

Type **45-A** NA

# Series SY3000/5000 Base Mounted Manifold Stacking Type/DIN Rail Mounted Connector Box

## How to Order Manifold

SS5Y **3** - 45 - **A** **U** - 05 **D** - **C6** □

### Series

3	SY3000
5	SY5000

### Specifications

Symbol	Specifications
<b>A</b>	With connector box (+COM spec.)
<b>NA</b>	With connector box (-COM spec.)

The style of attached lead wire assembly is different.

### Connector box mounting position

Symbol	Mounting position
<b>U</b>	U side
<b>D</b>	D side

### Valve stations

Symbol	Stations	Note
<b>02</b>	2 stations	Applicable up to 16 solenoid valves.
<b>:</b>	<b>:</b>	
<b>16</b>	16 stations	

### SUP/EXH block assembly mounting position

Symbol	Mounting position	Applicable stations
<b>U</b>	U side	2 to 10 stations
<b>D</b>	D side	
<b>B</b>	Both sides	2 to 16 stations
<b>M*</b>	Special specifications	

\* For special specifications, indicate separately on the manifold specification sheet.

### A/B port size

#### One-touch fitting (Metric size)

Symbol	Port size	Applicable series
<b>C4</b>	One-touch fitting for $\phi 4$	SY3000
<b>C6</b>	One-touch fitting for $\phi 6$	
<b>M</b>	Mixed	SY5000
<b>C4</b>	One-touch fitting for $\phi 4$	
<b>C6</b>	One-touch fitting for $\phi 6$	
<b>C8</b>	One-touch fitting for $\phi 8$	
<b>M</b>	Mixed	

#### One-touch fitting (Inch size)

Symbol	Port size	Applicable series
<b>N3</b>	One-touch fitting for $\phi^{3/32}$ "	SY3000
<b>N7</b>	One-touch fitting for $\phi^{1/4}$ "	
<b>M</b>	Mixed	SY5000
<b>N3</b>	One-touch fitting for $\phi^{3/32}$ "	
<b>N7</b>	One-touch fitting for $\phi^{1/4}$ "	
<b>N9</b>	One-touch fitting for $\phi^{9/32}$ "	
<b>M</b>	Mixed	

\* In the case of mixed specifications, indicate separately on the manifold specification sheet.

### Option

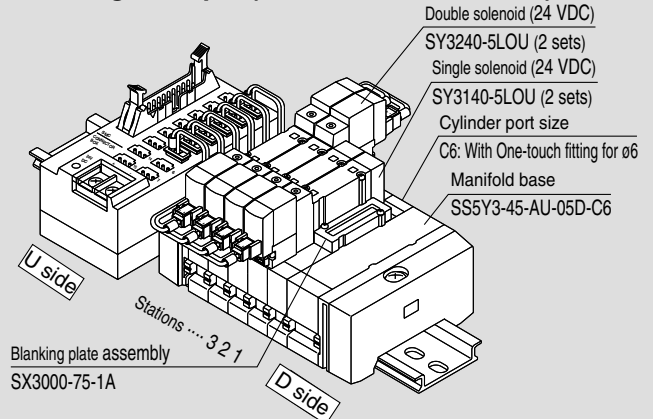
When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)



For external pilot specifications and built-in silencer, refer to page 1-4-194.

## How to Order Valve Manifold Assembly

### Ordering example (SY3000, +COM, U side)



<b>SS5Y3-45-AU-05D-C6</b>	1 set (Type 45, 5 stations manifold base part no.)
* <b>SX3000-75-1A</b>	1 set (Blanking plate assembly part no.)
* <b>SY3140-5LOU</b>	2 sets (Single solenoid part no.)
* <b>SY3240-5LOU</b>	2 sets (Double solenoid part no.)

→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of connector box. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

SS5Y<sub>3</sub>-45-A<sub>U</sub>-□□-□□ is assembled with solenoid valve and lead wire assembly when shipping. When ordering manifold only (without valves/wires/options), refer to how to order on page 1-4-120 and list the connector box (VZ3000-106-1A) and the rail stopper (TXE1-SMC) below the manifold to allow for the connector box mounting at U side. (Be sure to order DIN rail 3 station longer than number of the manifold stations.) In this case, please note that dimensions, L1 and L2 on pages 1-4-136 and 1-4-137 may vary slightly.) For other components, refer to page 1-4-138.

