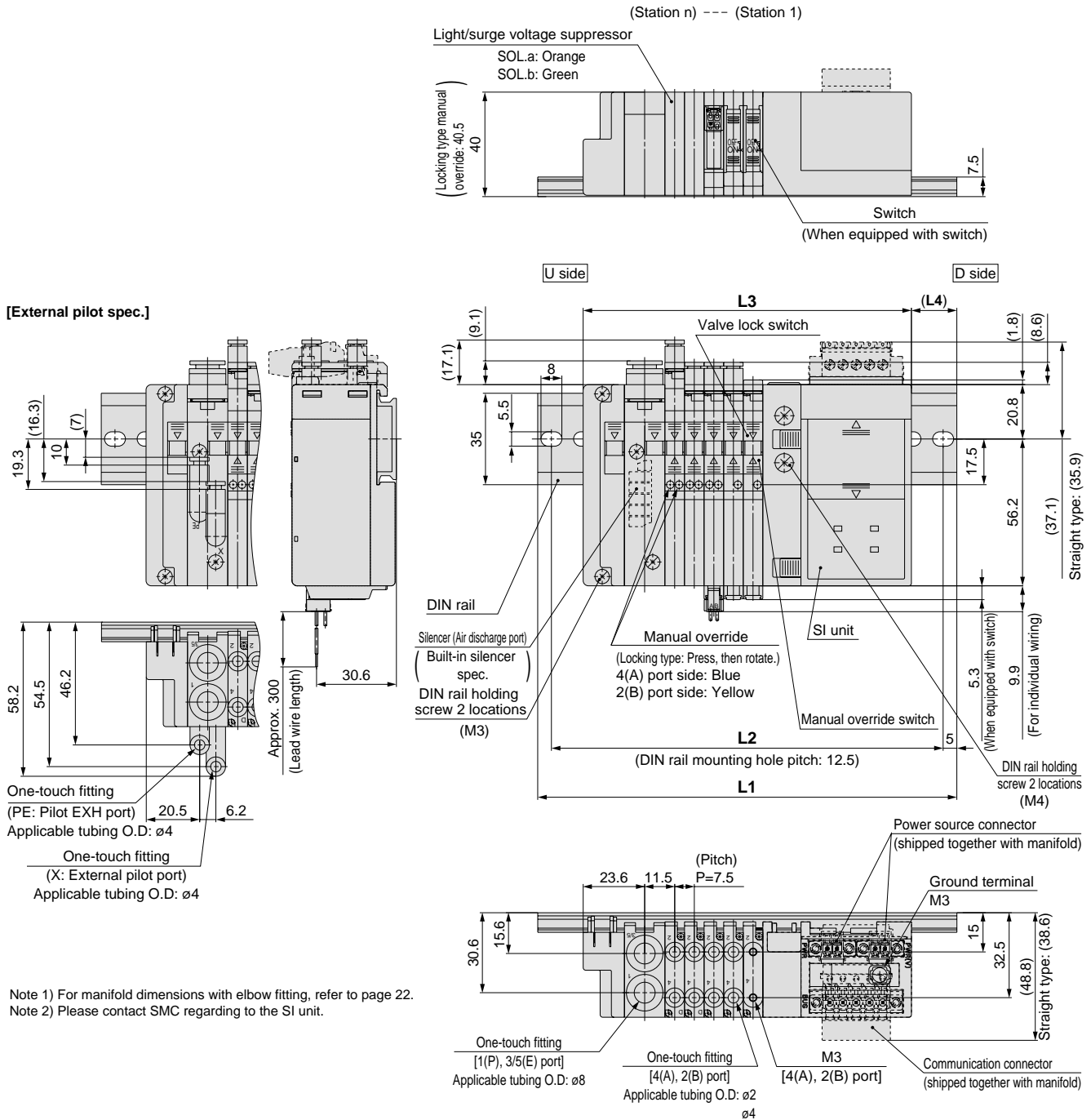
B2: ø2 elbow fitting assembly
B4: ø4 elbow fitting assembly
B6: ø6 elbow fitting assembly
(SJ3000 only)



Series SJ2000/3000

Dimensions: Series SJ2000 for EX180 Serial Wiring

SS5J2-60S□□ – Stations U (S, R, RS)



