5 Port Pilot Operated Solenoid Valve
Rubber Seal, Plug-in/Non Plug-in
Series VFR2000

[Option] NRTL /C

Plug-in type

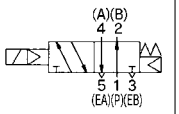
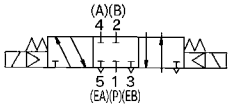
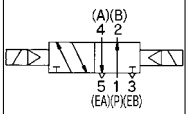
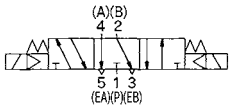
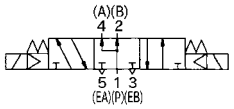
Non plug-in type

Standard Specifications

Valve specifications	Fluid		Air
	Operating pressure range	2 position single/3 position	0.2 to 0.9 MPa
		2 position double	0.1 to 0.9 MPa
	Ambient and fluid temperature		–10 to 50°C (No freezing. Refer to page 5.)
	Lubrication		Not required (1)
	Manual override		Non-locking push type
	Mounting orientation		Unrestricted
	Shock/Vibration resistance		300/50 m/s² (2)
	Enclosure		Dustproof
Electricity specifications	Coil rated voltage		100, 200 VAC (50/60 Hz), 24 VDC
	Allowable voltage fluctuation		–15 to –10% of rated voltage
	Apparent power (AC) (3)	Inrush	5.6 VA/50 Hz, 5.0 VA/60 Hz
		Holding	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz
	Power consumption (DC) (3)		1.8 W
	Electrical entry	Plug-in type	Conduit terminal
		Non plug-in type	Grommet, Grommet terminal Conduit terminal, DIN terminal L plug connector, M plug connector

Note 1) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 2) 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 energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)
Note 3) At rated voltage

JIS Symbol

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	

Option Specifications

Pilot type	External pilot Note)
Manual override	Non-locking push type A (Extended), Locking type B (Tool required), Looking type C (Lever)
Coil rated voltage	110 to 120, 220, 240 VAC 50/60 Hz
	12 VDC
Porting specifications	Bottom ported
Option	With light/surge voltage suppressor

Note) Operating pressure: 0 to 0.9 MPa
Pilot pressure: 2 position single/3 position 0.2 to 0.9 MPa
2 position double 0.1 to 0.9 MPa

Model

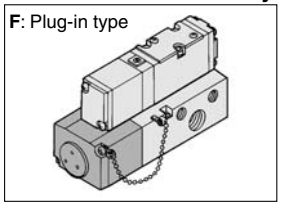
Type of actuation		Model: Plug-in	Model: Non plug-in	Port size Rc	Flow characteristics (1): 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics (1): 4/2 → 5/3 (A/B → EA/EB) C [dm³/(s·bar)]	b	Cv	Max. operating cycle (Hz) (2)	Response time (ms) (3)	Mass (kg) (4)
2 position	Single	**VFR2100**	**VFR2110**	1/8	2.5	0.18	0.58	3.0	0.27	0.70	10	20 or less	0.34 (0.32)
				1/4	2.8	0.24	0.62	3.0	0.27	0.70			
	Double	**VFR2200**	**VFR2210**	1/8	2.4	0.21	0.56	3.1	0.28	0.74	10	20 or less	0.42 (0.44)
				1/4	2.6	0.27	0.62	3.1	0.28	0.74			
3 position	Closed center	**VFR2300**	**VFR2310**	1/8	1.3	0.45	0.36	1.4	0.46	0.41	5	30 or less	0.43 (0.45)
				1/4	1.3	0.45	0.36	1.4	0.46	0.41			
	Exhaust center	**VFR2400**	**VFR2410**	1/8	0.79	0.53	0.24	3.1 [0.89]	0.24 [0.51]	0.74 [0.27]	5	30 or less	0.43 (0.45)
				1/4	0.79	0.53	0.24	3.1 [0.89]	0.24 [0.51]	0.74 [0.27]			
	Pressure center	**VFR2500**	**VFR2510**	1/8	2.8 [0.65]	0.24 [0.60]	0.68 [0.21]	0.89	0.53	0.27	5	30 or less	0.43 (0.45)
				1/4	3.2 [0.75]	0.26 [0.55]	0.73 [0.23]	0.89	0.53	0.27			

Note 1) [ ]: Denotes the normal position.
Note 2) Min. operating frequency is once in 30 days.
Note 3) Based on dynamic performance test, JIS B 8375-1981. (0.5 MPa, Coil temperature: 20°C, at rated voltage, without surge voltage suppressor)
Note 4) For VFR2□00-□FZ-$^{01}_{02}$, ( ): VFR2□10-□DZ-$^{01}_{02}$

How to Order

Electrical entry

F: Plug-in type



Option

Nil	None
Z	With light/surge voltage suppressor

Piping (P, A, B, EA, EB port)

Nil	Side ported
B *	Bottom ported

* Option

Port size (P, A, B port)

Nil	Without sub-plate
01	1/8
02	1/4

EA, EB port: Rc 1/8

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Plug-in **VFR2 1 00 □ – 5 F □ □ – □ 01 □ – □**

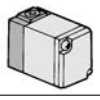
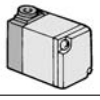
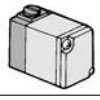
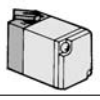
Non plug-in **VFR2 1 10 □ – 1 E □ □ – □ 02 □ – □**

CE-compliant

Nil	—
Q	CE-compliant *

* Electrical entry: D/DO, Y/YO and F only

Pilot valve manual override

Nil: Non-locking push type	**A***: Non-looking push type A (Extended)	**B***: Locking type B (Tool required)	**C***: Locking type C (Lever)
			

* Option

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

Pilot type

Nil	Internal pilot
R *	External pilot

* Option (External pilot is available only on sub-plate type.)

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3 *	110 to 120 VAC, 50/60 Hz
4 *	220 VAC, 50/60 Hz
5	24 VDC
6 *	12 VDC
7 *	240 VAC, 50/60 Hz Note)
9 *	Other

* Option

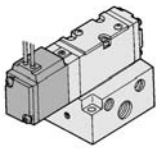
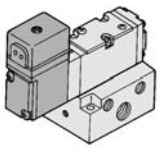
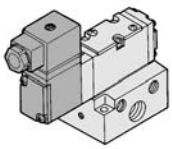
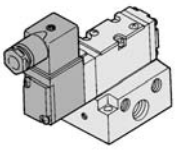
Note) L and M plug connectors: Max. 220 VAC

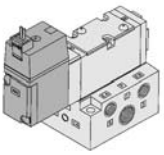
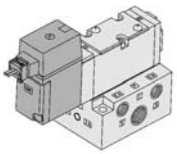
Option

Nil	None
Z	With light/surge voltage suppressor
S *	With surge voltage suppressor

* Indicator light is not available for grommet type. With surge voltage suppressor is available for grommet type only.

Electrical entry

G: Grommet	**E**: Grommet terminal	**T**: Conduit terminal	**D, Y**: DIN terminal
			

L: L plug connector	**M**: M plug connector
	

How to Order Pilot Valve Assembly

SF4– 1 DZ □ –60 – □

Manual override

Nil	Non-locking push type
A *	Non-looking push type A (Extended)
B *	Locking type B (Tool required)
C *	Locking type C (Lever)

* Option

CE-compliant

Nil	—
Q	CE-compliant *

* Electrical entry: D/DO, Y/YO and F only

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3 *	110 to 120 VAC, 50/60 Hz
4 *	220 VAC, 50/60 Hz
5	24 VDC
6 *	12 VDC
7 *	240 VAC, 50/60 Hz Note)
9 *	Other

* Option

Note) L and M plug connectors: Max. 220 VAC

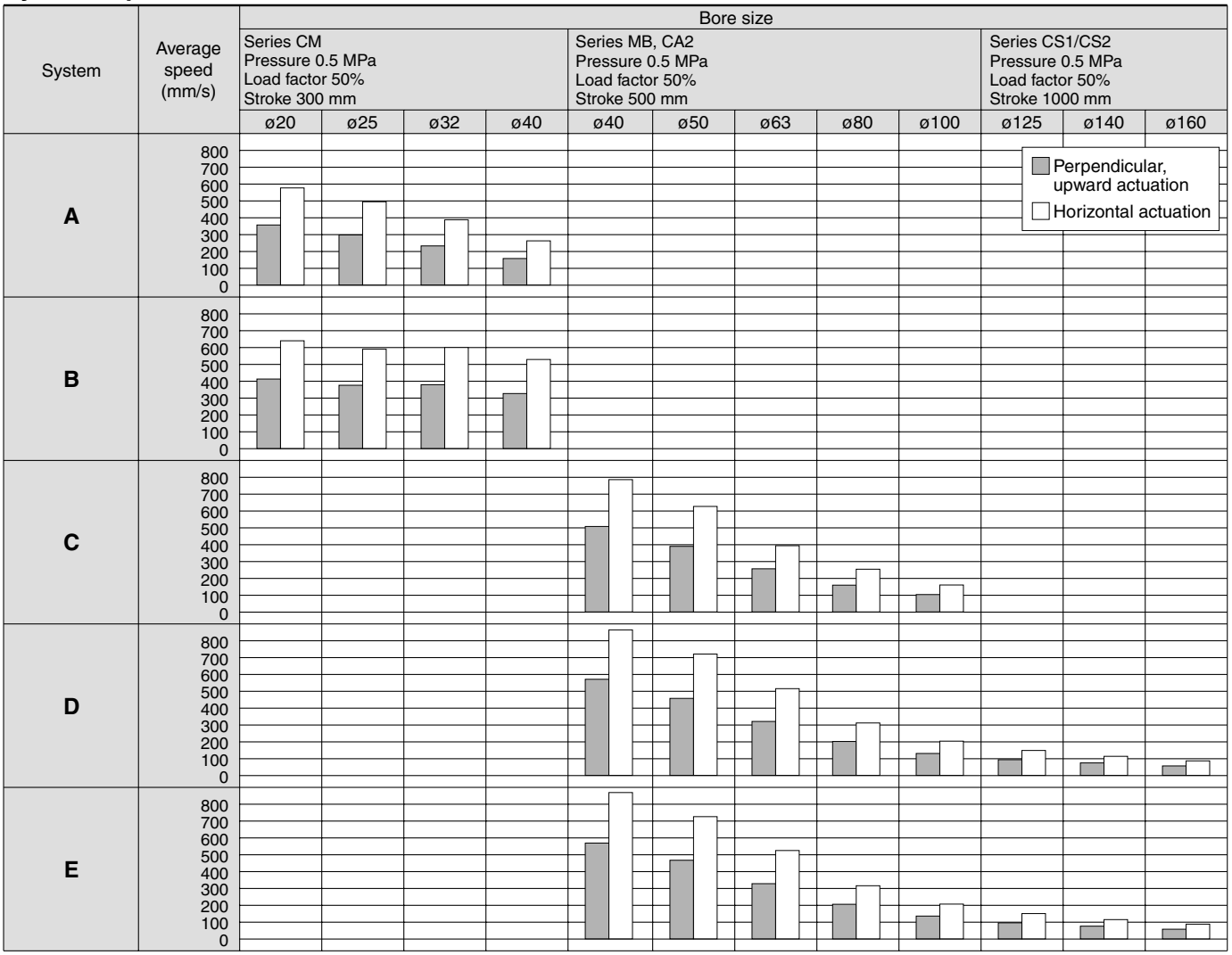
Electrical entry, Light/Surge voltage suppressor

Symbol	Electrical entry		Indicator light	With surge voltage suppressor	Body type
F	Plug-in		—	—	Plug-in type
G	Grommet		—	—	Non plug-in type
GS				●	
D	DIN terminal	With connector	—	—	
DZ			●	●	
DO		Without connector	—	—	
DOZ			●	●	
Y	DIN terminal (DIN43650B)	With connector	—	—	
YZ			●	●	
YO		Without connector	—	—	
YOZ			●	●	

Symbol	Electrical entry	Indicator light	With surge voltage suppressor	Body type
T	Conduit terminal	—	—	Non plug-in type
TZ		●	●	
E	Grommet terminal	—	—	
EZ		●	●	
L	L plug connector	—	—	
LZ		●	●	
LO	L plug connector (Without connector)	—	—	
LOZ		●	●	
M	M plug connector	—	—	
MZ		●	●	
MO	M plug connector (Without connector)	—	—	
MOZ		●	●	

Cylinder Speed Chart

Use as a guide for selection.
Please confirm the actual conditions with SMC Sizing Program.

