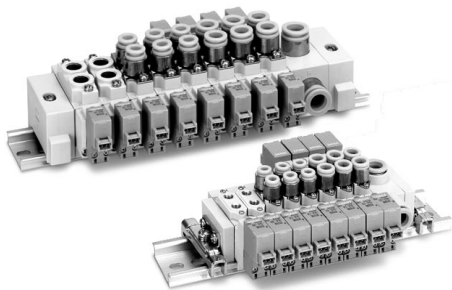


5 Port Solenoid Valve Series SY3000/5000 Body Ported Cassette Style Manifold



Low power consumption: 0.5W (Current draw: 21mA at 24V DC)

Valve can be operated directly by a PLC without the need for relays. Lower power consumption and a compact switching device result in an overall cost reduction.

Response time (10ms or less) (SY3000 single solenoid, 0.5MPa)

Response time of 10ms or less is achieved by the innovated pilot valve structure with lower power consumption.

Long life exceeding 50 million cycles

The newly developed pilot valve and guide ring design prevents main valve eccentricity and increases the return force ensuring 50 million cycles. (50 million cycles was attained under test conditions, actual valve life may vary depending on actual operating conditions.)

No pilot valve exhaust mist or noise

(Common exhaust for the pilot valve and the main valve.)

There is no exhaust mist or noise because the pilot valve is not directly exhausted to atmosphere.

When the A/B ports need replaced, or a different port size is required, the port block can easily be changed

Series	Port size available
SY3000	C4, C6, M5
SY5000	C4, C6, C8, Rc(PT)1/8

Improved anti-drain performance (In-house comparison)

Main valve seals are made of a newly developed rubber compound. Problems caused by drain have been greatly reduced.

State of the art design

The high-tech look of the new series SY has been chosen to complement the surrounding operational environment.

How to Order

SS5Y **3** - 60 - **05** **D** - []

Series	
3	SY3000
5	SY5000

Stations	
02	2 stations
⋮	⋮
20	20 stations

Option
When a DIN rail longer than standard is required, enter the number of manifold stations that corresponds with the length of DIN rail needed. (20 stations max.)

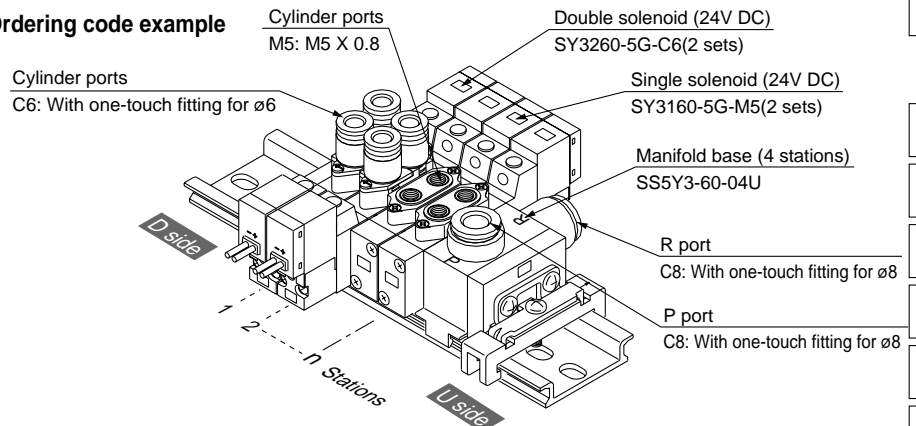
SUP/EXH block ass'y mounting position

Symbol	Mounting position	Applicable stations
U	U side	2 to 10 stations
D	D side	
B	Both sides	2 to 20 stations
M*	Special location	

* Specify special location in the "Manifold Specification Form."

How to Order Manifold Assembly (Order example)

Ordering code example



SS5Y3-60-04U.....1 set (60 type 4 station manifold base part No.)
SY3260-5G-C6.....2 sets (Double solenoid part No.)
SY3160-5G-M5.....2 sets (Single solenoid part No.)

Add the valve and option numbers under the manifold base No. When arrangement is complicated specify it in the "Manifold Specification Form."

Manifold Specifications

Model	SS5Y3-60	SS5Y5-60	
Applicable valve	SY3□60	SY5□60	
Manifold style	Stacking DIN rail mounted		
P(SUP)/R(EXH)	Common SUP/Common EXH		
Valve stations	2 to 20 ⁽¹⁾		
A, B port location	Valve		
Port size	P, R port	C8 (One-touch fitting for ø8)	C10 (One-touch fitting for ø10)
	A, B port	M5 X 0.8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6)	Rc(PT)1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)
Valve effective area (mm ²)(Cv) ⁽²⁾	M5: P→A/B 3.6(0.2) A/B→R 3.24(0.18)	Rc(PT)1/8: P→A/B 9.2(0.51) A/B→R 10.3(0.57)	
	C4: P→A/B 3.42(0.19) A/B→R 3.24(0.18)	C4: P→A/B 5.2(0.29) A/B→R 3.8(0.21)	
	C6: P→A/B 3.6(0.2) A/B→R 3.6(0.2)	C6: P→A/B 8.1(0.45) A/B→R 8.5(0.47)	
Manifold base weight W(g) ⁽³⁾ (n: Number of SUP/EXH block, m: DIN rail weight)	W=13n+m+36		W=41.2n+m+77.6



Note 1) When multiple valves must operate at the same time, order supply blocks on both ends of the valve stack and supply pressure to both P ports and exhaust from both R ports.

Note 2) Cv factor was determined by using a 5 station manifold and only operating one valve at a time.

Note 3) Refer to p.1.1-148 for DIN rail weight.