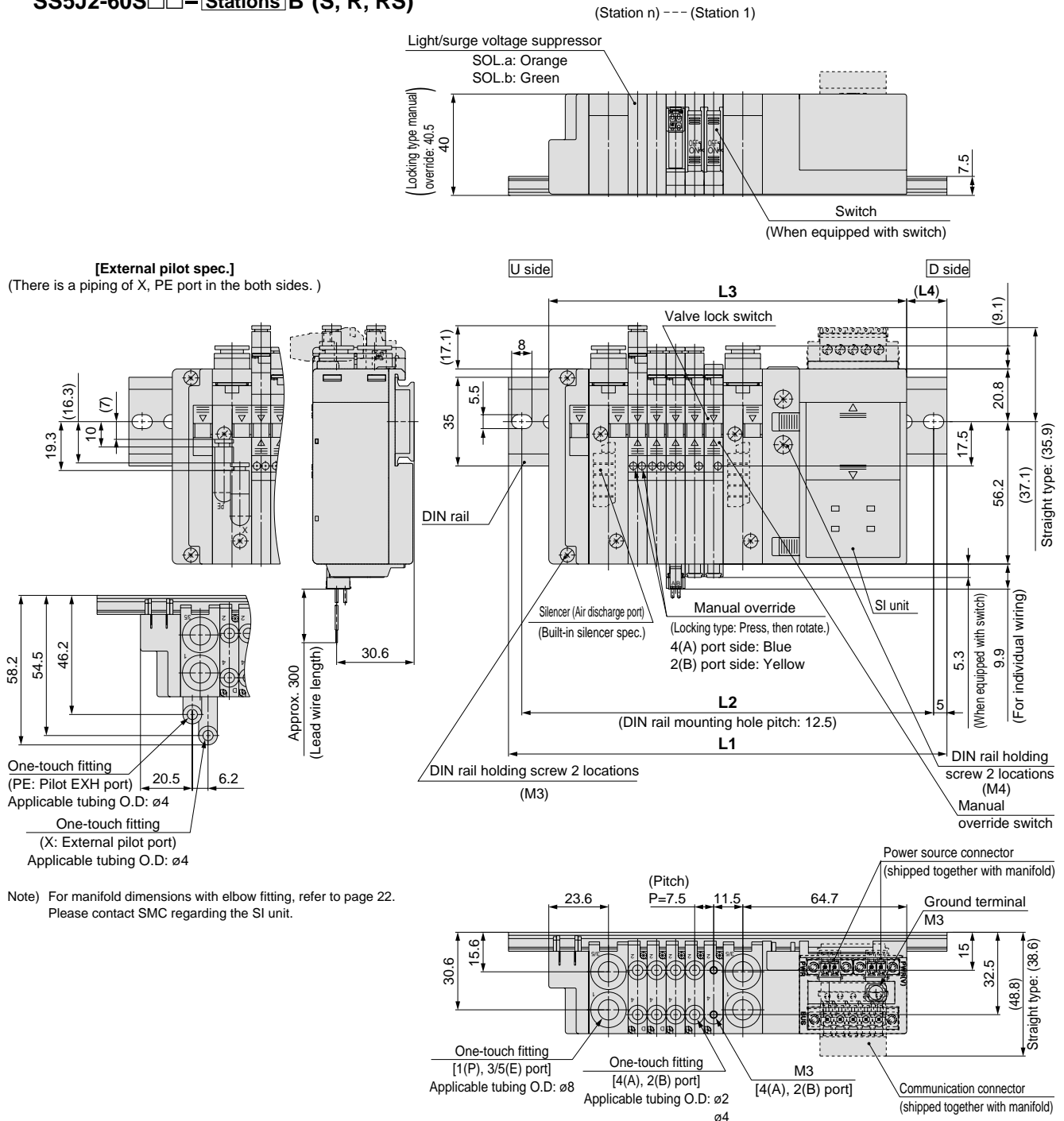
L: Dimensions

n: Stations

L \ n	2	3	4	5	6	7	8	9	10
L1	135.5	135.5	148	160.5	160.5	173	173	185.5	198
L2	125	125	137.5	150	150	162.5	162.5	175	187.5
L3	103.2	110.7	118.2	125.7	133.2	140.7	148.2	155.7	163.2
L4	16	12.5	15	17.5	13.5	16	12.5	15	17.5

Dimensions: Series SJ2000 for EX180 Serial Wiring

SS5J2-60S□□- Stations B (S, R, RS)



L: Dimensions

n: Stations

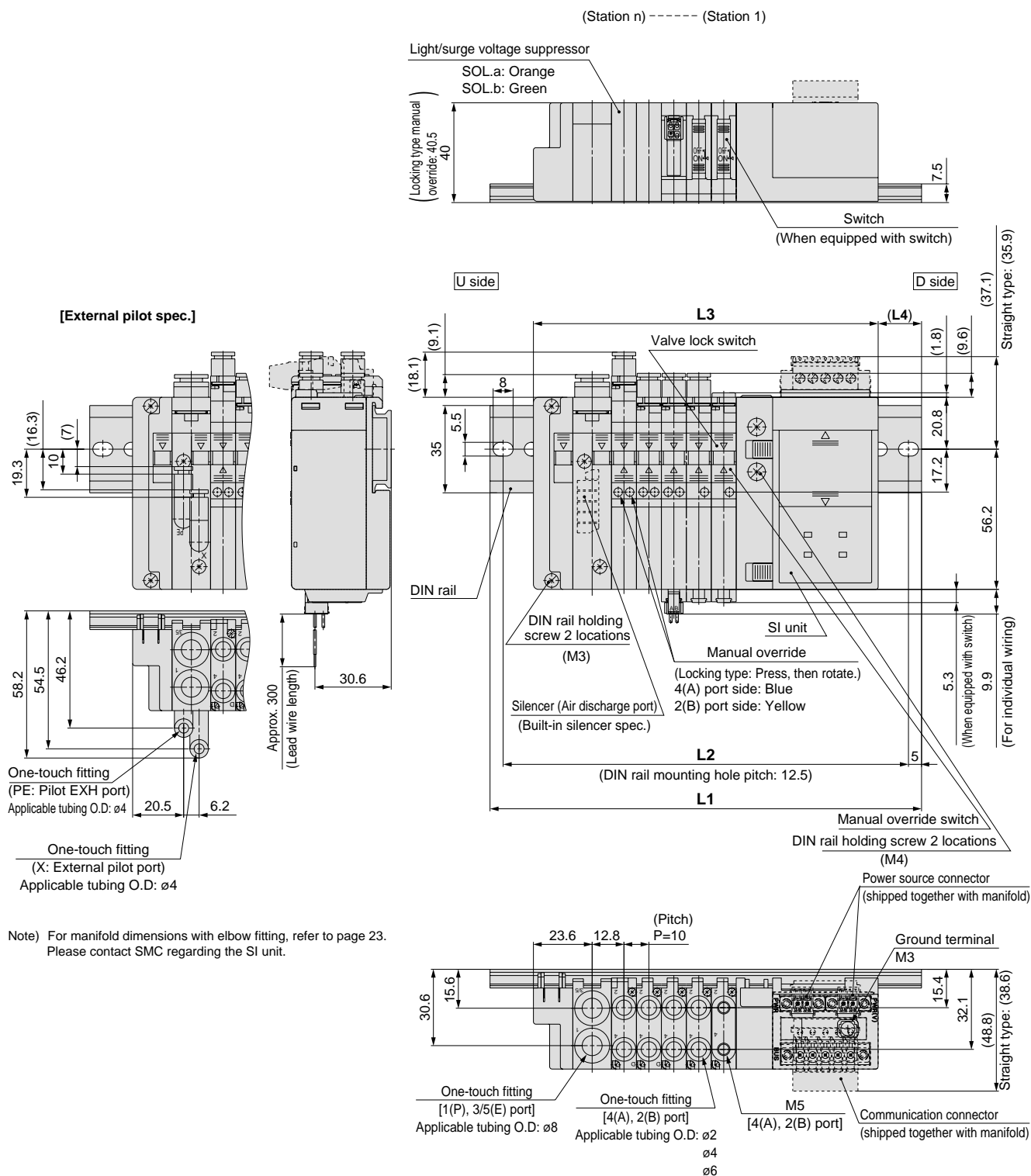
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
L1	148	160.5	160.5	173	173	185.5	198	198	210.5	210.5	223	235.5	235.5	248	248	260.5
L2	137.5	150	150	162.5	162.5	175	187.5	187.5	200	200	212.5	225	225	237.5	237.5	250
L3	118.7	126.2	133.7	141.2	148.7	156.2	163.7	171.2	178.7	186.2	193.7	201.2	208.7	216.2	223.7	231.2
L4	14.5	17	13.5	16	12	14.5	17	13.5	16	12	14.5	17	13.5	16	12	14.5

L \ n	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
L1	273	273	285.5	285.5	298	310.5	310.5	323	323	335.5	348	348	360.5	360.5	373
L2	262.5	262.5	275	275	287.5	300	300	312.5	312.5	325	337.5	337.5	350	350	362.5
L3	238.7	246.2	253.7	261.2	268.7	276.2	283.7	291.2	298.7	306.2	313.7	321.2	328.7	336.2	343.7
L4	17	13.5	16	12	14.5	17	13.5	16	12	14.5	17	13.5	16	12	14.5

Series SJ2000/3000

Dimensions: Series SJ3000 for EX180 Serial Wiring

SS5J3-60S□□- Stations U (S, R, RS)