## How to Order Valves

SY **5** **2** 40 - **5** LOU □

### Series

3	SY3000
5	SY5000

### Type of actuation

<b>1</b>	2 position single
<b>2</b>	2 position double
<b>3</b>	3 position closed center
<b>4</b>	3 position exhaust center
<b>5</b>	3 position pressure center

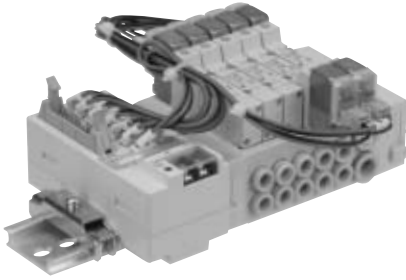
### Manual override

<b>Nil</b>	Non-locking push type
<b>D</b>	Push-turn locking slotted type
<b>E</b>	Push-turn locking lever type

### Rated voltage

<b>5</b>	24 VDC
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## Manifold Specifications



Model	SS5Y3-45-A <sub>NA</sub>	SS5Y5-45-A <sub>NA</sub>
Applicable valve	SY3□40	SY5□40
Manifold type	Stacking type/DIN rail mounted	
P (SUP)/R (EXH)	Common SUP, Common EXH	
Valve stations	2 to 16 stations <small>Note 1, 2)</small>	
A, B port Porting specifications	Location	Base
	Direction	Side
Port size	P, R port	C8 (One-touch fitting for ø8)    C10 (One-touch fitting for ø10)
	A, B port	C4 (One-touch fitting for ø4)    C6 (One-touch fitting for ø6)    C8 (One-touch fitting for ø8)
Manifold base weight W (g) n: Stations	2 to 10 stations: W = 26n + 207 11 to 20 stations: W = 26n + 229	2 to 10 stations: W = 52n + 245 11 to 16 stations: W = 52n + 279
Applicable flat ribbon cable connector	Flat ribbon cable connector Socket: 20 pins MIL type with strain relief conforming to MIL-C-83503	
Wiring specifications	+COM specifications (Type 45-A), -COM specifications (Type 45-NA)	

Note 1) For more than 11 stations, supply pressure to P port on both sides and exhaust from R port on both sides.  
 Note 2) There is a limit depending on the number of solenoids. Refer to "How to Order".

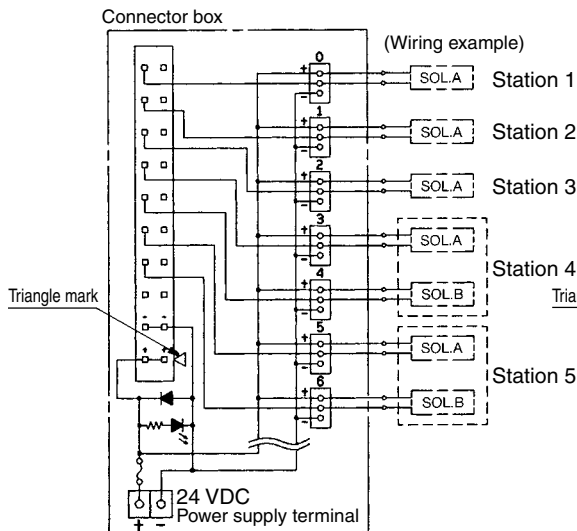
## Flow Characteristics

Model	Port size		Flow characteristics					
	1, 5, 3 (P, EA, EB)	4, 2 (A, B)	1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)		
			C (dm <sup>3</sup> /(s·bar))	b	Cv	C (dm <sup>3</sup> /(s·bar))	b	Cv
SS5Y3-45-□	C8	C6	0.88	0.21	0.22	0.95	0.18	0.22
SS5Y5-45-□	C10	C8	2.2	0.24	0.53	2.5	0.18	0.58

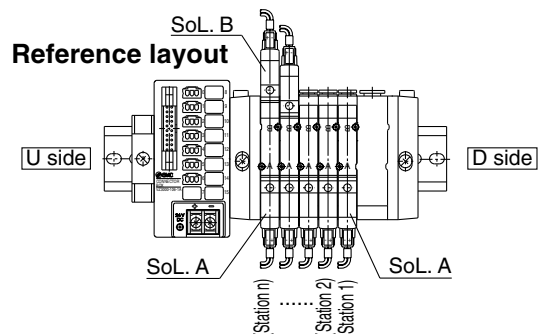
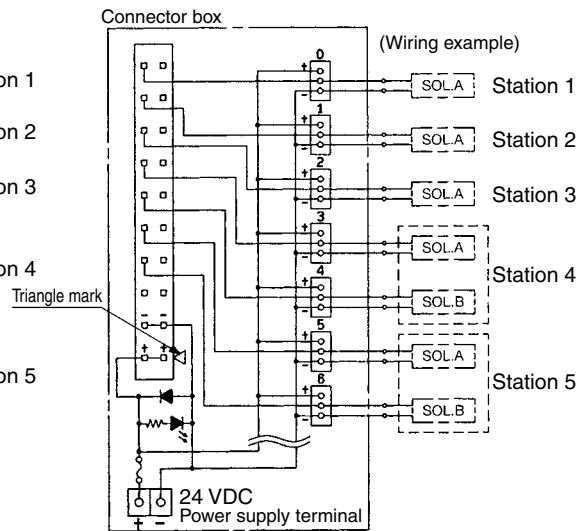
Note) The value is for manifold base with 5 stations and individually operated 2 position type.