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Series SY3000/5000

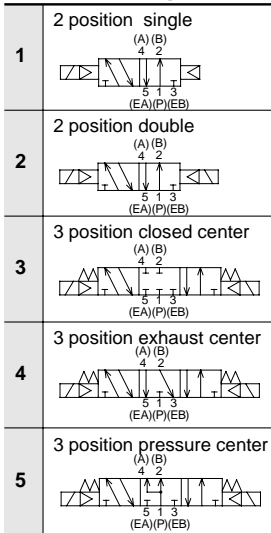
How to Order Valve

SY 3 1 60 — 5 L — — — C6

Series

3	SY3000
5	SY5000

Configuration



Rated voltage

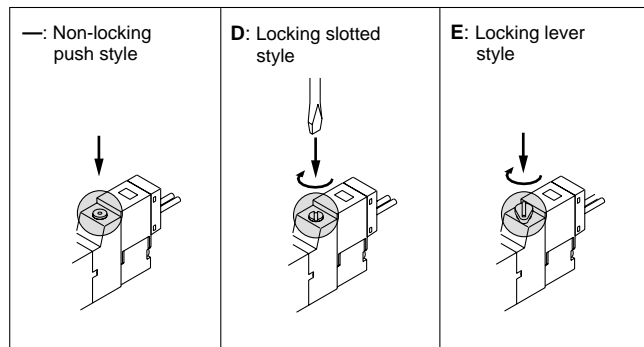
DC	
5	24V DC
6	12V DC
V	6V DC
S	5V DC
R	3V DC
AC (50/60Hz)	
1	100V AC
2	200V AC
3	110V AC[115V AC]
4	220V AC[230V AC]

* "D" and "DO" with VDC specifications are only available for 24V and 12V.
* "D" and "DO" are available only on SY5000.

A, B port size

Symbol	Port size	Applicable series
M5	M5 X 0.8	SY3000
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY5000
01	Rc(PT)1/8	
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	

Manual override



Indicator light and surge voltage suppressor

Electrical entry G, H, L, M type

—	W/o indicator light and surge suppressor
S	W/ surge suppressor*
Z	W/ indicator light and surge suppressor
R	W/ surge suppressor (Non-polar)
U	W/ indicator light and surge suppressor (Non-polar)

* For AC, there is no "S" specification since it is integrated with converter.

Electrical entry D type

—	W/o indicator light and surge suppressor
S	W/ surge suppressor (Non-polar)
Z	W/ indicator light and surge suppressor (Non-polar)

* "Z" is not available for "DO" type
* For AC voltage, "S" specification is not required it is already built into the converter.

Electrical entry


24V, 12V, 6V, 5V, 3V DC/100V, 110V, 200V, 220V AC				24V, 12V DC 100V, 110V, 200V, 220V AC
Grommet	L plug connector	M plug connector		DIN terminal
G: 300mm lead wire 	L: 300mm lead wire 	M: 300mm lead wire 	MN: Without lead wire 	(Only SY5000) D: With connector
H: 600mm lead wire 	LN: Without lead wire 	LO: Without connector 	MO: Without connector 	DO: Without connector

* LN, MN types include 2 sockets.

Cassette Style Manifold Series SY3000/5000


Valve Specifications

Series		SY3000	SY5000
Fluid		Air	
Internal pilot operating pressure range (MPa)	2 position single	0.15 to 0.7	
	3 position double	0.1 to 0.7	
	3 position	0.2 to 0.7	
Ambient and fluid temp. (°C)		Max. 50 °C	
Max. operating frequency (Hz)	2 position single, double	10	5
	3 position	3	3
Manual override		Non-locking push style, Locking slotted style, Locking lever style	
Pilot exhaust		Common exhaust for main and pilot valve	
Lubrication		Not required	
Mounting position		Free	
Impact/Vibration resistance ⁽¹⁾		150/30 m/s ²	
Protection structure		Dust proof	


 Note1) Impact resistance: No malfunction from test using drop impact tester, to axis and right angle directions of main valve and armature, each one time when energized and de-energized.
Vibration resistance: No malfunction from test with from 8.3 to 2000Hz 1 sweep, to axis and right angle directions of main valve and armature, each one time when energized and de-energized. (Value in the initial stage.)

Solenoid Specifications

Electrical entry		Grommet(G)/(H), L plug connector(L) M plug connector(M), DIN terminal(D)	
Coil rated voltage (V)	DC	24, 12, 6, 5, 3	
	AC50/60 Hz	100, 110, 200, 220 ⁽¹⁾	
Allowable voltage		Rated voltage ±10%	
Power consumption (W)	DC	0.5(With light: 0.55, DIN terminal with light: 0.6)	
	AC		
Apparent power (VA)	100V 110V [115V] 200V 220V [230V]	0.9 {with light: 1.0}	
		1.0 {with light: 1.1}	
		[1.1 {with light: 1.2}]	
		1.8 {with light: 1.9}	
		1.9 {with light: 2.0}	
[2.2 {with light: 2.3}]			
Surge voltage suppressor		DC: Diode(DIN type: ZNR), (G, L, M non-polar style: Zener diode) AC: ZNR	
Indicator light		LED (DIN terminal of AC specification is used neon slim light.)	

 Note 1) DIN terminal (D) is only available for SY5000.
Note 2) 110V AC can be used for 115, 220V AC can be used for 230.

Response Time

 Note) By dynamic performance test JISB8375-1981 (Coil temperature 20°C, at rated voltage.)

SY3000

Configuration	Response time (ms) (0.5MPa)		
	Without indicator light and surge voltage suppressor	Without indicator light and surge voltage suppressor	
		S, Z type	R, U type
2 position single	12 or less	15 or less	12 or less
2 position double	10 or less	13 or less	10 or less
3 position	15 or less	20 or less	16 or less


SY5000

Configuration	Response time (ms) (0.5MPa)		
	Without indicator light and surge voltage suppressor	Without indicator light and surge voltage suppressor	
		S, Z type	R, U type
2 position single	19 or less	26 or less	19 or less
2 position double	18 or less	22 or less	18 or less
3 position	32 or less	38 or less	32 or less

Weight List

SY3000

Valve model	Configuration		Port size	Weight (g)	
			A, B	Grommet	L, M plug connector
SY3□60-□-M5	2 position	Single	M5 X 0.8	43	47
		Double		58	65
	3 position	Closed center		61	68
		Exhaust center Pressure center			
SY3□60-□-C4	2 position	Single	C4 (One-touch fitting for ø4)	53	57
		Double		68	75
	3 position	Closed center		70	78
		Exhaust center Pressure center			
SY3□60-□-C6	2 position	Single	C6 (One-touch fitting for ø6)	49	53
		Double		64	71
	3 position	Closed center		66	74
		Exhaust center Pressure center			

 () : For normal position

SY5000

Valve model	Configuration		Port size	Weight (g)		
			A, B	Grommet	L, M plug connector	DIN terminal
SY5□60-□-01	2 position	Single	Rc(PT)1/8	61	65	88
		Double		79	86	132
	3 position	Closed center		85	92	138
		Exhaust center Pressure center				
SY5□60-□-C4	2 position	Single	C4 (One-touch fitting for ø4)	85	89	112
		Double		101	108	154
	3 position	Closed center		107	114	160
		Exhaust center Pressure center				
SY5□60-□-C6	2 position	Single	C6 (One-touch fitting for ø6)	80	84	107
		Double		96	103	149
	3 position	Closed center		102	109	155
		Exhaust center Pressure center				
SY5□60-□-C8	2 position	Single	C8 (One-touch fitting for ø8)	72	76	99
		Double		88	95	141
	3 position	Closed center		94	101	147
		Exhaust center Pressure center				