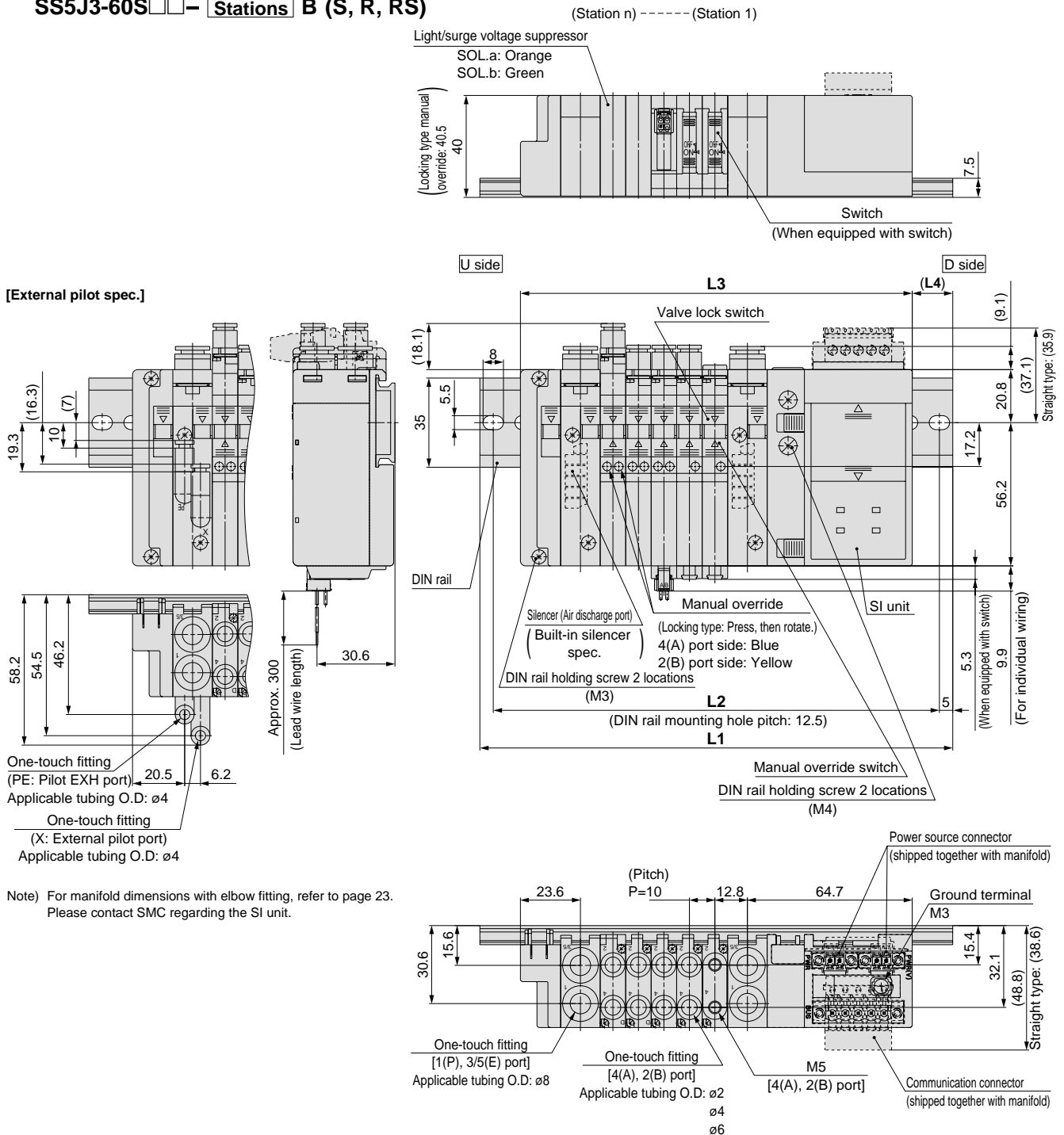
L: Dimensions

n: Stations

L	n	2	3	4	5	6	7	8	9	10
L1		135.5	148	160.5	173	173	185.5	198	210.5	223
L2		125	137.5	150	162.5	162.5	175	187.5	200	212.5
L3		108.2	118.2	128.2	138.2	148.2	158.2	168.2	178.2	188.2
L4		13.5	14.5	16	17	12	13	14	15.5	16.5

Dimensions: Series SJ3000 for EX180 Serial Wiring

SS5J3-60S□□- Stations B (S, R, RS)



L: Dimensions

n: Stations

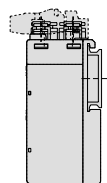
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
L1	148	160.5	173	185.5	198	210.5	210.5	223	235.5	248	260.5	260.5	273	285.5	298	310.5
L2	137.5	150	162.5	175	187.5	200	200	212.5	225	237.5	250	250	262.5	275	287.5	300
L3	123.7	133.7	143.7	153.7	163.7	173.7	183.7	193.7	203.7	213.7	223.7	233.7	243.7	253.7	263.7	273.7
L4	12	13	14.5	15.5	16.5	17.5	12.5	14	15	16	17	12	13.5	14.5	15.5	16.5

L \ n	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
L1	310.5	323	335.5	348	360.5	373	373	385.5	398	410.5	423	423	435.5	448	460.5
L2	300	312.5	325	337.5	350	362.5	362.5	375	387.5	400	412.5	412.5	425	437.5	450
L3	283.7	293.7	303.7	313.7	323.7	333.7	343.7	353.7	363.7	373.7	383.7	393.7	403.7	413.7	423.7
L4	11.5	13	14	15	16	17.5	12.5	13.5	14.5	15.5	17	12	13	14	15

Series SJ2000/3000

Dimensions: SJ2000/3000 Mixed Manifold

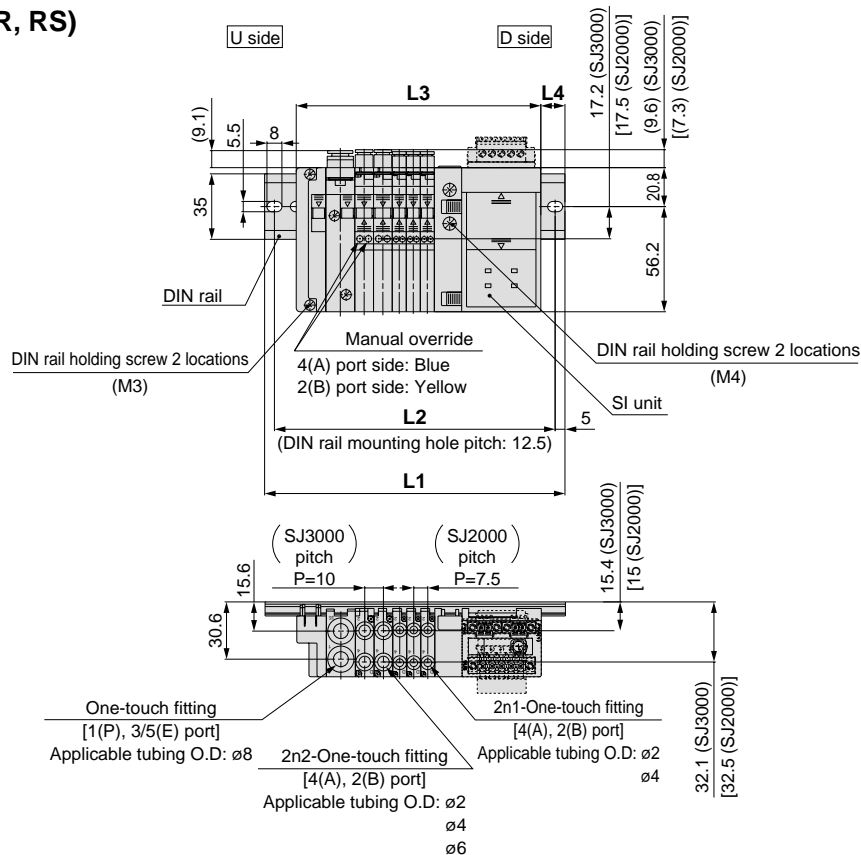
SS5J3-M60S□□- Stations U (S, R, RS)



