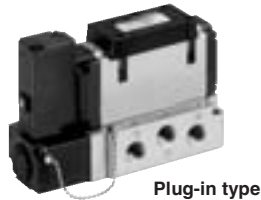
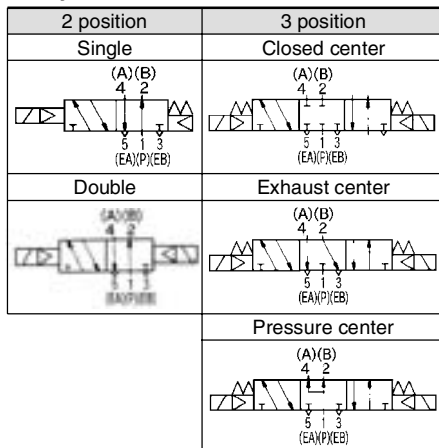


5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR3000



JIS Symbol



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		
Electricity specifications	Shock/Vibration resistance	300/50 m/s ² ⁽²⁾		
	Enclosure	Dustproof		
	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		



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)
 Note 3) At rated voltage
 Note 4) 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)

Option Specifications

Pilot type	External pilot ^{Note)}	
Manual override	Main valve	Direct manual override
	Pilot valve	Non-locking push type A (Extended), Locking type B (Tool required), Locking type C (Lever)
Coil rated voltage	110 to 120, 220, 240 VAC 50/60 Hz	
Porting specifications	12 VDC	
Option	Bottom ported	
	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		Port size Rc	Flow characteristics ⁽¹⁾						Max. ⁽²⁾ operating cycle (Hz)	Response ⁽³⁾ time (ms)	Mass ⁽⁴⁾ (kg)
	Plug-in	Non plug-in		1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)					
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv			
2 position	Single	VFR310□	1/4	7.5	0.38	1.9	7.5	0.34	1.9	5	30 or less	0.61 (0.64) <0.58>
		VFR311□ VFR314□	3/8	8.4	0.39	2.2	8.7	0.38	2.2			
	Double	VFR320□	1/4	7.1	0.41	1.9	7.4	0.40	1.9	5	30 or less	0.71 (0.74) <0.69>
		VFR321□ VFR324□	3/8	7.9	0.36	2.0	8.6	0.37	2.2			
3 position	Closed center	VFR330□	1/4	6.8	0.40	1.8	6.3	0.38	1.6	3	50 or less	0.72 (0.75) <0.71>
		VFR331□ VFR334□	3/8	7.2	0.39	1.9	6.5	0.40	1.7			
	Exhaust center	VFR340□	1/4	6.5	0.42	1.7	7.9 [3.4]	0.41 [0.47]	2.0 [0.96]	3	50 or less	0.72 (0.75) <0.71>
		VFR341□ VFR344□	3/8	6.9	0.42	1.8	9.5 [3.4]	0.39 [0.46]	2.4 [0.96]			
	Pressure center	VFR350□	1/4	7.6 [2.4]	0.33 [0.48]	1.9 [0.69]	6.1	0.36	1.5	3	50 or less	0.72 (0.75) <0.71>
		VFR351□ VFR354□	3/8	9.3 [2.4]	0.34 [0.47]	2.2 [0.69]	6.5	0.41	1.7			




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 VFR3□00-□FZ-□□, (): VFR3□10-DZ□□, < : VFR3□40-□G-□□

Series VFR3000

How to Order

Electrical entry

F: Plug-in type, conduit terminal



Option

Nil	None
Z	With light/surge voltage suppressor

Porting specifications (P, A, EA, EB port)

Nil	Side ported
B	Bottom ported*

* Option

Port size (P, A, B, EA, EB port)

Nil	Without sub-plate
02	1/4
03	3/8

* For bottom ported: Rc 1/4

CE-compliant

Nil	—
Q	CE-compliant*

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

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Plug-in VFR3 1 0 0 - 5 F - 02 -

Non plug-in VFR3 1 1 1 - 1 D - 02 -

Non plug-in VFR3 1 4 0 - 1 G - 02 -

Common electrical entry

Individual electrical entry

Symbol

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

Body option

0	Standard
1*	Direct manual override

* Option

Pilot type

Nil	Internal pilot
R*	External pilot

* Option

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
9*	Other

* Option

Option/VFR3□1□

Nil	None
Z	With light/surge voltage suppressor

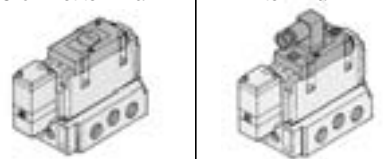
Option/VFR3□4□

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.

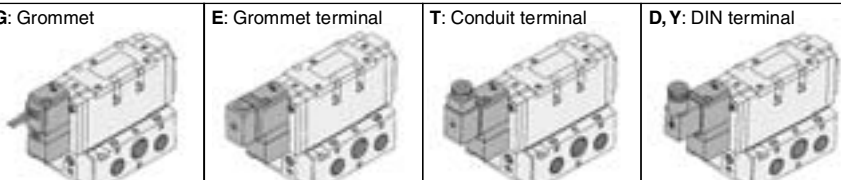
Electrical entry: VFR3□1□

E: Grommet terminal D: DIN terminal




Electrical entry: VFR3□4□

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




Pilot valve manual override


Nil: Non-locking push type




A*: Non-locking push type A (Extended)



B*: Locking type B (Tool required)



C*: Locking type C (Lever)



* Option

How to Order Pilot Valve Assembly

SF4- 1 F - 70 - -

Coil rated voltage

Symbol	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
9*	Other

* Option

Electrical entry, Light/Surge voltage suppressor

Symbol	Electrical entry	Indicator light	With surge voltage suppressor	Applicable valve model
F*	Plug-in	—	—	VFR3□0□ VFR3□1□
G	Grommet	—	—	VFR3□4□
GS	Grommet	—	●	
E	Grommet terminal	—	—	
EZ	Grommet terminal	●	●	
T	Conduit terminal	—	—	
TZ	Conduit terminal	●	●	
D	DIN terminal	—	—	
DZ	DIN terminal	●	●	
Y	DIN terminal	—	—	
YZ	(DIN43650B type)	●	●	

Manual override

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

* Option

Symbol

Symbol	Applicable valve model
Nil	VFR3□0□ VFR3□1□
1	VFR3□4□

CE-compliant

Nil	—
Q	CE-compliant*

* Electrical entry: D, Y and F only

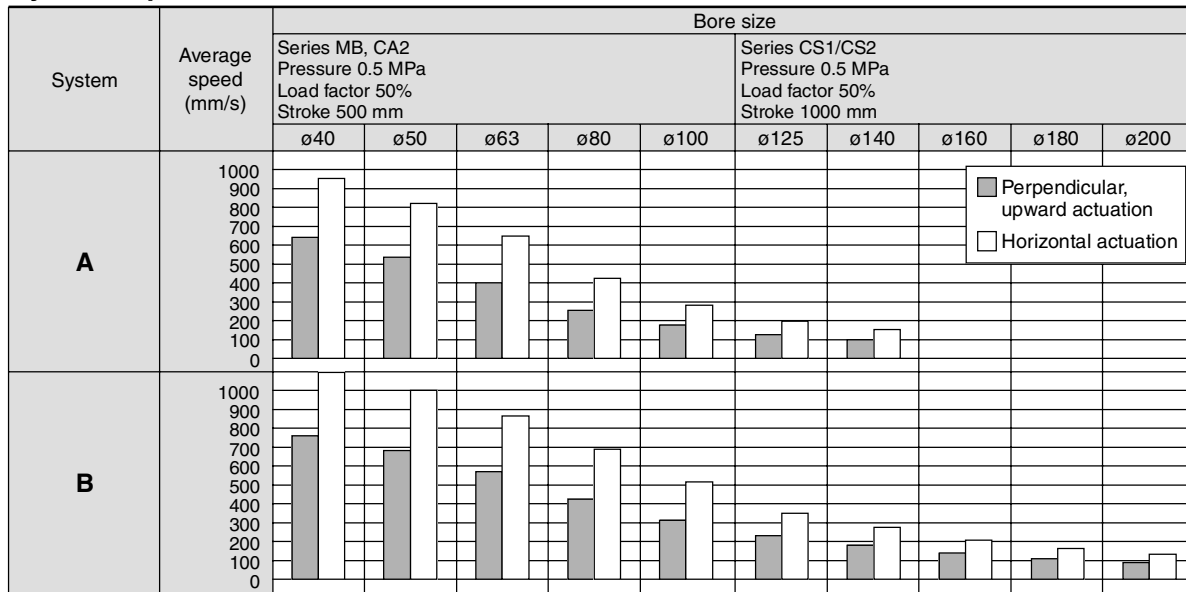
* "VFR3□0□", "VFR3□1□": Pilot valve assembly is all plug-in (F).

5 Port Pilot Operated Solenoid Valve *Series VFR3000*

Rubber Seal, Plug-in/Non Plug-in

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

Cylinder Speed Chart

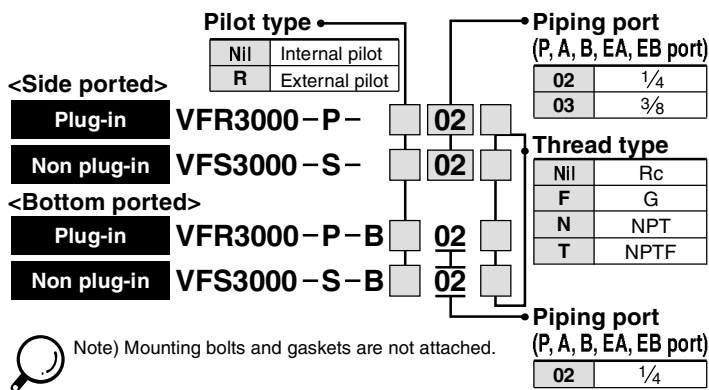


- * It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
- * The average velocity of the cylinder is what the stroke is divided by the total stroke time.
- * Load factor: ((Load weight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

System Components

System	Solenoid valve	Speed controller	Silencer	SPG (Steel pipe) dia. x Length
A	Series VFR3000 Rc 1/4	AS4000-02 (S = 24 mm ²)	AN200-02 (S = 35 mm ²)	6A x 1 m
B	Series VFR3000 Rc 3/8	AS420-03 (S = 73 mm ²)	AN300-03 (S = 60 mm ²)	10A x 1 m

How to Order Sub-plate Assembly

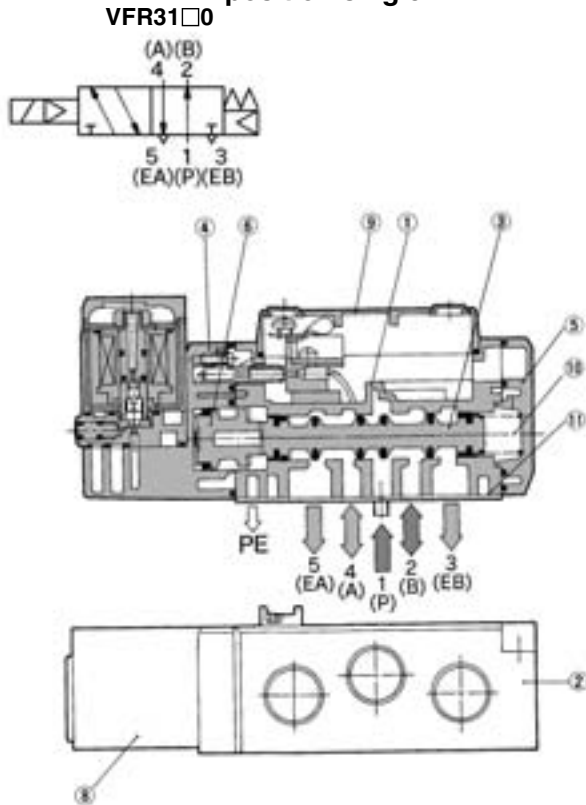


Note) Mounting bolts and gaskets are not attached.