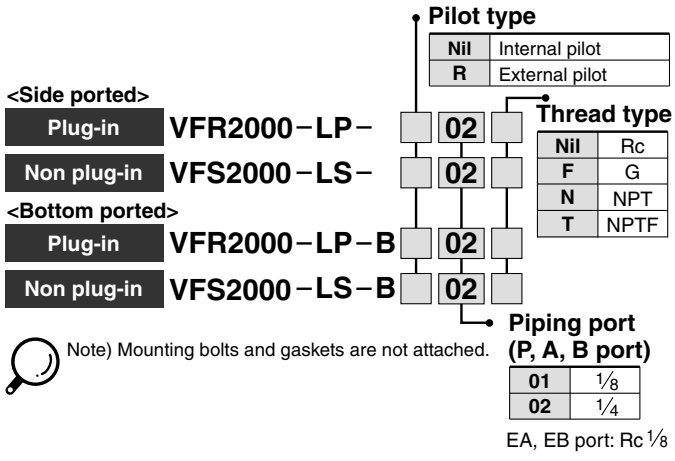


* It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
* The average velocity of the cylinder is what the stroke is divided by the total stroke time.
* Load factor: ((Load weight x 9.8)/Theoretical force) x 100%

System Components

System	Solenoid valve	Speed controller	Silencer	Tube bore x Length
A	Series VFR2000 Rc 1/8	AS2000-01 (S = 2.5 mm²)	AN110-01 (S = 35 mm²)	T0425 x 1 m
B		AS3000-02 (S = 12 mm²)	AN110-01 (S = 35 mm²)	T0604 x 1 m
C		AS3000-02 (S = 12 mm²)	AN110-01 (S = 35 mm²)	T0806 x 1 m
D	Series VFR2000 Rc 1/4	AS4000-02 (S = 21 mm²)	AN110-01 (S = 35 mm²)	T1075 x 1 m
E		AS4000-02 (S = 21 mm²)	AN110-01 (S = 35 mm²)	T1209 x 1 m

How to Order Sub-plate Assembly

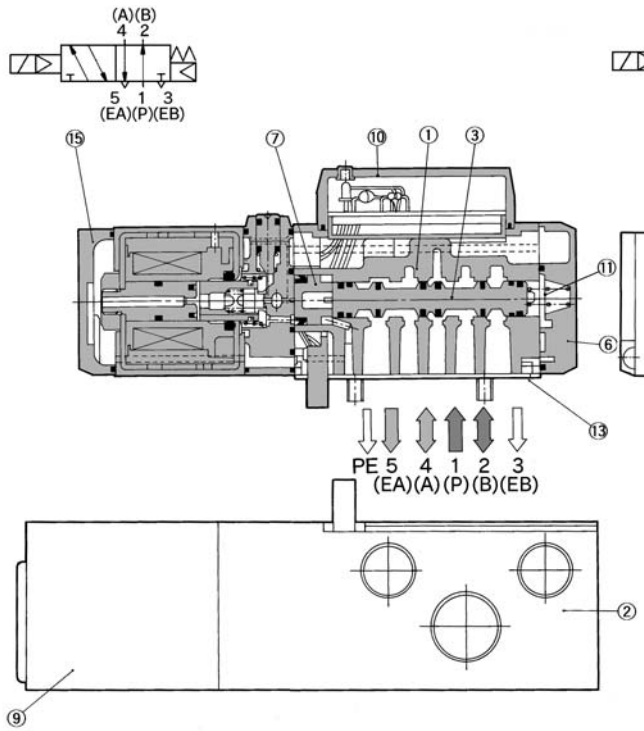


Note) Mounting bolts and gaskets are not attached.

Construction

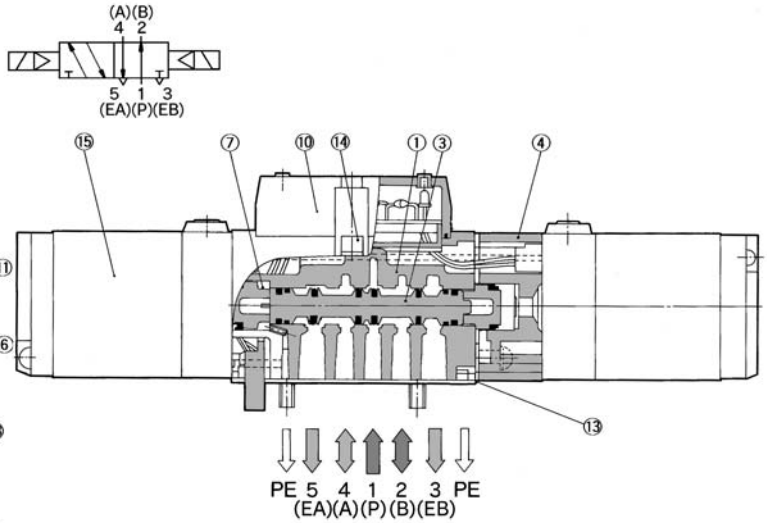
2 position single

VFR21□0



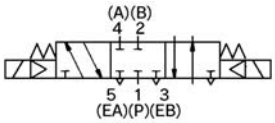
2 position double

VFR22□0

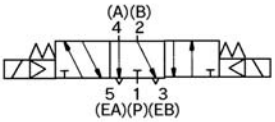


3 position closed center/exhaust center/pressure center

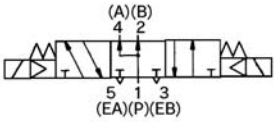
Closed center: VFR23□0

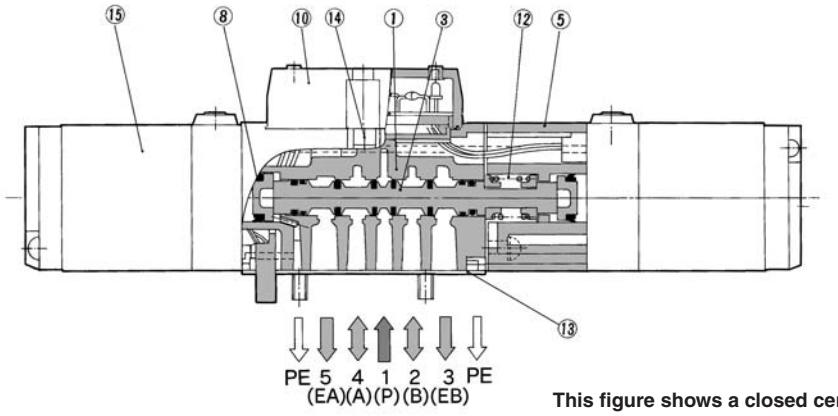


Exhaust center: VFR24□0



Pressure center: VFR25□0





This figure shows a closed center type.

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum die-casted	Platinum silver
2	**Sub-plate**	Aluminum die-casted	Platinum silver
3	**Spool valve**	Aluminum, NBR	
4	**Adapter plate**	Aluminum die-casted	Platinum silver
5	**Adapter plate**	Aluminum die-casted	Platinum silver
6	**End plate**	Resin	Black

Component Parts

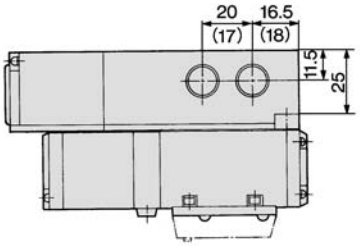
No.	Description	Material	Note
7	**Piston**	Resin	
8	**Piston**	Resin	
9	**Junction cover**	Resin	
10	**Light cover assembly**	Resin	
11	**Spool spring**	Stainless steel	
12	**Return spring**	Stainless steel	

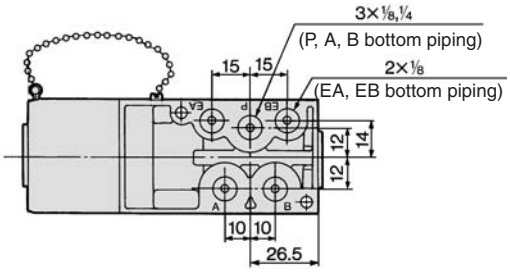
Replacement Parts

No.	Description	Material	Part no.		
			VFR21□0	**VFR22□0**	**VFR23□0/24□0/25□0**
13	**Gasket**	NBR	AXT624-20-2	AXT624-20-2	AXT624-20-2
14	**Hexagon socket head screw**	Steel	AXT624-26 (M3 x 31)	AXT624-26 (M3 x 31)	AXT624-26 (M3 x 31)
15	**Pilot valve assembly**	—	Refer to “How to Order Pilot Valve Assembly” on page 1233.		
—	**Sub-plate assembly**	—	Refer to “How to Order Sub-plate Assembly” on page 1234.		

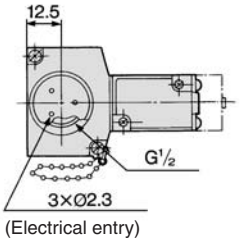
Plug-in: 2 Position Single/Double, 3 Position Closed Center/Exhaust Center/Pressure Center

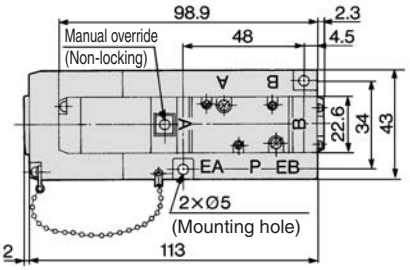
2 position single: VFR2100-□F-$^{01}_{02}$

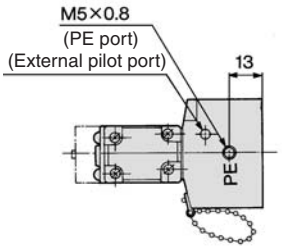


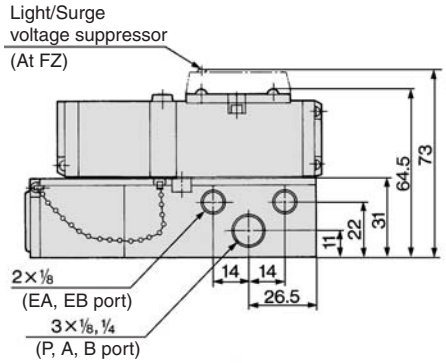


Bottom ported



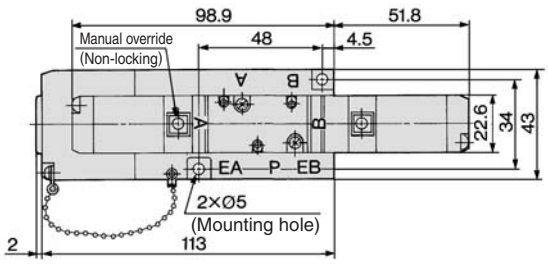






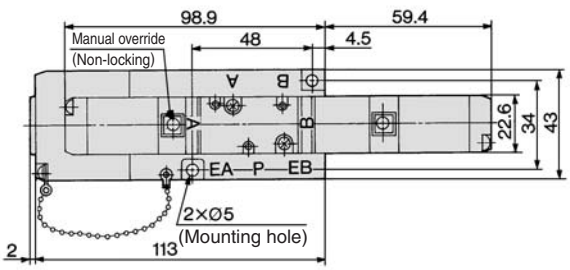
( ): Rc 1/8

2 position double: VFR2200-□F-$^{01}_{02}$



∗ Other dimensions are the same as the single type.

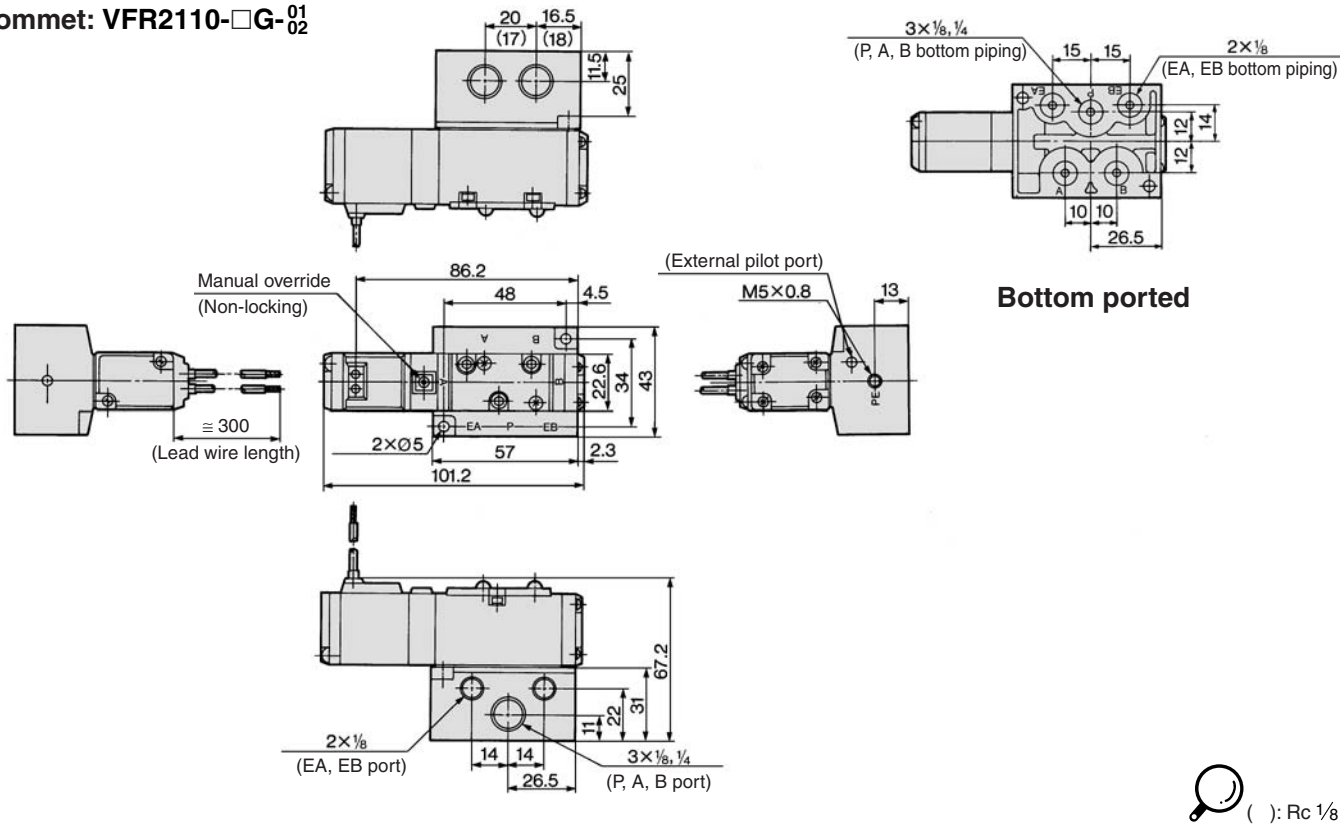
3 position closed center: VFR2300-□F-$^{01}_{02}$
3 position exhaust center: VFR2400-□F-$^{01}_{02}$
3 position pressure center: VFR2500-□F-$^{01}_{02}$