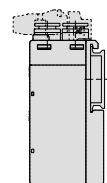
L dimension: Formula, L1 to L4
 $L3 = 7.5 \times n1 + 10 \times n2 + 88.2$
 $M = (L3 + 4)/12.5 + 1$
 Remove all numbers after the decimal.
 $L1 = M \times 12.5 + 23$
 $L2 = L1 - 10.5$
 $L4 = (L1 - L3)/2 - 2$

n1: Piece of the SJ2000
 n2: Piece of the SJ3000

* The dimensions of L1 to L4 for
SS5J3-M60S□□- Stations D are the same as
 those of **SS5J3-M60S□□- Stations U**.

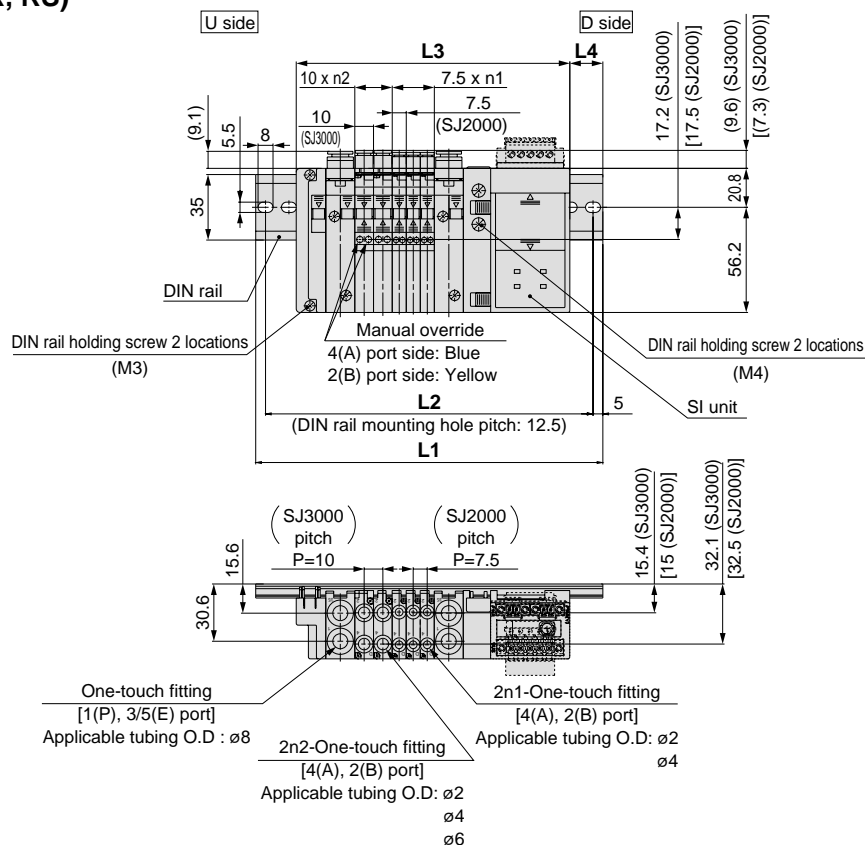


SS5J3-M60S□□- Stations B (S, R, RS)



L dimension: Formula, L1 to L4
 $L3 = 7.5 \times n1 + 10 \times n2 + 103.7$
 $M = (L3 + 4)/12.5 + 1$
 Remove all numbers after the decimal.
 $L1 = M \times 12.5 + 23$
 $L2 = L1 - 10.5$
 $L4 = (L1 - L3)/2 - 2$

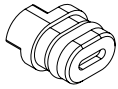
n1: Piece of the SJ2000
 n2: Piece of the SJ3000



Manifold Options

■ SUP/EXH block disk assembly

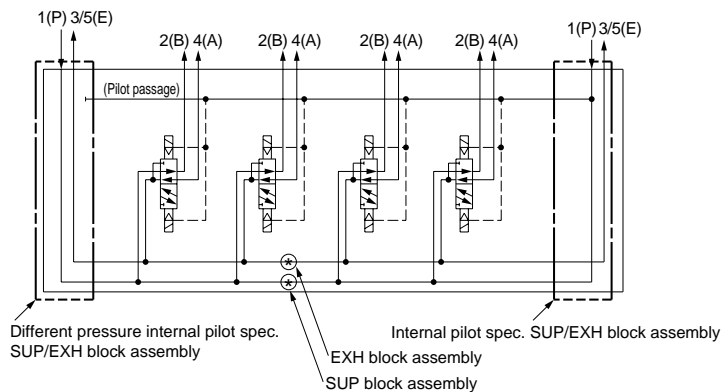
By placing a SUP block disk in the manifold valve's pressure supply passage, two different high and low pressures can be supplied to one manifold. When supplying different pressures when using the manifold with an internal pilot, place an order by filling out a manifold specification sheet with a SUP/EXH block assembly for internal pilot specifications and SUP/EXH block assembly for different-pressure internal pilot specifications (Refer to Circuit Diagram 1).



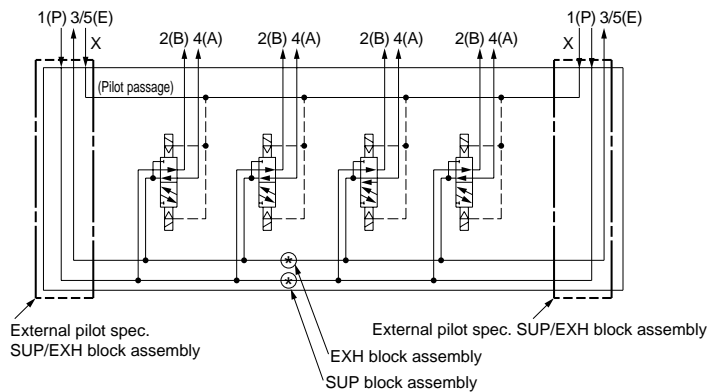
Series	Part no.
SJ2000	SJ3000-44-1A
SJ3000	

[Different pressure pneumatic circuit diagram]

