# Series VZ5000/Body ported **Manifold Specifications**

#### Manifold Standard



#### Manifold Specifications

Mo	odel	Type 20	Type 21			
Manifold type		Single base/B mount				
P(SUP)/R(EXH)		Common SUP	Common EXH			
Valve stations		2 to 15 stations	2 to 20 stations			
4(A), 2(B) port lo	cation	Va	lve			
Dort oizo	1(P), 3/5(R) port	Rc 1/8	Rc 1/ <sub>4</sub>			
Port size	4(A), 2(B) port	Rc 1/8 , Co	6, C8			

#### Flow Characteristics

				Flow characteristics						
Manifo	1(P), 5/3(R)	2(B), 4(A)	$1 \rightarrow 4/2 (P \rightarrow A/B)$			$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{R)}$				
		port	port	C [dm3/(s-bar)]	b	Cv	C [dm3/(s-bar)]	b	Cv	
VV5Z5-20-01		1/8	1/8	2.2	0.35	0.57	2.3	0.26	0.55	
VV5Z5-20-C6		1/8	C6	1.4	0.32	0.37	2.0	0.25	0.49	
VV5Z5-20-C8	VZ5□2□	1/8	C8	1.7	0.38	0.45	2.1	0.25	0.51	
VV5Z5-21-01	VZ5UZU	1/4	1/8	2.1	0.36	0.55	2.3	0.26	0.54	
VV5Z5-21-C6		1/4	C6	1.4	0.32	0.36	2.1	0.24	0.50	
VV5Z5-21-C8		1/4	C8	1.8	0.37	0.50	2.1	0.20	0.50	



Note) Value at manifold base mounted, 2 position single operating

#### **How to Order Manifold**

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along

with the manifold base model no. (Example) VV5Z5-20-031------1 pc. (Manifold base)

\*VZ5120-5G-01.....2 pcs. (Valve)

\*DXT199-22-1A·······1 pc. (Blanking plate assembly)

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

#### Flat Ribbon Cable Manifold

#### One-touch wiring to consolidate connection of external wires.

#### Clean appearance

The flat cable provides wiring on a printed circuit board to the individual valves at the manifold base, enabling the consolidation of external wiring at a touch through a 26 pins MIL connector.



#### Flat Ribbon Cable Manifold Specifications

Mo	odel	Type 21P					
Manifold type		Single base/B mount					
P(SUP), R(EXH)		Common SUP/Common EXH					
Valve stations		3 to 12 stations					
4(A), 2(B) port loc	cation	Valve					
Port size	1(P), 3/5(R) port	Rc 1/ <sub>4</sub>					
1 OIT SIZE	4(A), 2(B) port	Rc 1/8 , C6, C8					
Applicable flat ribb	on cable connector	Socket: 26 pins MIL, with strain relief					
Applicable flat floo	on cable connector	(Conforming to MIL-C-83503)					
Internal wiring		+COM (For -COM, please contact SMC separately.)					
Applicable soleno	oid valve	VZ5□23- <sup>1</sup> / <sub>8</sub> MOZ□-VZ3□- <sup>01</sup> / <sub>68</sub>					
Rated voltage		100 VAC 50/60 Hz, 110 VAC 50/60 Hz, 24 VDC, 12 VDC					
Note) Withstand voltage specification of wiring unit part is equivalent to JIS C 0704 class 1.							



	1 low Onaracteristics									
Ī		Port s	ize	Flow characteristics						
	Manifold	l	1(P), 5/3(R)	2(B), 4(A)	1 → 4/2	(P → .	A/B)	$4/2 \rightarrow 5/3$	3 (A/B -	→ R)
			port	port	C [dm3/(s-bar)]	b	Cv	C [dm3/(s-bar)]	b	Cv
	VV5Z5-21P-01		1/4	1/8	2.1	0.36	0.55	2.3	0.26	0.54
	VV5Z5-21P-C6	VZ5□23	1/4	C6	1.4	0.32	0.36	2.1	0.24	0.50
	VV5Z5-21P-C8		1/4	C8	1.8	0.37	0.50	2.1	0.20	0.50



Note) Value at manifold base mounted, 2 position single operating

#### How to Order Manifold

Instruct by specifying the valves, blanking plate assembly and connector assembly to be mounted on the manifold along with the manifold base model no.

(Example) VV5Z5-21P-07......1 pc. (Manifold base)

\*VZ5123-5MOZ-C8...3 pcs. (Valve)

\*VZ5223-5MOZ-C8.... 3 pcs. (Valve)

\*DXT199-22-3A······· 1 pc. (Blanking plate assembly) \*DXT192-52-1-4A······ 3 pcs. (Connector assembly)

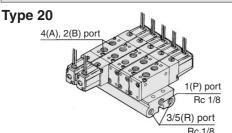
\*DXT192-52-2-4A······ 3 pcs. (Connector assembly)

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

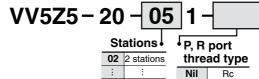


#### 5 Port Solenoid Valve Body Ported Series VZ5000

#### **Common SUP/Common EXH**



**How to Order** 



15 15 stations 00F G 00N NPT 00T **NPTF** 

Note) For more than 6 stations, supply air to both sides of P port and exhaust air from both sides of R port.