## Manifold Wiring Diagram (Circuit diagram for the reference layout)

**+COM electric circuit diagram**



**-COM electric circuit diagram**

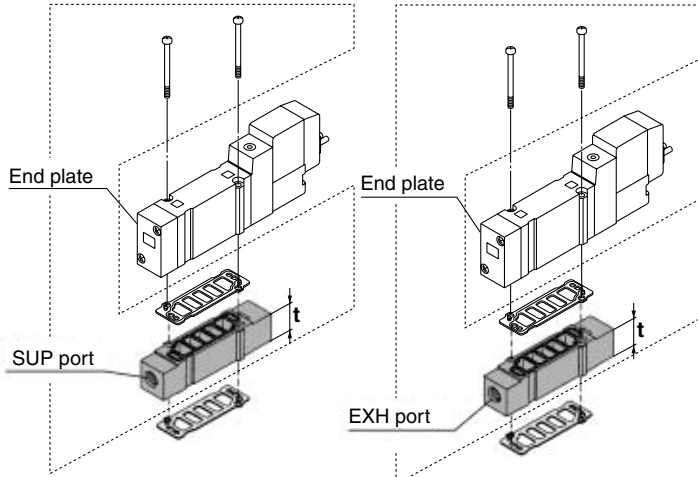


- Connector box for +COM allows transmission until G71-OD16, manufactured by OMRON Corp., to be connected directly for serial transmission. Additionally, it can also be used for the PC wiring system.
- When an external power source must be supplied to the manifold, correct polarity must be observed, otherwise damage to PLC is possible.
- The wiring of solenoid valves, corresponds with the labeled connector box 0 to 15 from D side.
- If valves other than non-polar type are used, this may cause malfunction.

SV  
 SZ  
 SY  
 SYJ  
 SX

## Manifold Option

### Individual SUP spacer assembly ■ Individual EXH spacer assembly



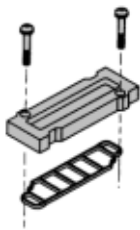
Series	Assembly part no.	Port size	t
SY3000	SY3000-38-2A	M5 x 0.8	11
SY5000	SY5000-38-16*A	1/8"	15

Note) The SUP port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)

Series	Assembly part no.	Port size	t
SY3000	SY3000-39-2A	M5 x 0.8	11
SY5000	SY5000-39-16*A	1/8"	15

Note) The EXH port may be either on the lead wire side or on the end plate side. (An assembly is shipped under the condition shown in the figure.)

### Blanking plate assembly



Series	Assembly part no.
SY3000	SX3000-75-1A
SY5000	SX5000-76-5A

### \* Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

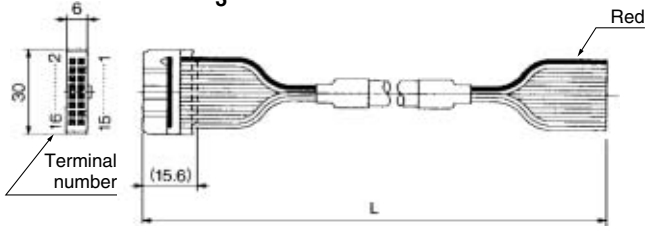
### Caution

Mounting screw tightening torques

M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

### Cable assembly

AXT100-FC20- $\frac{1}{3}$



### Connector Assembly for Flat Ribbon Cable

Cable length (L)	Assembly part no.	Note
1.5 m	AXT100-FC20-1	Cable 20 core x 22 AWG
3 m	AXT100-FC20-2	
5 m	AXT100-FC20-3	

\* For other commercial connectors, use a 20 pins with strain relief conforming to MIL-C-83503.

### Connector manufacturers' example

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

### Warning

When mounting a valve or spacer on the manifold base or sub-plate, etc., those mounting directions are determined. If mounted in the wrong direction, the equipment to be connected may cause malfunction. Refer to external dimensions, and then mount it.

### SUP block disk

By installing a SUP block disk in the pressure supply passage of a manifold valve, it is possible to supply two or more different high and low pressures to one manifold.