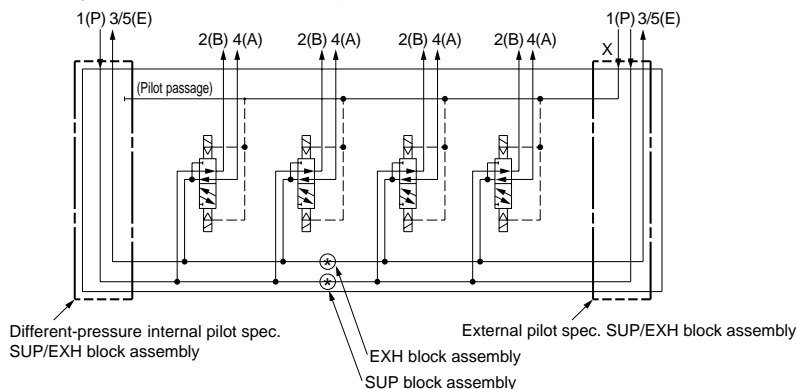
1. Different-pressure spec. using the internal pilot



2. Different-pressure spec. using the external pilot (When using the SUP/EXH block assembly for external pilot spec.)



3. Different-pressure spec. using the external pilot (When using the SUP/EXH block assembly for different-pressure internal pilot spec.)

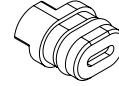


Note) When operating under the different-pressure spec., supply the higher pressure to the pilot passage.



■ EXH block disk

By installing an EXH block disk in a manifold valve's exhaust passage, the valve's exhaust can be separated so that it will not affect other valves.



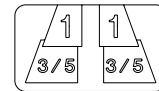
Series	Part no.
SJ2000	SJ3000-44-1A
SJ3000	

■ Label for block disk

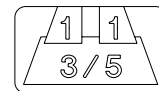
These labels are attached to manifolds in which SUP and EXH block disks have been installed, in order to identify the installed locations. (Three sheets each included.)

SJ3000-155-1A

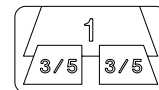
Label for SUP/EXH block disk



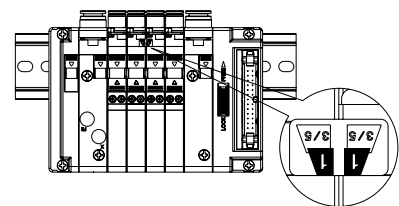
Label for SUP block disk



Label for EXH block disk



* When a block disk is concurrently ordered by specifying it on a manifold specification sheet, etc., a label will be stuck on the position where block disk is mounted.

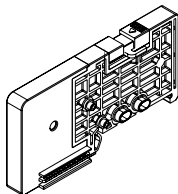


Series SJ2000/3000

Manifold Options

Blanking block assembly

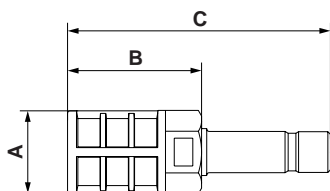
These are mounted when later addition of valves is planned, etc.



Series	Part no.	Note	Width
SJ2000	SJ3000-49-1A	Single wiring	7.5 mm
SJ3000	SJ3000-49-2A	Double wiring	

Silencer with one-touch fitting

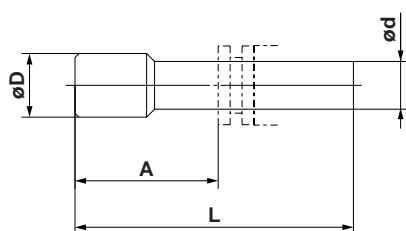
This silencer can be mounted on the manifolds' 3/5 port (E: Exhaust) with a single touch.



Series	Model	Effective area	A	B	C
For SJ2000 SJ3000 (ø8)	AN203-KM8	14 mm ²	ø16	26	51

Plug (White)

These are inserted in unused cylinder ports and P, E ports.



Dimensions

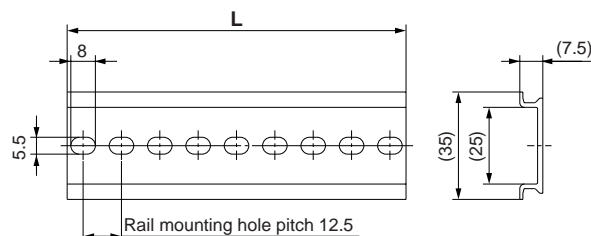
Applicable fitting size ød	Model	A	L	D
2	KJP-02	8.2	17	3
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10

DIN rail

VZ1000-11-1

L dimensions

* Enter a number from the DIN rail dimension table shown below.



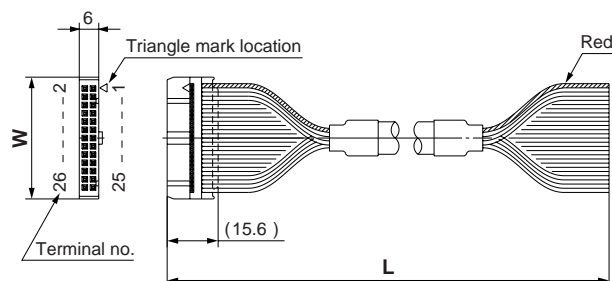
No.	0	1	2	3	4	5	6	7	8	9
L dimension	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5
Weight(g)	17.6	19.9	22.1	24.4	26.6	28.9	31.1	33.4	35.6	37.9

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
Weight(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
Weight(g)	62.6	64.9	67.1	69.4	71.6	73.9	76.1	78.4	80.6	82.9

Flat ribbon cable assembly

AXT100-FC $\frac{1}{2}$ $\frac{3}{3}$



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 conforms to MIL-C-83503.

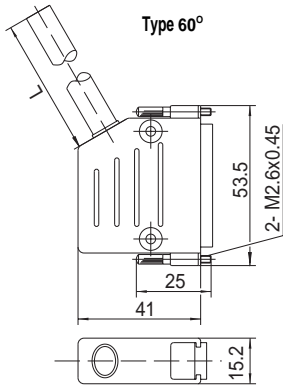
Connector manufacturers:

- Hirose Electric Co., Ltd
- Sumitomo 3M Limited
- Fujitsu Limited
- Japan Aviation Electronics Industry, Ltd
- J.S.T. Mfg. Co., Ltd.

Manifold Options

■ D-sub connector (25 pins)/Cable assembly

GVVZS3000-21A-¹₂³₄-^S₆₀⁵

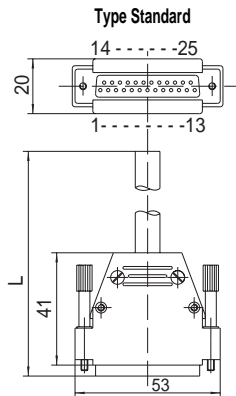


D-sub connector cable ass'y

Cable length (L)	Ass'y No.
1m*	GVVZS3000-21A-1□
3m	GVVZS3000-21A-2□
5m	GVVZS3000-21A-3□
8m	GVVZS3000-21A-4□
20m	GVVZS3000-21A-5S

* Standard type is not available for the cable length of 1m.