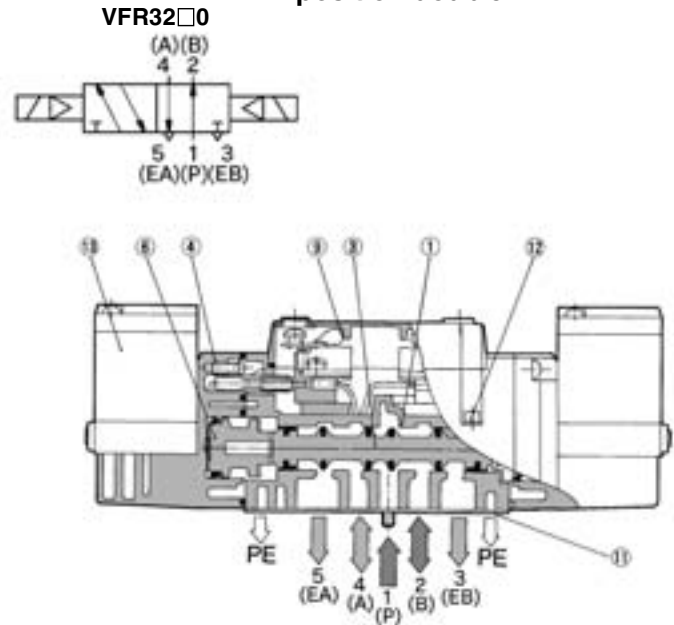
Series VFR3000

Construction

2 position single

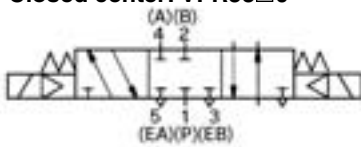


2 position double

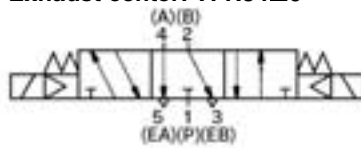


3 position closed center/exhaust center/pressure center

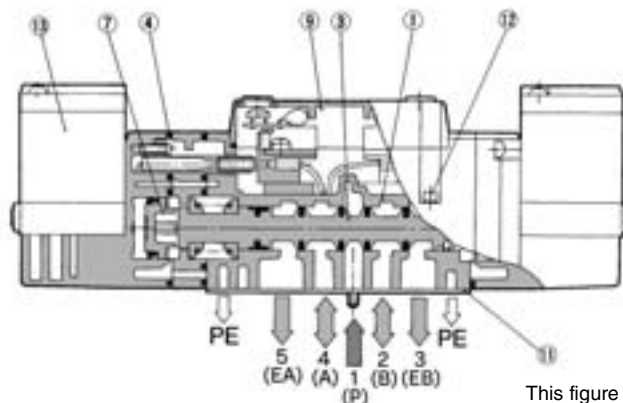
Closed center: VFR33□0



Exhaust center: VFR34□0



Pressure center: VFR35□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	Resin	Black
5	End plate	Resin	Black

Component Parts

No.	Description	Material	Note
6	Piston	Resin	
7	Piston	Resin	
8	Junction cover	Resin	
9	Light cover	Resin	
10	Return spring	Stainless steel	

Replacement Parts

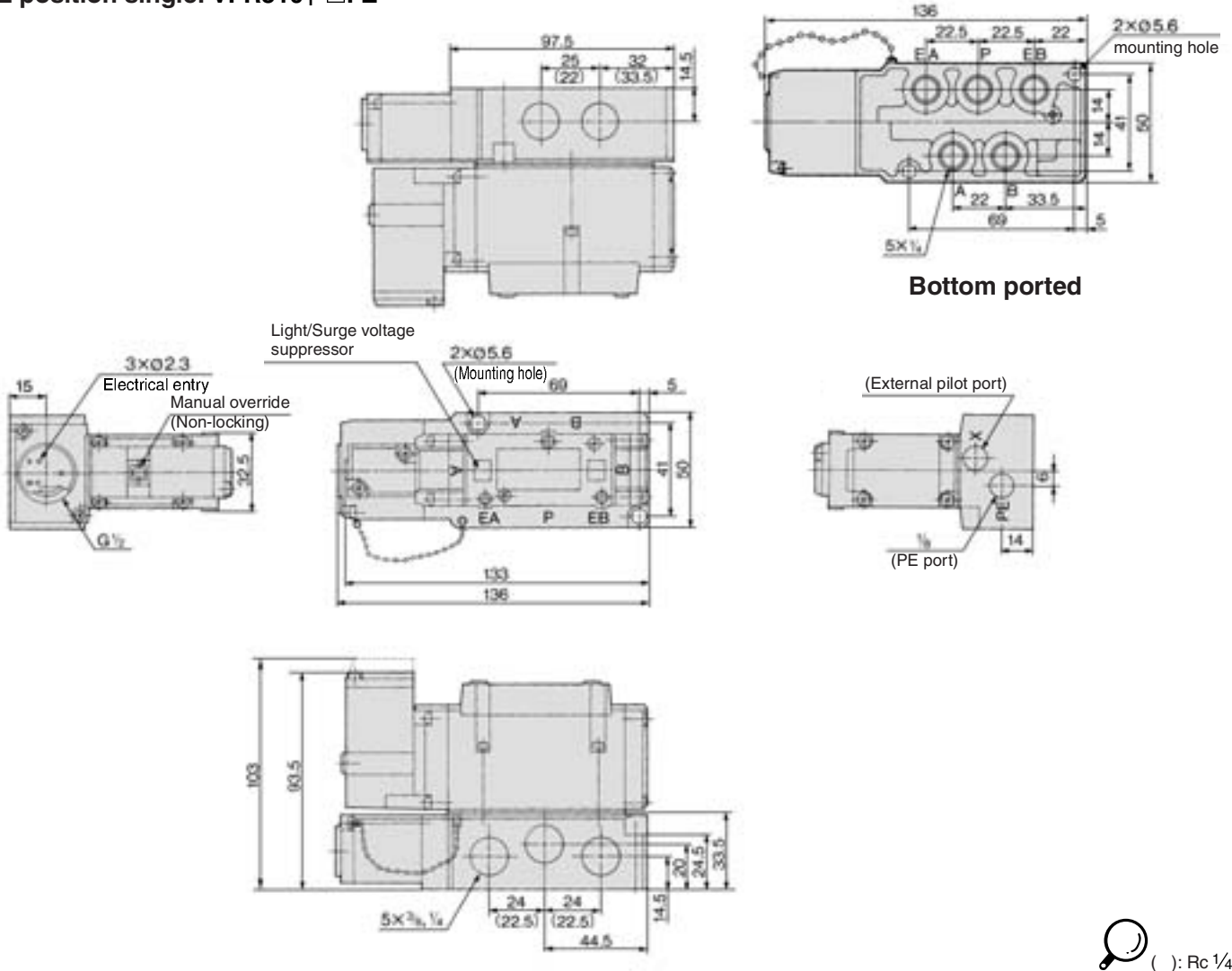
No.	Description	Material	Description		
			VFR31□□	VFR32□□	VFR33□□/34□□/35□□
11	Gasket	NBR	VFR3000-26-4	VFR3000-26-4	VFR3000-26-4
12	Hexagon socket head screw	Steel	AXT632-3 (M3 x 32)	AXT632-3 (M3 x 32)	AXT632-3 (M3 x 32)
	Pilot valve assembly	—	Refer to "How to Order Pilot Valve Assembly" on page 1252.		
	Sub-plate assembly	—	Refer to "How to Order Sub-plate Assembly" on page 1253.		

5 Port Pilot Operated Solenoid Valve *Series VFR3000*

Rubber Seal, Plug-in/Non Plug-in

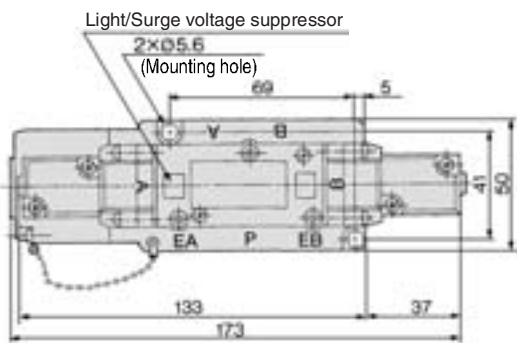
Plug-in: 2 Position Single/Double, 3 Position Closed Center/Exhaust Center/Pressure Center

2 position single: VFR310⁰-□FZ



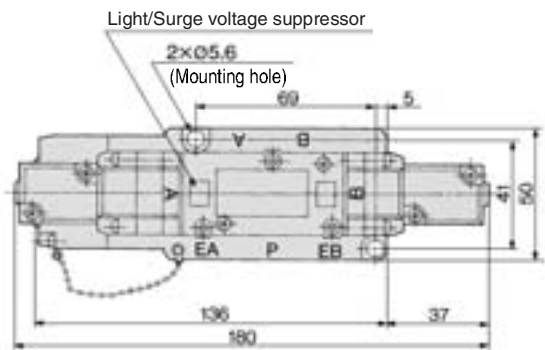
() : Rc 1/4

2 position single: VFR320⁰-□FZ



* Other dimensions are the same as the single type.

3 position closed center: VFR330⁰-□FZ
 3 position exhaust center: VFR340⁰-□FZ
 3 position pressure center: VFR350⁰-□FZ

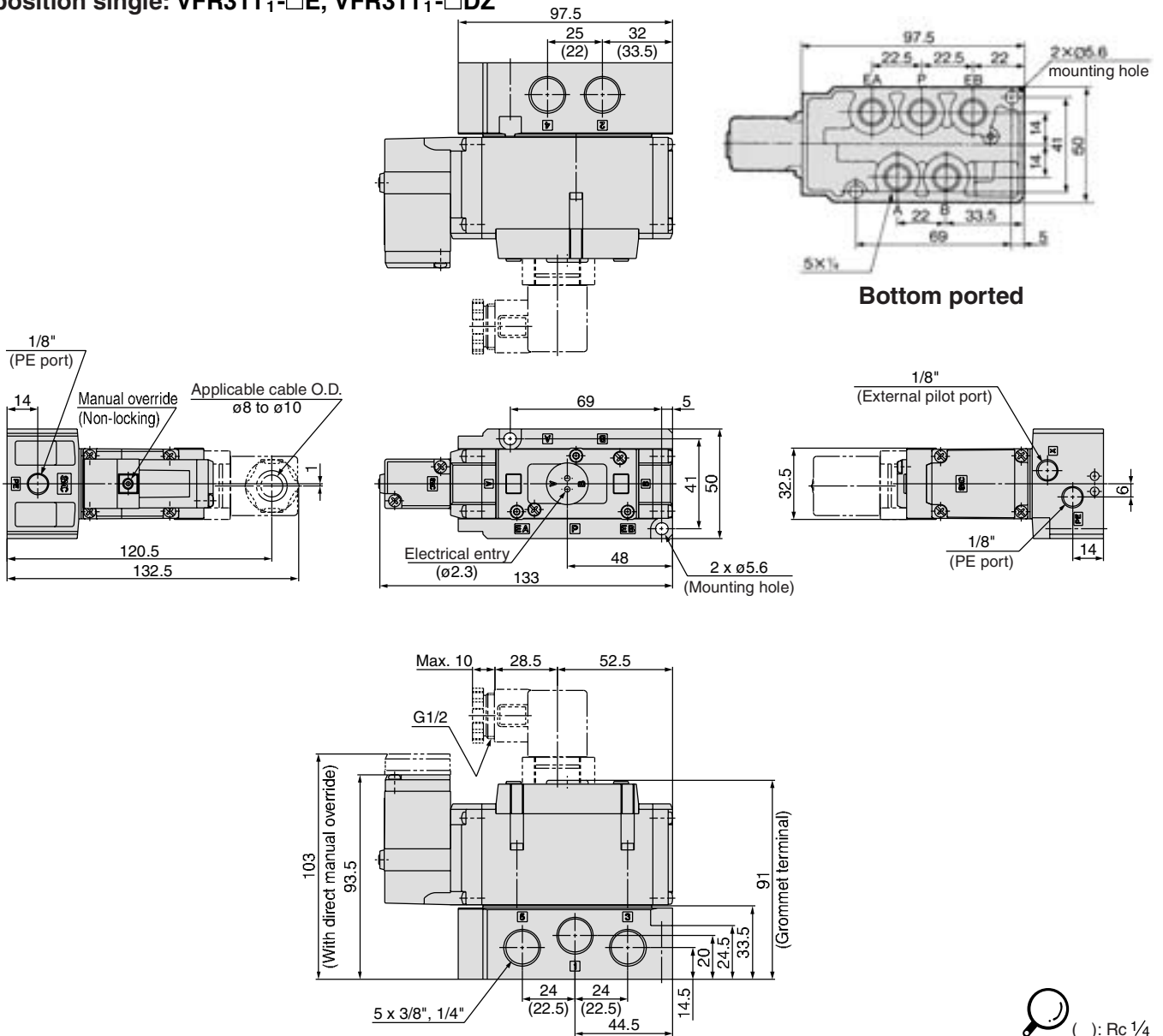


* Other dimensions are the same as the single type.

Series VFR3000

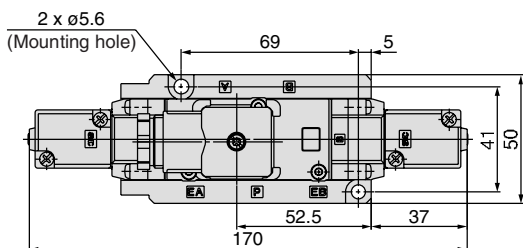
Non Plug-in: 2 Position Single/Double, 3 Position Closed Center/Exhaust Center/Pressure Center

2 position single: VFR311⁰₁-□E, VFR311⁰₁-□DZ



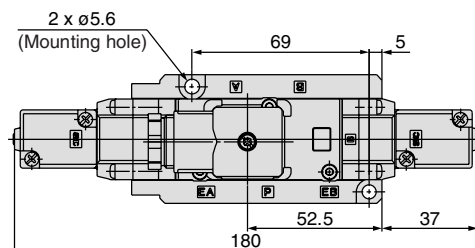
() : Rc 1/4

2 position double: VFR321⁰₁-□E, VFR321⁰₁-□DZ



* Other dimensions are the same as the single type.