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

### EXH block disk

By installing an EXH block disk in the exhaust passage of a manifold valve, it is possible to divide the valve's exhaust so that it does not affect another valve. (Two block disks are needed to divide both exhausts.)



Series	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

### Label for block disk

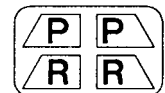
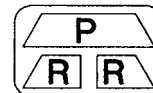
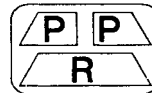
The labels shown below are used on manifold stations containing SUP/EXH block disk(s) to show their location. (3 pcs. each)

#### VZ3000-123-1A

Label for SUP block disk

Label for EXH block disk

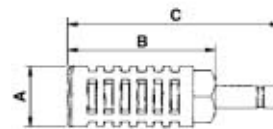
Label for SUP/EXH block disk



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

### Silencer with One-touch fitting

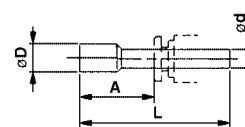
The silencer plugs directly into the One-touch fittings of the manifold.



Series	Model	Effective area	A	B	C
For SY3000 (ø8)	AN203-KM8	14 mm <sup>2</sup>	ø16	26	51
For SY5000 (ø10)	AN200-KM10	26 mm <sup>2</sup>	ø22	53.8	80.8
	AN300-KM10	30 mm <sup>2</sup>	ø25	70	97

### Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



### Dimensions

Applicable fittings size ød	Model	A	L	D
4	KQ2P-04	16	32	6
6	KQ2P-06	18	35	8
8	KQ2P-08	20.5	39	10
10	KQ2P-10	22	43	12
1/8"	KQ2P-01	16	31.5	5
5/32"	KQ2P-03	16	32	6
1/4"	KQ2P-07	18	35	8.5
5/16"	KQ2P-09	20.5	39	10

## Manifold Option

▪ How to Order Interface regulator (SY3000, 5000 only)

Series SY3000

**ARBY3000-05-P-2**

• Regulating port

<b>P</b>	P port
<b>A1</b>	A port (P controlled type, A port regulation)
<b>B1</b>	B port (P controlled type, B port regulation)

• Pressure gauge connection port

<b>05</b>	Pressure gauge (G15-10-01) [for odd number station]
<b>06</b>	Pressure gauge (G15-10-01) [for even number station]
<b>M1</b>	Plug (M-5P)

\* In the case of Series ARBY3000 with a pressure gauge when mounting on the manifold, use caution that the part numbers are different between the odd no. stations and the even no. stations to avoid gauges from interfering with each others.

Series SY5000

**ARBY5000-00-P-2**

• Regulating port

<b>P</b>	P port
<b>A1</b>	A port (P controlled type, A port regulation)
<b>B1</b>	B port (P controlled type, B port regulation)

• Pressure gauge connection port

<b>00</b>	Pressure gauge (G15-10-01)
<b>M1</b>	Plug (M-5P)

SV

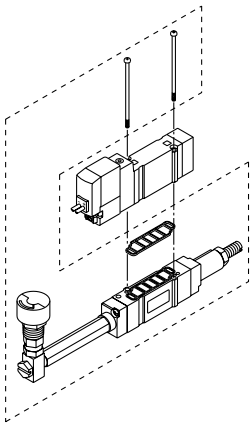
SZ

SY

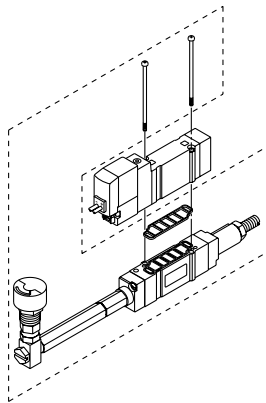
SYJ

SX

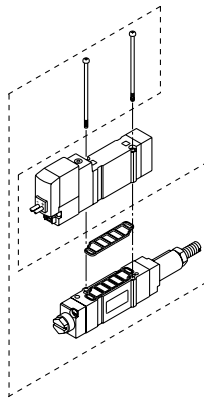
**ARBY3000-05-□-2**  
(For odd number stations)



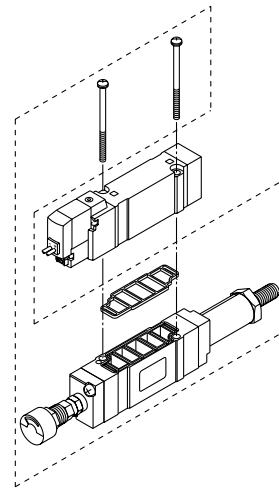
**ARBY3000-06-□-2**  
(For even number stations)