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Series SY3000/5000

How to Order Pilot Assembly

SY114—5 G

Rated Voltage

5	24V DC
6	12V DC
V	6V DC
S	5V DC
R	3V DC
1	100V AC 50/60Hz
2	200V AC 50/60Hz
3	110V AC 50/60Hz [115V AC 50/60Hz]
4	220V AC 50/60Hz [230V AC 50/60Hz]

Indicator light and surge voltage suppressor

—	Without indicator light and surge voltage suppressor
S	With surge voltage suppressor
Z	With indicator light and surge voltage suppressor
R	With surge voltage suppressor (Non-polar)
U	With indicator light and surge voltage suppressor (Non-polar)

* For AC, there is no "S" specification since it is integrated with converter.
* R and U are available for DC.

Electrical entry

G	Grommet (300mm lead wire)
H	Grommet (600mm lead wire)
L	L plug connector
LN	Without lead wire
LO	Without connector
M	M plug connector
MN	Without lead wire
MO	Without connector

SY115—5 D

Rated voltage

5	24V DC
6	12V DC
1	100V AC 50/60Hz
2	200V AC 50/60Hz
3	110V AC 50/60Hz [115V AC 50/60Hz]
4	220V AC 50/60Hz [230V AC 50/60Hz]

Indicator light and surge voltage suppressor

—	Without indicator light and surge voltage suppressor
S	With surge voltage suppressor (Non-polar)
Z	With indicator light and surge voltage suppressor (Non-polar)

* "Z" is not available for "DO".
* For AC, there is no "S" specification since it is integrated with converter.

Electrical entry

D	DIN terminal	With connector
DO	terminal	Without connector

Note) Do not replace SY114 (G, H, L, M) to SY115 (DIN terminal) and vice versa when replacing pilot valve ass'y only.

How to Order Connector Assembly

DC : SY100-30-4A-

100V AC : SY100-30-1A-

200V AC : SY100-30-2A-

AC others : SY100-30-3A-

Without lead wire : SY100-30-A

(Connector, socket (2pcs.))

Lead wire length

—	300mm
6	600mm
10	1000mm
15	1500mm
20	2000mm
25	2500mm
30	3000mm
50	5000mm

How to Order Port Block Assembly

SY 000—6A—

Series

3	SY3000
5	SY5000

A, B port size

Symbol	Port size	Applicable Series
M5	M5 X 0.8	SY3000
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	SY5000
O1	Rc(PT)1/8	
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	

How to Change Port Block Assembly

Connecting port size can be changed by replacing port block assembly mounted on body. When changing block assembly, correct screw torque must be achieved to avoid trouble; e.g. air leakage.

With the One-touch fitting port block assembly, it is only necessary to change the fitting and not the whole block.

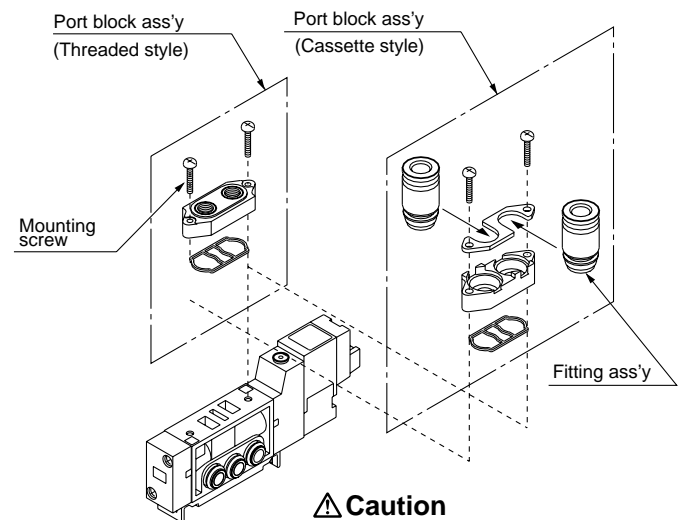
Refer to following part numbers.

Series SY3000

Port size	Fitting Ass'y P/N
One-touch fitting for ø4	VVQ1000-50A-C4
One-touch fitting for ø6	VVQ1000-50A-C6

Series SY5000

Port size	Fitting Ass'y P/N
One-touch fitting for ø4	VVQ1000-51A-C4
One-touch fitting for ø6	VVQ1000-51A-C6
One-touch fitting for ø6	VVQ1000-51A-C8



Caution

Torque for mounting screws

SY3000(M2): 0.09Nm

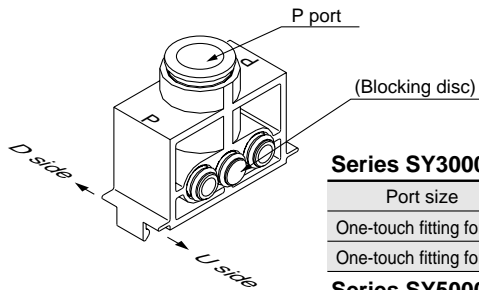
SY5000(M3): 0.6Nm

* Refer "How to Order Port Block Ass'y" part numbers.

Cassette Style Manifold *Series SY3000/5000*

Manifold Options

Individual SUP Block Assembly



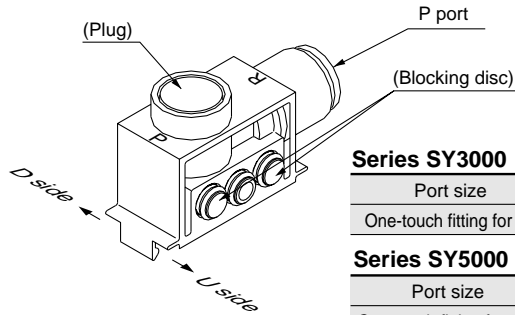
Series SY3000

Port size	Ass'y part No.
One-touch fitting for ø8	SY3000-54-1C
One-touch fitting for ø6	SY3000-54-2C