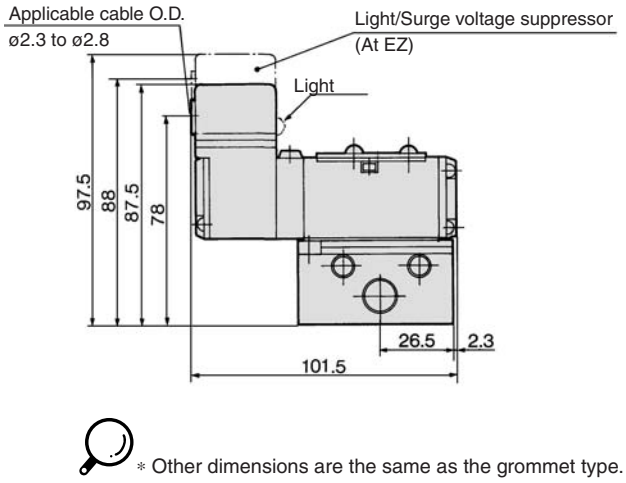
∗ Other dimensions are the same as the single type.

Non Plug-in: 2 Position Single

Grommet: VFR2110-□G-$^{01}_{02}$

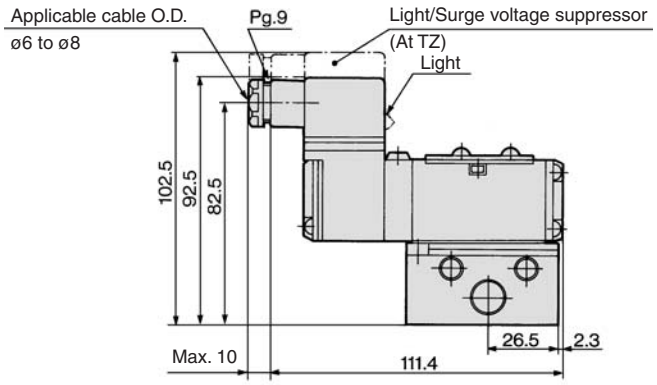


Grommet terminal: VFR2110-□E-$^{01}_{02}$



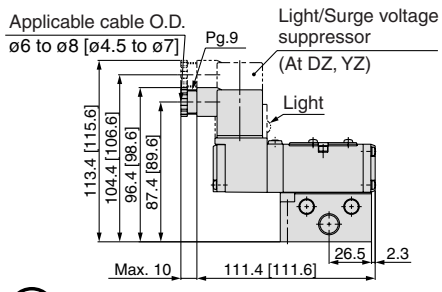
∗ Other dimensions are the same as the grommet type.

Conduit terminal: VFR2110-□T-$^{01}_{02}$



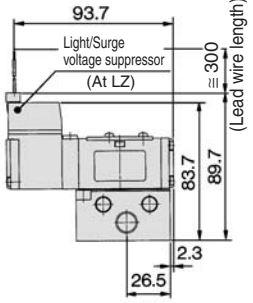
∗ Other dimensions are the same as the grommet type.

DIN terminal: VFR2110-□D-$^{01}_{Y-02}$



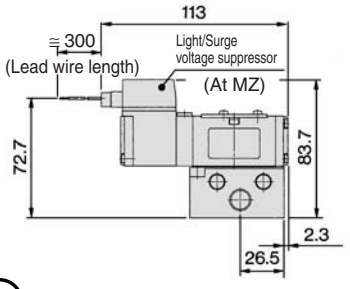
∗ [ ]: Type Y
∗ Other dimensions are the same as the grommet type.

L plug connector: VFR2110-□L-$^{01}_{02}$



∗ Other dimensions are the same as the grommet type.

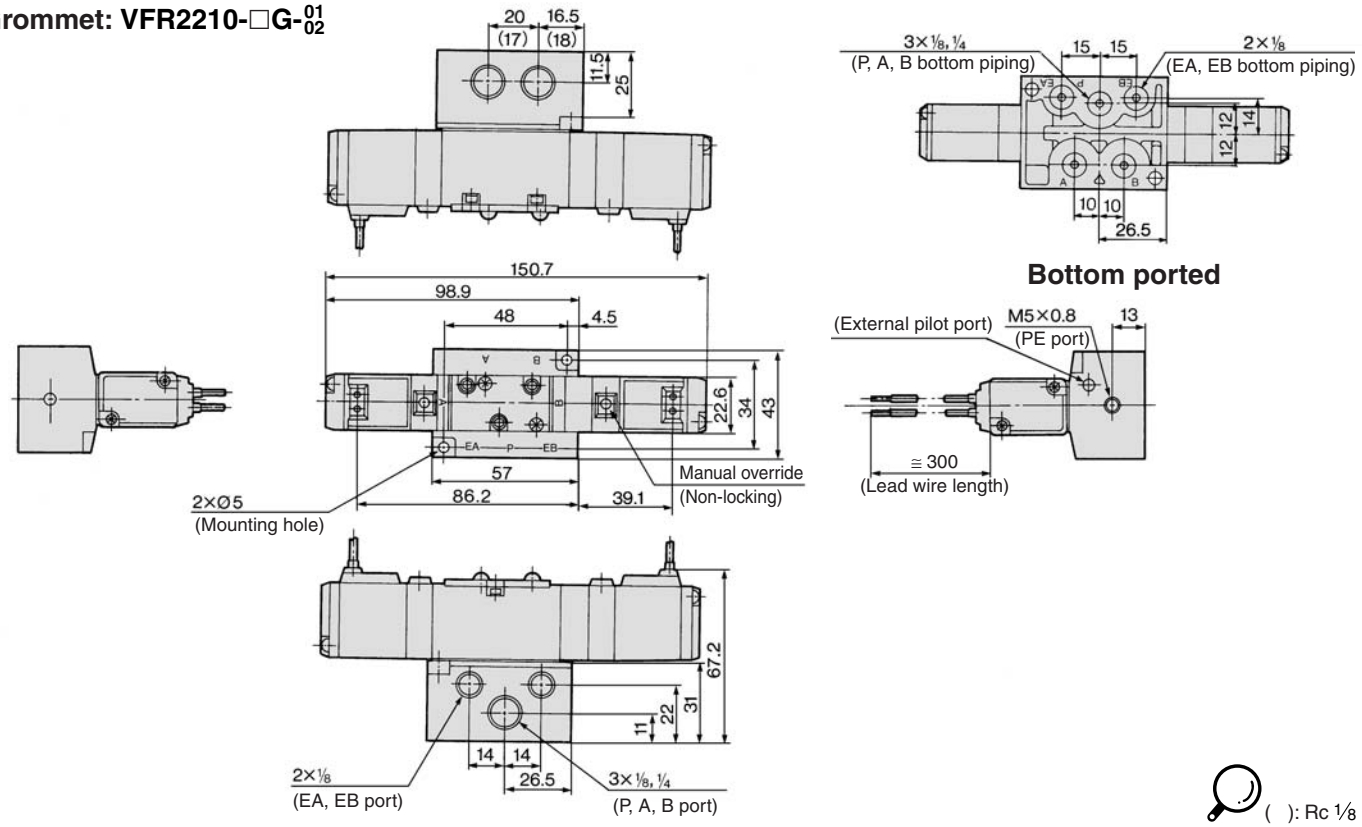
M plug connector: VFR2110-□M-$^{01}_{02}$



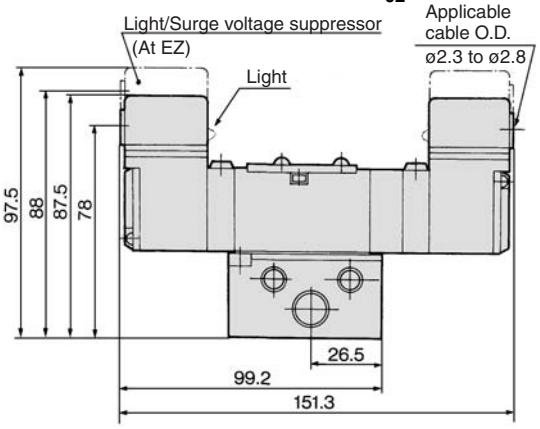
∗ Other dimensions are the same as the grommet type.

Non Plug-in: 2 Position Double

Grommet: VFR2210-□G-$^{01}_{02}$

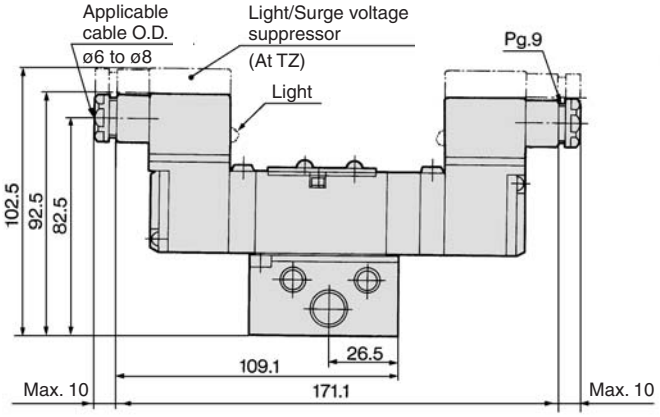


Grommet terminal: VFR2210-□E-$^{01}_{02}$



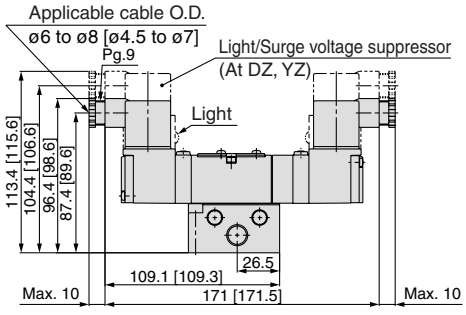
∗ Other dimensions are the same as the grommet type.

Conduit terminal: VFR2210-□T-$^{01}_{02}$



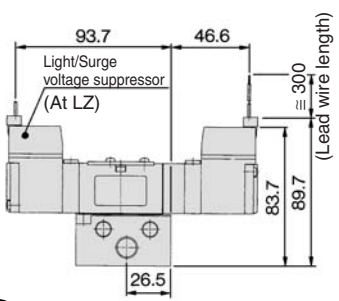
∗ Other dimensions are the same as the grommet type.

DIN terminal: VFR2210-□D-$^{01}_{02}$ Y-$^{01}_{02}$



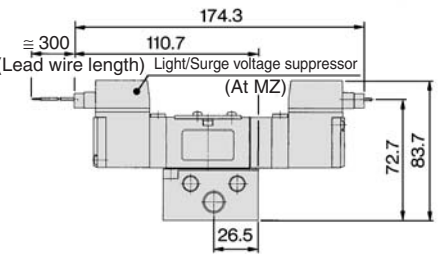
∗ [ ]: Type Y
∗ Other dimensions are the same as the grommet type.

L plug connector: VFR2210-□L-$^{01}_{02}$



∗ Other dimensions are the same as the grommet type.