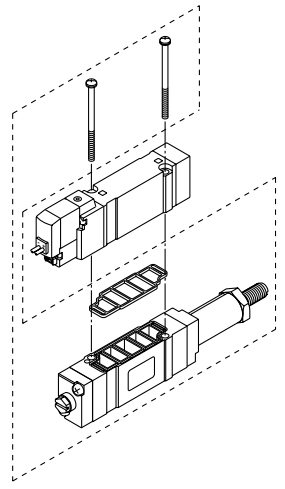
**ARBY3000-M1-□-2**



**ARBY5000-00-□-2**



**ARBY5000-M1-□-2**



### Accessory

Series	Round head combination screw	Gasket
<b>ARBY3000</b>	SY3000-23-10 (M2 x 36)	SX3000-57-4
<b>ARBY5000</b>	M3 x 48.5, Matt nickel plated	SX5000-57-6

### ⚠ Caution

Mounting screw tightening torques

M2: 0.16 N·m

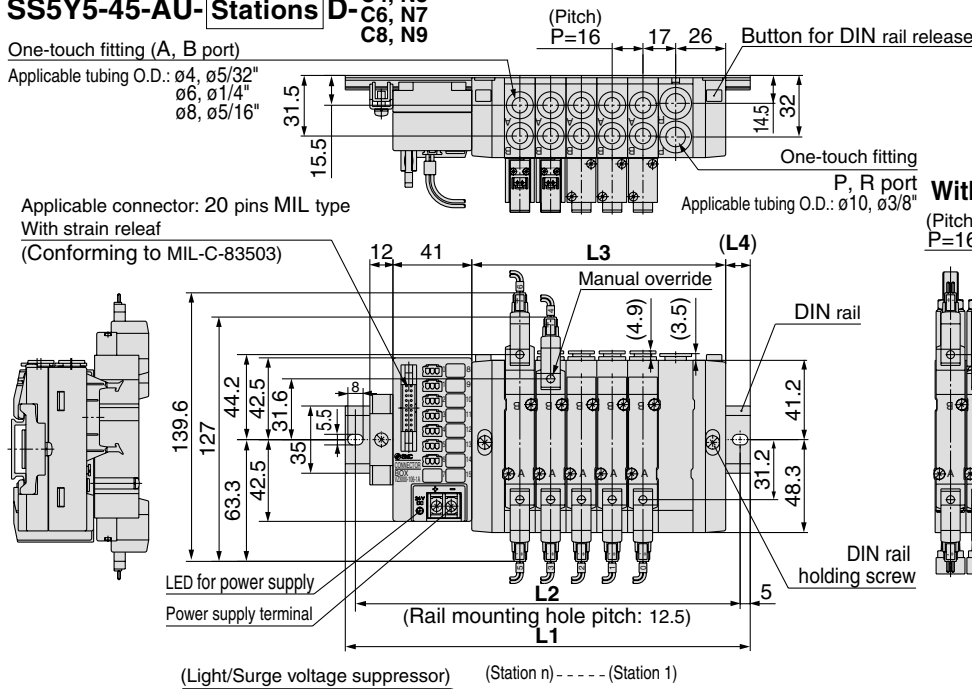
M3: 0.8 N·m

### Dimensions: Series SY5000

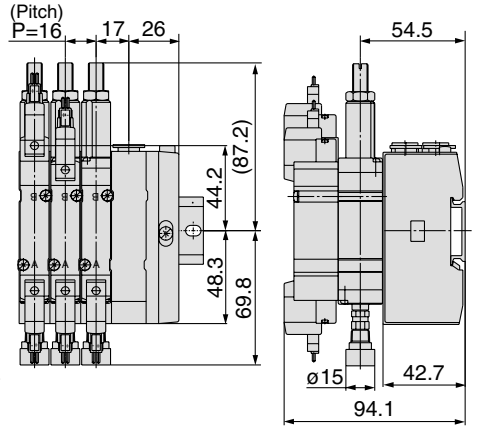
#### SS5Y5-45-AU- Stations D- C4, N3 C6, N7 C8, N9

One-touch fitting (A, B port)  
Applicable tubing O.D.:  $\phi 4, \phi 5/32''$   
 $\phi 6, \phi 1/4''$   
 $\phi 8, \phi 5/16''$

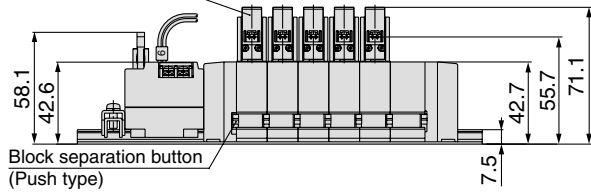
Applicable connector: 20 pins MIL type  
With strain relief  
(Conforming to MIL-C-83503)



