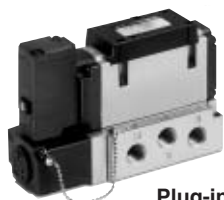




5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series **VFR3000**

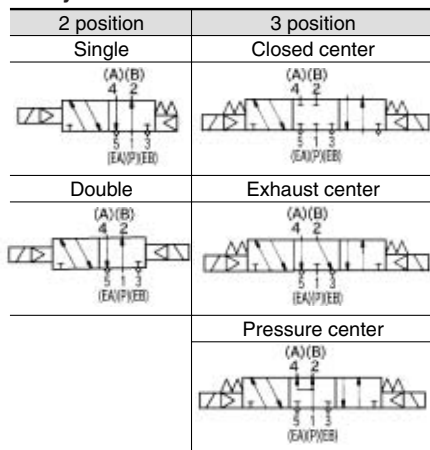


Plug-in type



Non plug-in type

JIS Symbol



Standard Specifications

Valve specifications		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 3-13-4.)	
Lubrication		Non-lube ⁽¹⁾	
Manual override		Non-locking push type	
Mounting orientation		Unrestricted	
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 3) At rated voltage

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)

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, 100 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. operating cycle ⁽²⁾ (Hz)	Response time ⁽³⁾ (ms)	Weight ⁽⁴⁾ (kg)	
			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□	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□	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□	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□	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□	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. (As per JIS B 8375)

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

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 □

Common electrical entry

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

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


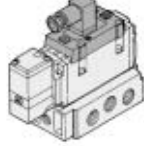
Option/VFR3□4□

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.

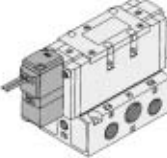
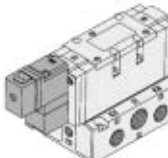


Electrical entry: VFR3□1□

E:	Grommet terminal
D:	DIN terminal


Electrical entry: VFR3□4□

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

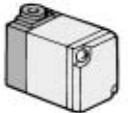





Pilot valve manual override


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		Electrical entry, Light/Surge voltage suppressor				Manual override		Symbol	
Symbol	Rated voltage	Symbol	Electrical entry	Indicator light	With surge voltage suppressor	Applicable valve model	Symbol	Applicable valve model	
1	100 VAC, 50/60 Hz	F*	Plug-in	—	—	VFR3□0□ VFR3□1□	Nil	Non-locking push type	
2	200 VAC, 50/60 Hz	G	Grommet	—	—	VFR3□4□	A*	Non-locking push type A (Extended)	
3*	110 to 120 VAC, 50/60 Hz	GS	Grommet terminal	—	—		B*	Locking type B (Tool required)	
4*	220 VAC, 50/60 Hz	E		—	—		C*	Locking type C (Lever)	
5	24 VDC	EZ	—	●	●		* Option		
6*	12 VDC	T	Conduit terminal	—	—				
7*	240 VAC, 50/60 Hz	TZ	—	●	●				
9*	Other	D	DIN terminal	—	—				
		DZ	—	●	●				
		Y	DIN terminal (DIN43650B type)	—	—				
		YZ	—	●	●				