Series SY5000

Port size	Ass'y part No.
One-touch fitting for ø6	SY5000-54-1C

Individual SUP Block Assembly



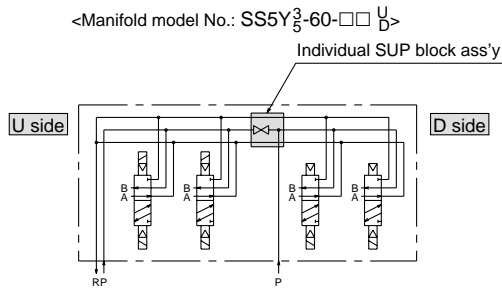
Series SY3000

Port size	Ass'y part No.
One-touch fitting for ø8	SY3000-55-1B

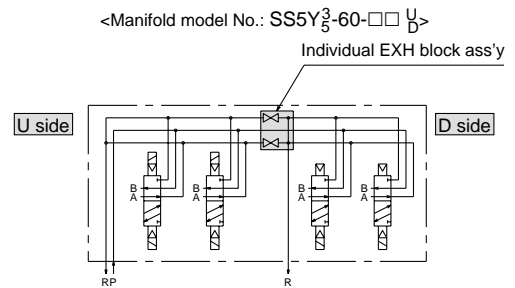
Series SY5000

Port size	Ass'y part No.
One-touch fitting for ø10	SY5000-55-1B

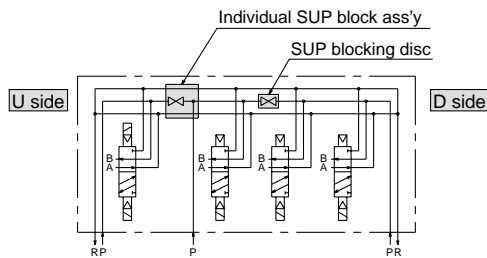
[When supplying the manifold with 2 different supply pressures.]
Specify arrangement of individual SUP block ass'y on manifold specification form. (When using SS5Y₃²-60-□□D, blocking disc is assembled on D side.)



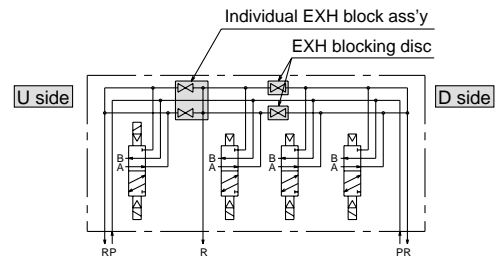
[When 2 different exhaust passages are required.]
Specify arrangement of individual EXH block ass'y on manifold specification form. (When using SS5Y₃²-60-□□D, blocking disc is assembled on D side.)



[When a different supply pressure is required for only 1 valve.]
Specify arrangement of individual SUP block ass'y and SUP blocking disc on manifold specification form.
(Applicable manifold model No. SS5Y₃²-60-□□B)



[When a separate exhaust passage is needed on only 1 valve.]
Specify arrangement of individual EXH block ass'y and EXH blocking disc on manifold specification form.
(Applicable manifold model No. SS5Y₃²-60-□□B)



- SY
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7
- VP4
- VQ
- VQ4
- VQZ
- VQD
- VZS
- VFS
- VS
- VS7

Series SY3000/5000

Manifold Options

■ SUP block disc

When more than one supply pressure is required on a manifold, insert the blocking disc in between the stations subjected to different pressures.
(This is the same block disc used with the individual supply block ass'y.)



Series	Part No.
SY3000	SY3000-52-2A
SY5000	SY5000-52-2A

■ EXH block disc

By placing an EXH blocking disc in the exhaust passage of the manifold valve, the exhaust air of the valve can be separated so as not to affect the other valves. (Two blocking discs are needed to separate both EXH passages. It is the same block disc that is used in the individual EXH block assembly.)



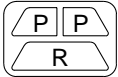
Series	Part No.
SY3000	SY3000-52-2A
SY5000	SY5000-52-2A

■ Block disc indication seal

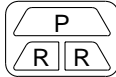
The labels shown below are used on manifold stations containing SUP/EXH block disc(s) to show their location. (3 pcs. each)

VZ3000-123-1A

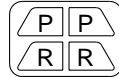
Label for SUP block disc



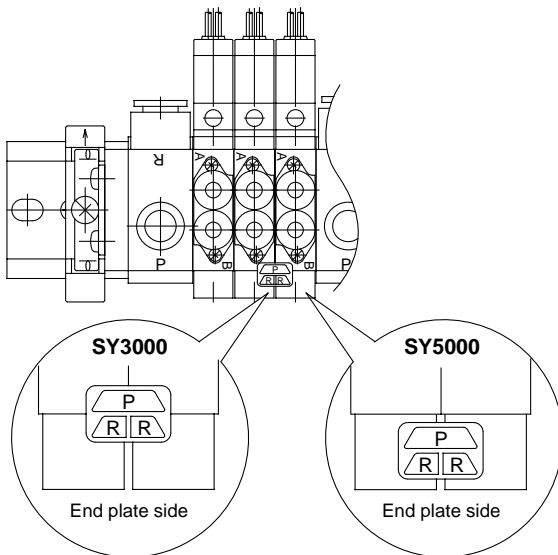
Label for EXH block disc



Label for both SUP and EXH block disc

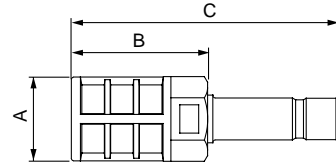


* When ordering block disc installed at the factory, labels will be attached to the manifold showing the locations.



■ Silencer for One-touch fittings

The silencer plugs directly into the One-touch fittings of the manifold.



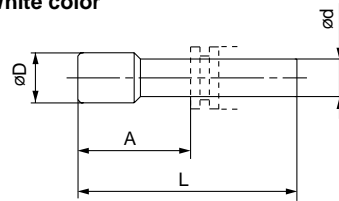
Series	Part No.	Effective area	A	B	C
SY3000 for $\phi 8$	AN203-KM8	14mm ²	$\phi 16$	26	51
SY5000 for $\phi 10$	AN200-KM10	26mm ²	$\phi 22$	53.8	80.8
	AN300-KM10	30mm ²	$\phi 25$	70	97

■ Plug

It is inserted into an unused cylinder port and SUP/EXH ports.
Minimum order quantity 10 pieces. Order in multiples of 10.