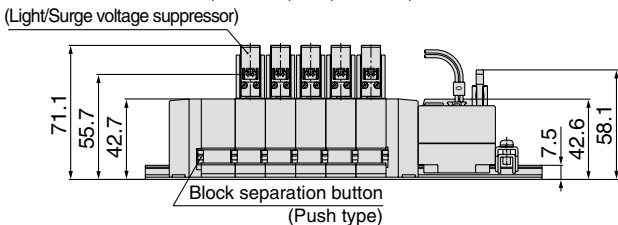
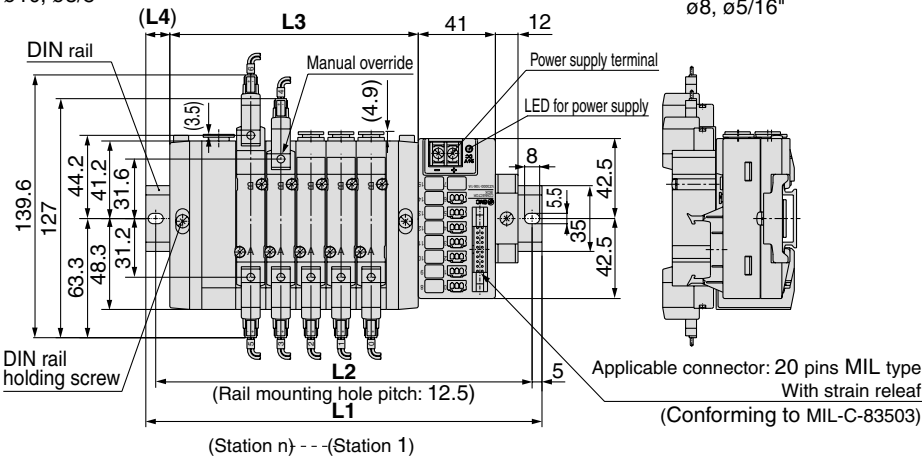
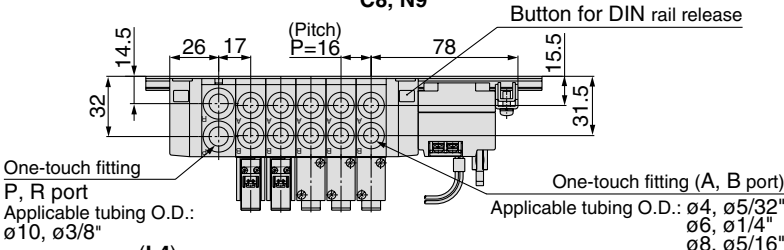
#### With interface regulator (with gauge)