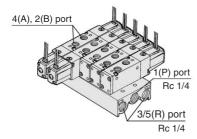
**How to Order** 

#### Applicable solenoid valve

VZ5□2□-□ M □□-C6

Applicable blanking plate assembly DXT199-22-1A Applicable individual EXH spacer assembly DXT199-29-1A

#### Type 21





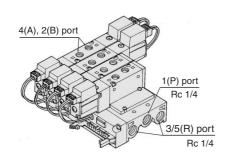
thread type Rc 20 20 stations 00F G 00N NPT 00T NPTF

Note) For more than 10 stations, supply air to both sides of P port and exhaust air from both sides of R port.

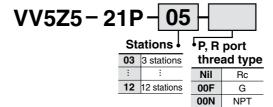
00T

NPTF

#### Flat Ribbon Cable Type 21P



#### **How to Order**



#### Applicable solenoid valve

 $VZ5\square 23 - \frac{9}{5}MOZ\square - \frac{01}{26}$ 

Applicable blanking plate assembly DXT199-22-3A

Applicable connector assembly DXT192-52-1- \*\* A

(For 2 position single) DXT192-52-1- **⊗** A (For 2 position double, 3 position)

1: 100 VAC, 3: 110 VAC, 4: DC



For "How to order applicable connector assemblies", refer to page 3-3-7.



Note) For more than 10 stations, supply air to both sides of 1(P) port and exhaust air from both sides of 3 and 5(R) port.

VF **VFR** 

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VP4

**VZS** 

**VFS** 

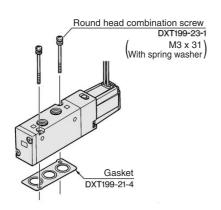
VS4 VQ7

**EVS** 

VFN

#### **Option**

# Combinations of Solenoid Valve, Manifold Gasket and Manifold Base



Applicable base VV5Z5-20 VV5Z5-21 VV5Z5-21P

#### **Individual EXH Spacer Assembly**

# Round head combination screw AXT623-14 (M3 x 47 (With spring washer) 5(Rt) 5(Rt) 2-Rc 1/8 (EXH port) AXT623-14 CARCALLER SALE CONTROLLER SALE CONTROLLER

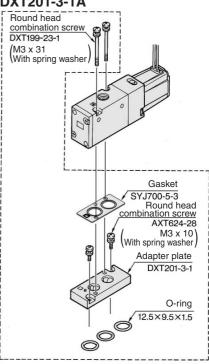
Applicable base VV5Z5-20 VV5Z5-21

Note) Please contact SMC when using an individual EXH spacer assembly, an individual or an adapter plate assembly on VV5Z5-21P.

# Installation of the VZ500 Valve on the VZ5000 Manifold

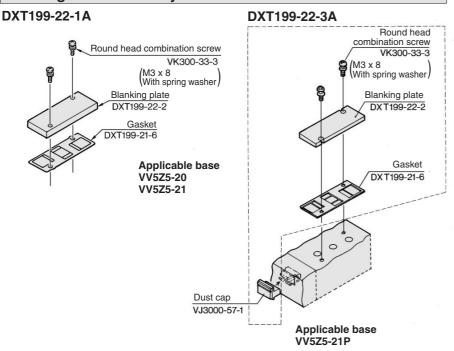
- Use of an adaptor plate makes it possible to mount Series VZ500 on the manifold base of Series VZ5000.
- The mounting direction is shown in the diagram below. Mount the solenoid so that it will be on the same side as the single solenoid of the Series VZ5000.

## Adapter plate assembly DXT201-3-1A



Applicable base VV5Z5-20 VV5Z5-21

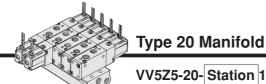
#### **Blanking Plate Assembly**



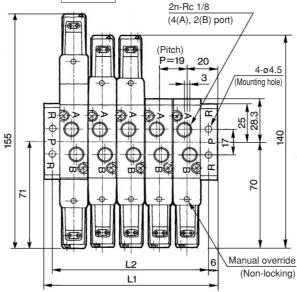
#### **⚠** Caution

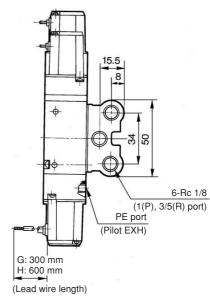
Mounting Screw Tightening Torques
M3: 0.8 N·m

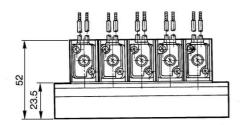
# 5 Port Solenoid Valve Body Ported Series VZ5000



Grommet (G), (H)