04
KQP-06-X19
08

• White color



Dimensions

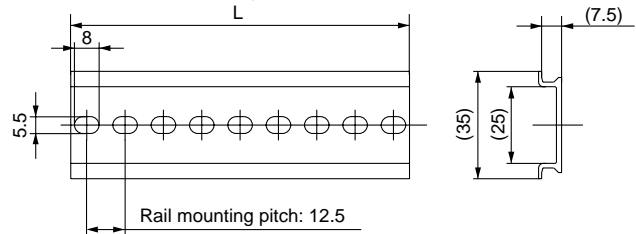
Applicable fitting size ϕd	Model	A	L	D
4	KQP-04-X19	16	32	6
6	KQP-06-X19	18	35	8
8	KQP-08-X19	20.5	39	10
10	KQP-10-X19	22	43	12

■ DIN rail dimensions/weight

VZ1000-11-1-□

• Refer to the L dimension

*Select a number from the table below that corresponds with the length needed.



Number	0	1	2	3	4	5	6	7	8	9
L	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

Number	10	11	12	13	14	15	16	17	18	19
L	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

Number	20	21	22	23	24	25	26	27	28	29
L	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

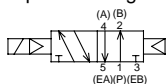
Cassette Style Manifold *Series SY3000/5000*

Construction

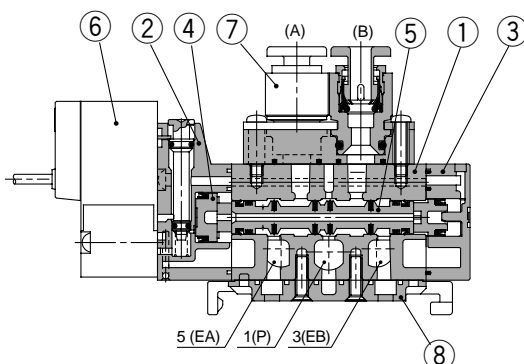
Series SY

JIS Symbol

2 position single solenoid

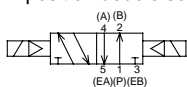


2 position single solenoid

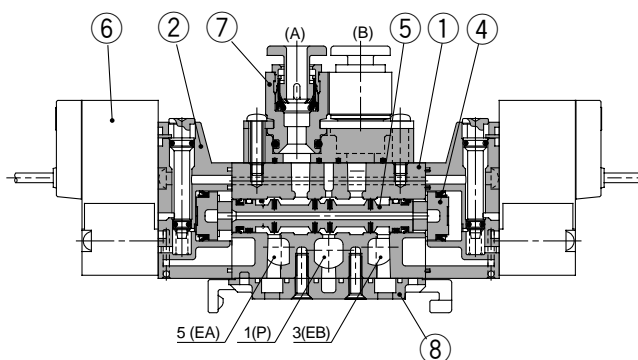


JIS Symbol

2 position double solenoid

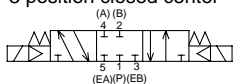


2 position double solenoid

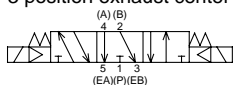


JIS Symbol

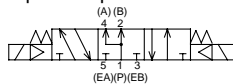
3 position closed center



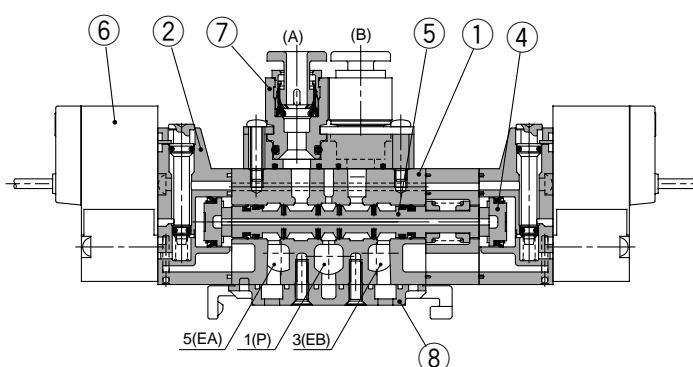
3 position exhaust center



3 position pressure center



3 position closed center/exhaust center/pressure center



(The figure shows closed center style)

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Component Parts

No.	Description	Material	Note
①	Body	Aluminum die cast (SY3000: Zinc die cast)	White
②	Adaptor plate	Resin	White
③	End plate	Resin	White
④	Piston	Resin	—
⑤	Spool ass'y	Aluminium/NBR	—

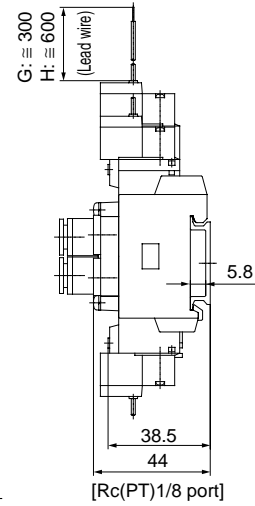
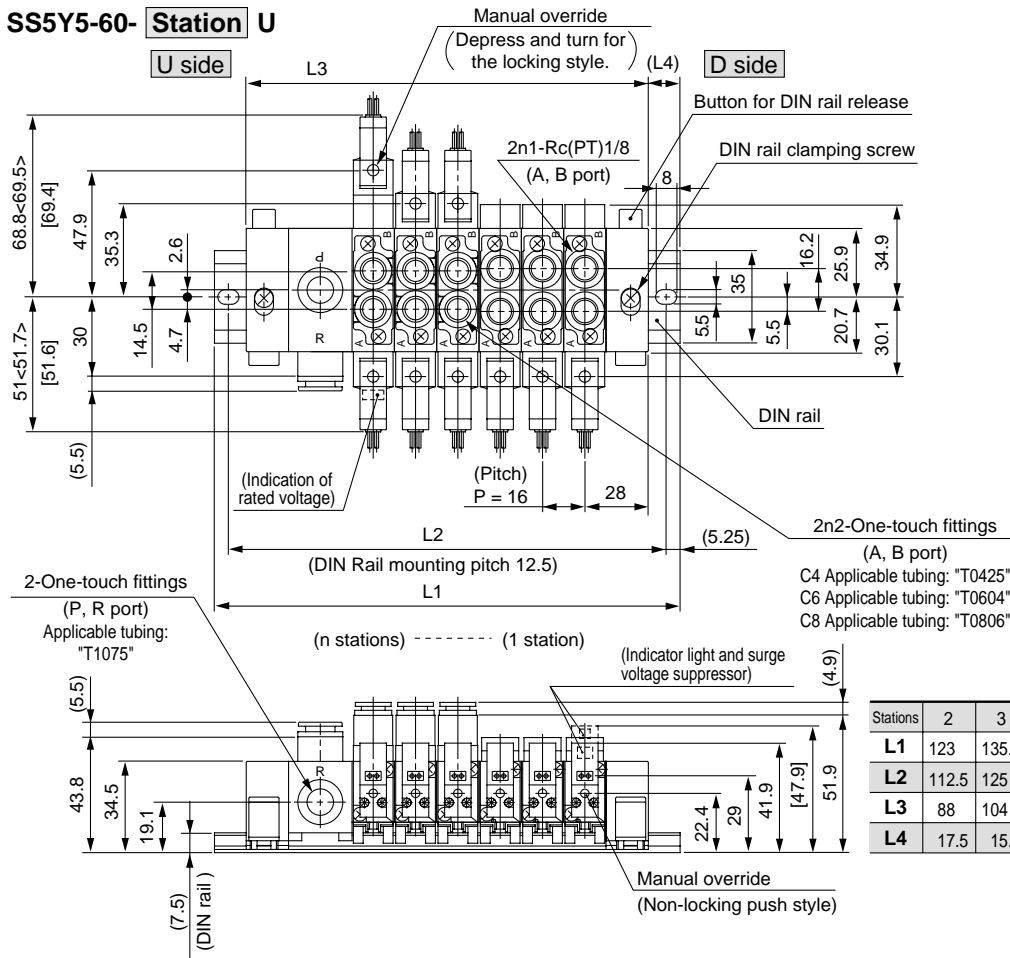
Replacement Parts