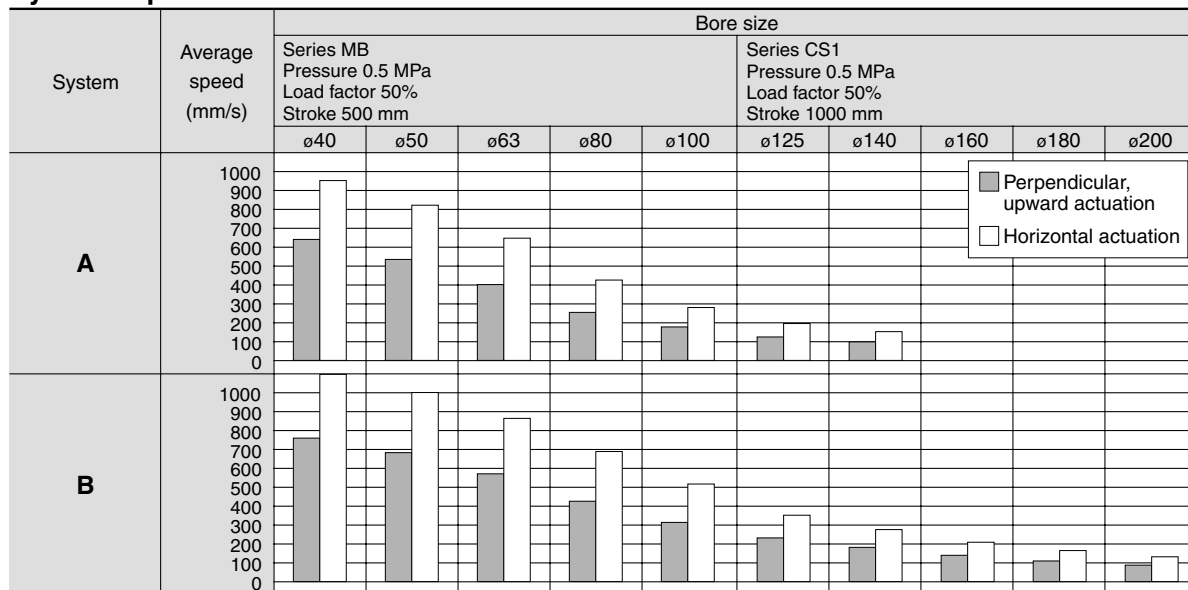
* Option

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

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

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

Cylinder Speed Chart

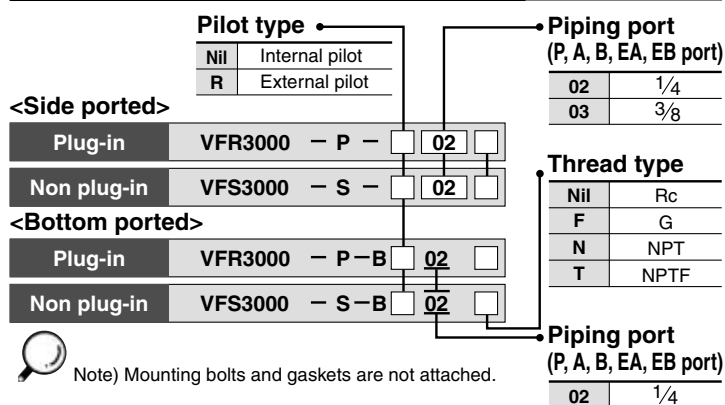


- * It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
- * The average velocity of the cylinder is what the stroke is divided by the total stroke time.
- * Load factor: ((Load weight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



VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

EVS

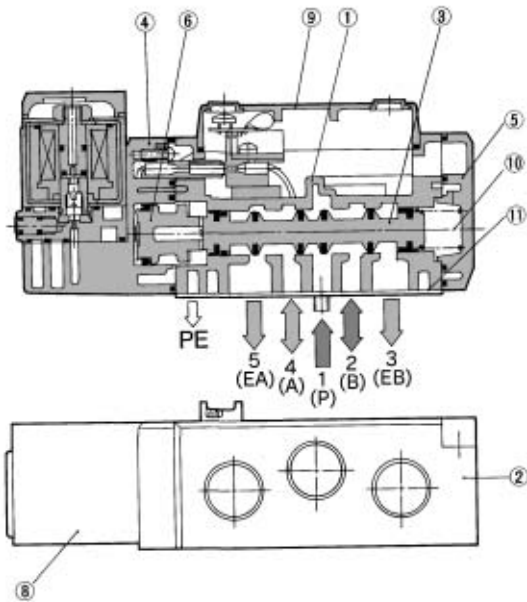
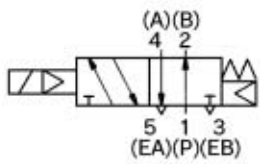
VFN

Series VFR3000

Construction

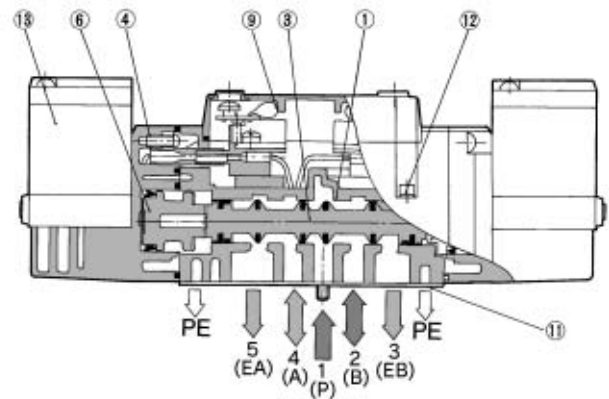
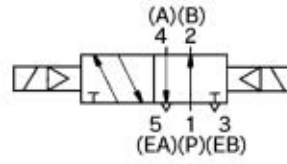
2 position single