M plug connector: VFR2210-□M-$^{01}_{02}$

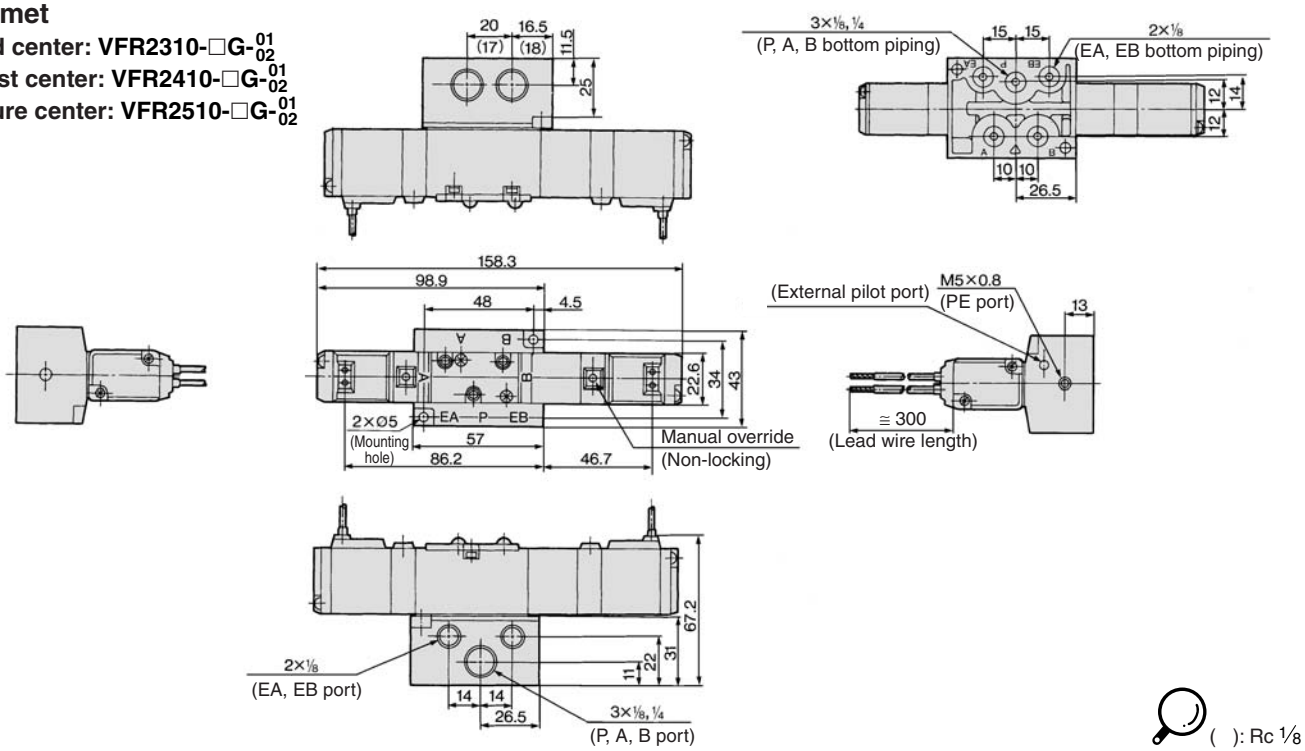


∗ Other dimensions are the same as the grommet type.

Non Plug-in: 3 Position Closed Center/Exhaust Center/Pressure Center

Grommet

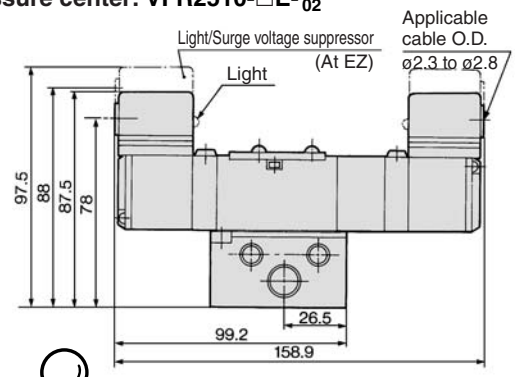
Closed center: VFR2310-□G-$^{01}_{02}$
Exhaust center: VFR2410-□G-$^{01}_{02}$
Pressure center: VFR2510-□G-$^{01}_{02}$



( ): Rc ⅛

Grommet terminal

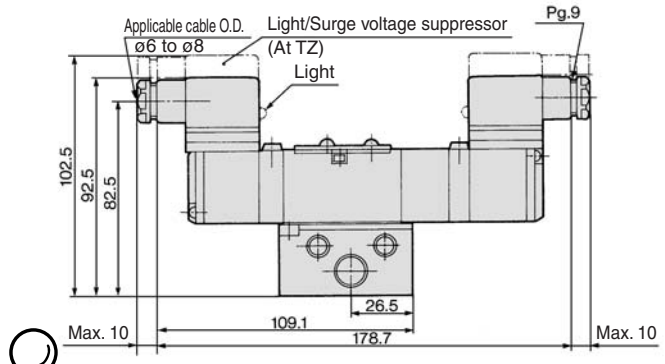
Closed center: VFR2310-□E-$^{01}_{02}$
Exhaust center: VFR2410-□E-$^{01}_{02}$
Pressure center: VFR2510-□E-$^{01}_{02}$



∗ Other dimensions are the same as the grommet type.

Conduit terminal

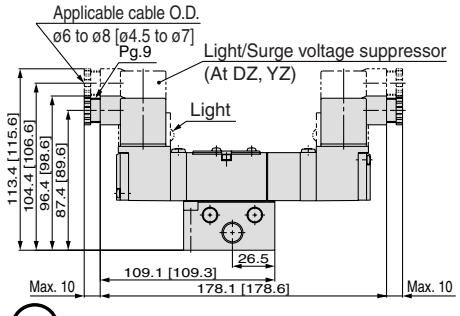
Closed center: VFR2310-□T-$^{01}_{02}$
Exhaust center: VFR2410-□T-$^{01}_{02}$
Pressure center: VFR2510-□T-$^{01}_{02}$



∗ Other dimensions are the same as the grommet type.

DIN terminal

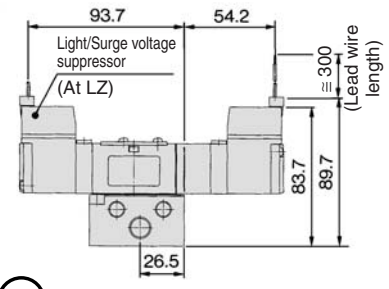
Closed center: VFR2310-□D$^{-01}_{Y\ 02}$
Exhaust center: VFR2410-□D$^{-01}_{Y\ 02}$
Pressure center: VFR2510-□D$^{-01}_{Y\ 02}$



∗ [ ]: Type Y
∗ Other dimensions are the same as the grommet type.

L plug connector

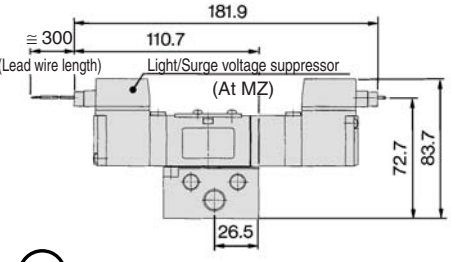
Closed center: VFR2310-□L-$^{01}_{02}$
Exhaust center: VFR2410-□L-$^{01}_{02}$
Pressure center: VFR2510-□L-$^{01}_{02}$



∗ [ ]: Type Y
∗ Other dimensions are the same as the grommet type.

M plug connector

Closed center: VFR2310-□M-$^{01}_{02}$
Exhaust center: VFR2410-□M-$^{01}_{02}$
Pressure center: VFR2510-□M-$^{01}_{02}$



∗ [ ]: Type Y
∗ Other dimensions are the same as the grommet type.

Series VFR2000
Manifold Specifications

Manifold Specifications

Base model	Wiring	Porting specifications	Port size		Stations	Applicable valve model
		A, B port	P, EA, EB	A, B		
Plug-in type **VV5FR2-01□(-Q)**	• With terminal block	Side/Bottom Note)	1/4	1/8, 1/4 C6, C8	2 to 15	VFR2□00-□F(-Q)
	• With multi-connector • With D-sub connector				2 to 8	
Non plug-in type **VV5FR2-10(-Q)**	• Grommet • Grommet terminal • Conduit terminal • DIN terminal • L plug connector • M plug connector				2 to 15	VFR2 10-□G VFR2□10-□E VFR2□10-□T VFR2□10-□D(-Q) VFR2□10-□L VFR2□10-□M

Note) Side ported and bottom ported cannot be taken at the same time.

How to Order Manifold Assembly

<Example> Plug-in type with terminal block (6 stations, one-piece junction cover)

VV5FR2-01T1-061-02 ····· **1 set (Manifold base part no.)**
***VFR2100-5FZ** ····· **3 sets (2 position single part no.)**
***VFR2200-5FZ** ····· **2 sets (2 position double part no.)**
***VVFS2000-10A** ····· **1 set (Blanking plate assembly part no.)**
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Valve arrangement is counted from the D side.
When ordering, specify the part nos. in order from the 1st. station in the D side.
When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

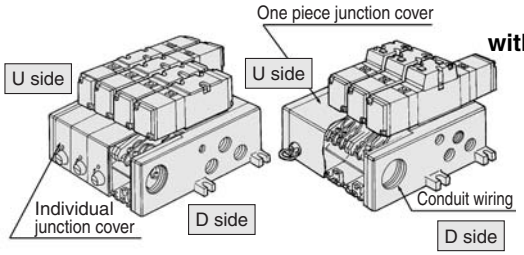
<Example> Non plug-in type: 6 stations

VV5FR2-10-061-01 ····· **1 set (Manifold base part no.)**
***VFR2110-5D** ····· **5 sets (2 position single part no.)**
***VFR2410-5D** ····· **1 set (3 position exhaust part no.)**
***VVFS2000-R-01-2** ····· **1 set (Individual EXH spacer part no.)**
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Valve arrangement is counted from the D side.
When ordering, specify the part nos. in order from the 1st. station in the D side.
When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

Plug-in Type: With Terminal Block

- **Since lead wires of solenoid valve are connected with the terminals on upper surface of terminal block corresponding lead wires from power source can be wired at the bottom of terminal block.**



Note) P port or EA/EB port of symbol "3" to "8" can be individual port with block plate. Therefore, if using individual SUP spacer or individual EXH spacer for individual port, its symbol is "1".

VV5FR2 − 01T 1 − 08 1 − 02 □ − □

Series VFR2000 Manifold

Plug-in type with terminal block

Junction cover

Nil	Individual junction cover
1	One-piece junction cover

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

Symbol	Passage P	Passage EA, EB	Porting specification A, B
1	Common	Common	Side
2 *	Common	Common	Bottom
3 *	Common	Individual	Side
4 *	Common	Individual	Bottom
5 *	Individual	Common	Side
6 *	Individual	Common	Bottom
7 *	Individual	Individual	Side
8 *	Individual	Individual	Bottom

* Option
When an individual passage is used, P, EA and EB ports will be bottom ported.

Port size

Symbol	P, EA, EB *	A, B *
01	1/4	1/8
02		1/4
C6		One-touch fitting for ø6
C8		One-touch fitting for ø8
M		Mixed

* For bottom ported, 1/8 is only available.

CE-compliant

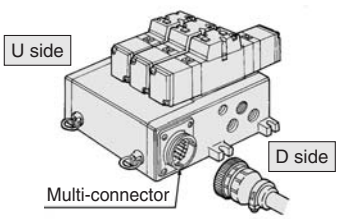
Nil	—
Q	CE-compliant

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Plug-in Type: With Multi-connector (For wiring specifications, refer to page 1326.)

- **Master connection of power and solenoid valves.**
- **Quick wiring permits ease of installation.**



Note) P port or EA/EB port of symbol "3" to "8" can be individual port with block plate. Therefore, if using individual SUP spacer or individual EXH spacer for individual port, its symbol is "1".

VV5FR2 − 01C D 1 − 05 1 − 01 □ − □

Series VFR2000 Manifold

Plug-in type with multi-connector

Connector mounting direction

D	D side mounting
U	U side mounting

Junction cover

1	One-piece junction cover

Stations

02	2 stations
⋮	⋮
08	8 stations

* Max. 8 stations

Symbol

Symbol	Passage P	Passage EA, EB	Porting specification A, B
1	Common	Common	Side
2 *	Common	Common	Bottom
3 *	Common	Individual	Side
4 *	Common	Individual	Bottom
5 *	Individual	Common	Side
6 *	Individual	Common	Bottom
7 *	Individual	Individual	Side
8 *	Individual	Individual	Bottom

* Option
When an individual passage is used, P, EA and EB ports will be bottom ported.

Port size

Symbol	P, EA, EB *	A, B *
01	1/4	1/8
02		1/4
C6		One-touch fitting for ø6
C8		One-touch fitting for ø8
M		Mixed

* For bottom ported, 1/8 is only available.