Model●	
Shielded cable	S
60° connector	60
Standard	-



Electric characteristics

Item	Characteristics
Conductor resistance Ω/km , 20°C	57 or less
Voltage limit V, 5min, AC	1500
Insulation resistance $\text{M}\Omega/\text{km}$	20

Wire color table by terminal number of D-sub connector cable assembly

Terminal No.	Lead wire colour	Dot marking
1	White	—
2	Brown	—
3	Green	—
4	Yellow	—
5	Grey	—
6	Pink	—
7	Blue	—
8	Red	—
9	Black	—
10	Violet	—
11	Grey	Pink
12	Red	Blue
13	White	Green
14	Brown	Green
15	White	Yellow
16	Yellow	Brown
17	White	Grey
18	Grey	Brown
19	White	Pink
20	Pink	Brown
21	White	Blue
22	Brown	Blue
23	White	Red
24	Brown	Red
25	White	Black

* Connector made in conformity with DIN47100.

Series SJ2000/3000

Made to Order

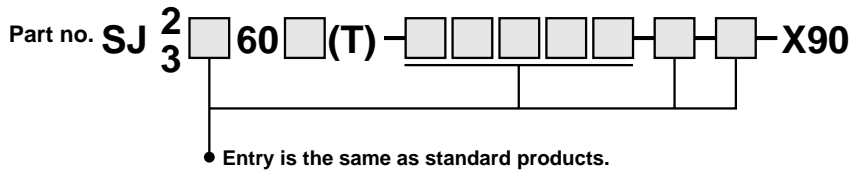
For detailed specifications, delivery and pricing, please contact SMC.



1	Main Valve Fluoro Rubber Specifications	Symbol
		-X90

Fluoro rubber is used for the rubber parts of the main valve to allow use in applications such as the following.

1. 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.
2. When ozone enters or is generated in the air supply.



Note) Because in series -X90 fluoro rubber is only used for the rubber parts of the main valve application/usage in conditions requiring heat resistance should be avoided.






Series **SJ2000/3000**

Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of “**Caution**”, “**Warning**” or “**Danger**”. To ensure safety, be sure to observe ISO 4414^{Note 1)}, JIS B 8370^{Note 2)} and other safety practices.

■Explanation of the Labels

Labels	Explanation of the labels
 Danger	In extreme conditions, there is a possible result of serious injury or loss of life.
 Warning	Operator error could result in serious injury or loss of life.
 Caution	Operator error could result in injury ^{Note 3)} or equipment damage ^{Note 4)} .

Note 1) ISO 4414: Pneumatic fluid power – General rules relating to systems.

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalisation or hospital visits for long-term medical treatment.

Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

■Selection/Handling/Applications

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

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet your specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all item specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
2. When equipment is removed, confirm the safety process as mentioned above. Turn off the supply pressure for this equipment, exhaust all residual compressed air in the system, and release all energy (liquid pressure, spring, condenser and gravity).
3. Before machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

4. If the equipment will be used in the following conditions or environment, please contact SMC first and be sure to take all necessary safety precautions.

1. Conditions and environments beyond the given specifications, or if product is used outdoors or with direct sun lights.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■Exemption from Liability

1. SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquake or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.
2. SMC, its officers, and its employees shall be exempted from liability for any incidental damage that is caused by the use or the inability to use this product (loss of business interests, business interruptions, etc.).
3. SMC is exempted from liability for any damages caused by operations not contained in the catalogues and/or instruction manuals, and operations outside of the specification range.
4. SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.



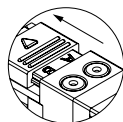
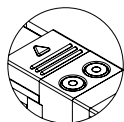
Series SJ2000/3000 Specific Product Precautions 1

Be sure to read this before handling. Please refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A) for Safety Instructions and 3/4/5 Port Solenoid Valves Precautions.

Manual Override Switch Operation

Warning

For manual override operation, move the manual override switch to a position where letters A and B can be seen. [Manual override switch release status (refer to the figure below)] Operation with the manual override switch in a locked status can cause damage to the manual override and air leakage, so be sure to release the manual override switch before use. After manual override operation, lock the manual switch for use (when the manual override of the push-turn locking slotted type is locked, the manual override switch cannot be locked).



Manual override switch locked status Manual override switch unlocked status

Manual override switch slide direction

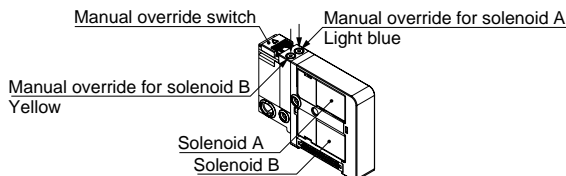
Manual Override Operation

Warning

When the manual override is operated, connected equipment will be actuated. Confirm safety before operating.

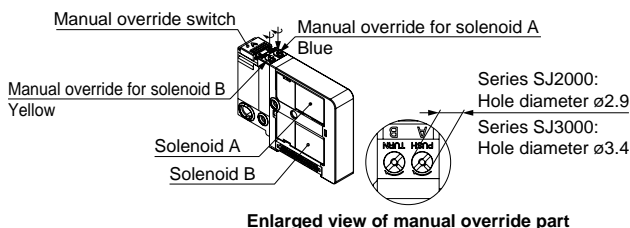
Non-locking push type

Press in the direction of the arrow.



Push-turn locking slotted type

While pressing, turn in the direction of the arrow (90° clockwise). If it is not turned, it can be used in the same way as the non-locking push type.



Caution

When you operate the D type with a screwdriver, turn it gently using a watchmaker's screwdriver. [Torque: under 0.05 N·m]
When you lock the manual override of the D type, be sure to push it before turning. [Load: 10 N or less] Turning without pushing can cause damage to the manual override and trouble such as air leakage, etc.

Valve with Switch

Warning

When turning off the valve using the switch, move it to the position where the valve is locked. If the switch is at an improper position and is energised, equipment connected to the valve could be actuated.

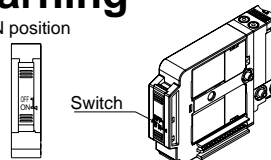
Back page 2

Valve with Switch

Warning

ON position

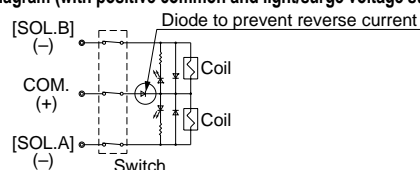
OFF position



Normal operation: The valve is switched according to electric signals from the connector on the manifold side.

The valve coil is kept in a de-energised state even when there is an electric signal from the connector on the manifold side.

Electric circuit diagram (with positive common and light/surge voltage suppressor)



Connect the valve in accordance with a polarity of the manifold interconnection.

Caution on Using One-touch Fittings

Caution

The pitch of each SJ series piping port (A, B, etc.) is determined based on the assumption that the KJ series one-touch fittings will be used.