VFR31□□



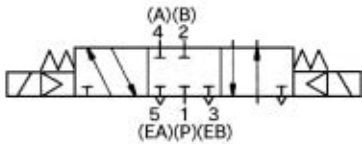
2 position double

VFR32□□

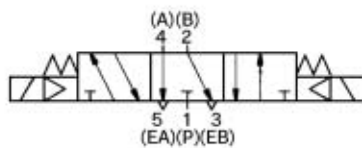


3 position closed center/exhaust center/pressure center

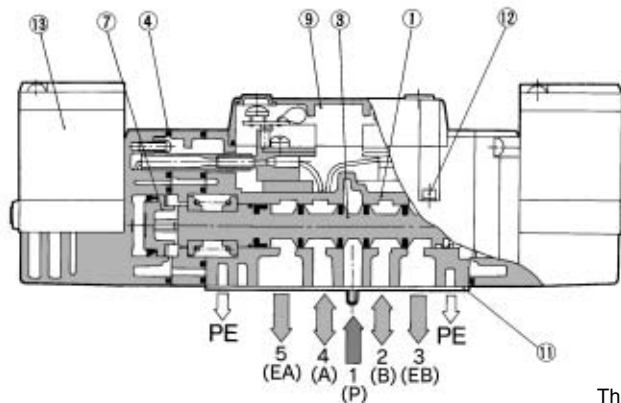
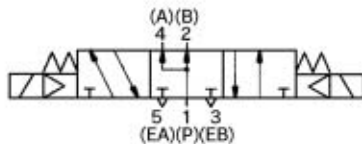
Closed center: VFR33□□