CE-compliant

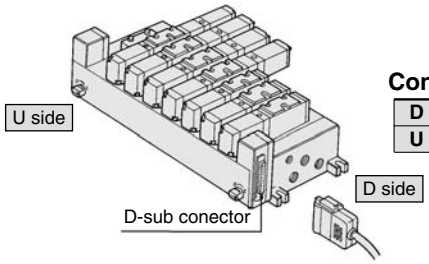
Nil	—
Q	CE-compliant

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Plug-in Type: With D-sub Connector (For wiring specifications, refer to page 1326.)

- **Wide range of interchangeability (D-sub connector (25P) conforming to MIL standard)**
- **Quick wiring permits easier installation.**



VV5FR2 – 01F U 1 – 06 1 – 01 – CE-compliant

Series VFR2000 Manifold

Plug-in type with D-sub connector

Connector mounting direction

D	D side mounting
U	U side mounting

Junction cover

1	One-piece junction cover

Stations

02	2 stations
⋮	⋮
08	8 stations

∗ Max. 8 stations

Symbol

Symbol	Passage P	Passage EA, EB	Porting specification A, B
1	Common	Common	Side
2 ∗			Bottom
3 ∗	Common	Individual	Side
4 ∗			Bottom
5 ∗	Individual	Common	Side
6 ∗			Bottom
7 ∗	Individual	Individual	Side
8 ∗			Bottom

∗ Option
When an individual passage is used, P, EA and EB ports will be bottom ported.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	P, EA, EB ∗	A, B ∗
01	1/4	1/8
02		1/4
C6		One-touch fitting for ø6
C8		One-touch fitting for ø8
M		Mixed

∗ For bottom ported, 1/8 is only available.

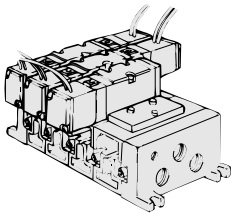
CE-compliant

Nil	—
Q	CE-compliant

Note) P port or EA/EB port of symbol “3” to “8” can be individual port with block plate.
Therefore, if using individual SUP spacer or individual EXH interface for individual port, its symbol is “1”.

Non Plug-in Type: Grommet, Grommet Terminal, Conduit Terminal, DIN Terminal

- **Wiring for every valve**



VV5FR2 – 10 – 05 1 – 01 – CE-compliant

Series VFR2000 Manifold

Non plug-in type

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

Symbol	Passage P	Passage EA, EB	Porting specification A, B
1	Common	Common	Side
2 ∗			Bottom
3 ∗	Common	Individual	Side
4 ∗			Bottom
5 ∗	Individual	Common	Side
6 ∗			Bottom
7 ∗	Individual	Individual	Side
8 ∗			Bottom

∗ Option
When an individual passage is used, P, EA and EB ports will be bottom ported.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	P, EA, EB ∗	A, B ∗
01	1/4	1/8
02		1/4
C6		One-touch fitting for ø6
C8		One-touch fitting for ø8
M		Mixed

∗ For bottom ported, 1/8 is only available.

CE-compliant

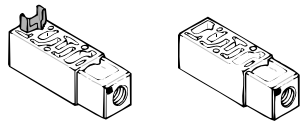
Nil	—
Q	CE-compliant

Note) P port or EA/EB port of symbol “3” to “8” can be individual port with block plate.
Therefore, if using individual SUP spacer or individual EXH spacer for individual port, its symbol is “1”.

Manifold/Option Parts Assembly

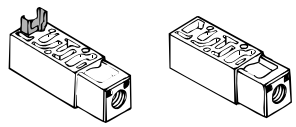
Individual SUP spacer
Setting individual SUP spacer on the manifold block enables individual SUP port for each valve.

Body type		Plug-in type	Non plug-in type
Part no.	Rc 1/8	VVFS2000-P-01-1	VVFS2000-P-01-2
	Rc 1/4	VVFS2000-P-02-1	VVFS2000-P-02-2



Individual EXH spacer
Setting individual EXH spacer on the manifold block enables individual EXH port for each valve.

Body type		Plug-in type	Non plug-in type
Part no.	Rc 1/8	VVFS2000-R-01-1	VVFS2000-R-01-2
	Rc 1/4	VVFS2000-R-02-1	VVFS2000-R-02-2



SUP block disk
When supplying manifold with more than two different kinds of pressure, high and low, insert a block disk in between stations subjected to different pressures.

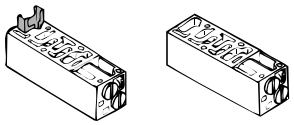
Body type	Plug-in type	Non plug-in type
Part no.	AXT625-12A	

EXH block disk
When valve exhaust affects the other stations in the circuit, insert EXH block disk in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	AXT625-12A	

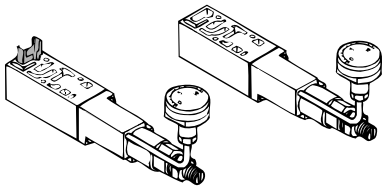
Throttle valve spacer
Needle valve set on the manifold block can control cylinder speed by throttling exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-20A-1	VVFS2000-20A-2



Interface regulator
Interface regulator set on the manifold block can regulate pressure for each valve. (Refer to "Flow Characteristics" on page 1324 before operation.)

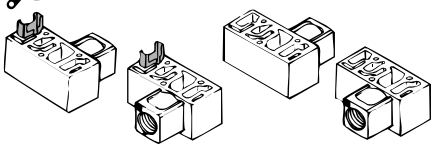
Body type	Plug-in type	Non plug-in type
P port regulation	ARBF2000-00-P-1	ARBF2000-00-P-2



Air release valve spacer
Valve VFR21□0 (single) can be used as air release valve by combining with release valve spacer.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-24A-1 L/R	VVFS2000-24A-2 L/R

Note) L: U side mount R: D side mount



SUP stop valve spacer Note)
If SUP stop valve spacer is set, valve can be removed for maintenance without stopping air pressure supply for other valves.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-37A-1	VVFS2000-37A-2

(Height will be 23.2 mm higher.)

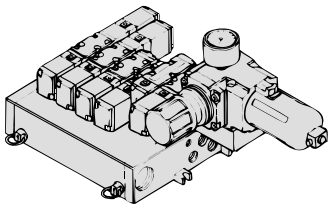
Note) Used with manifold base.
Please contact SMC for details.

Blanking plate
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-10A	

Manifold Option

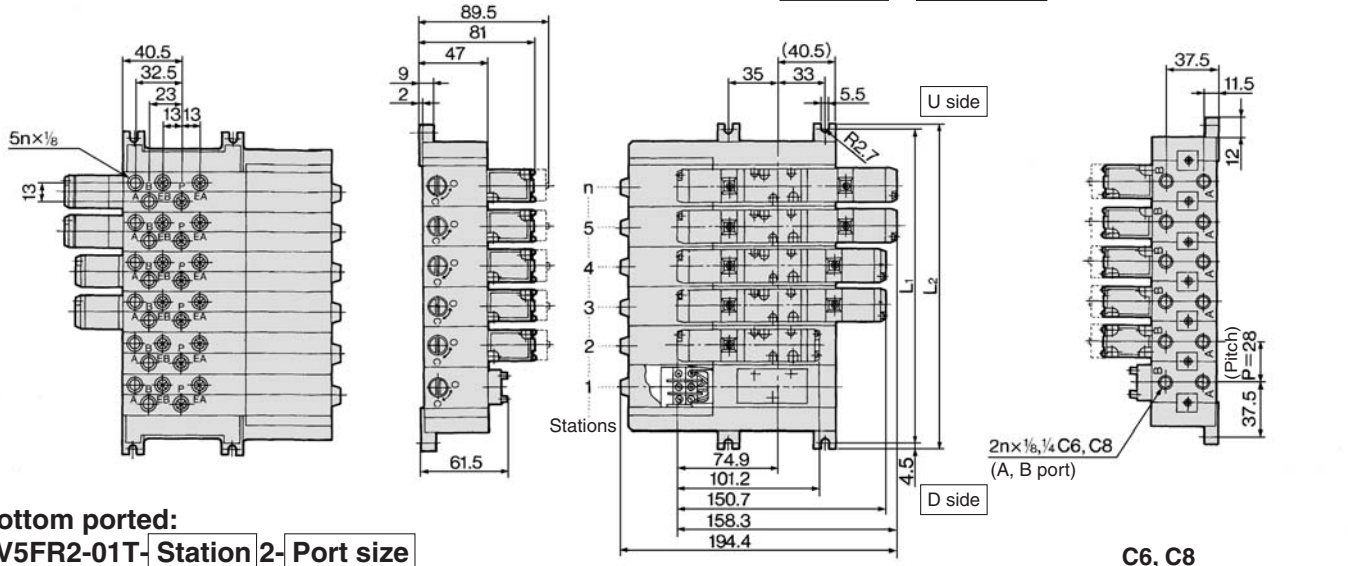
With control unit
Plug-in/Non Plug-in type
- Filter, regulation valve, pressure switch and air release valve all combine to form one unit.
- Piping processes are eliminated.



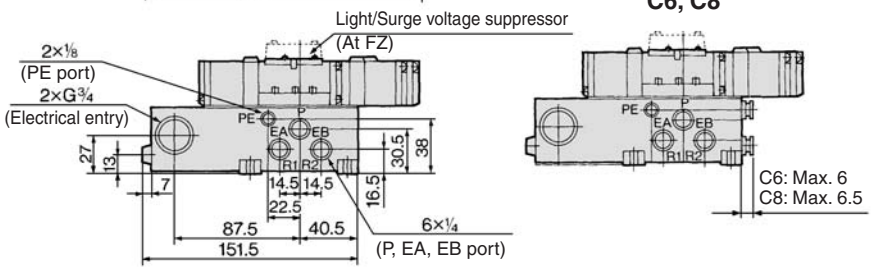
For details, refer to page 1247.

Manifold/Plug-in Type

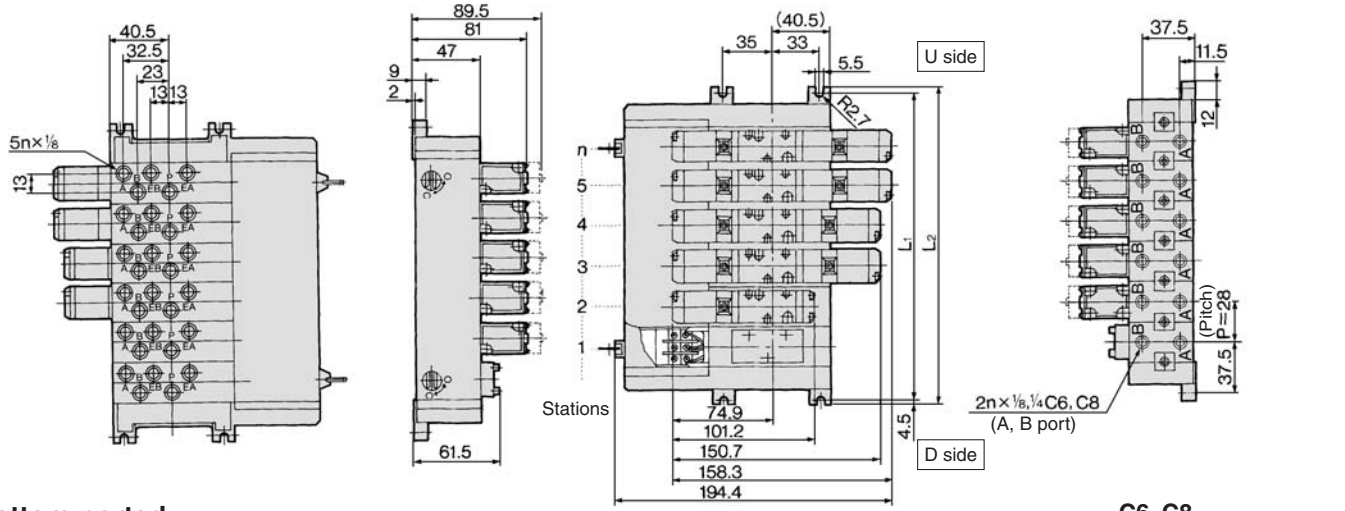
With terminal block (Individual junction cover): VV5FR2-01T- Station 1- Port size



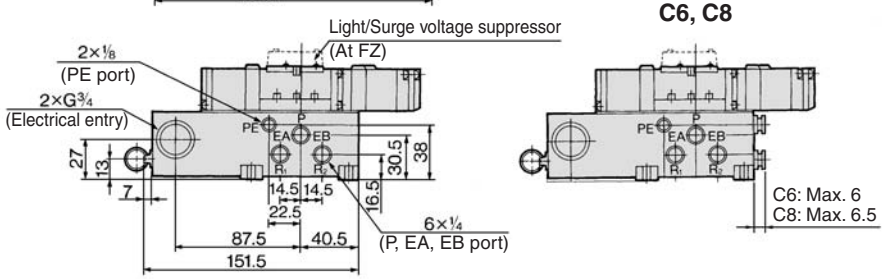
Bottom ported: VV5FR2-01T- Station 2- Port size