No.	Description	Parts No.
⑥	Pilot valve ass'y	Refer to "How to Order Pilot Valve Ass'y" on p.1.1-146
⑦	Port block ass'y	Refer to "How to Order Port Block Ass'y" on p.1.1-146
⑧	Bottom cover ass'y	SY3000-41-2A (With screw and gasket)
		SY5000-41-2A (With screw and gasket)

Series SY3000/5000

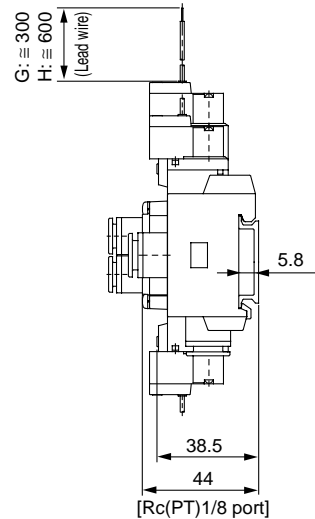
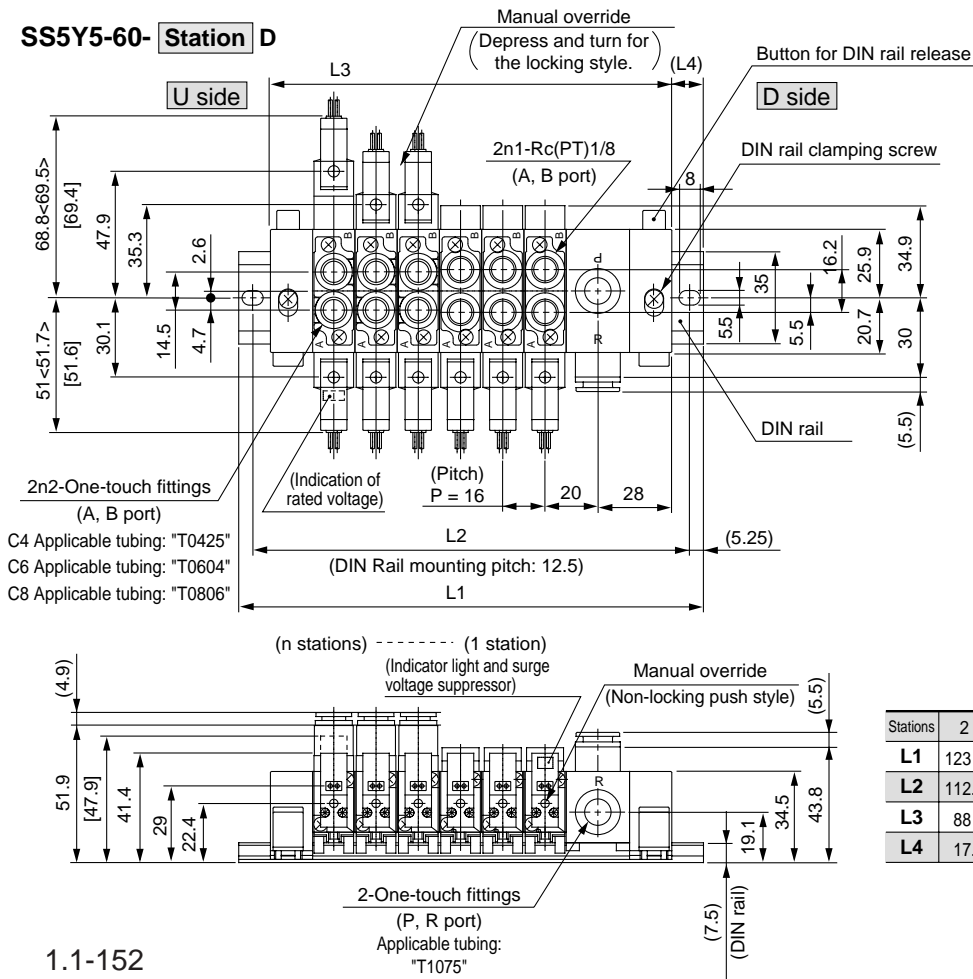
Dimensions

SS5Y5-60- Station U



Stations	2	3	4	5	6	7	8	9	10
L1	123	135.5	148	160.5	185.5	198	210.5	235.5	248
L2	112.5	125	137.5	150	175	187.5	200	225	237.5
L3	88	104	120	136	152	168	184	200	216
L4	17.5	15.5	14	12	16.5	15	13	17.5	16