If other fittings are used for the M3 or M5 port block assembly, the fittings might interfere with each other depending on their size and type. Refer to the fitting's catalog to check their dimensions.

Exhaust Restriction

Caution

Since the SJ series is a type in which the pilot valve exhaust joins the main valve exhaust inside the valve, use caution, so that the piping from the exhaust port is not restricted.

When Using a 4 Port Valve as a 3 Port Valve

Caution

When using a 4 port valve as a 3 port valve

The SJ2000/3000 series can be used as normally closed (N.C.) or normally open (N.O.) 3 port valves by plugging one of the cylinder ports 4(A) or 2(B). However, exhaust ports should be left open. It is also convenient when a double solenoid 3 port valve is required.

Plug position		2(B) port	4(A) port
Type of actuation		N.C.	N.O.
Number of solenoids	Single	<p>(A)(B) 4 2 5 1 3 (EA)(P)(EB)</p>	<p>(A)(B) 4 2 5 1 3 (EA)(P)(EB)</p>
	Double	<p>(A)(B) 4 2 5 1 3 (EA)(P)(EB)</p>	<p>(A)(B) 4 2 5 1 3 (EA)(P)(EB)</p>



Series SJ2000/3000 Specific Product Precautions 2

Be sure to read this before handling. Please refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A) for Safety Instructions and 3/4/5 Port Solenoid Valves Precautions.

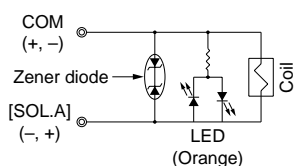
Light/Surge Voltage Suppressor

⚠ Caution

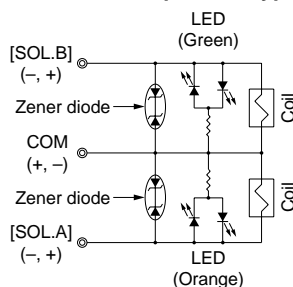
■ Non-polar type

Solenoid valves have no polarity.

Single solenoid



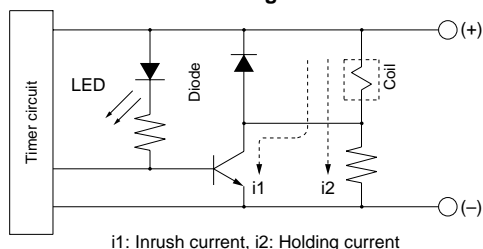
Double solenoid, 3 position type



■ With power saving circuit

Compared to the standard products, power consumption is reduced down to approx. 1/3 (In case of SJ3□60T) by cutting the unnecessary wattage required to hold the valve in an energised state. (Effective energising time is over 67 ms at 24 V DC.)

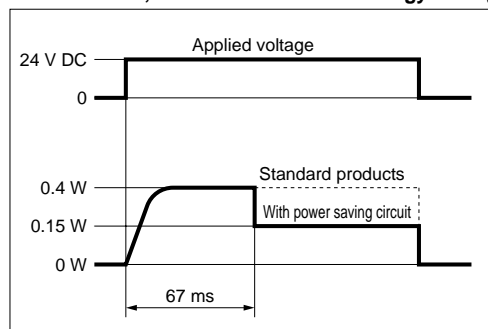
Electric circuit diagram (with power saving circuit) In case of single solenoid



Working Principle

With the above circuit, the current consumption, when holding, is reduced to save energy. Please refer to the electric wave data below.

(In case of SJ3□60T, electric waveform of energy saving type)

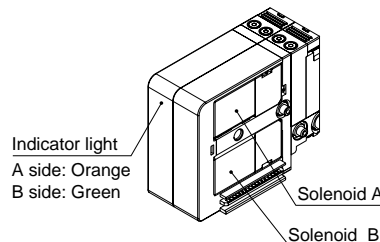


- When a power saving circuit is installed, a diode to prevent reverse current is not available for 12 V DC spec. Therefore, use caution not to connect in reverse.
- Be careful about the allowable voltage fluctuation since a voltage drop of about 0.5 V occurs due to the transistor. (Refer to the solenoid specifications of each valve for details.)

Light Indication

⚠ Caution

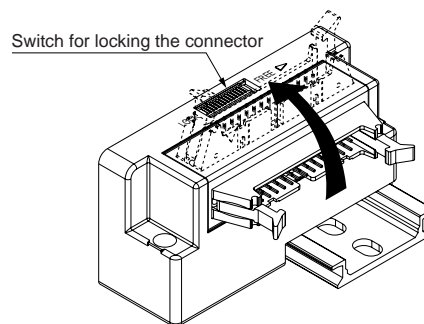
When equipped with light/surge voltage suppressor, the light window turns orange when solenoid A is energised, and it turns green when solenoid B is energised.



Changing the Connector Entry Direction

⚠ Caution

To change the connector's entry direction, slide the switch on the top of the connector block to the FREE position, then turn the connector. Make sure to slide the switch back to the LOCK position before connecting the connector. (When the switch is difficult to slide, move the connector a little so that it will slide easier.) If excessive force is applied on the connector in the LOCK position, the connector block may be damaged. Also, using in such a way that the connector floats in the FREE position, may cause the lead wire, etc. to break. Thus, refrain from using in these ways.



Manifold 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, 16 to 20 stations at 5 locations, 21 to 25 stations at 6 locations, 26 to 30 stations at 7 locations and more than 30 stations at 8 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.



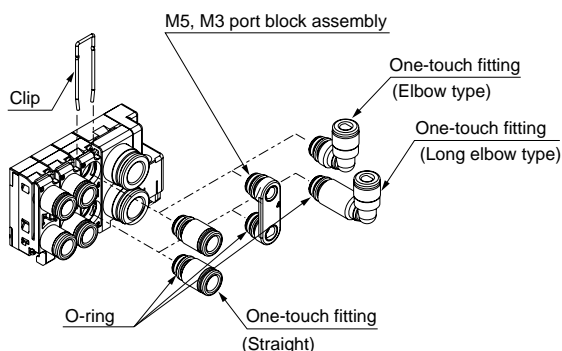
Series SJ2000/3000 Specific Product Precautions 3

Be sure to read this before handling. Please refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A) for Safety Instructions and 3/4/5 Port Solenoid Valves Precautions.

Fitting Assembly Replacement

⚠ Caution

By replacing a valve's fitting assembly, it is possible to change the port size of the 4(A), 2(B), 1(P), and 3/5(E) ports. When replacing the fitting assembly, pull it out the fitting assembly after removing the clip with a flat head screwdriver, etc. To mount a new fitting assembly, insert it into place and then fully reinsert the clip.