With terminal block (One-piece junction cover): VV5FR2-01T1- Station 1- Port size



Bottom ported: VV5FR2-01T1- Station 2- Port size

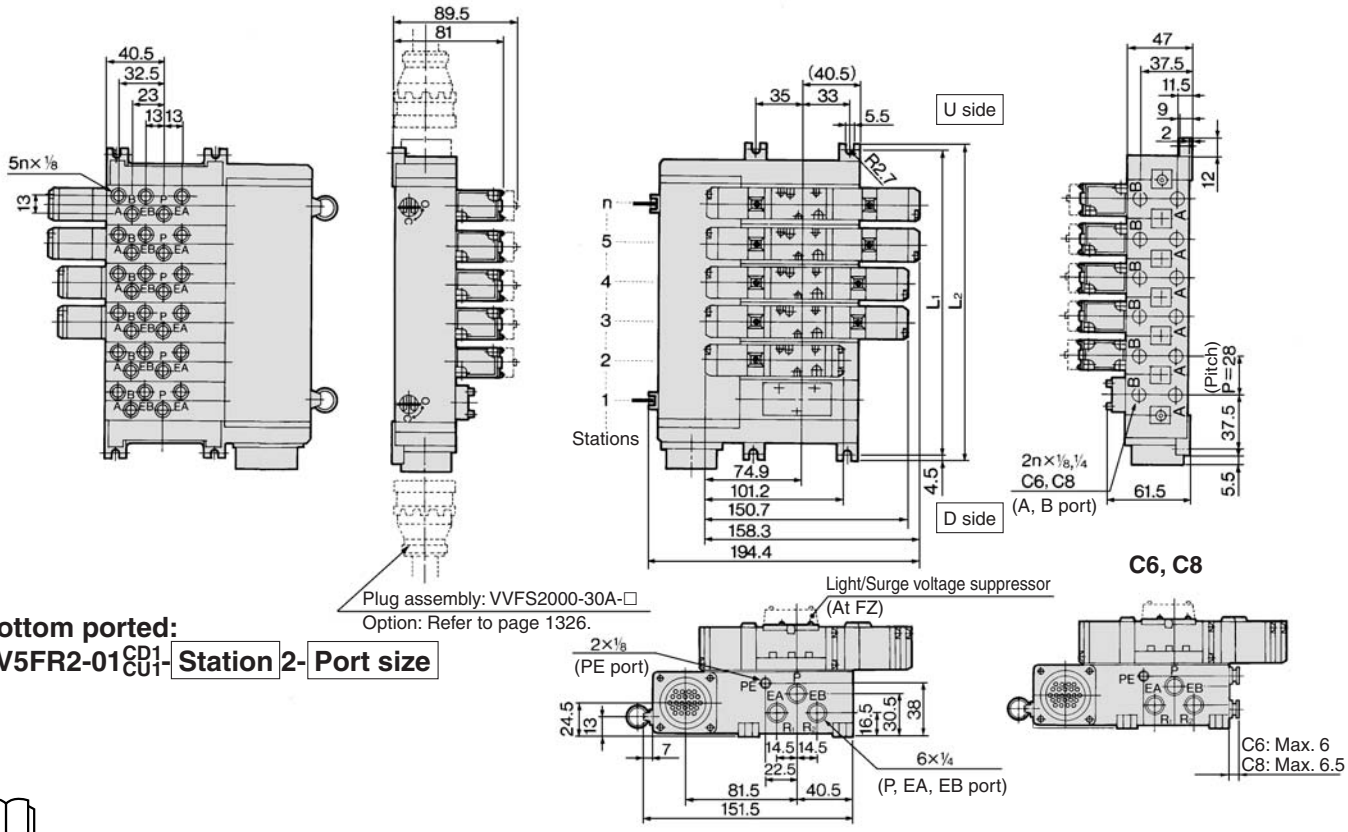


n: Stations

L / Stations	1	2	3	4	5	6	7	8	9	10	Formula
L_1	75	103	131	159	187	215	243	271	299	327	$L_1 = 28 \times n + 47$
L_2	84	112	140	168	196	224	252	280	308	336	$L_2 = 28 \times n + 56$

Manifold/Plug-in Type

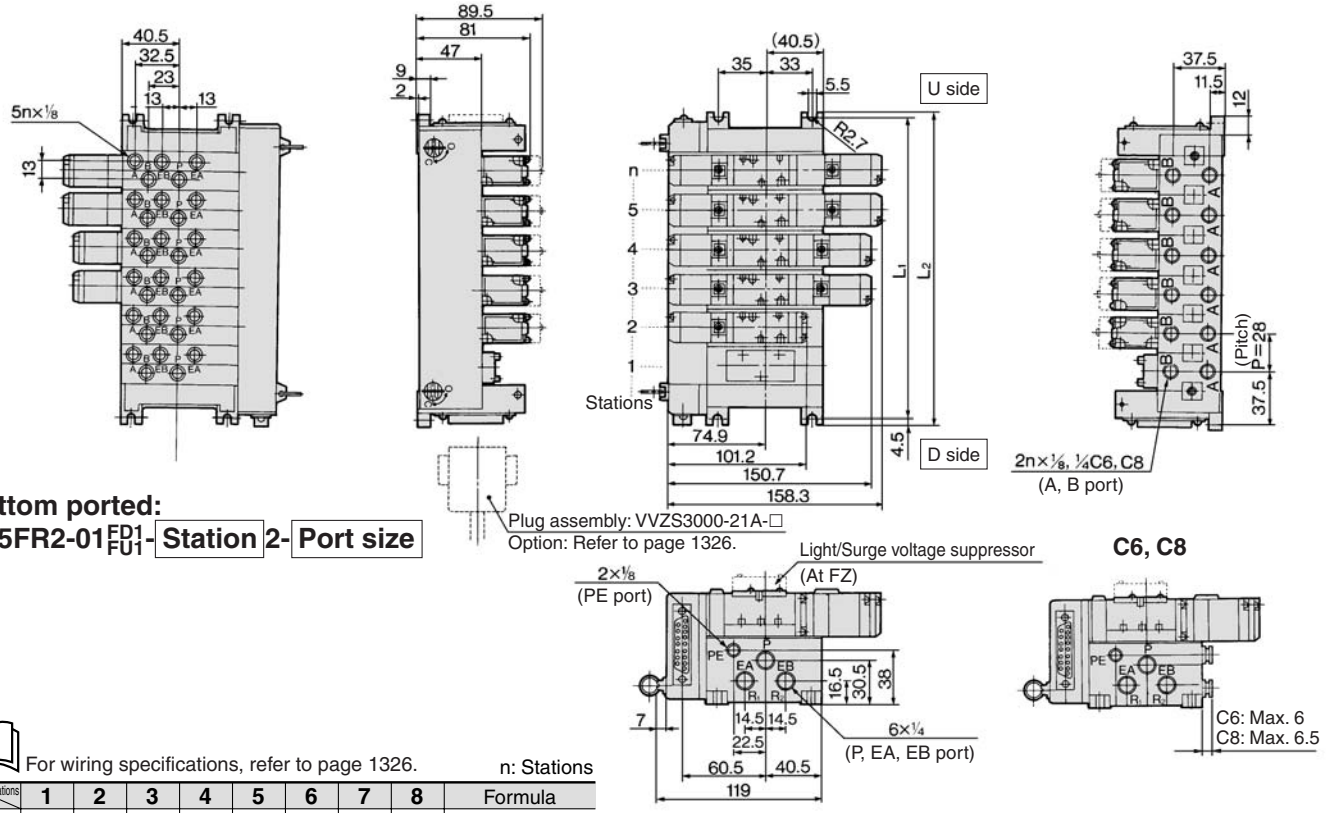
With multi-connector: VV5FR2-01CD1-[Station]1-[Port size], VV5FR2-01CU1-[Station]1-[Port size]



Bottom ported:
VV5FR2-01$^{CD1}_{CU1}$-[Station]2-[Port size]

For wiring specifications, refer to page 1326.

With D-sub connector: VV5FR2-01FD1-[Station]1-[Port size], VV5FR2-01FU1-[Station]1-[Port size]



Bottom ported:
VV5FR2-01$^{FD1}_{FU1}$-[Station]2-[Port size]

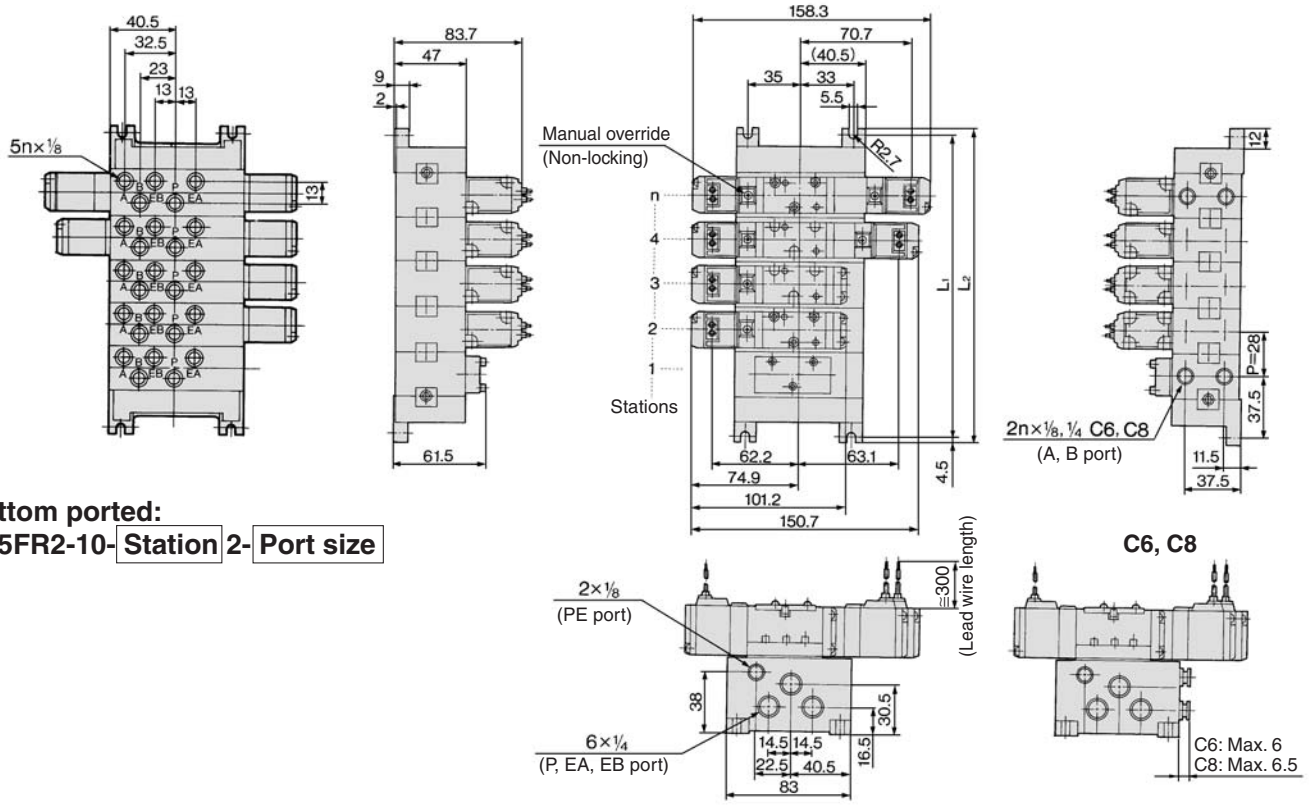
For wiring specifications, refer to page 1326.

n: Stations

L \ Stations	1	2	3	4	5	6	7	8	Formula
L_1	75	103	131	159	187	215	243	271	$L_1 = 28 \times n + 47$
L_2	84	112	140	168	196	224	252	280	$L_2 = 28 \times n + 56$

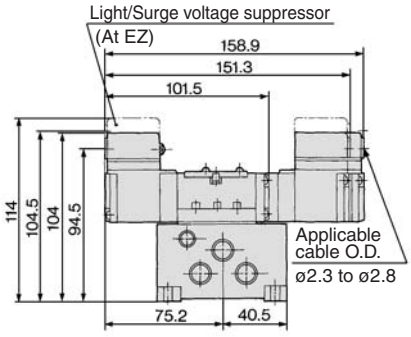
Manifold/Non plug-in type: VV5FR2-10-Station 1-Port size