VFS VS4

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**VZ** 

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**VFR** 

VP4

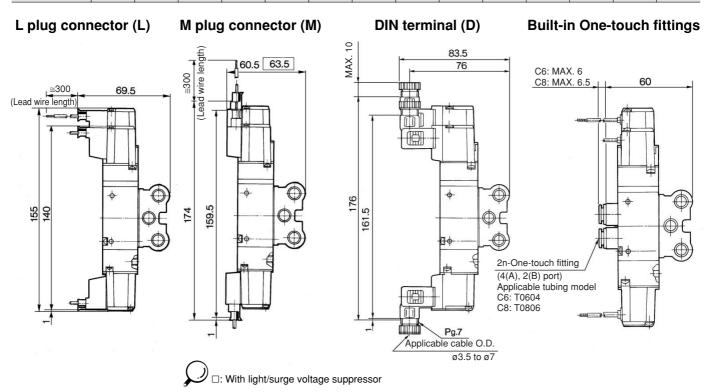
**VZS** 

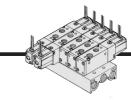
VQ7

EVS

VFN

														(mm)	
Stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
L <sub>1</sub>	59	78	97	116	135	154	173	192	211	230	249	268	287	306	
L <sub>2</sub>	47	66	85	104	123	142	161	180	199	218	237	256	275	294	

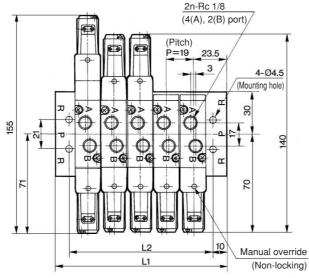


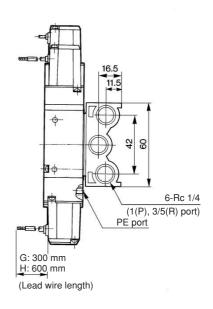


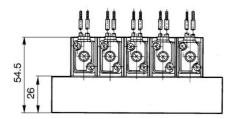
#### Type 21 Manifold

VV5Z5-21- Station 1

Grommet (G), (H)



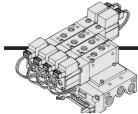




																			()
Stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L <sub>1</sub>	66	85	104	123	142	161	180	199	218	237	256	275	294	313	332	351	370	389	408
L <sub>2</sub>	46	65	84	103	122	141	160	179	198	217	236	255	274	293	312	331	350	369	388

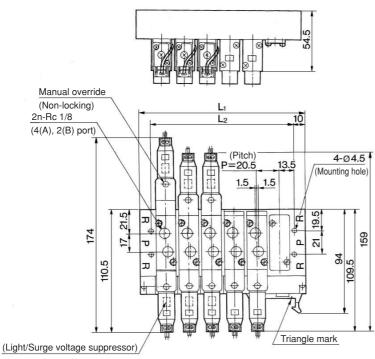
#### L plug connector (L) M plug connector (M) DIN terminal (D) **Built-in One-touch fittings** 10 length MAX. 63 66 78.5 C6: MAX. 6 C8: MAX. 6.5 <u>≅</u>300 62.5 (Lead wire (Lead wire length 176 55 54 159.5 Applicable cable O.D. ø3.5 to ø7 2n-One-touch fitting (4(A), 2(B) port) Applicable tubing model C6: T0604 C8: T0806 □: With light/surge voltage suppressor

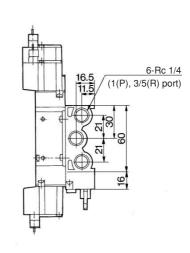
#### 5 Port Solenoid Valve Body Ported Series VZ5000



#### Type 21P Manifold

#### VV5Z5-21P- Station



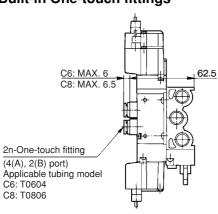


Connector polarity indicator

Applicable connector: 26 pins MIL

(Conforming to MIL-C-83503)

#### **Built-in One-touch fittings**



											(111111)
Sta	ations	3	4	5	6	7	8	9	10	11	12
	L <sub>1</sub>	88	108.5	129	149.5	170	190.5	211	231.5	252	272.5
	L2	68	109	109	129.5	150	170.5	191	211.5	232	252.5

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VFR

VP4

VZS

VFS

VS4

VQ7

EVS

VFN

**SMC** 

# Series VZ5000/Base Mounted **Manifold Specifications**

#### Manifold Standard





#### **Manifold Specifications**

Mo	del	Type 40	Type 40 Type 41 Typ				
Manifold type		Single base/B mount					
P(SUP), R(EXH)		Common SUP and EXH					
Valve stations			2 to 20				
4(A), 2(B) port	Position	Base	Ва	ise			
porting specifications	Direction	Bottom	Si	de			
	1(P), 3/5(R) port						
Port size	4(A), 2(B) port	Rc	1/8	O1 (Rc 1/8) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8) B7 (One-touch fitting for 1/4") C9 (One-touch fitting for 5/16")			