- SV
- SZ
- SY
- SYJ
- SX



#### SS5Y5-45-AD- Stations U- C4, N3 C6, N7 C8, N9

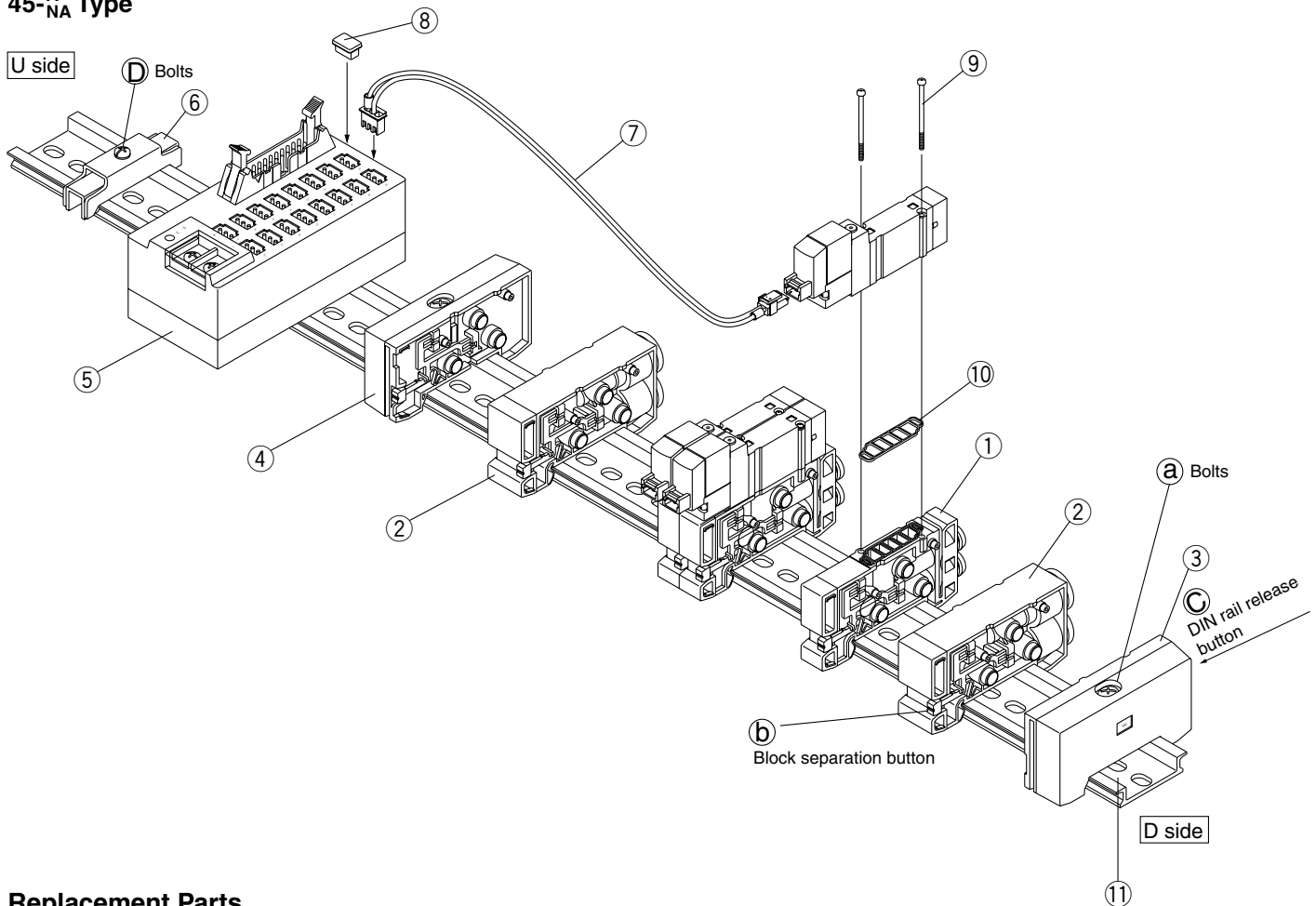


Stations n	2 stations	3	4	5	6	7	8	9	10	11	12	13	14	15	16 stations
L1	160.5	185.5	198	210.5	235.5	248	260.5	273	298	323	348	360.5	373	398	410.5
L2	150	175	187.5	200	225	237.5	250	262.5	287.5	312.5	337.5	350	362.5	387.5	400
L3	84	100	116	132	148	164	180	196	212	246	262	278	294	310	326
L4	11.5	16	14.5	12.5	17	15.5	13.5	12	16.5	12	16.5	14.5	13	17.5	15.5

\* Two SUP/EXH blocks are provided for models with 11 stations or more.



## DIN Rail Manifold Exploded View

45-A<sub>NA</sub> Type

## Replacement Parts

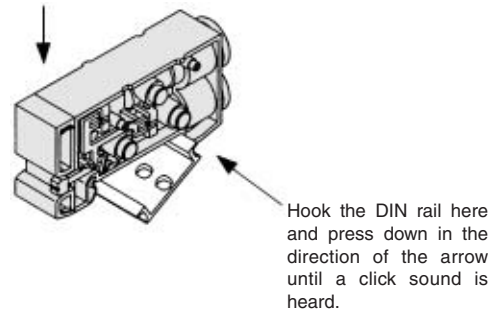
No.	Description	Part no.		Note
		SY3000	SY5000	
①	Manifold block assembly	SX3000-50-1A-□□	SX5000-50-1A-□□	•SY3000 (Metric size) (Inch size) C4: With One-touch fitting for $\phi 4$ N3: With One-touch fitting for $\phi 5/32$ " C6: With One-touch fitting for $\phi 6$ N7: With One-touch fitting for $\phi 1/4$ " For SY5000 (Metric size) (Inch size) C4: With One-touch fitting for $\phi 4$ N3: With One-touch fitting for $\phi 5/32$ " C6: With One-touch fitting for $\phi 6$ N7: With One-touch fitting for $\phi 1/4$ " C8: With One-touch fitting for $\phi 8$ N9: With One-touch fitting for $\phi 5/16$ " (Gasket 10 is supplied as an accessory.)
②	SUP/EXH block assembly	(Metric size) SX3000-51-1A (Inch size) SX3000-51-15A	(Metric size) SX3000-51-1A (Inch size) SX5000-51-15A	P, R port SY3000 (Metric size) With One-touch fitting for $\phi 8$ (Inch size) With One-touch fitting for $\phi 5/16$ " P, R port SY5000 (Metric size) With One-touch fitting for $\phi 10$ (Inch size) With One-touch fitting for $\phi 3/8$ "
③	End block assembly R	SX3000-52-1A	SX5000-52-1A	For D side
④	End block assembly L	SX3000-53-1A	SX5000-53-1A	For U side
⑤	Connector box	VZ3000-106-1A		For 24 VDC only
⑥	Rail stopper	TXE1-SMC		Made by Kasuga Electric Works, Ltd.
⑦	Connector assembly	SY3000-43-1A-□	SY3000-43-2A-□	+COM Type D, 2 to 8 stations Type U, 9 to 16 stations
		SY3000-43-2A-□	SY3000-43-3A-□	+COM Type D, 9 to 16 stations Type U, 2 to 8 stations
		SY3000-43-1NA-□	SY3000-43-2NA-□	-COM Type D, 2 to 8 stations Type U, 9 to 16 stations
		SY3000-43-2NA-□	SY3000-43-3NA-□	-COM Type D, 9 to 16 stations Type U, 2 to 8 stations
⑧	Dust cap	VZ3000-63-2		
⑨	Round head combination screw	SY3000-23-4	M3 x 26, Matt nickel plated	
⑩	Gasket	SX3000-57-4	SX5000-57-6	
⑪	DIN rail	VZ1000-11-1-□		Refer to page 1-4-123.