Grommet: G

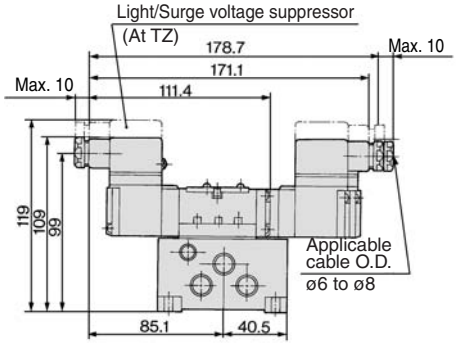


Bottom ported:
VV5FR2-10-Station 2-Port size

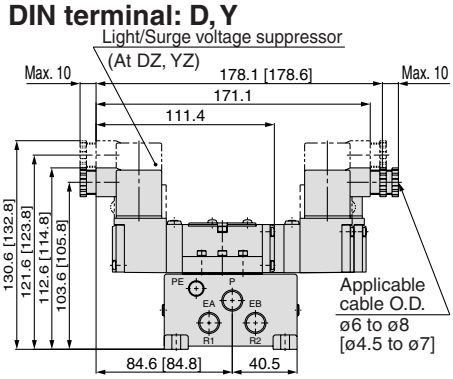
Grommet terminal: E



Conduit terminal: T

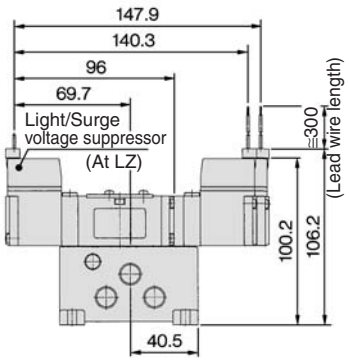


DIN terminal: D, Y

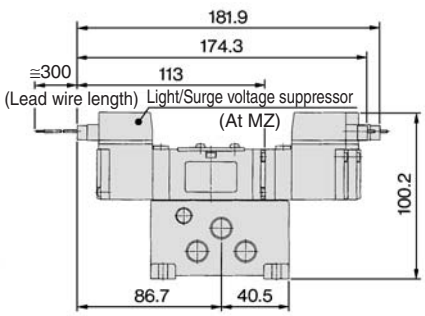


* [ ]: Type Y

L plug connector: L



M plug connector: M

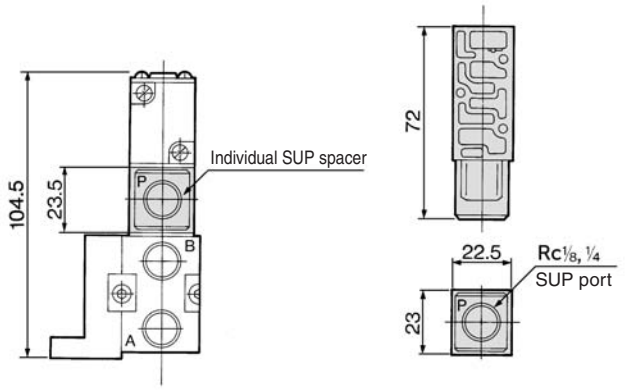


n: Stations

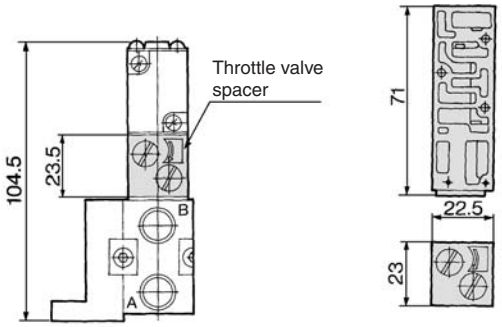
L / Stations	1	2	3	4	5	6	7	8	9	10	Formula
L_1	75	103	131	159	187	215	243	271	299	327	$L_1 = 28 \times n + 47$
L_2	84	112	140	168	196	224	252	280	308	336	$L_2 = 28 \times n + 56$

Manifold/Option Parts Assembly: Plug-in Type/Non Plug-in Type

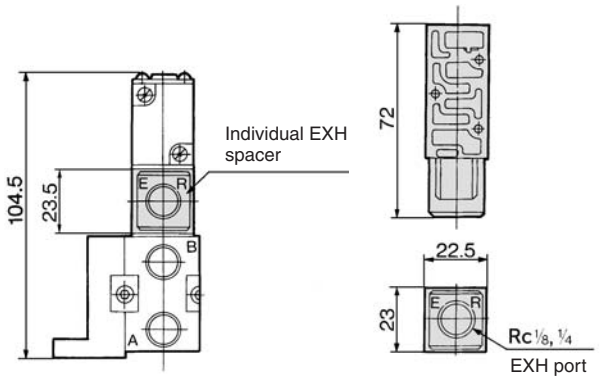
Individual SUP spacer:
VVFS2000-P-$^{01}_{02}$-1 (Plug-in type)
VVFS2000-P-$^{01}_{02}$-2 (Non plug-in type)



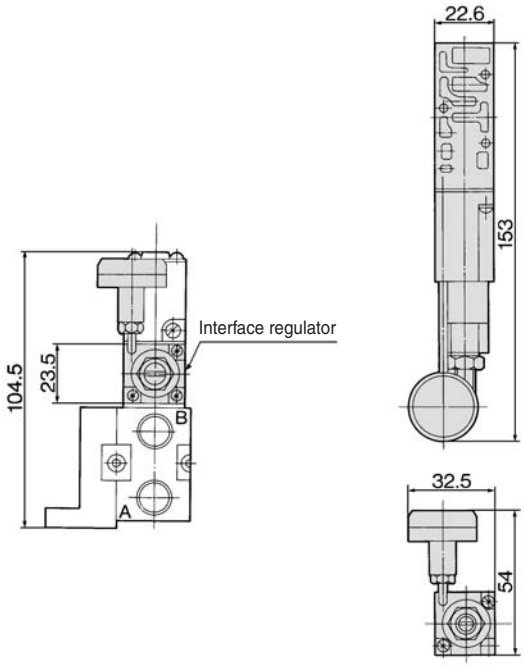
Throttle valve spacer:
VVFS2000-20A-1 (Plug-in type)
VVFS2000-20A-2 (Non plug-in type)



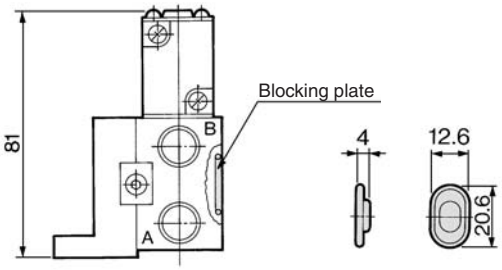
Individual EXH spacer:
VVFS2000-R-$^{01}_{02}$-1 (Plug-in type)
VVFS2000-R-$^{01}_{02}$-2 (Non plug-in type)



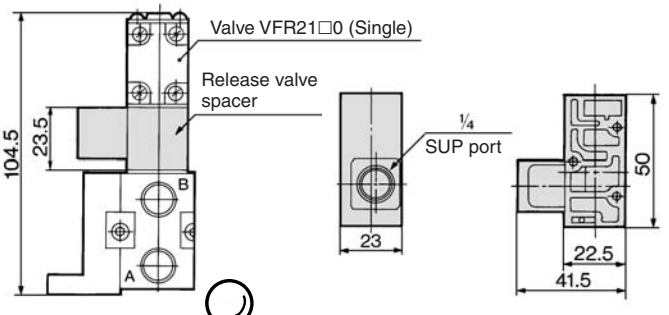
Interface regulator
ARBF2000-00-P-1 (Plug-in type)
ARBF2000-00-P-2 (Non plug-in type)



SUP block disk: AXT625-12A
EXH block disk: AXT625-12A



Release valve spacer
VVFS2000-24A-1$^{R}_{L}$ (Plug-in type)
VVFS2000-24A-2$^{R}_{L}$ (Non plug-in type)

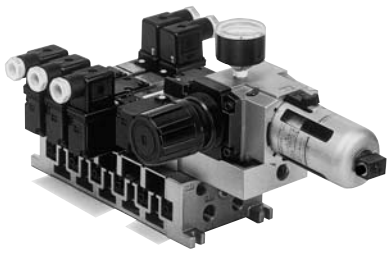


Note) VVFS2000-24A-1/2R (D side mounting)

Manifold with Control Unit

- **Control unit (Filter, Regulator, Pressure switch, Air release valve) are all standardized to the one unit, and can be mounted on the manifold base without any attachments.**
- **Piping processes are eliminated.**

Plug-in type



Non plug-in type

⚠ Caution

Air filter with auto-drain or manual drain must be mounted with the air filter at the bottom.

Manifold Specifications

Manifold	Plug-in type: **VV5FR2-01□(-Q)**		Non plug-in type: **VV5FR2-10(-Q)**
Wiring	With terminal block With multi-connector With D-sub connector		Grommet, Grommet terminal Conduit terminal, DIN terminal L plug connector, M plug connector
Applicable valve model	VFR2□00-□F(-Q)		VFR2□10-□G, VFR2□10-□E VFR2□10-□T,VFR2□10-□DY(-Q) VFR2□10-□L,VFR2□10-□M
Porting specifications Rc	Common SUP, Common EXH		
	A, B port	Side: Rc 1/8, 1/4, C6, C8, Bottom: Rc 1/8 (Option)	
	P, EA, EB port	Side: Rc 1/4, Bottom: Rc 1/8 (Option)	
Stations	2 to 15 stations * (With multi-connector/D-sub connector: 2 to 8 stations)		

* Including station of control unit

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration degree	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa
Contact	1a
Indicator light	LED (RED)
Max. switch capacity	2 VA AC, 2 W DC
Max. operating current	24 VAC, DC or less: 50 mA 100 VAC, DC: 20 mA
Inside voltage drop	4 V or less
Air release valve (Single only)	
Operating pressure range	0.2 to 0.9 MPa

Control Unit/Option

Air release valve spacer (1)	<Plug-in type> VVFS2000-24A-1R (D side mounting) VVFS2000-24A-1L (U side mounting)	
	<Non plug-in type> VVFS2000-24A-2R (D side mounting) VVFS2000-24A-2L (U side mounting)	
Pressure switch (2)	IS1000P-2-1	
Blanking plate	For filter regulator	MP2-2
	For pressure switch	MP3-2
	For air release valve	AXT625-18A
Filter element	111511-5B	

Note 1) Refer to “Manifold Option” on page 1246.
Note 2) Pressure switch cannot be mounted later on non plug-in type.

How to Order

VV5FR2 – 10 – 08 1 – 01 – AP – CE-compliant

Series VFR2000 Manifold

Base model

Symbol	Electrical entry	Connector mounting direction	Junction cover
01T	Plug-in type terminal block	—	Stacking type
01T1			Integrated type
01CD1	Plug-in type multi-connector	D side	Integrated type
01CU1		U side	
01FD1	Plug-in type D-sub connector	D side	Integrated type
01FU1		U side	
10	Non plug-in type	—	—

Stations

02	2 stations
⋮	⋮
15 Note)	15 stations

Note) • 01CD1, 01CU1, 01FD1, 01FU1: Max. 8 stations
• 01T, 01T1, 10: Max. 15 stations
• Including station of control unit

Symbol

Symbol	Passage		Porting specifications
	P	EA, EB	(A, B)
1	Common	Common	Side
2 *			Bottom
3 *	Common	Individual	Side
4 *			Bottom
5*	Individual	Common	Side
6 *			Bottom
7 *	Individual	Individual	Side
8 *			Bottom

* Option
P port or EA/EB port of symbol "3" to "8" can be individual port with block disk. Therefore, if using individual SUP spacer or individual EXH spacer for individual port, its symbol is "1".
When an individual passage is used, P, EA and EB ports will be bottom ported.

Port size

Symbol	P, EA, EB *	A, B *
01	1/4	1/8
02		1/4
C6		One-touch fitting for ø6
C8		One-touch fitting for ø8
M		Mixed

* For bottom ported, 1/8 is only available.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Control unit type

Control equipment \ Symbol	Nil	MP	AP	M	A	G	F	C	E
Air release valve		●	●	●	●			●	●
Air filter regulator with manual drain		●		●		●			
Air filter regulator with auto-drain			●		●		●		
Pressure switch		●	●						
Blanking plate (Air release valve)						●	●		
Blanking plate (Filter regulator)								●	
Blanking plate (Pressure switch)				●	●	●	●	●	
Required stations		2 stations							1 station

Note) Control unit is D side mounting only.