#### Flow Characteristics

	Port si	ze	Flow characteristics						
Manifo	1(P), 5/3(R)	2(B), 4(A)	1 → 4/2	4/2 → 5/	$4/2 \rightarrow 5/3 \text{ (A/B} \rightarrow \text{R)}$				
	port		C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
VV5Z5-40		1/4	1/8	2.1	0.28	0.51	2.5	0.23	0.59
VV5Z5-41	V75040	1/4	1/8	2.0	0.30	0.50	2.2	0.30	0.55
VV5Z5-42-C6	VZ5□4□	1/4	C6	1.5	0.32	0.38	2.2	0.23	0.52
VV5Z5-42-C8		1/4	C8	1.9	0.24	0.46	2.2	0.26	0.53



Note) Value at manifold base mounted, 2 position single operating

#### **How to Order Manifold**

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example) VV5Z5-41-031-01....1 pc. (Manifold base)

\*VZ5140-5G.....2 pcs. (Valve)

\*DXT199-22-1A······ 1 pc. (Blanking plate assembly)

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

#### **DIN Rail Manifold**





#### **Manifold Specifications**

Mod	del	Type 45	Type 45F			
Manifold type		Stacking type non plug-in type	Stacking type plug-in type			
P(SUP), R(EXH)		Common SI	JP and EXH			
Valve stations		2 to	20			
4(A), 2(B) port	Position	Ba	se			
Porting specifications	Direction	Si	de			
	1(P), 3/5(R) port	C10 (One-touch fitting for ø10)				
Port size	4(A), 2(B) port	C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8)				
Connector		_	MIL-C-24308 Applicable for D-sub JIS-X-5101 connector			
Internal wiring		— COM Note)				



Note) It is available at +COM or -COM.

#### Flow Characteristics

	Port s	ze	Flow characteristics						
Manifo	1(P), 5/3(R)	2(B), 4(A)	$1 \rightarrow 4/2 \ (P \rightarrow A/B)$ $4/2 \rightarrow 5/3$					$B (A/B \rightarrow R)$	
	port	port	C [dm3/(s-bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv	
VV5Z5-45	VZ5□4□	C10	C6	1.5	0.31	0.38	2.2	0.17	0.52
VV323-43 VZ3□4□		C10	C8	2.1	0.26	0.51	2.2	0.15	0.52



Note) Value at manifold base mounted, 2 position single operating

#### **How to Order Manifold**

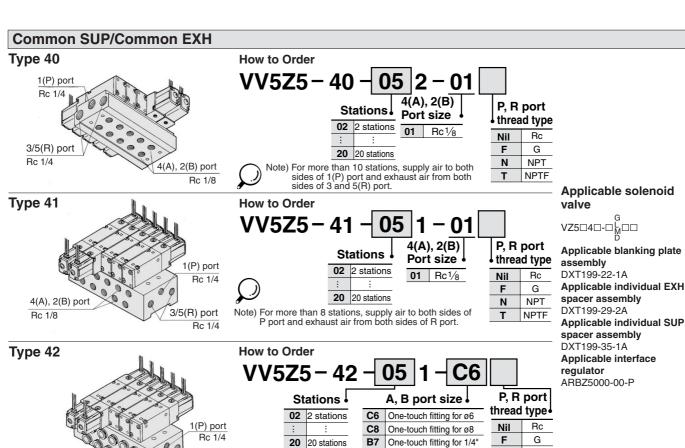
Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example) VV5Z5-45FD-06-C8C---1 pc. (Manifold base)

\*VZ5143-5FZ-----2 pcs. (Valve) \*VZ5243-5FZ-----3 pcs. (Valve)

\*VZ5000-65-1A········1 pc. (Blanking plate assembly)

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



#### **DIN Rail Manifold**

4(A), 2(B) por

C6, C8

#### **Common SUP/Common EXH**



VV5Z5 – 45 – 05 || D

3/5(R) port

Stations •

SUP/EXH block 02 2 stations mounting position Symbol Position Applicable stations 20 20 stations U side 2 to 10 stations ח D side 2 to 10 stations В Both sides 2 to 20 stations

> specifications specifications \* For special specifications. indicate separately by the manifold specification sheet.

Special

Special

#### 4 (A), 2 (B) port size

One-touch fitting for 5/16"

Note) For more than 8 stations, supply air to both sides of 1(P) port and exhaust air from both sides of 3 and 5(R) port.

> One-touch C<sub>6</sub> fitting for ø6 One-touch C8 fitting for ø8 Mixed

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

4(A), 2(B)

port size

C6

One-touch

One-touch

fitting for ø6

fitting for  $\emptyset 8$ 

Mixed

**VK** 

٧Z

**VFR** 

VP4

**VZS** 

**VFS** 

VS4

VQ7

**EVS** 

VFN

Applicable blanking plate

Applicable individual EXH

Applicable interface

NPT

NPTF

#### Applicable solenoid valve

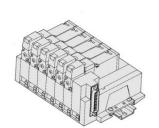
VZ5□4□-□ [ □□

Applicable blanking plate assembly VZ5000-65-2A

#### DIN rail length specified

Nil	Standard length						
3	For 3 stations	(Specify a longer rail than the					
:	:	rail than the					
20	For 20 stations	standard length.)					