Exhaust center: VFR34□□



Pressure center: VFR35□□



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

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

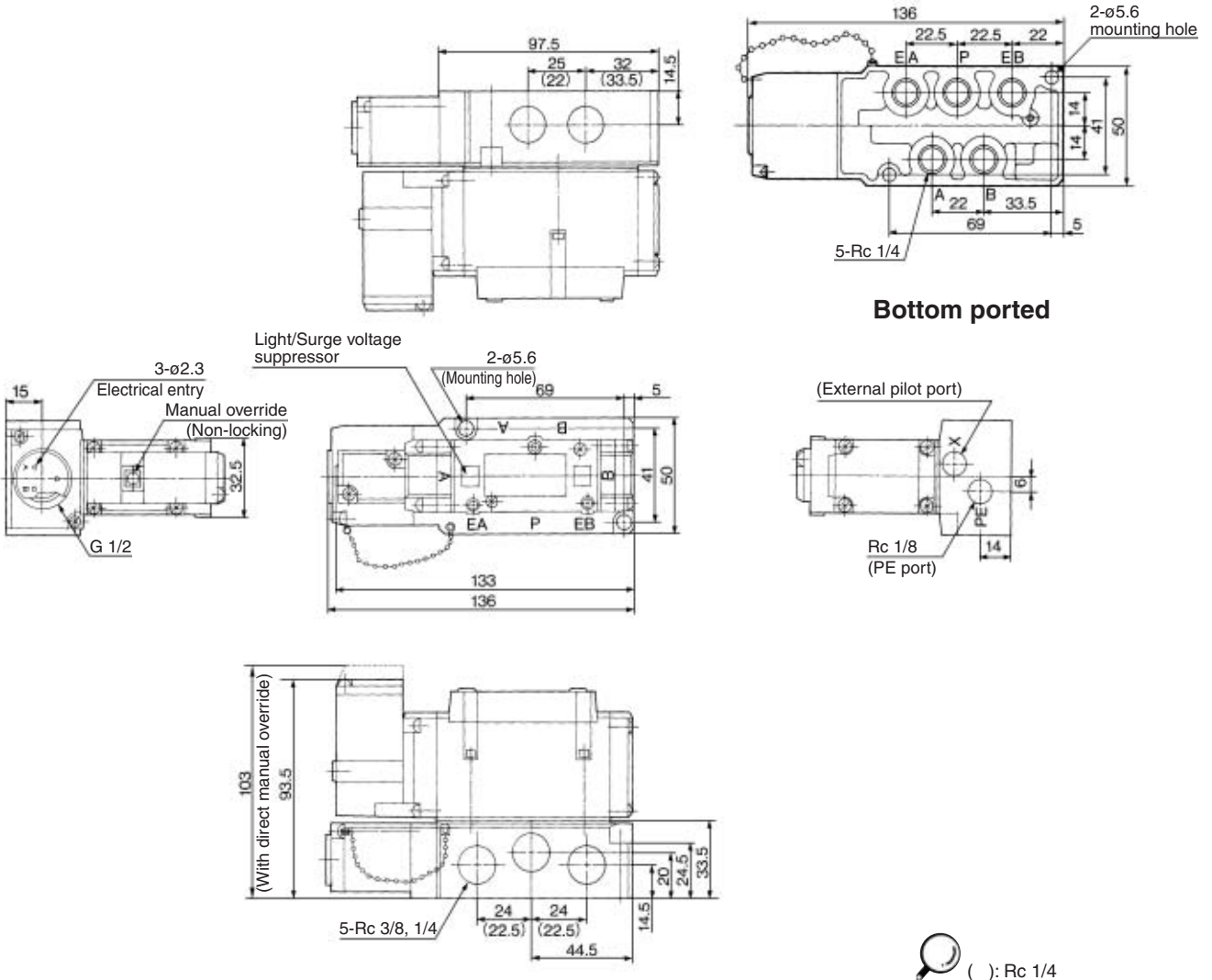
Replacement Parts

No.	Description	Material	Part no.		
			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)
⑬	Pilot valve assembly	—	Refer to "How to Order Pilot Valve Assembly" on page 3-5-30.		
—	Sub-plate assembly	—	Refer to "How to Order Sub-plate Assembly" on page 3-5-31.		

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

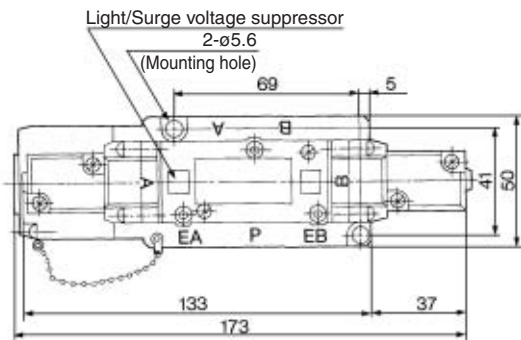
Plug-in 2 position single/double, 3 position closed center/exhaust center/pressure center

2 position single: VFR310⁰₁-□FZ



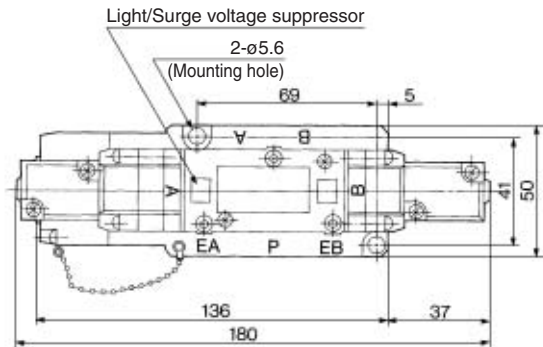
- VK
- VZ
- VF
- VFR**
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

2 position single: VFR320⁰₁-□FZ



* Other dimensions are the same as the single type.

3 position closed center: VFR330⁰₁-□FZ
 3 position exhaust center: VFR340⁰₁-□FZ
 3 position pressure center: VFR350⁰₁-□FZ