3 position closed center: VFR331⁰₁-□E, VFR341⁰₁-□DZ
 3 position exhaust center: VFR341⁰₁-□E, VFR341⁰₁-□DZ
 3 position pressure center: VFR351⁰₁-□E, VFR351⁰₁-□DZ

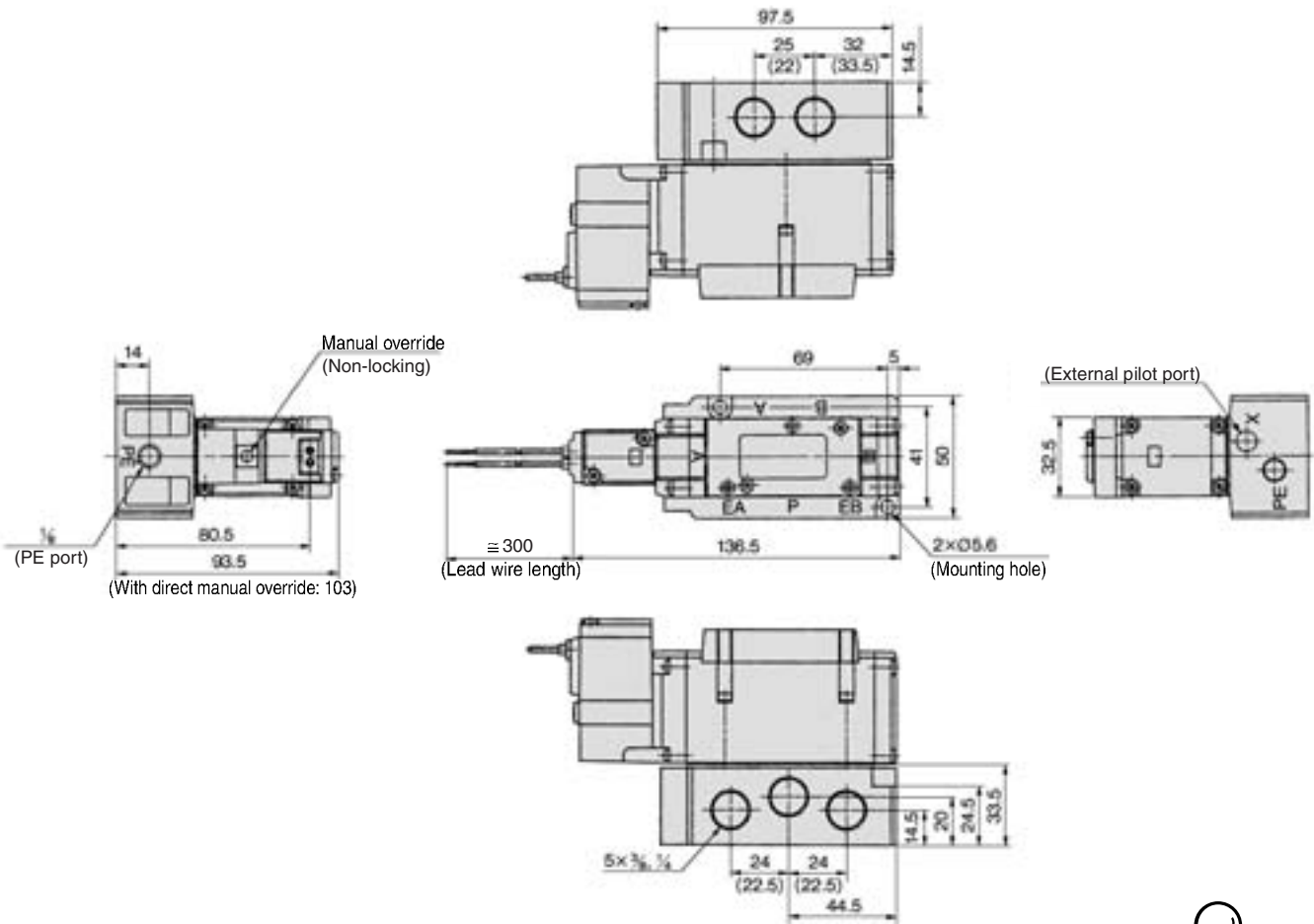


* Other dimensions are the same as the single type.

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in **Series VFR3000**

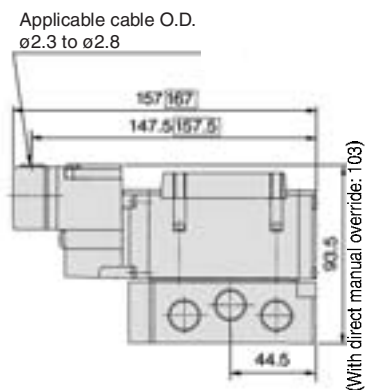
Non Plug-in: 2 Position Single

2 position single: VFR314⁰₁-□G



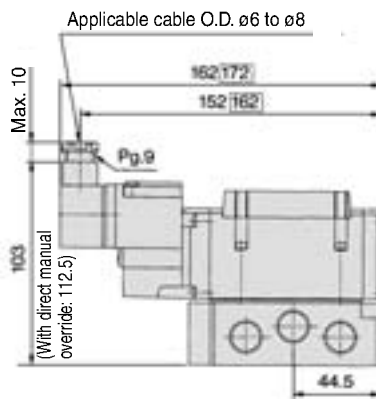
() : Rc 1/4

E: Grommet terminal



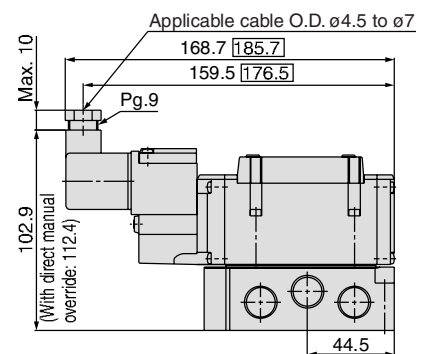
() : With light/surge voltage suppressor

T: Conduit terminal



() : With light/surge voltage suppressor

D, Y: DIN terminal



() : With light/surge voltage suppressor

Series VFR3000

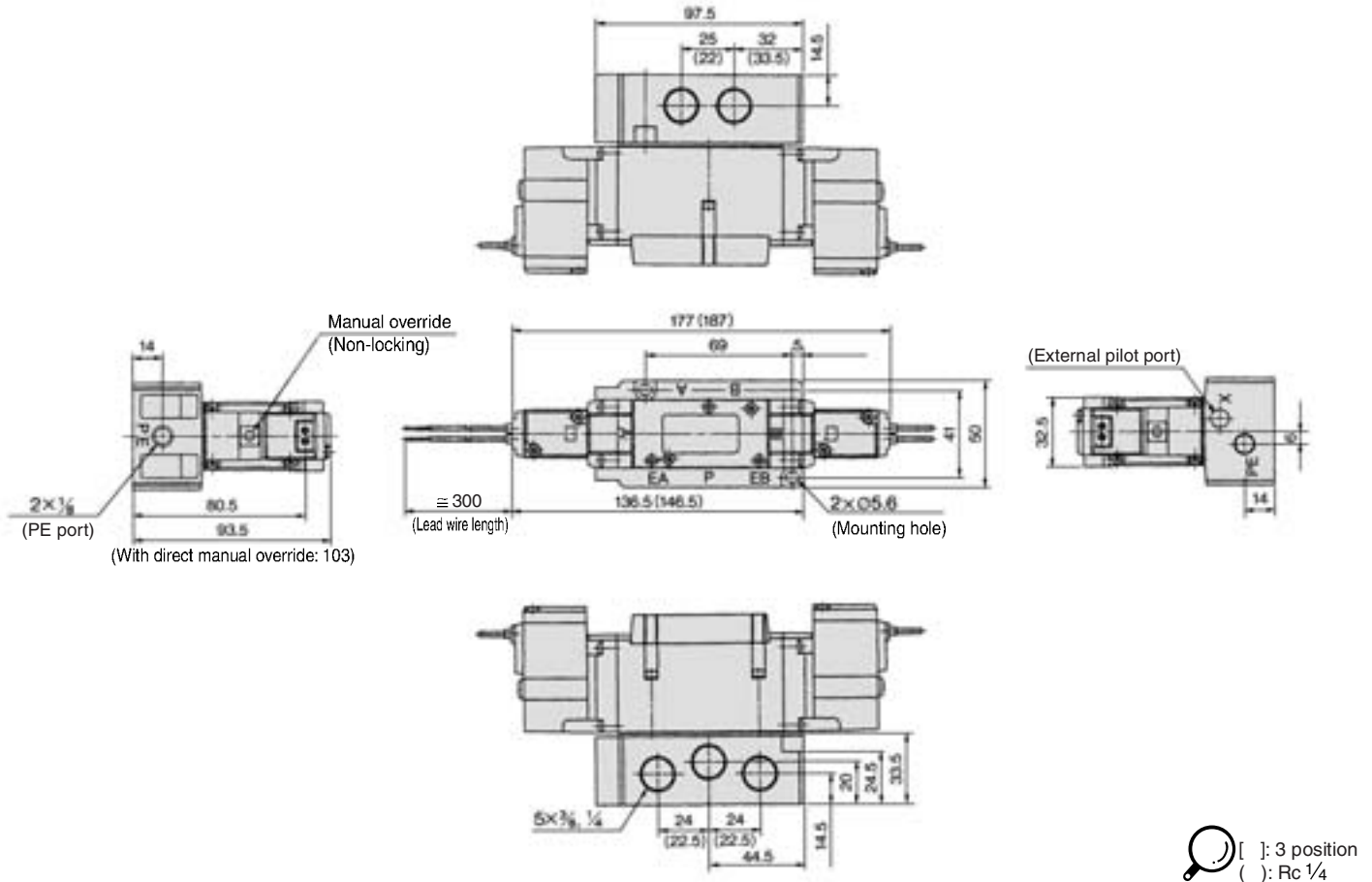
Non Plug-in: 2 Position Double, 3 Position Closed Center/Exhaust Center/Pressure Center

2 position double: VFR324⁰₁-□G

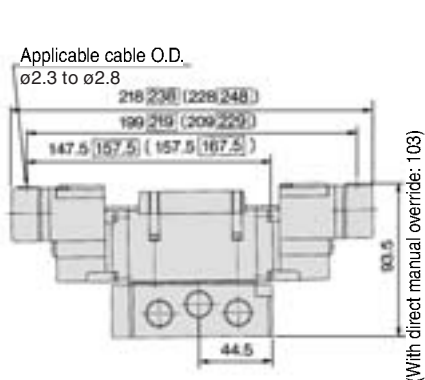
3 position closed center: VFR334⁰₁-□G

3 position exhaust center: VFR344⁰₁-□G

3 position pressure center: VFR354⁰₁-□G

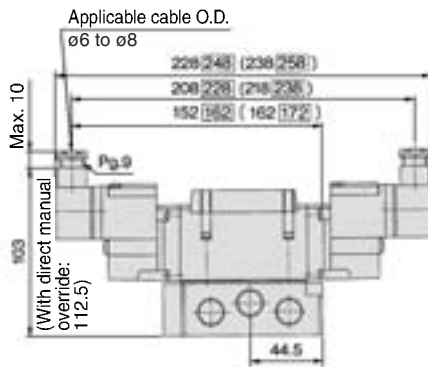


E: Grommet terminal



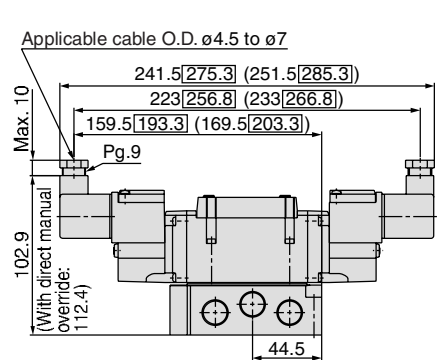
[] : 3 position
 □ : With light/surge voltage suppressor

T: Conduit terminal



[] : 3 position
 □ : With light/surge voltage suppressor

D, Y: DIN terminal



[] : 3 position
 □ : With light/surge voltage suppressor

Series VFR3000 Manifold Specifications

Manifold Specifications

Base mounted	Wiring	Porting specifications		Port size		Stations	Applicable valve model
		A, B port	P, EA, EB	A, B			
Plug-in type VV5FR3-01□(-Q)	• With terminal block	Side/Bottom	Note) 1/2	1/4, 3/8 C8, C10	2 to 10	2 to 10	VFR3□00-□F(-Q)
	• With multi-connector						
• With D-sub connector	2 to 8						
Non plug-in type VV5FR3-10(-Q)							• Grommet terminal
• DIN terminal	VFR3□1□-□D(-Q)						
Non plug-in type VV5FR3-40(-Q)	• Grommet	VFR3□4□-□G					
	• Grommet terminal	VFR3□4□-□E					
• Conduit terminal	VFR3□4□-□T						
• DIN terminal	VFR3□4□-□D(-Q)						

Note) If silencer is mounted to EA/EB port, use silencer "AN403-04" (O.D. ø27).