#### Type 45F (Plug-in type)



VV5Z5 -45F D

Connector mounting direction Symbol Mounting direction Applicable stations U U side 2 to 10 stations D D side 11 to 10 stations Both sides

Stations •

**How to Order** 

2 stations 20 20 stations

#### SUP/EXH block mounting position For 2 to 10 stations : One side

(Same as direction of connector mount) For 11 to 20 stations: Both sides В For 2 to 10 stations: Both sides M \* Special specifications

#### Applicable solenoid valve

V75□43-□F7□

Applicable blanking plate assembly

VZ5000-65-1A



	Nil	Standard length								
-	3	For 3 stations	(Specify a longer							
	:		rail than the standard length.)							
-	20	For 20 stations								

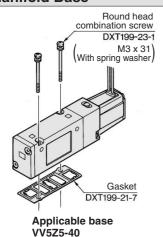
<sup>\*</sup> In the case of mixed specifications (M), indicate separately on the manifold specification sheet.



For special specifications, indicate separately by the manifold specification sheet.

#### **Option/Standard Manifold**

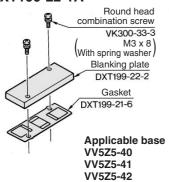
# Combinations of Solenoid Valve, Manifold Gasket and Manifold Base



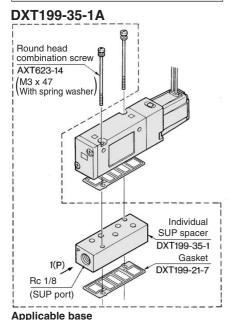
#### **Blanking Plate Assembly**

VV5Z5-41 VV5Z5-42

#### DXT199-22-1A

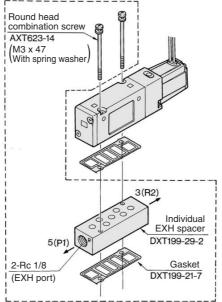


#### **Individual SUP Spacer Assembly**



Individual EXH Spacer Assembly

#### DXT199-29-2A

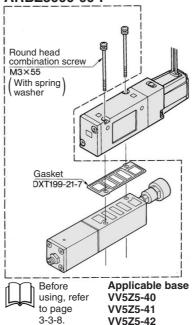


Applicable base VV5Z5-40 VV5Z5-41 VV5Z5-42

# Interface Regulator (P port regulation)

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

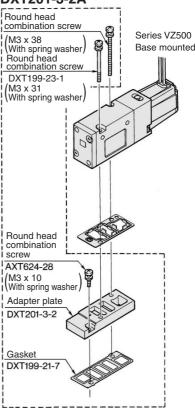
#### ARBZ5000-00-P



# Installation of the VZ500 Valve on the VZ5000 Manifold

- Use of an adaptor plate makes it possible to mount Series VZ500 on the manifold base of Series VZ5000.
- The mounting direction is shown in the diagram below. Mount the solenoid so that it will be on the same side as the single solenoid of the Series VZ5000.
- In the case of base mounting, 2(A) port of 3 port valve should be 2(B) port of manifold base.

## Adapter Plate Assembly DXT201-3-2A



Applicable base VV5Z5-40 VV5Z5-41 VV5Z5-42

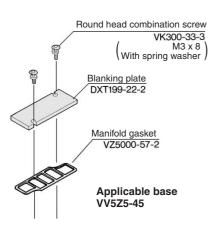
#### **∧** Caution

Mounting Screw Tightening Torques
M3: 0.8 N·m

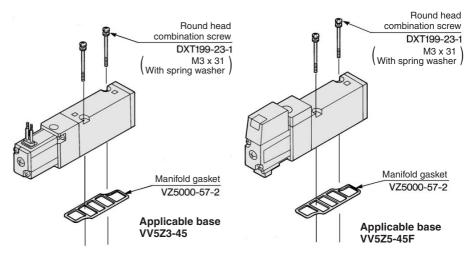
#### **Option/DIN Rail Manifold**

#### **Blanking Plate Assembly**

#### VZ5000-65-2A



#### Combination of Solenoid Valve, Gasket and Manifold Base



٧K

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VF

VFR

VP4

VZS

VFS

VS4

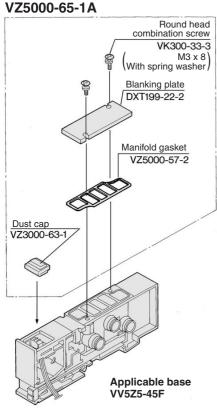
VQ7

EVS

1/=1

VFN

#### \_\_\_\_\_



#### **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.

VZ5000-68-1A



#### .....

it does not affect another valve.