SS5Y5-60- Station D

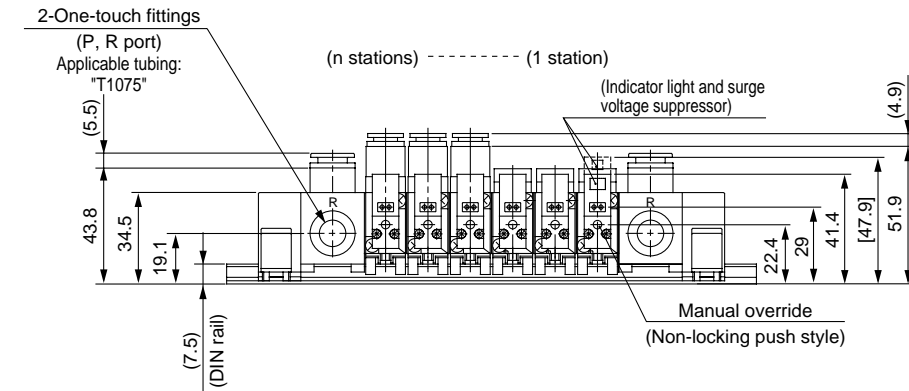
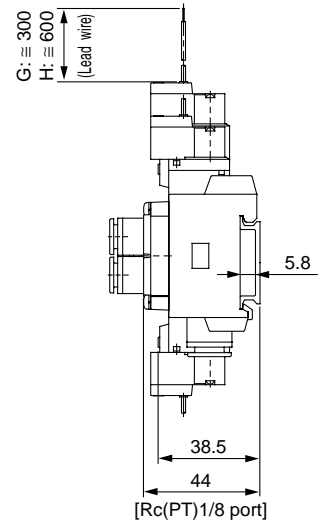
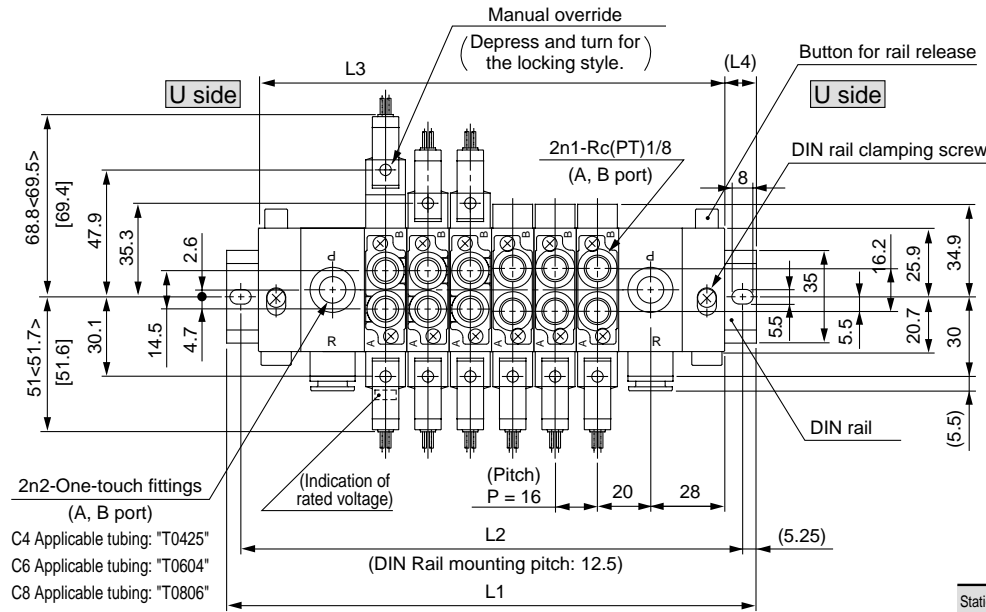


Stations	2	3	4	5	6	7	8	9	10
L1	123	135.5	148	160.5	185.5	198	210.5	235.5	248
L2	112.5	125	137.5	150	175	187.5	200	225	237.5
L3	88	104	120	136	152	168	184	200	216
L4	17.5	15.5	14	12	16.5	15	13	17.5	16

Cassette Style Manifold Series SY3000/5000

☞ Note []: AC, < >: With surge voltage suppressor

SS5Y5-60- Station B

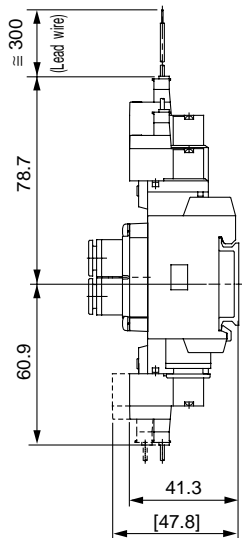


Stations	2	3	4	5	6	7	8
L1	135.5	160.5	173	185.5	210.5	223	235.5
L2	125	150	162.5	175	200	212.5	225
L3	112	128	144	160	176	192	208
L4	11.5	16	14.5	12.5	17.5	15.5	13.5

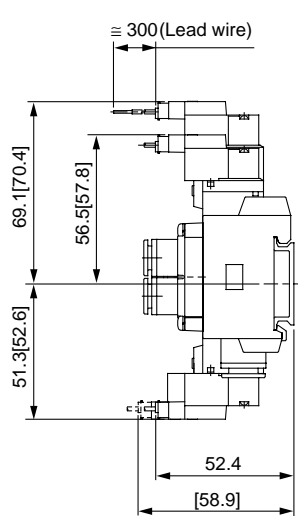
Stations	9	10	11	12	13	14	15
L1	248	273	285.5	298	323	335.5	348
L2	237.5	262.5	275	287.5	312.5	325	337.5
L3	224	240	256	272	288	304	320
L4	12	16.5	14.5	13	17.5	15.5	14

Stations	16	17	18	19	20
L1	360.5	385.5	398	410.5	435.5
L2	350	375	387.5	400	425
L3	336	352	368	384	400
L4	12	16.5	15	13	17.5