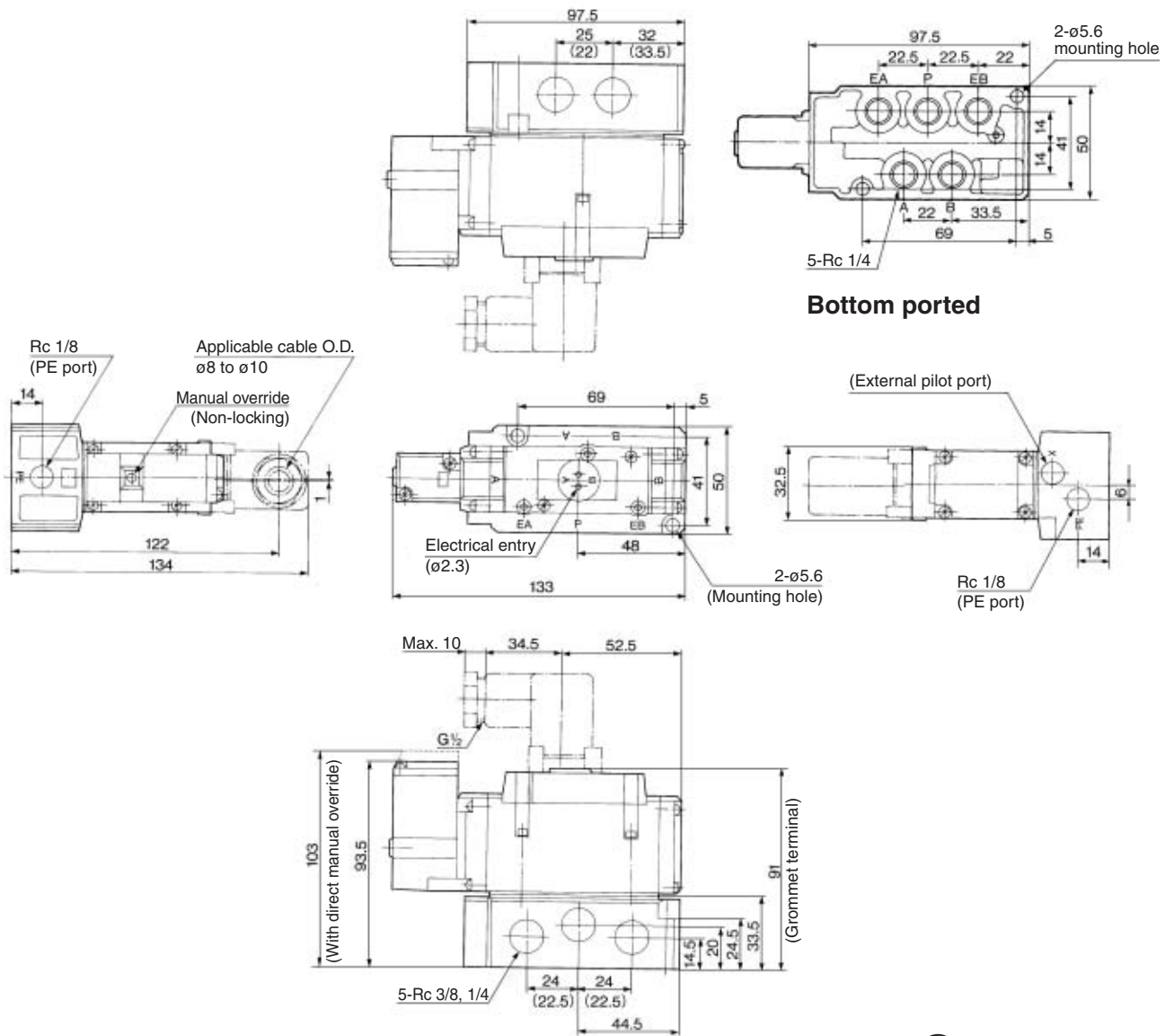


* Other dimensions are the same as the single type.

Series VFR3000

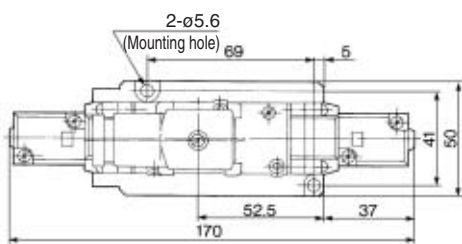
Non Plug-in 2 position single/double, 3 position closed center/exhaust center/pressure

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



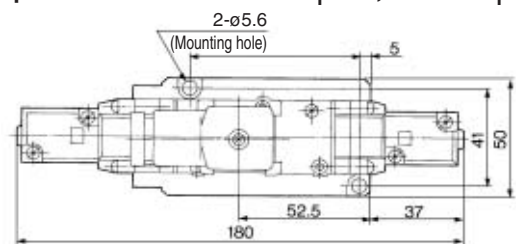
Bottom ported

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



* Other dimensions are the same as the single type.