**EXH Block Disk** 

VZ5000-68-1A

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

Cable length	Assembly part no.	Component parts				
1.5 m	VVZS3000-21A-1	Diver MII atomdored D. oveb compostor				
3 m	VVZS3000-21A-2	Plug MIL standard D-sub connector  Number of terminals: 25				
5 m	VVZS3000-21A-3	Cable: 25 cores x 0.3 mm <sup>2</sup>				
8 m	VVZS3000-21A-4	Cable: 20 cores x 0.0 mm				

Applicable Plug Assembly (D-sub connector cable assembly)

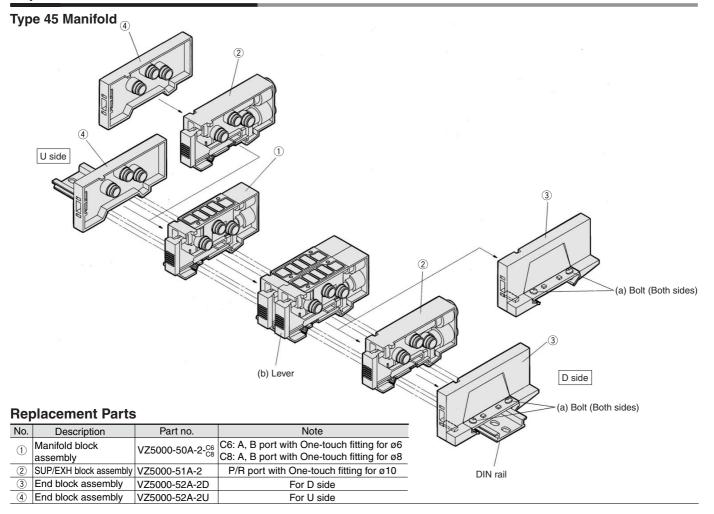


For details, refer to page 3-3-8.

#### **⚠** Caution

Mounting Screw Tightening Torques
M2.5: 0.32 N·m
(For stacking type manifold)

#### **Exploded View/DIN Rail Manifold**

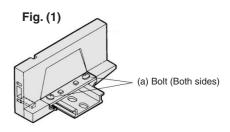


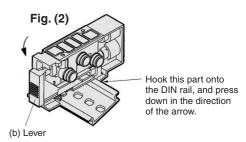
#### **How to Increase Manifold Base**

Station expansion is possible at any position.

- (1) Loosen (both) bolts (a), which are securing the manifold onto the DIN rail, 1 to 2 turns.
  - (To remove the manifold base from the DIN rail, loosen the bolts 4 to 5 turns.)
- (2) Press lever (b) to disconnect the manifold block assembly at the location in which you wish to place an additional manifold block assembly. (However, there are no levers between ① and ④ or between ③ and ④. They can be disconnected by merely pulling them apart.)
- (3) Mount additional manifold block assembly on the DIN rail as | shown in the Fig. (2).
- (4) Press the block assemblies and tighten the bolts (a) to fix them to the DIN rail.

Note) 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.





**VK** 

VFR

VP4

**VZS** 

**VFS** 

VS4

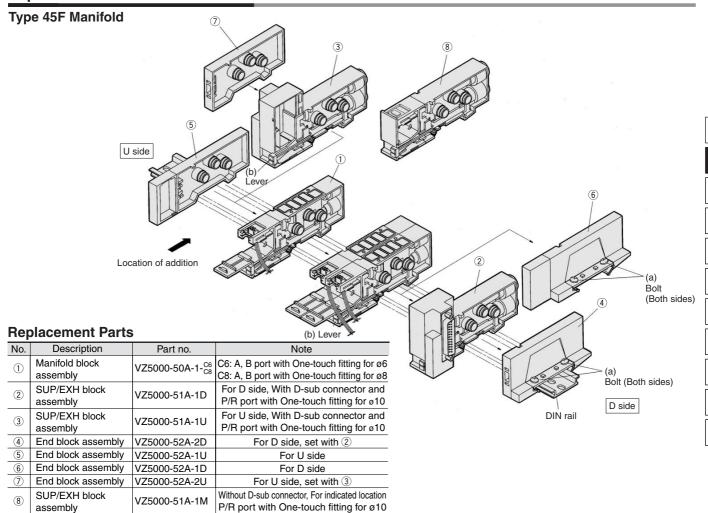
VQ7

**EVS** 

VFN

3 - 3 - 79

#### **Exploded View/DIN Rail Manifold**

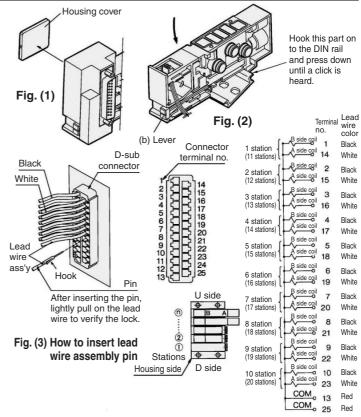


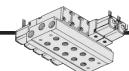
#### **How to Increase Manifold Base**

To add a manifold block assembly, add it to the U side so that the terminal number of the D-sub connector and the valve link position will be in accordance with the circuit diagram.

- (1) Loosen (both) bolts (a), which are securing the manifold onto the DIN rail, 1 to 2 turns. (To remove the manifold base from the DIN rail, loosen the bolts 4 to 5 turns.)
- (2) Using a flat screwdriver, press lever (b) to disengage the link of the manifold block assembly on the U side or the D side from the SUP/EXH block assembly or from the end block assembly. (However, there are no levers between ⑤ and ①. They can be disconnected by merely pulling them apart.)
- (3) Remove the housing cover from the D-sub connector portion of the SUP/EXH block assembly. (Refer to Fig. (1).)
- (4) Following the procedure shown in Fig. (2), mount the manifold block assembly to be added onto the DIN rail. As shown in Fig. (3), insert the pin of the lead wire assembly into the D-sub connector, and attach the round crimped terminal to the screw that connects the wires.
- (5) Press the block assemblies and tighten the bolts (a) to fix them to the DIN rail.