How to Order Manifold Assembly

<Example> Plug-in type with terminal block: 6 stations

VV5FR3-01T-061-02	1 set (Manifold base part no.)
*VFR3100-5FZ	3 sets (2 position single part no.)
*VFR3200-5FZ	2 sets (2 position double part no.)
*VVFS3000-10A	1 set (Blanking plate)

↳ 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

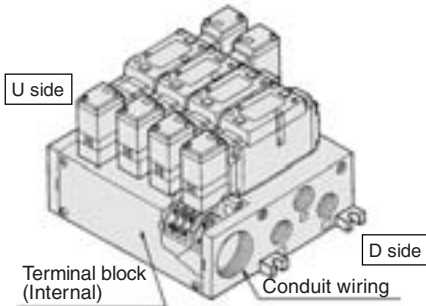
VV5FR3-10-061-03	1 set1 set (Manifold base part no.)
*VFR3110-5D	5 sets (2 position single part no.)
*VFR3410-5D	1 set (3 position exhaust center part no.)
*VVFS3000-R-03-2	1 set (Individual EXH spacer part no.)

↳ 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.



VV5FR3 - 01T - 06 1 - 02

Series VFR3000 Manifold

Plug-in type with terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: Rc 1/4, 3/8 only.

Thread type

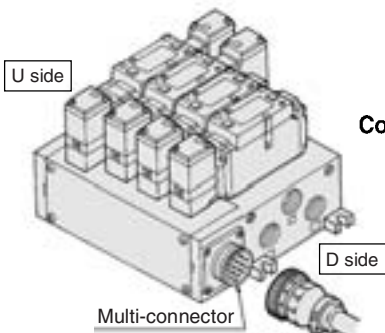
Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

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.



VV5FR3 - 01C D - 05 1 - 02

Series VFR3000 Manifold

Plug-in type with multi-connector

Connector mounting direction

D	D side mounting
U	U side mounting

Stations

02	2 stations
⋮	⋮
08	8 stations

* Max: 8 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: Rc 1/4, 3/8 only.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

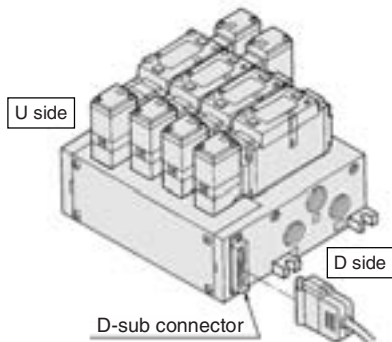
CE-compliant

Nil	—
Q	CE-compliant

Series VFR3000

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

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



VV5FR3-01F D-06 1-02

Series VFR3000 Manifold
Plug-in type with D-sub connector

Connector mounting direction

D	D side mounting
U	U side mounting

Stations

02	2 stations
⋮	⋮
08	* 8 stations

* Max: 8 stations

Symbol

Symbol	Passage	Porting specifications (A, B)
	P EA, EB	Side
1	Common	Common
2	Common	Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: Rc 1/4, 3/8 only.

CE-compliant

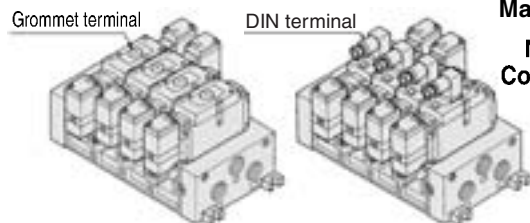
Nil	—
Q	CE-compliant

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Non Plug-in Type: Grommet Terminal, DIN Terminal (Common electrical entry)

- Individual wiring for every valve



VV5FR3-10-05 1-02

Series VFR3000 Manifold
Non plug-in type Common electrical

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Symbol	Passage	Porting specifications (A, B)
	P EA, EB	Side
1	Common	Common
2	Common	Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: Rc 1/4, 3/8 only.

CE-compliant

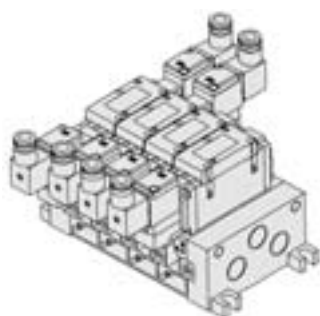
Nil	—
Q	CE-compliant

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Non Plug-in Type: Grommet, Grommet Terminal, Conduit Terminal, DIN Terminal (Individual electrical entry)

- Individual wiring for every valve



VV5FR3-40-05 1-02

Series VFR3000 Manifold
Non plug-in type Individual electrical entry

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Symbol	Passage	Porting specifications (A, B)
	P EA, EB	Side
1	Common	Common
2	Common	Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: Rc 1/4, 3/8 only.

CE-compliant

Nil	—
Q	CE-compliant

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Note) Manifold base is in common with "VV5FR3-10".

Note) Manifold base is in common with Series VFS3000.

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in *Series VFR3000*

Manifold/Option Parts Assembly

Individual SUP spacer

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

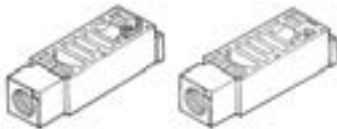
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-P-03-1	VVFS3000-P-03-2



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.	VVFS3000-R-03-1	VVFS3000-R-03-2



SUP block disk

When supplying manifold with more than two different pressures, 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.	AXT636-1A	

EXH block disk

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

Body type	Plug-in type	Non plug-in type
Part no.	AXT636-1A	

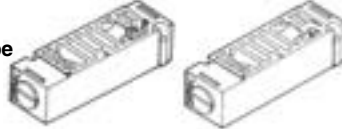


Throttle valve spacer

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.	VVFS3000-20A-1	VVFS3000-20A-2

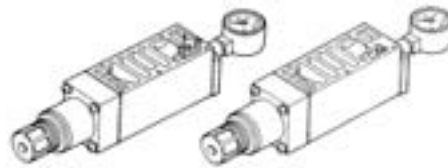
Shape



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	ARBF3050-00-P-1	ARBF3050-00-P-2
A port regulation	ARBF3050-00-A-1	ARBF3050-00-A-2
B port regulation	ARBF3050-00-B-1	ARBF3050-00-B-2



SUP stop valve spacer

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.	VVFS3000-37A-1	VVFS3000-37A-2

(Height will be 27.5 mm higher.)



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.	VVFS3000-10A	



* Mounting screws: 4 positions

Manifold Option

With exhaust cleaner

Plug-in type/Non plug-in type

- Valve exhaust noise dampening: 35 dB or more.
- Collects oil mist: collecting rate 99.9% or more
- Piping process reduced.



For details, refer to page 1266.

With control unit

Plug-in type/Non plug-in type

- Filter, regulation valve, pressure switch and air release valve are all combined to form one unit.
- Piping processes are eliminated.

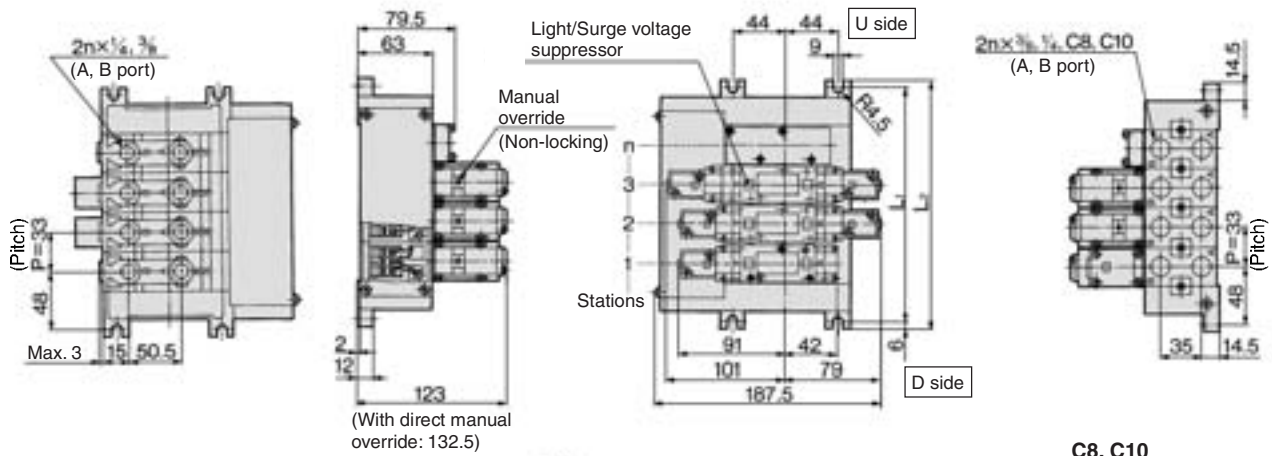


For details, refer to page 1269.

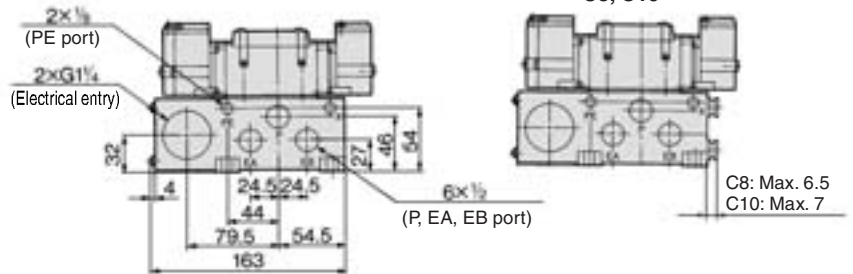
Series VFR3000

Manifold: Plug-in Type

With terminal block: VV5FR3-01T-Station 1-Port size

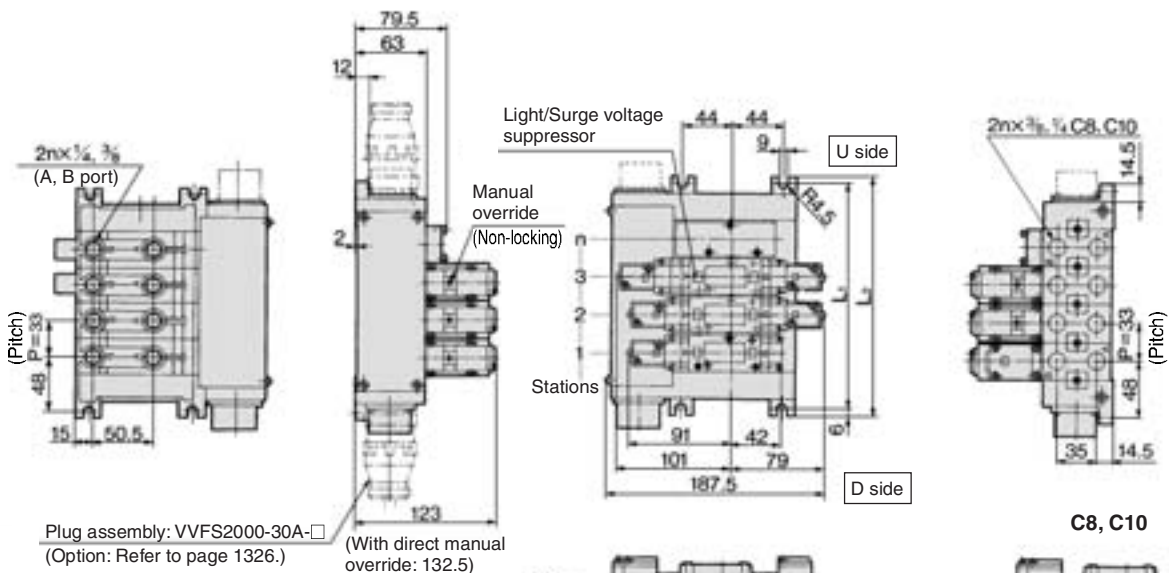


Bottom ported:
VV5FR3-01T-Station 2-Port size



Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	129	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63
L ₂	141	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75

With multi-connector: VV5FR3-01CD-Station 1-Port size, VV5FR3-01CU-Station 1-Port size