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

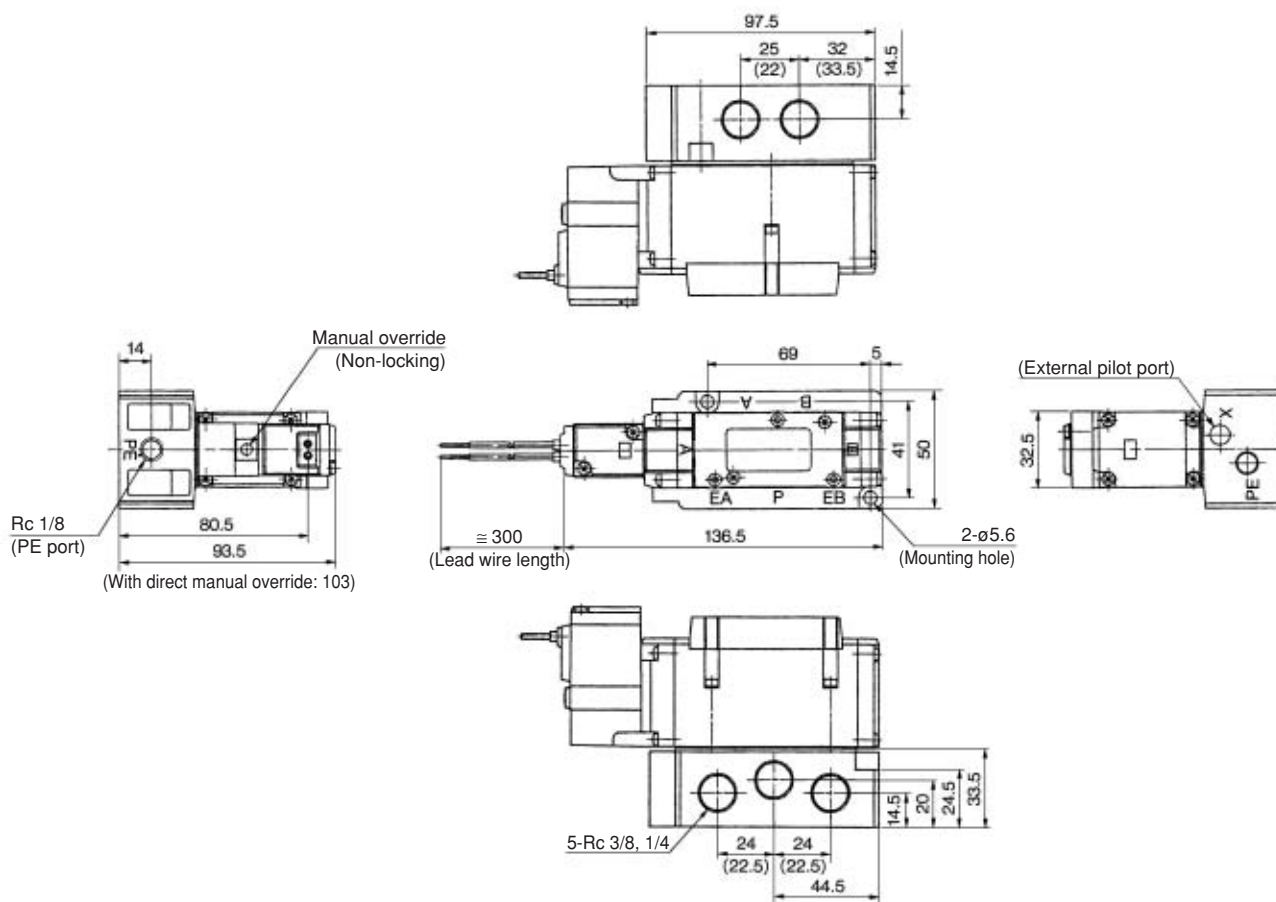


* Other dimensions are the same as the single type.