Air release valve coil rating

Nil	None
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

CE-compliant

Nil	—
Q	CE-compliant

How to Order Manifold Assembly

<Example> Plug-in type with terminal block

VV5FR2-01T1-091-02-MP5 ····· 1 set (Manifold base part no.)
***VFR2100-5FZ ····· 5 sets (2 position single part no.)**
***VFR2200-5FZ ····· 2 sets (2 position double part no.)**

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

The 1st and 2nd station are used for control unit mounting.
When ordering, specify the part nos. in order from the 3rd. station in the D side.
When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

<Example> Non plug-in type

VV5FR2-10-071-01-M5 ····· 1 set (Manifold base part no.)
***VFR2110-5D ····· 5 sets (2 position single part no.)**

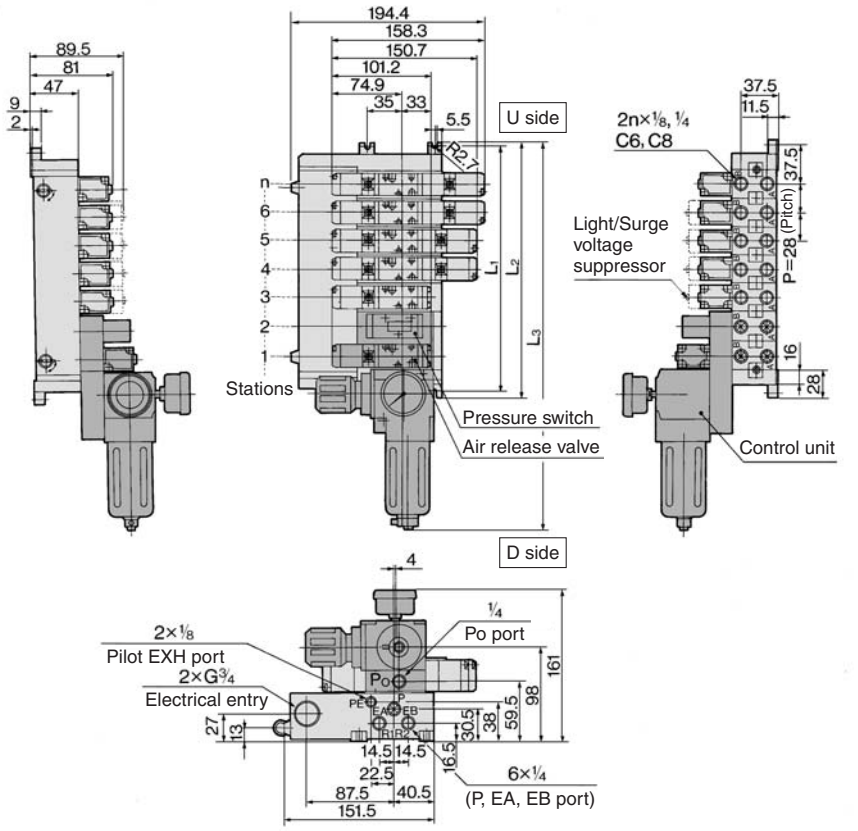
→ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

The 1st and 2nd station are used for control unit mounting.
When ordering, specify the part nos. in order from the 3rd. station in the D side.
When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

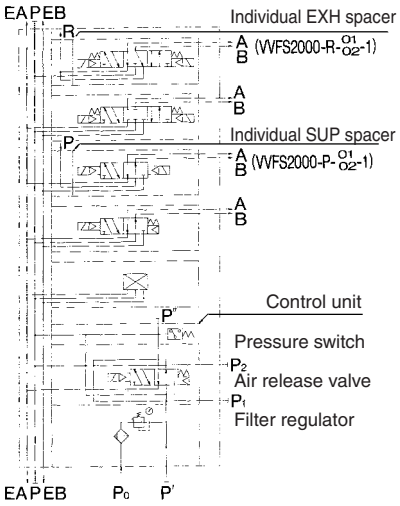
Manifold with Control Unit: Plug-in Type/Non Plug-in Type

Plug-in type:

VV5FR2-01T- Station **1-** Port size **-** Control unit Voltage of air release valve

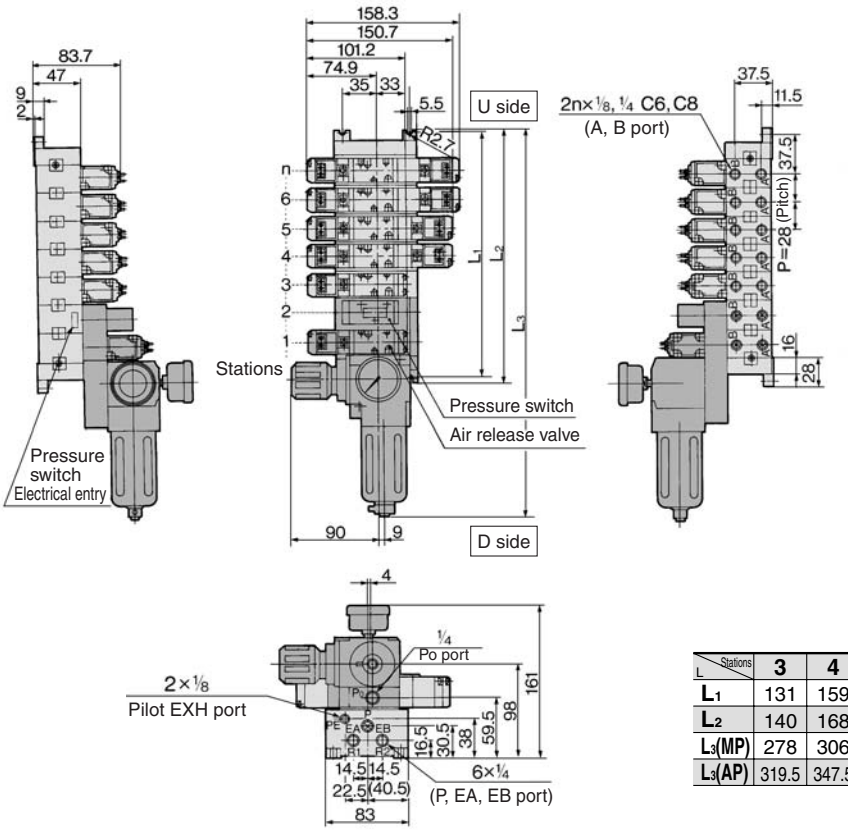


Example for manifold

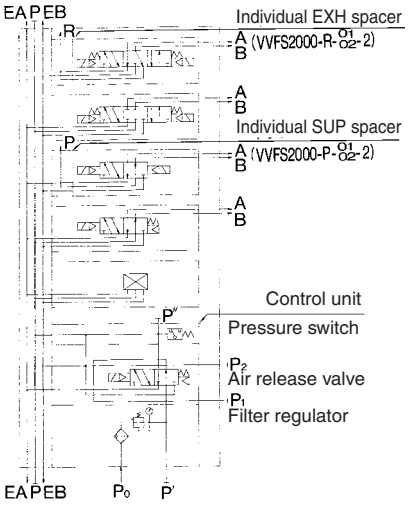


Non plug-in type:

VV5FR2-10- Station **1-** Port size **-** Control unit Voltage of air release valve



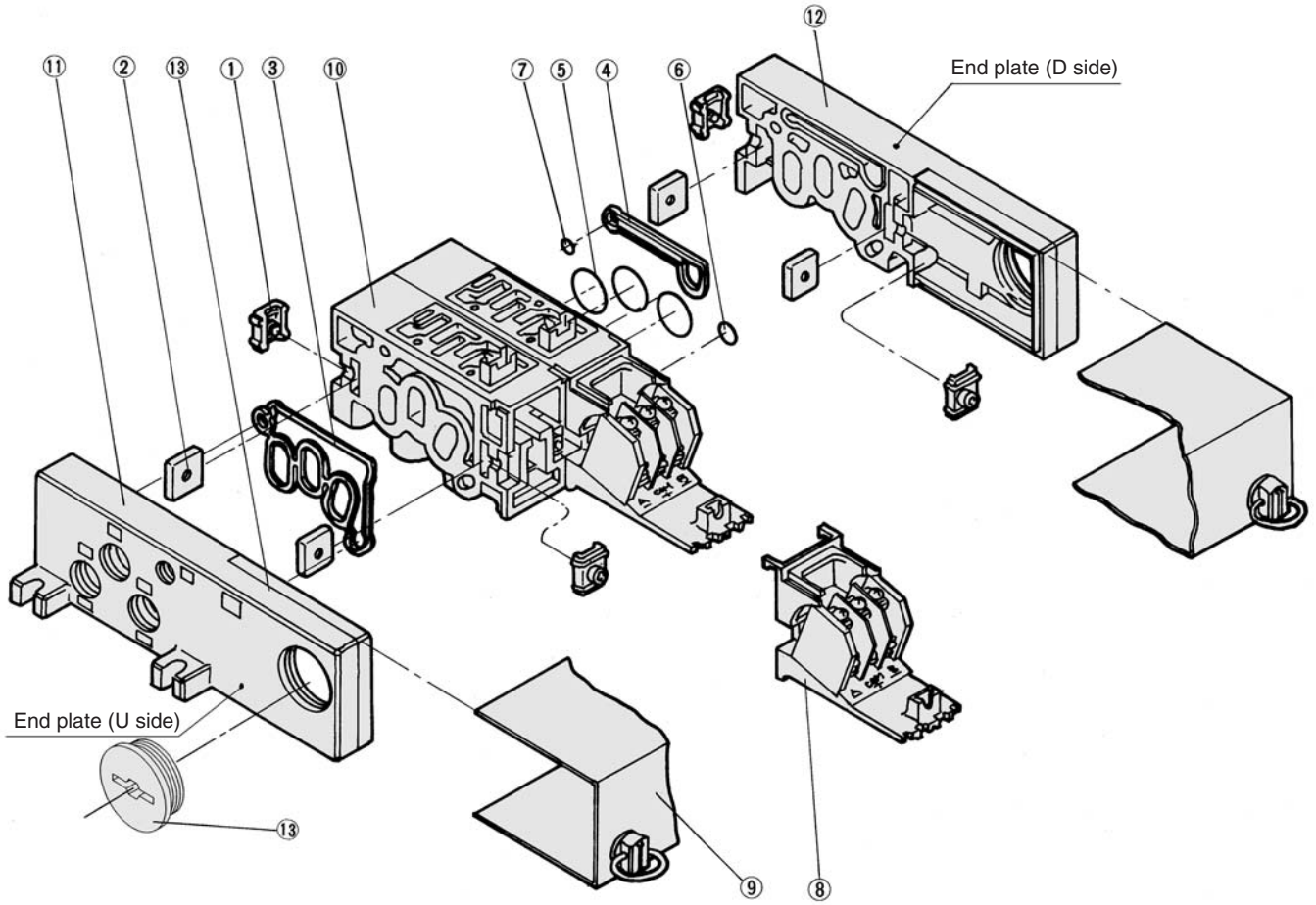
Example for manifold



n: Stations

L / Stations	3	4	5	6	7	8	9	10	Formula
L1	131	159	187	215	243	271	299	327	L1 = 28 x n + 47
L2	140	168	196	224	252	280	308	336	L2 = 28 x n + 56
L3(MP)	278	306	334	362	390	418	446	474	L3 = 28 x n + 194
L3(AP)	319.5	347.5	375.5	403.5	431.5	459.5	487.5	515.5	L3 = 28 x n + 235.5

Manifold Base Construction: Plug-in Type/Non Plug-in Type



Replacement Parts

No.	Description	Material	Part no.	
1	**Connection fitting A**	Steel plate		AXT625-4-1
2	**Connection fitting B**	Steel plate		AXT625-5
3	**Gasket A**	NBR		AXT625-17
4	**Gasket B**	NBR		AXT625-16
5	**O-ring**	NBR		18 x 15 x 1.5
6	**O-ring**	NBR		10.5 x 7.5 x 1.5
7	**O-ring**	NBR		8 x 5 x 1.5
8	**Adapter plate assembly**	—	For 01T	AXT625-28-1A
			For 01T1	(Terminal and adapter plate)
	Adapter plate	Resin	For 01C	AXT625-28-1
			For 01F	VVF2000-26-6

No.	Description	Material	Part no.	
9	**Junction cover assembly**	—	For 01T	AXT625-28-3A
			For 01T1	AXT625-28-7A-[Stations]
			For 01C	
			For 01F	VVF2000-26-5A-[Stations]
13	**Rubber plug**	NBR	For 01T	AXT623-22

Replacement Parts: Sub Assembly

Note) Manifold Base/Construction: Plug-in type with terminal block.

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	**Manifold block assembly** (1)	AXT625-20A-$^{1}_{2}{}^{C6}_{C8}$ (2)	Manifold block ⑩, Metal joint ①, ②, O-ring ⑤, ⑥, ⑦ Terminal ⑧, Junction cover ⑨, Adaptor plate, Pin housing, Guide	Plug-in type
		AXT625-10A-$^{1}_{2}{}^{C6}_{C8}$ (3)	Manifold block ⑩, Metal joint ①, ②, O-ring ⑤, ⑥, ⑦	Non plug-in type
11	**End plate (U side) assembly**	AXT625-2A-20	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Plug-in type With terminal block (For 01T / 01T1) (3)
		AXT625-2A-10	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Non plug-in type (For 10) (3)
12	**End plate (D side) assembly**	AXT625-3A-20	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Plug-in type With terminal block (For 01T / 01T1) (3)
		AXT625-3A-10	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Non plug-in type (For 10) (3)

Note 1) For side ported
Note 2) 1: A, B port size Rc 1/8, 2: A, B port size Rc 1/4
Note 3) Please contact SMC if parts except for 10/01T/01T1 are needed.

∗ Contact SMC for CE-compliant products.