Note) 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.

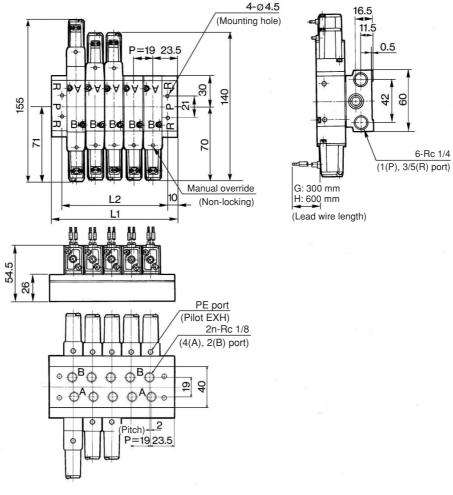




#### Type 40 Manifold: Bottom Ported

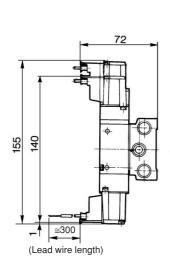
VV5Z5-40- Station 2-01

Grommet (G), (H)

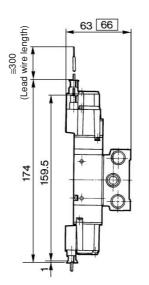


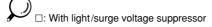
																			(111111)
Stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L <sub>1</sub>	66	85	104	123	142	161	180	199	218	237	256	275	294	313	332	351	370	389	408
La	46	65	84	103	122	141	160	179	198	217	236	255	274	293	312	331	350	369	388

#### L plug connector (L)

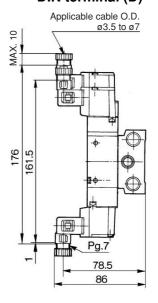


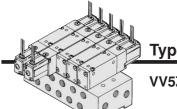
#### M plug connector (M)





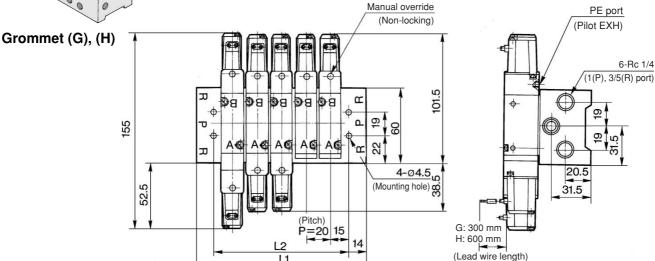
#### DIN terminal (D)

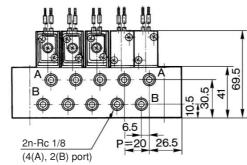




Type 41 Manifold: Side Ported

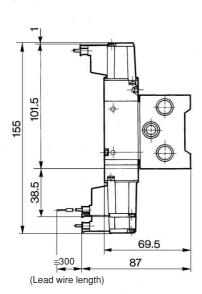




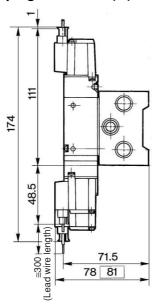


(mm) Stations 

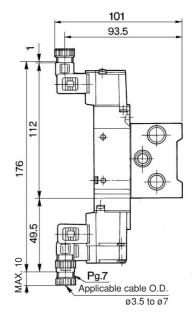
#### L plug connector (L)



#### M plug connector (M)



#### DIN terminal (D)



☐: With light/surge voltage suppressor



VK VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

EVS

VFN

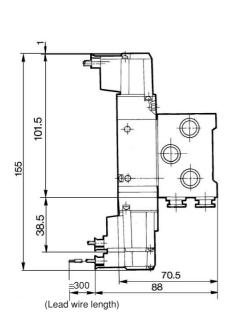
Type 42 Manifold: Side Ported VV5Z5-42- Station 1-88 Manual override (Non-locking) PE port Grommet (G), (H) (Pilot EXH) (1(P), 3/5(R) port) 101.5 18.5 ۵ U 6 60 155 8 38.5 52.5 6.5 32.5 4-Ø4.5 G: 300 mm (Mounting hole) 89 89

70.5 42 7 8 P=19 25 11 12 13

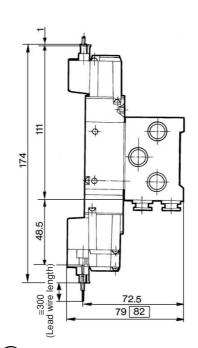
L1

Stations 16 17 18 19 20 115 134 153 172 191 210 229 248 286 305 324 343 362 381 400 419 77 96 267 106 201 277 296 315 353 372 391