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

Non Plug-in 2 position single

2 position single: VFR314⁰-□G



(): Rc 1/4

VK

VZ

VF

VFR

VP4

VZS

VFS

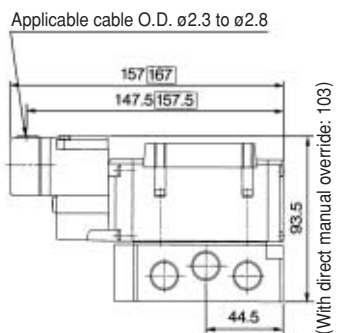
VS4

VQ7

EVS

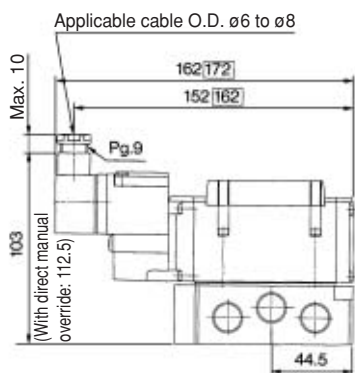
VFN

E: Grommet terminal



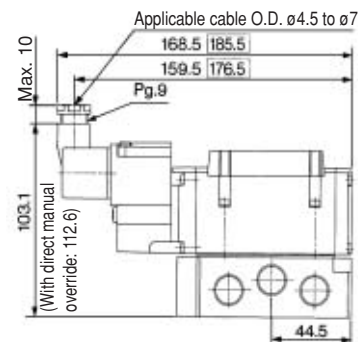
□: With light/surge voltage suppressor

T: Conduit terminal



□: With light/surge voltage suppressor

D, Y: DIN terminal



□: With light/surge voltage suppressor

Series VFR3000

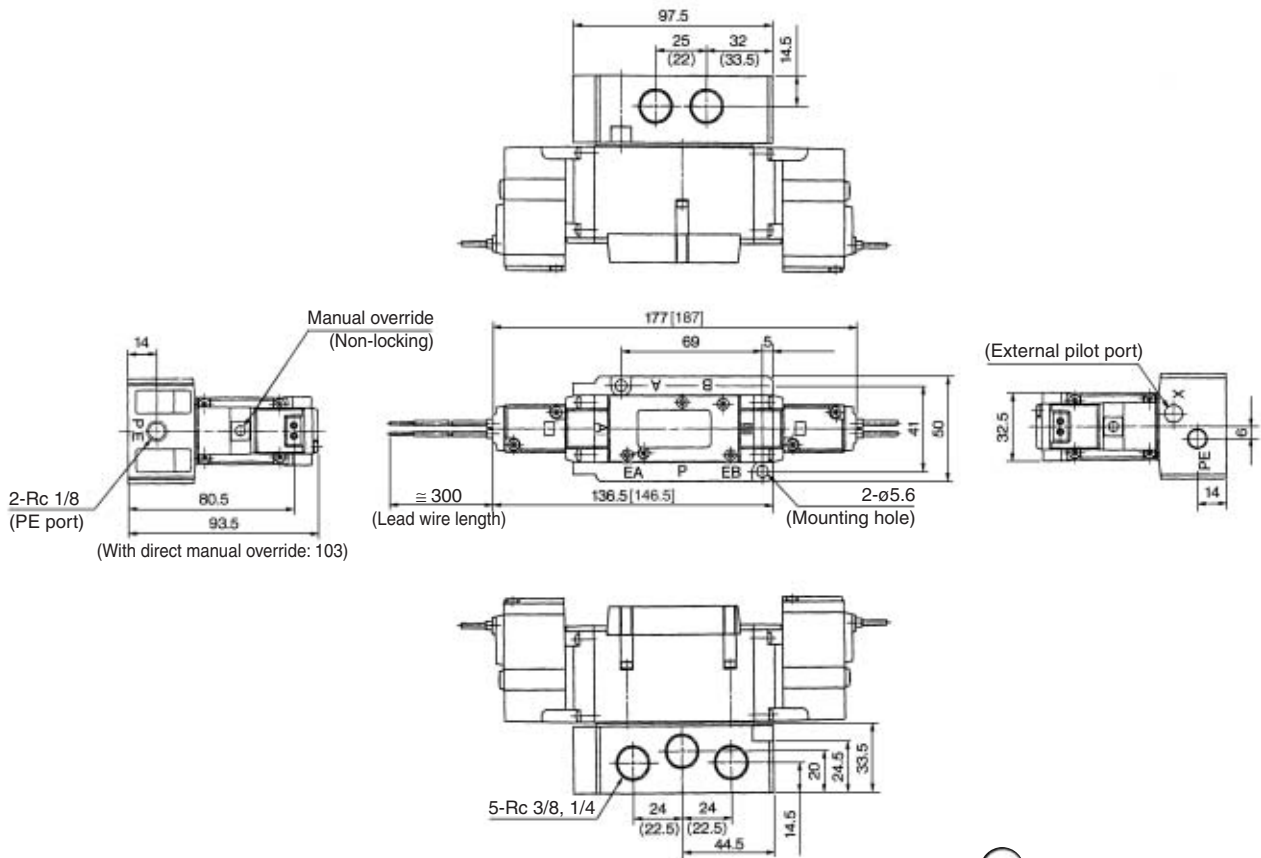
Non Plug-in 2 position double, 3 position closed center/exhaust center/pressure center