Port	Port size	Part no.
SJ2000 4(A) 2(B)	ø2 one-touch fitting assembly (Straight)	KJH02-C1
	ø4 one-touch fitting assembly (Straight)	KJH04-C1
	ø2 one-touch fitting assembly (Elbow type)	KJL02-C1
	ø4 one-touch fitting assembly (Elbow type)	KJL04-C1-N
	ø2 one-touch fitting assembly (Long elbow type)	KJW02-C1
	ø4 one-touch fitting assembly (Long elbow type)	KJW04-C1-N
	M3 port block assembly	SJ2000-56-1A
SJ3000 4(A) 2(B)	ø2 one-touch fitting assembly (Straight)	KJH02-C2
	ø4 one-touch fitting assembly (Straight)	KJH04-C2
	ø6 one-touch fitting assembly (Straight)	KJH06-C2
	ø2 one-touch fitting assembly (Elbow type)	KJL02-C2
	ø4 one-touch fitting assembly (Elbow type)	KJL04-C2
	ø6 one-touch fitting assembly (Elbow type)	KJL06-C2-N
	ø2 one-touch fitting assembly (Long elbow type)	KJW02-C2
	ø4 one-touch fitting assembly (Long elbow type)	KJW04-C2
	ø6 one-touch fitting assembly (Long elbow type)	KJW06-C2-N
	M5 port block assembly	SJ3000-56-1A
1(P) 3/5(E)	ø6 one-touch fitting assembly (Straight)	VVQ1000-51A-C6
	ø6 one-touch fitting assembly (Elbow type)	SZ3000-74-1A-L6
	ø6 one-touch fitting assembly (Long elbow type)	SZ3000-74-2A-L6
	ø8 one-touch fitting assembly (Straight)	VVQ1000-51A-C8
	ø8 one-touch fitting assembly (Elbow type)	SZ3000-74-1A-L8
	ø8 one-touch fitting assembly (Long elbow type)	SZ3000-74-2A-L8

Note 1) To change the port size of the 1(P), 3/5(E) ports, specify the change by using a manifold specification sheet.

Note 2) Be careful to avoid damage or contamination to the O-rings, as this can cause air leakage.

Note 3) When removing a straight-type fitting assembly from a valve, after removing the clip, attach tubing or a plug (KJP-02, KQ2P-□□) to the one-touch fitting, and pull it out while holding the tubing or plug. If it is pulled out while holding the release button of the fitting assembly (resin part), the release button may be damaged.

Note 4) 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 starting any work.

Note 5) While inserting a tubing into an elbow-type fitting assembly, hold the main body of the assembly by hand. Failure to do so will exert an undue force on the valve or the fitting assembly, resulting in air leakage or damage.

One-touch Fittings

⚠ Caution

1. Tube attachment/detachment for one-touch fittings

1) Attaching of tubing

(1) Take a tube having no flaws on its periphery and cut it off at a right angle. When cutting the tube, use tube cutters TK-1, 2 or 3. Do not use pinchers, nippers or scissors, etc. If cutting is done with tools other than tube cutters, there is the danger that the tube may be cut diagonally or become flattened, etc., making a secure installation impossible, and causing problems such as the tube pulling out after installation or air leakage. Also allow some extra length in the tube.

(2) Grasp the tube and push it in slowly, inserting it securely all the way into the fitting.

(3) After inserting the tube, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tube pulling out.

2) Detaching of tubing

(1) Push in the release button sufficiently, and push the collar evenly at the same time.

(2) Pull out the tube 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 tube and it will become more difficult to pull it out.

(3) When the removed tube is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tube is used as is, this can cause trouble such as air leakage or difficulty in removing the tube.

Other Tubing Brands

⚠ Caution

1. When using tube other than SMC brand, confirm the following specifications are satisfied with respect to the outside diameter tolerance of the tube.

- | | |
|------------------------|----------------------|
| 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 does not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other troubles, such as air leakage or the tube pulling out after connection.

Built-in Back Pressure Check Valve Type

⚠ Caution

Valves with built-in back pressure check valve is to protect the back pressure inside a valve. For this reason, use caution the valves with external pilot specification cannot be pressurised from exhaust port [3/5(E)]. As compared with the types which do not integrate the back pressure check valve, C value of the flow characteristics goes down. For details, please contact SMC.



Series SJ2000/3000 Specific Product Precautions 4

Be sure to read this before handling. Please refer to “Precautions for Handling Pneumatic Devices” (M-03-E3A) for Safety Instructions and 3/4/5 Port Solenoid Valves Precautions.

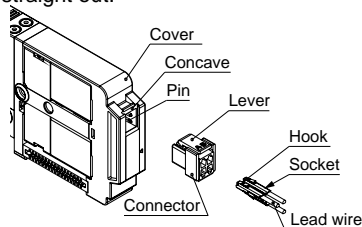
How to Use Plug Connector

⚠ Caution

When attaching and detaching a connector, first shut off the electric power and the air supply.
Also, crimp the lead wires and sockets securely.

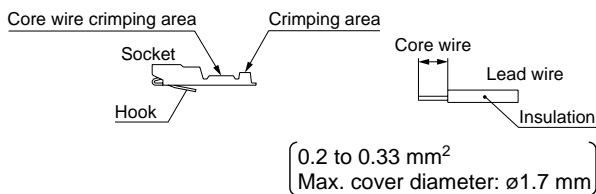
(1) Attaching and detaching connectors

- 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 of lead wires and sockets

Strip 3.2 to 3.7 mm of insulation from the tip of lead wire, enter the core wires neatly into the socket and crimp it with the special crimp tool. Be careful so that the cover of lead wire does not enter into the crimping part. (Crimping tool: Model no. DXT170-75-1)



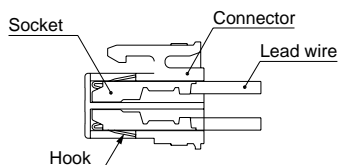
(3) Attaching and detaching lead wires with sockets

• Attaching

Insert the sockets into the square holes of the connector (with A, B, C, and N indication), and continue to push the sockets all the way in until it locks by hooking into the seats in the connector. (When they are pushed in, their hooks open and they lock automatically.) Next, 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 pin having a thin tip (approx. 1 mm). If the socket is used again, spread the hook outward.



Single solenoid

(A: -) (B: -)

Double solenoid

Insert into these square holes

(N: Unused terminal) (C: +)

Plug Connector Lead Wire Length

⚠ Caution

Plug connector lead wires have a standard length of 300 mm, however, the following lengths are also available.

Connector Assembly Part No.

		•Lead wire length
For single solenoid	: SJ3000-46-S-	- 300 mm
		6 600 mm
		10 1000 mm
		15 1500 mm
		20 2000 mm
		25 2500 mm
		30 3000 mm
		50 5000 mm
For double solenoid		
For 3 position type	: SJ3000-46-D-	
For 4 position type		
For single solenoid		
Without lead wire	: SJ3000-46-S-N	
(Connector, Socket x 2 pcs. only)		

For double solenoid

Without lead wire : SJ3000-46-D-N
(Connector, Socket x 3 pcs. only)

How to Order

Include the connector assembly part number together with the part number for the plug connector's solenoid valve without connector.

(Example) Lead wire length 2000 mm

SJ3160-5MOZ-C6

SJ3000-46-S-20



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