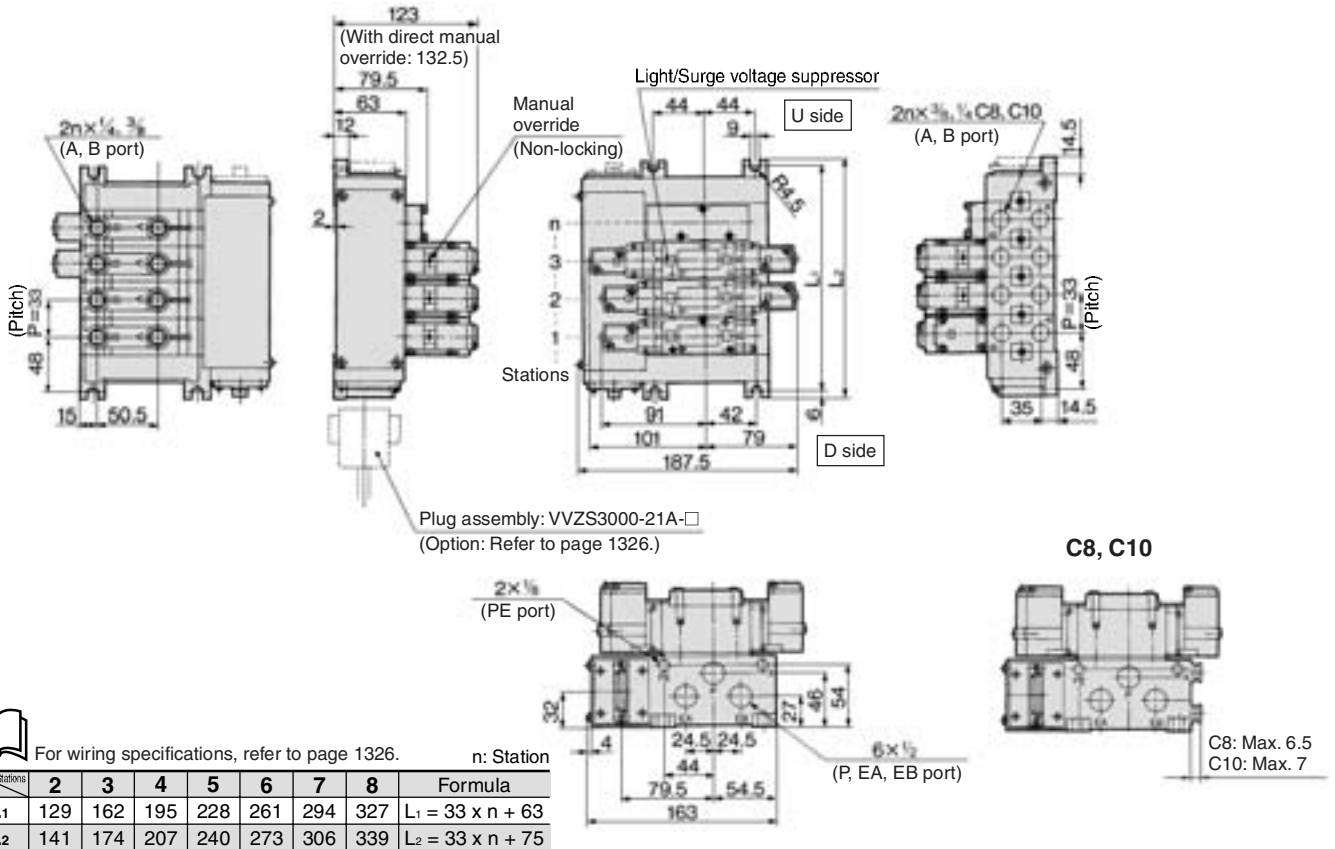


Stations	2	3	4	5	6	7	8	Formula
L ₁	129	162	195	228	261	294	327	L ₁ = 33 x n + 63
L ₂	141	174	207	240	273	306	339	L ₂ = 33 x n + 75

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in **Series VFR3000**

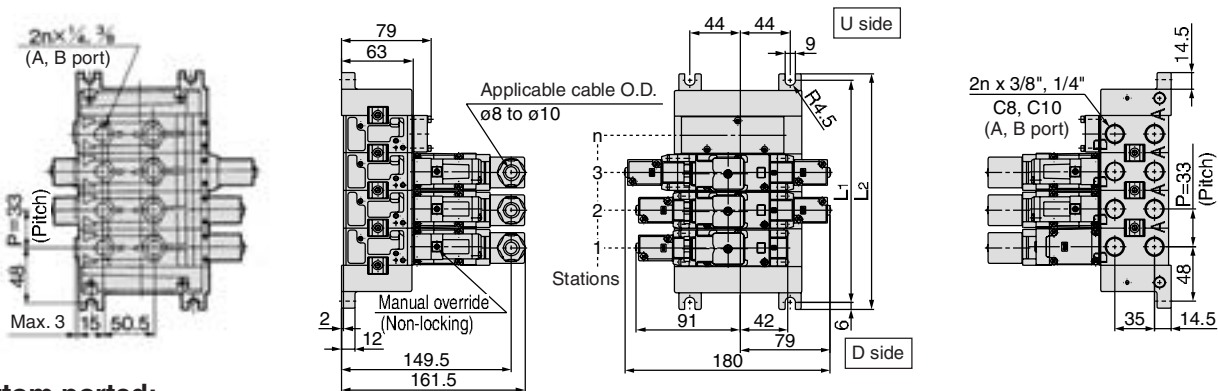
Manifold: Plug-in Type

With D-sub connector: **VV5FR3-01FD-**Station 1-Port size, **VV5FR3-01FU-**Station 1-Port size



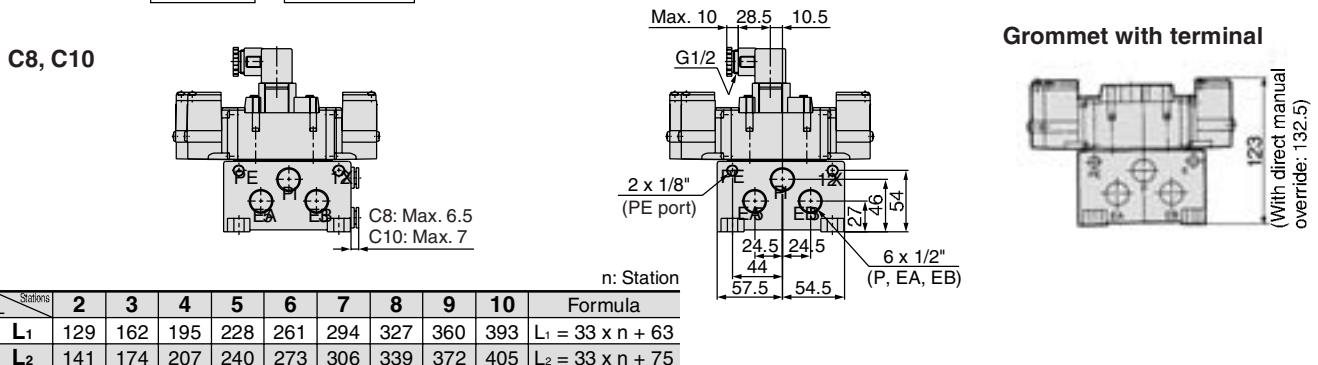
Manifold: Non Plug-in Type

VV5FR3-10-Station 1-Port size



Bottom ported:

VV5FR3-10-Station 2-Port size

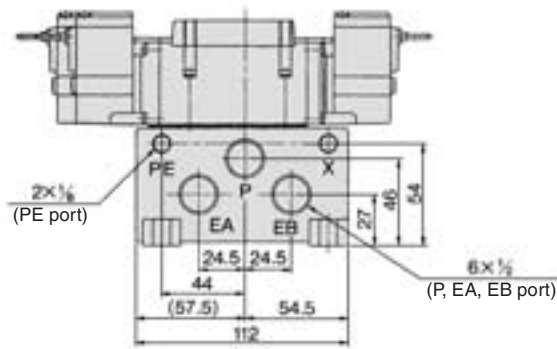
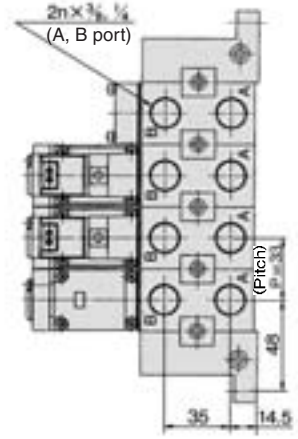
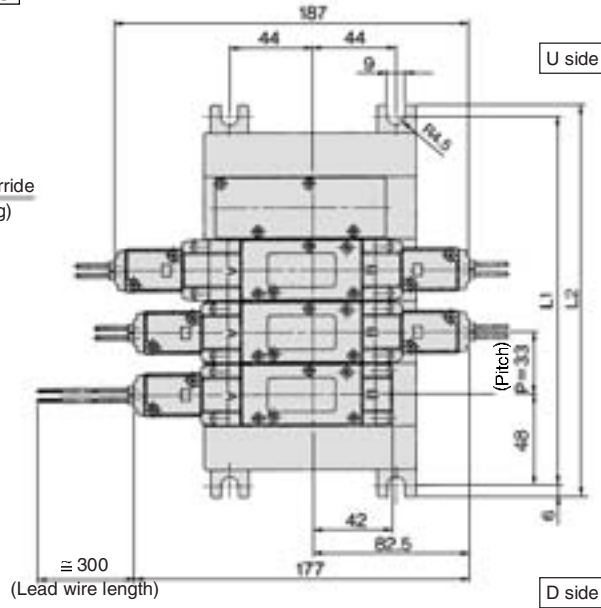
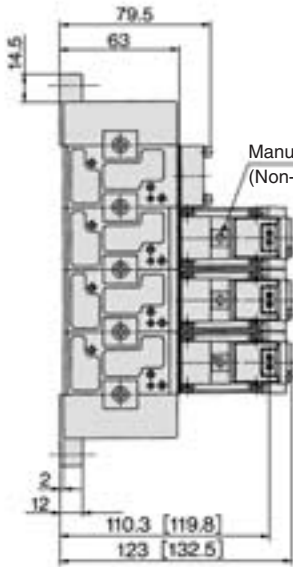


Series VFR3000

Manifold: Plug-in Type

VV5FR3-40-Station 1-Port size

G: Grommet

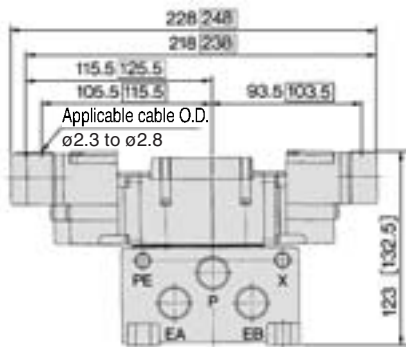


n: Station

Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	129	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63
L ₂	141	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75

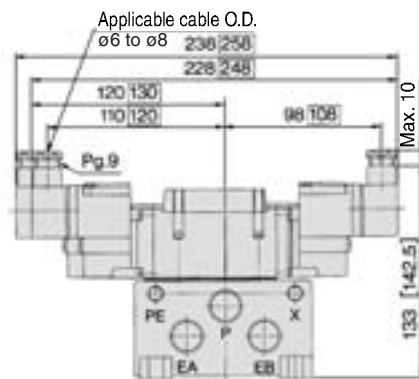
[] : With direct manual override

E: Grommet terminal



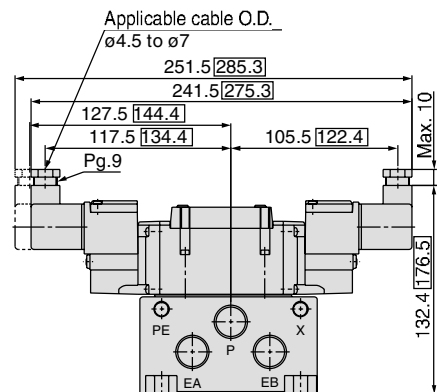
[] : With light/surge voltage suppressor

T: Conduit terminal



[] : With light/surge voltage suppressor

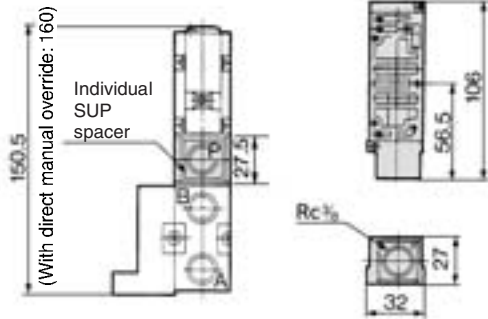
D, Y: DIN terminal



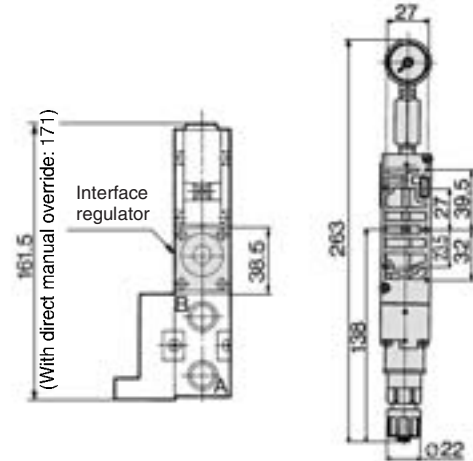
[] : With light/surge voltage suppressor