#### L plug connector (L)



#### M plug connector (M)



# ☐: With light/surge voltage suppressor

#### DIN terminal (D)

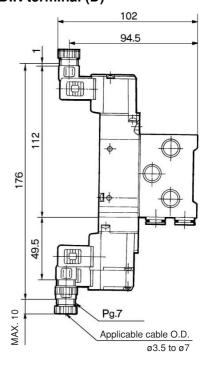
H: 600 mm

(Lead wire length)

2n-One-touch fitting

(4(A), 2(B) port) Applicable tubing model C6: T0604

C8: T0806

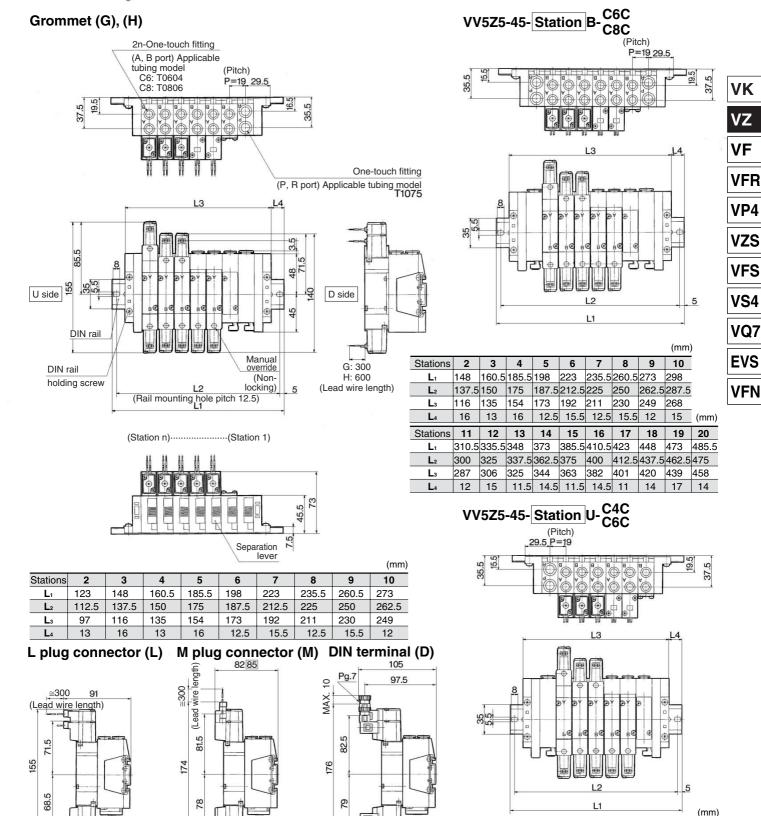


6-Rc 1/4



#### Type 45 DIN Rail Manifold (Non Plug-in): Side Ported





Applicable cable O.D. ø3.5 to ø7

Stations

123

97

13

148

112.5 137.5 150

116

16

135

13

15.5 12

10

262.5

235.5 260.5 273

250

230

6

173 | 192

223

187.5 212.5 225

12.5 15.5 12.5

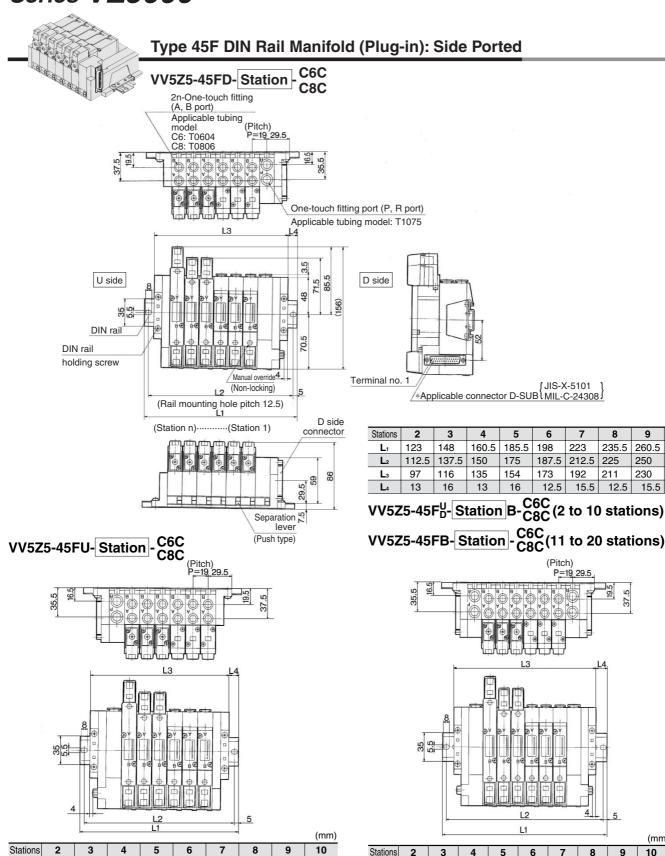
211

160.5 185.5 198

175

154

16



(mm)

262.5

235.5

19.5

212.5

260.5

(mm)

112.5

L

L

137.5

160.5

185.5

12.5

212.5

15.5

235.5

12.5

260.5

262.5