## How to Increase Manifold Base

Station expansion is possible at any position.

- 1 Loosen bolt (a) fixing the manifold base until it begins to turn idly. (While pressing DIN rail releasing buttons (c), at two locations, separate the manifold base from the DIN rail.)
- 2 Press manifold block assembly dividing button (b), that are at the location where manifold bases are to be added, until button (b) locks, and then separate the block assemblies.
- 3 Mount additional manifold block assembly on the DIN rail as shown in the Fig. (1).
- 4 Press the block assemblies until a click sound is produced, and tighten the bolts (a) to fix them to the DIN rail.  
**⚠ Caution** (Tightening torque: 1.4 N·m)  
 (While lightly holding the blocks after fixing an end block on one side, tighten the other end block for better sealing.)
- 5 Untighten the rail stopper bolt (d) to demount the connector box from the DIN rail, and when remounting it, tighten the bolt while pressing it against the rail.

Fig. (1) Block mounting procedure



SV

SZ

SY

SYJ

SX

### ⚠ Caution

- Note 1) When there are 10 or fewer manifold block assemblies, and more are added to make a total of 11 or more, a supply/exhaust block assembly must also be added.
- Note 2) When disassembly and assembly are performed, air leakage may result if connections between blocks and tightening of the end block's holding screw, is inadequate. Before supplying air, confirm that there are no gaps, etc. between blocks, and that manifold blocks are securely fastened to the DIN rail. Then supply air and confirm that there is no air leakage before operating.
- Note 3) One connector assembly is necessary for one solenoid.  
 When a number is necessary for the connector assembly mark tube, suffix the number to the part no. (0 to 15 are provided as mark tube numbers.)  
 Ex) +COM spec.: D type for 2 to 8 stations: No. 10  
**SY3000-43-1A-10**

## How to Change Fitting Assembly

Type 45 manifold permits change in the A and B port sizes by changing the manifold block fitting assembly.  
 After removing the valve, remove the clip with a screwdriver, etc. For mounting a new fitting assembly, insert it and then insert a clip until it will not come out of the manifold block.

### Fitting Assembly Part No.

#### Metric size

SY3000	One-touch fitting for $\phi 4$	VVQ1000-50A-C4
	One-touch fitting for $\phi 6$	VVQ1000-50A-C6
SY5000	One-touch fitting for $\phi 4$	VVQ1000-51A-C4
	One-touch fitting for $\phi 6$	VVQ1000-51A-C6
	One-touch fitting for $\phi 8$	VVQ1000-51A-C8

#### Inch size

SY3000	One-touch fitting for $\phi 5/32$ "	VVQ1000-50A-N3
	One-touch fitting for $\phi 1/4$ "	VVQ1000-50A-N7
SY5000	One-touch fitting for $\phi 5/32$ "	VVQ1000-51A-N3
	One-touch fitting for $\phi 1/4$ "	VVQ1000-51A-N7
	One-touch fitting for $\phi 5/16$ "	VVQ1000-51A-N9

- 🔍 Note 1) P and R ports cannot be changed.  
 Note 2) Use caution that O-rings must be free from scratches and dust. Otherwise, air leakage may result.