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

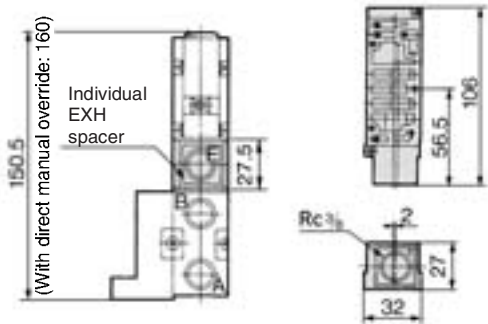
Individual SUP spacer:
VVFS3000-P-03-1 (Plug-in type)
VVFS3000-P-03-2 (Non plug-in type)



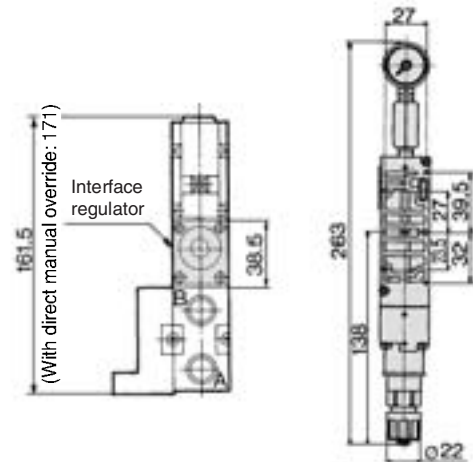
Interface regulator/P port regulation:
ARBF3050-00-P-1 (Plug-in type)
ARBF3050-00-P-2 (Non plug-in type)



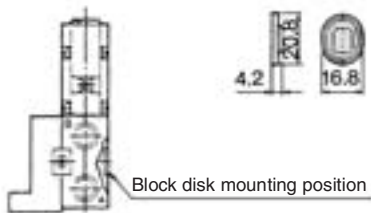
Individual EXH spacer:
VVFS3000-R-03-1 (Plug-in type)
VVFS3000-R-03-2 (Non plug-in type)




Interface regulator/A port regulation:
ARBF3050-00-A-1 (Plug-in type)
ARBF3050-00-A-2 (Non plug-in type)

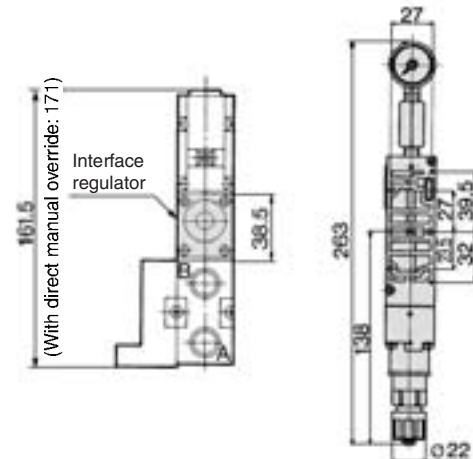


SUP/EXH block disk: AXT636-1A

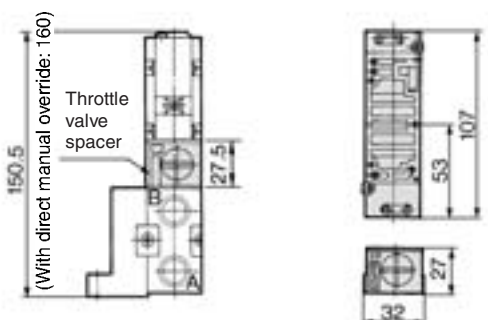


 Note) Used with exclusive manifold block

Interface regulator/B port regulation:
ARBF3050-00-B-1 (Plug-in type)
ARBF3050-00-B-2 (Non plug-in type)



Throttle valve spacer:
VVFS3000-20A-1 (Plug-in type)
VVFS3000-20A-2 (Non plug-in type)



Series VFR3000

Manifold with Exhaust Cleaner

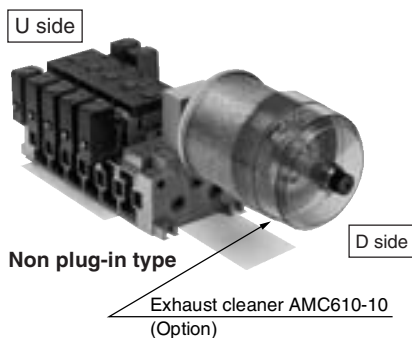
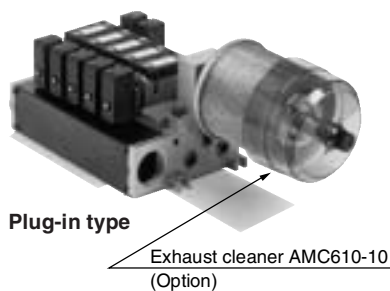
- Serves to protect working environment.
- Valve exhaust noise dampening: 35 dB or more.
- Collection rate of drainage and oil mist: 99.9% or more
- Piping work is reduced.

Manifold Specifications

Manifold	Plug-in type: VV5FR3-01□(-Q)	Non plug-in type: VV5FR3-10(-Q)	Non plug-in type: VV5FR3-40(-Q)
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal	Grommet, Grommet terminal Conduit terminal, DIN terminal
Applicable valve model	VFR3□0□-□F(-Q)	VFR3□1□-□D(-Q) VFR3□1□-□E	VFR3□4□-□G, VFR3□4□-□E VFR3□4□-□T, VFR3□4□-□D(-Q)
Porting specifications	Common SUP, Common EXH		
Rc	A, B port P port	Side: Rc 1/4, 3/8, C8, C10 Bottom: Rc 1/4, 3/8 (Option)	Side: Rc 1/2 EXH port: Rc 1
Stations	2 to 10 stations (With multi-connector/D-sub connector: 2 to 8 stations)		
Applicable exhaust cleaners	AMC610-10 (Port size: R1) ^{Note)}		



Note) Exhaust cleaner "AMC610-10" is not included.



How to Order

VV5FR3 - 10 - 06 1 - 03 - CD -

Series VFR3000 Manifold

Base type / Electrical entry

01T	Plug-in type with terminal block
01C	Plug-in type with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type Common electrical entry
40	Non plug-in type Individual electrical entry

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10, 40
D	D side mounting	01C, 01F
U	U side mounting	01C, 01F

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

CE-compliant

Nil	—
Q	CE-compliant

Exhaust cleaner mounting direction

Symbol	Exhaust cleaner mounting direction
CD	D side D side mounting
CU	U side U side mounting

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: Rc 1/4, 3/8

Stations

02	2 stations
:	:
10 (Note)	10 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom *

* Option

Note) • Base 01T/10/40: 2 to 10 stations
• Base 01C/01F: 2 to 8 stations

How to Order Manifold Assembly

<Example> Plug-in type with terminal block (6 stations)

VV5FR3-01T-061-03-CD	1 set (Manifold base part no.)
*VFR3100-5FZ	3 sets (2 position single part no.)
*VFR3200-5FZ	2 sets (2 position double part no.)
*VVFS3000-10A	1 set (Blanking plate assembly part no.)
*AMC610-10	1 set (Exhaust cleaner 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.

Caution

When using an exhaust cleaner, mount it downwards.

<Example> Non plug-in type: 6 stations

VV5FR3-10-061-03-CU	1 set (Manifold base part no.)
*VFR3110-5E	3 sets (2 position single part no.)
*VFR3210-5E	2 sets (2 position double part no.)
*VVFS3000-10A	1 set (Blanking plate assembly part no.)
*AMC610-10	1 set (Exhaust cleaner part no.)

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

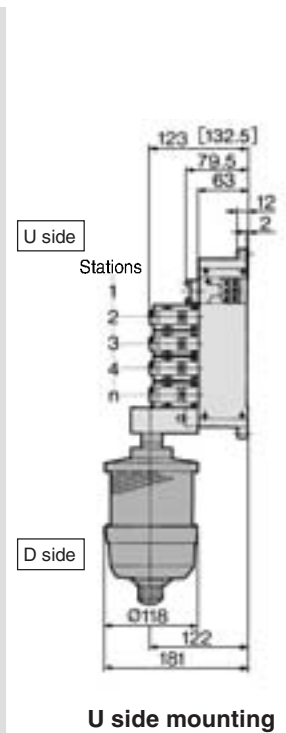
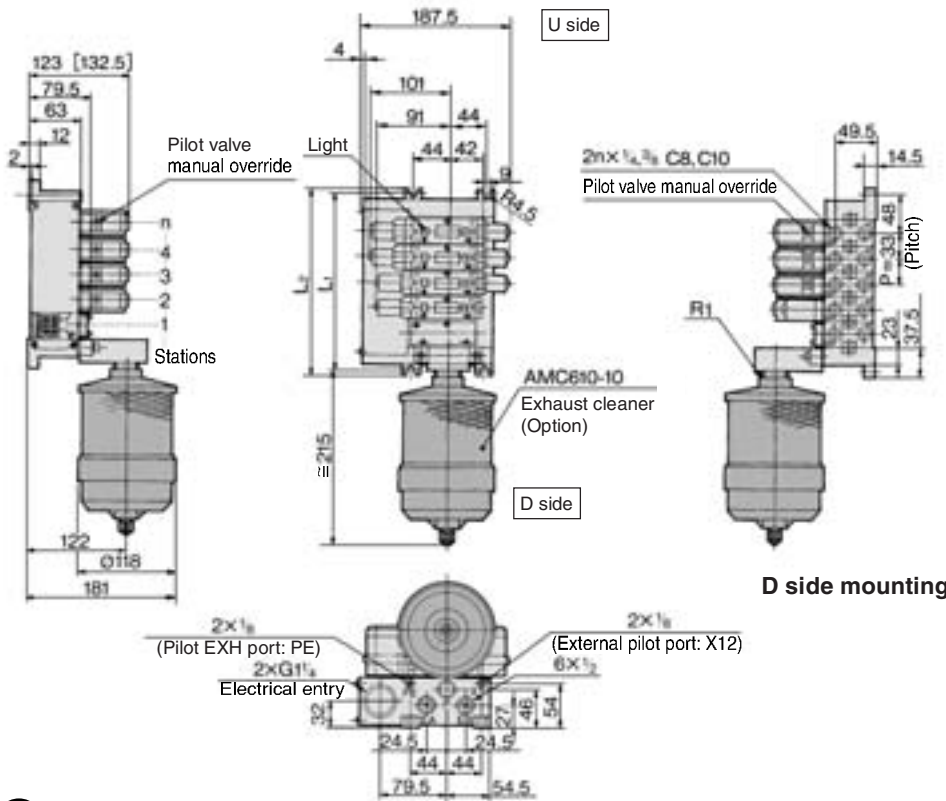
Valve arrangement is counted from the D side.
When ordering, specify the part nos. in order from the 1st. station in the D side.
When entry of part numbers becomes complicated, indicate on the manifold specification sheet.



5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in **Series VFR3000**

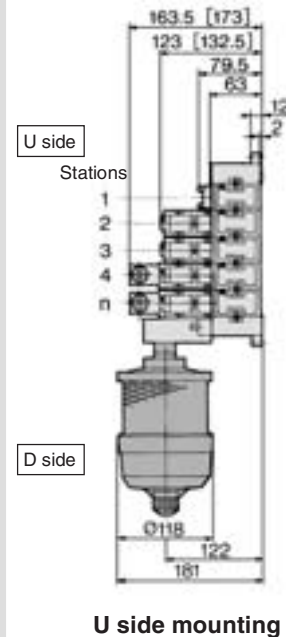
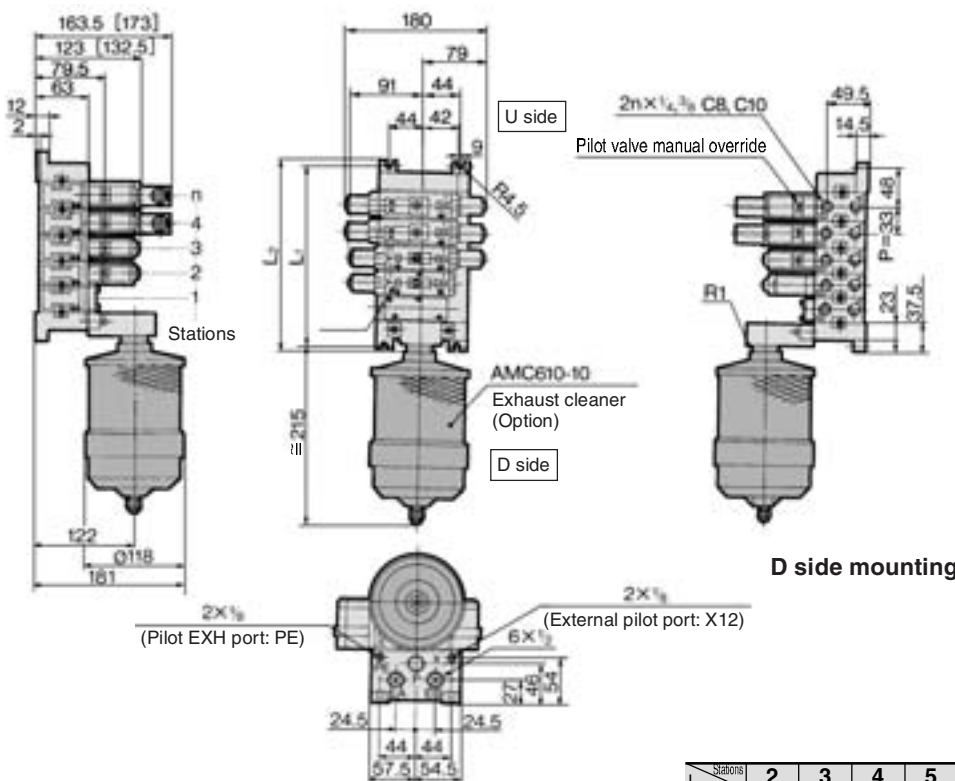
Manifold with Exhaust Cleaner: Plug-in Type/Non Plug-in Type