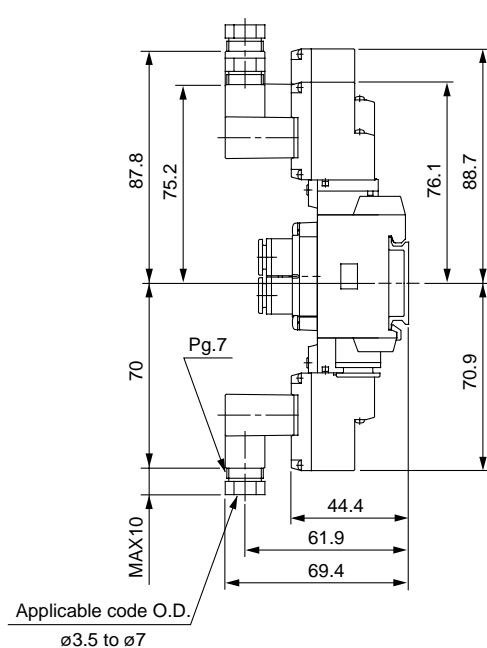
L plug connector



M plug connector



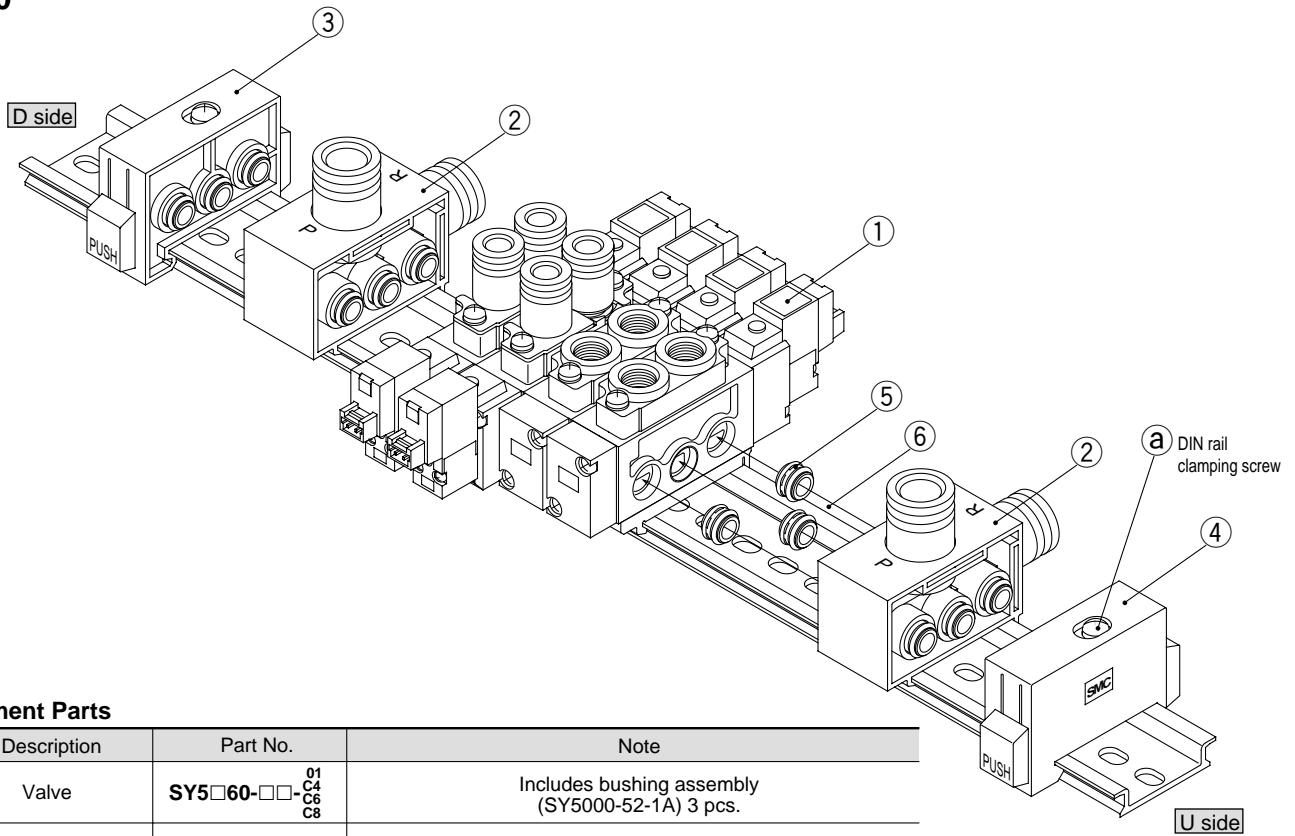
DIN terminal



- SY**
- SYJ**
- SX**
- VK**
- VZ**
- VF**
- VFR**
- VP7**
- VP4**
- VQ**
- VQ4**
- VQZ**
- VQD**
- VZS**
- VFS**
- VS**
- VS7**

Cassette Style Manifold Series SY3000/5000

SY5000 60 Type



Replacement Parts

No.	Description	Part No.	Note
①	Valve	SY5□60-□□-□ ⁰¹ C4 C6 C8	Includes bushing assembly (SY5000-52-1A) 3 pcs.
②	SUP/EXH block ass'y	SY5000-55-1A	P, R port: With One-touch fitting for 10 Includes bushing assembly(SY5000-52-1A) 3 pcs.
③	End block ass'y	SY5000-56-1A	For D side (Bushing assembly: Not available for SY5000-52-1A)
④	End block ass'y	SY5000-56-1B	For U side (Bushing assembly: Not available for SY5000-52-1A)
⑤	Bushing ass'y	SY5000-52-1A	
⑥	DIN rail	VZ1000-11-1-□	Refer to p.1.1-148

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

How to Add Additional Valves to the DIN Rail (Valves can be added at any station on the rail.)

- 1 Loosen DIN rail clamping screw ①.
- 2 Separate the valves at the point where more valves are to be added.
- 3 Mount the valves on the DIN rail as shown in Fig.1.
- 4 After securing one end plate to the DIN rail, press the valve blocks and the other end against the secured end plate, then tighten the clamping screw on other end plate.

⚠ Caution

·Tightening torque

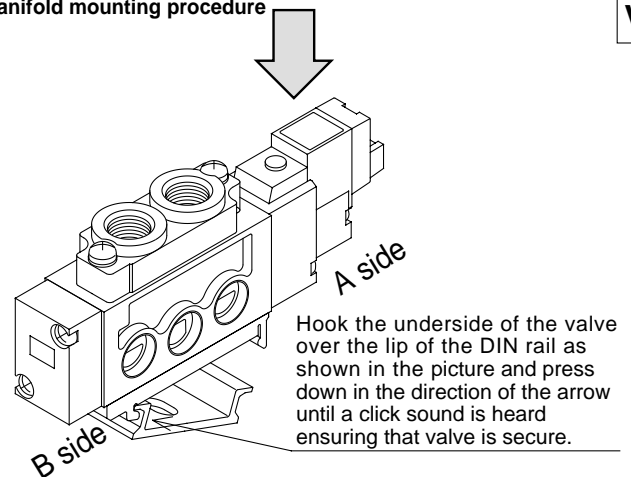
SY3000: 1Nm

SY5000: 1.4Nm

(To ensure a proper seal, press valves & loosened end plate firmly against secured end plate while tightening clamping screw of loose end plate.)

·Bushing Ass'y must be seated properly to each valve block in order to prevent air leaks from occurring.

Fig.1 Manifold mounting procedure



⚠ Caution When clamping screw ① of the end block is not sufficiently tightened during reassembly, air leakage may result. Before supplying air, check that there are no gaps between valves and that the end block is firmly secured to the DIN rail in order to ensure air supply without leakage.