Plug-in type: **VV5FR3-01T-Station 1-Port size-^{CD}_{CU}**



[] : With direct manual override

Non plug-in type: **VV5FR3-10-Station 1-Port size-^{CD}_{CU}**



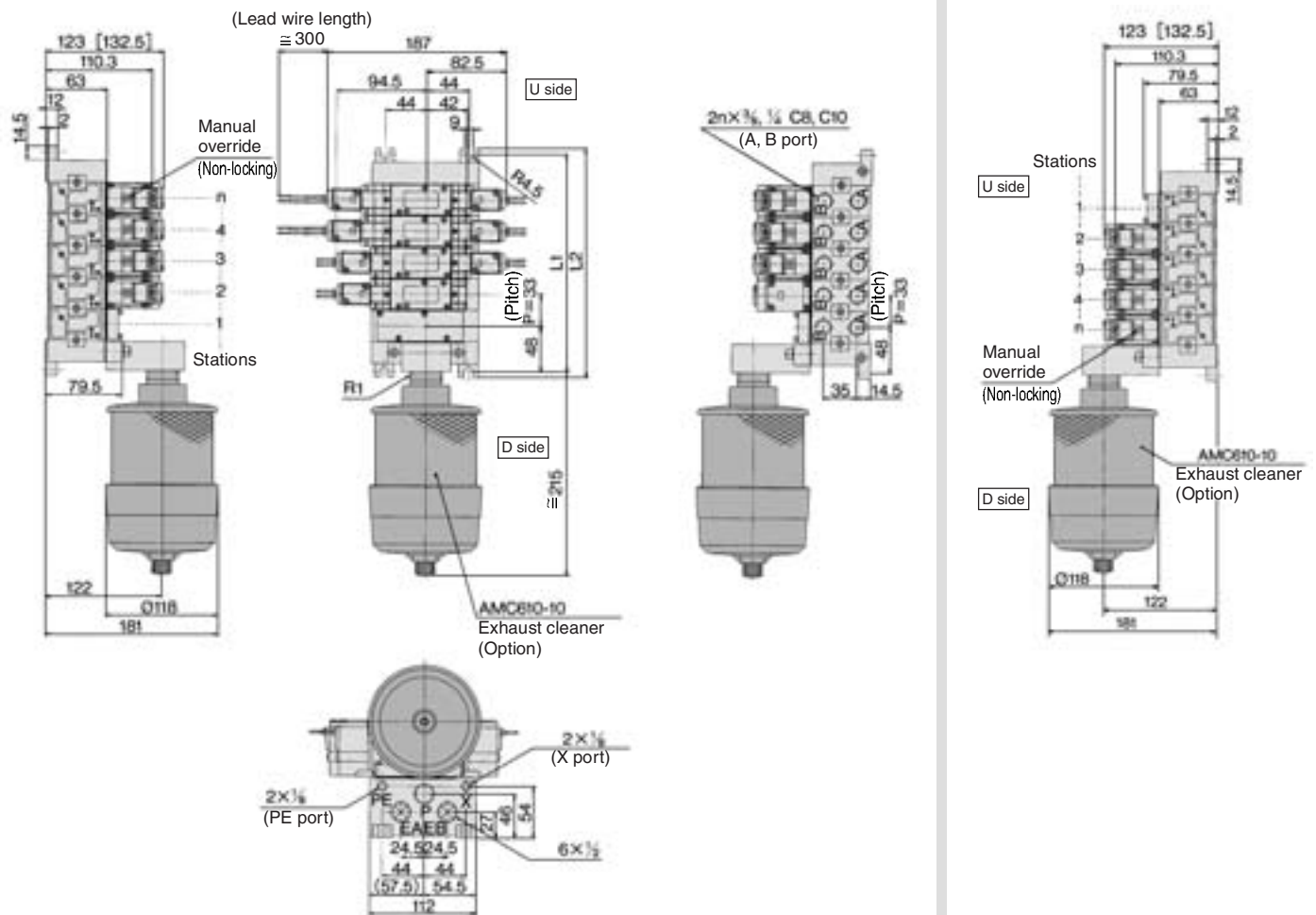
[] : With direct manual override

n: Station										
Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	129	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63
L ₂	141	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75

Series VFR3000

Manifold with Exhaust Cleaner: Non Plug-in Type

Non plug-in type: VV5FR3-40-Station 1-Port size-CD

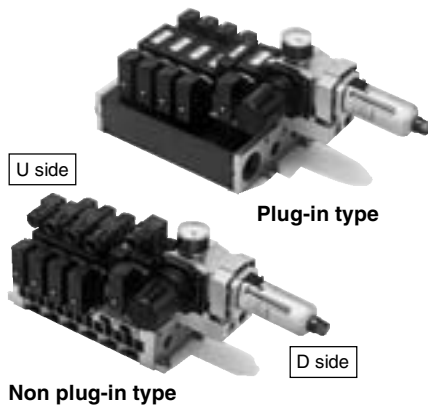


 []: With direct manual override

		n: Station									
Stations		2	3	4	5	6	7	8	9	10	Formula
L ₁		129	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63
L ₂		141	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75

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.



⚠ 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: VV5FR3-01□(-Q)	Non plug-in type: VV5FR3-10(-Q)	Non plug-in type: VV5FR3-40(-Q)
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal	Grommet, Grommet terminal Conduit terminal, DIN terminal
Applicable valve model	VFR3□0□-□F(-Q)	VFR3□1□-□D(-Q) VFR3□1□-□E	VFR3□4□-□G, VFR3□4□-□E VFR3□4□-□T, VFR3□4□-□Y(-Q)
Porting specifications	Common SUP, Common EXH		
	A, B port P, EA, EB port	Side: Rc 1/4, 3/8, C8, C10 Bottom: Rc 1/4, 3/8 (Option) Side: Rc 1/2	
Stations	2 to 10 (With multi-connector/D-sub connector: 2 to 8) *		



* 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> VVFS3000-24A-1R (D side mounting)	
	<Non plug-in type> VVFS3000-24A-2R (D side mounting)	
Pressure switch ⁽²⁾	IS1000P-2-1	
Blanking plate	For filter regulator	MP2-3
	For pressure switch	MP3-2
	For air release valve	VVFS3000-24A-10
Filter element	INA-13-854-12-5B	



Note 1) Combining valve "VFR31□□" (single) and release valve spacer makes it possible to use this as an air release valve.

Note 2) Pressure switch cannot be mounted later on non plug-in type.

Series VFR3000

How to Order

VV5FR3 - 10 - 08 1 - 02 - AP -

Series VFR3000 Manifold

Base type/Electrical entry

01T	Plug-in with terminal block
01C	Plug-in with multi-connector
01F	Plug-in type with D-sub connector
10	Non plug-in type (Common entry)
40	Non plug-in type (Individual entry)

Connector mounting direction

Symbol	With connector	Applicable base
Nil	None	01T, 10, 40
D	D side mounting	01C, 01F
U	U side mounting	

Stations

02	2 stations
⋮	⋮
10 ^{Note)}	10 stations

Note) • Base 01T/10/40: 2 to 10 stations
• Base 01C/01F: 2 to 8 stations
• Including stations of control unit.

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

* For bottom ported: only 1/4, 3/8

CE-compliant

Nil	—
Q	CE-compliant

Control unit type

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

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									1 station

Note) Control unit is D side mounting only.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

How to Order Manifold Assembly

<Example> Plug-in type with terminal block

VV5FR3-01T-081-03-AP5	1 set (Manifold base part no.)
*VFR3100-5FZ	4 sets (2 position single part no.)
*VFR3200-5FZ	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

VV5FR3-10-061-03-A5	1 set (Manifold base part no.)
*VFR3110-5D	4 sets (2 position single part no.)

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

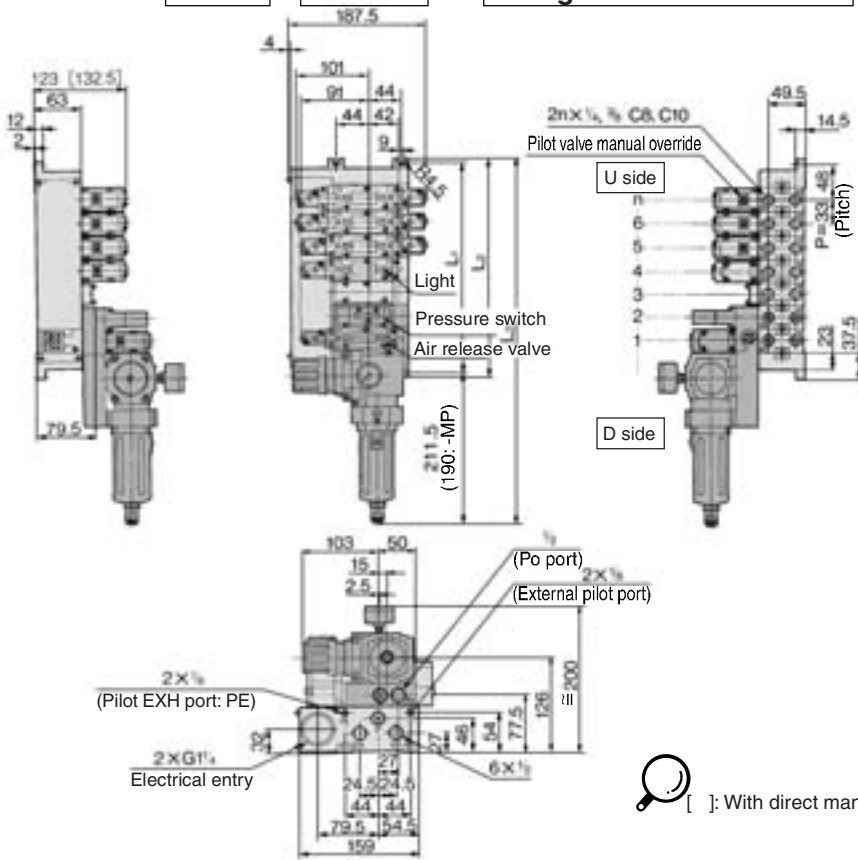
The 1st and 2nd station are used for control unit mounting.
When ordering, specify the part nos. in order from the 3rd. station in the D side.
When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in *Series VFR3000*

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

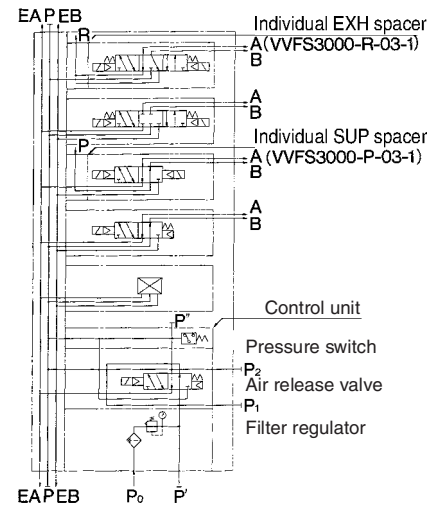
Plug-in type:

VV5FR3-01T-Station 1-Port size -AP Voltage of air release valve



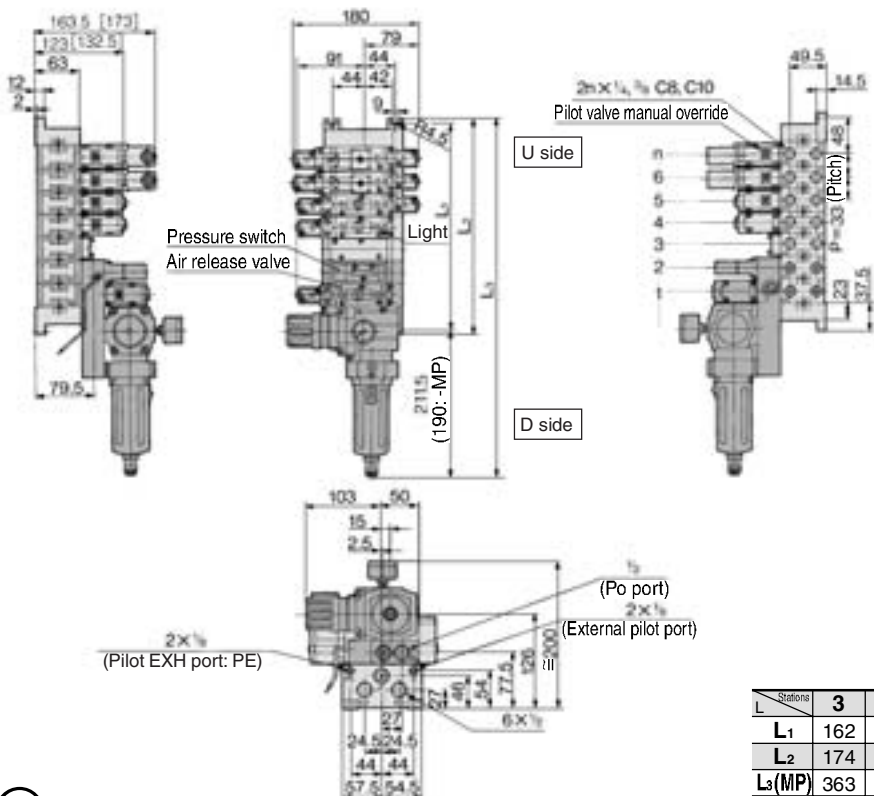
[] : With direct manual override

Example for manifold

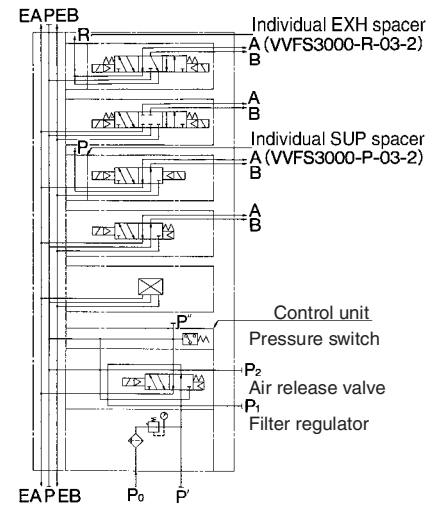


Non plug-in type:

VV5FR3-10-Station 1-Port size -AP Voltage of air release valve



Example for manifold



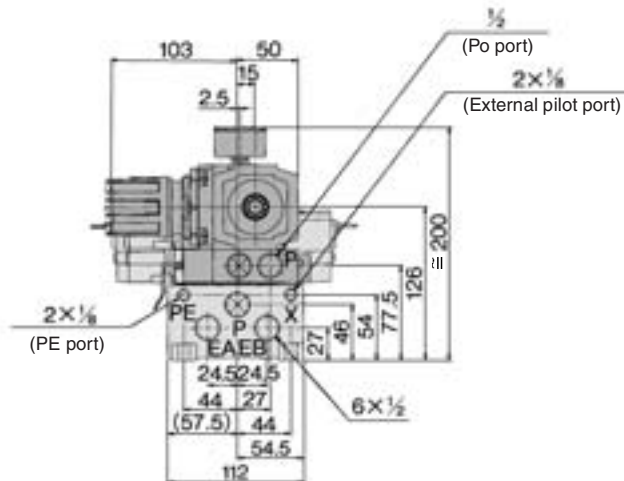
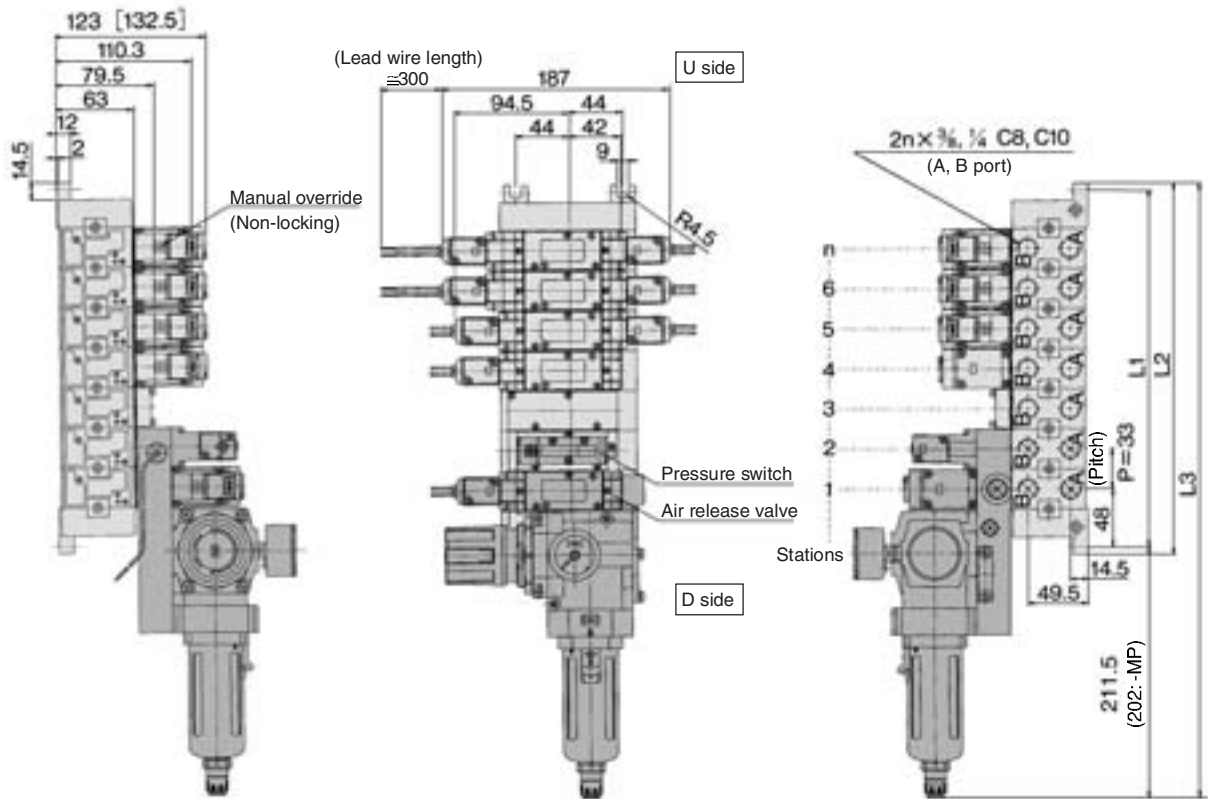
[] : With direct manual override

	n: Station									
Stations	3	4	5	6	7	8	9	10	Formula	
L ₁	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63	
L ₂	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75	
L _{3(MP)}	363	396	429	462	495	528	561	594	L ₃ = 33 x n + 264	
L _{3(AP)}	384.5	417.5	450.5	483.5	516.5	549.5	582.5	615.5	L ₃ = 33 x n + 285.5	

Series VFR3000

Manifold with Control Unit: Non Plug-in Type

Non plug-in type: VV5FR3-40-Station 1-Port size-AP Voltage of air release valve



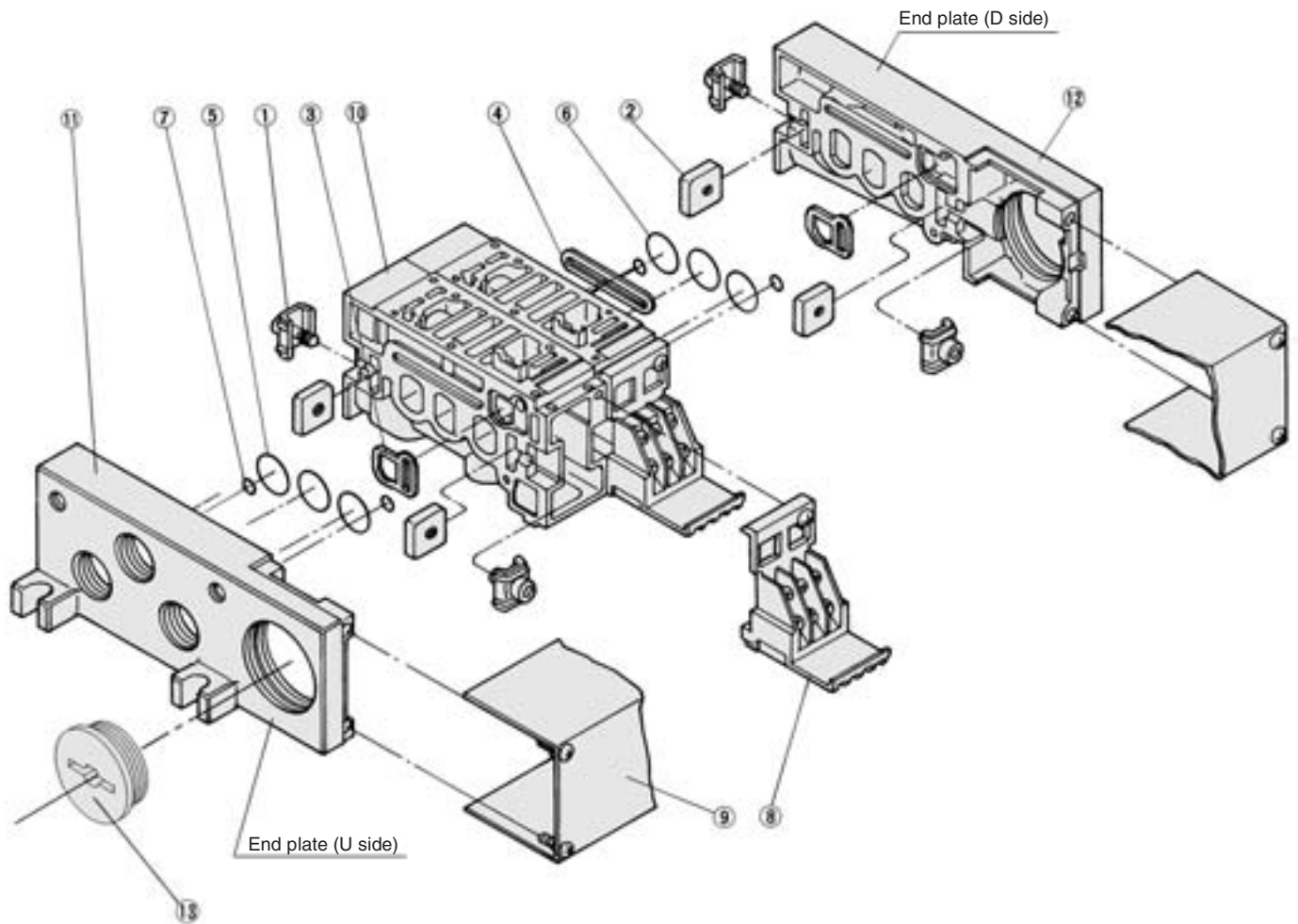
L	Stations									Formula
	3	4	5	6	7	8	9	10		
L ₁	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63	
L ₂	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75	
L ₃ (MP)	363	396	429	462	495	528	561	594	L ₃ = 33 x n + 264	
L ₃ (AP)	384.5	417.5	450.5	483.5	516.5	549.5	582.5	615.5	L ₃ = 33 x n + 285.5	

[] : With direct manual override

() : MP

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in **Series VFR3000**

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



Replacement Parts

No.	Description	Material	Part no.
1	Connection fitting A	Steel	VVFS3000-5-1A
2	Connection fitting B	Steel	VVFS3000-5-2
3	Gasket	NBR	VVFS3000-7-1
4	Gasket	NBR	VVFS3000-8
5	O-ring	NBR	19.8 x 16.6 x 1.6 (for end plate)
6	O-ring	NBR	20 x 16 x 2 (for manifold block)
7	O-ring	NBR	6.2 x 3 x 1.6
8	Terminal assembly	—	VVFS3000-6A
9	Junction cover assembly	—	For 01T VVFS3000-4A- <u>Stations</u>
13	Rubber plug	NBR	AXT336-9



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

Replacement Parts: Sub Assembly

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	Manifold block assembly ^{Note)}	VVFS3000-1A-1 ^{CE, CE10}	Manifold block ⑩, Terminal ⑧, Connection bracket ①, ②, Gasket ③, ④, O-ring ⑥, ⑦, Receptacle assembly	Plug-in type
		VVFS3000-1A-2 ^{CE, CE10}	Manifold block ⑨, Connection bracket ①, ②, Gasket ③, ④, O-ring ⑥, ⑦	Non plug-in type
11	End plate (U side) assembly	VVFS3000-2A-1	End plate (U) ⑪, Connection bracket ①, ②, Gasket ④, O-ring ⑤, ⑦	Plug-in type
		VVFS3000-2A-2	End plate (U) ⑪, Connection bracket ①, ②, Gasket ④, O-ring ⑤, ⑦	Non plug-in type
12	End plate (D side) assembly	VVFS3000-3A-1	End plate (D) ⑫, Connection bracket ①, ②, Gasket ③	Plug-in type
		VVFS3000-3A-2	End plate (D) ⑫, Connection bracket ①, ②, Gasket	Non plug-in type



Note) For side ported

* Contact SMC for CE-compliant products.

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