2 position double: VFR324⁰₁-□G

3 position closed center: VFR334⁰₁-□G

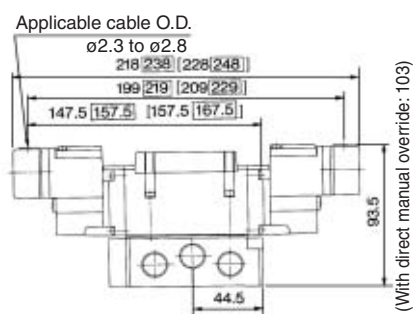
3 position exhaust center: VFR344⁰₁-□G

3 position pressure center: VFR354⁰₁-□G



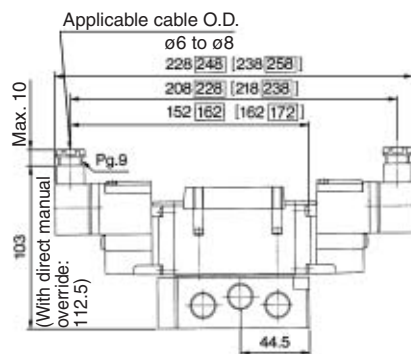
☉ [] : 3 position
() : Rc 1/4

E: Grommet terminal



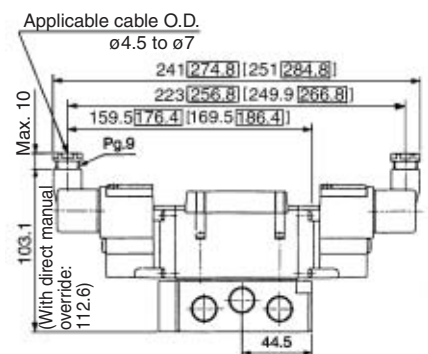
☉ [] : 3 position
□ : With light/surge voltage suppressor

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	A, B		
Plug-in type VV5FR3-01□	<ul style="list-style-type: none"> With terminal block With multi-connector With D-sub connector 	Side/Bottom	Note) 1/2	1/4, 3/8 C8, C10	A, B	2 to 10	VFR3□00-□F
Non plug-in type VV5FR3-10	<ul style="list-style-type: none"> Grommet terminal DIN terminal 					2 to 8	
Non plug-in type VV5FR3-40	<ul style="list-style-type: none"> Grommet Grommet terminal Conduit terminal DIN terminal 					2 to 10	VFR3□1□-□E VFR3□1□-□D VFR3□4□-□G VFR3□4□-□E VFR3□4□-□T VFR3□4□-□D

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.

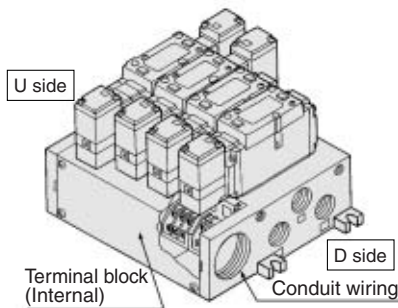
<Example> Non plug-in type: 6 stations

VV5FR3-10-061-03..... 1 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	Common	Common	Bottom *

* Option

Port size

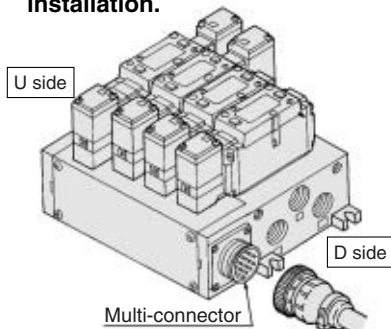
Symbol	P, EA, EB	A, B *
02	1/2	1/4
03		3/8
C8		One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

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

Thread type	
Nil	Rc
F	G
N	NPT
T	NPTF

Plug-in Type: With Multi-connector (For wiring specifications, refer to page 3-5-8.)

- 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

02	2 stations
⋮	⋮
08 *	8 stations

* Max: 8 stations

Symbol

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

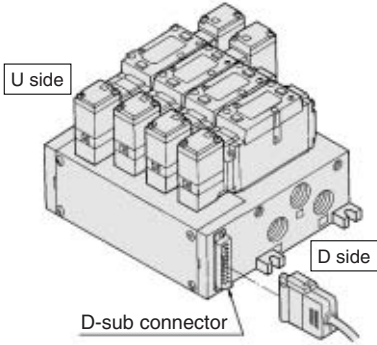
* For bottom ported: Rc 1/4, 3/8 only.

Thread type	
Nil	Rc
F	G
N	NPT
T	NPTF

Series VFR3000

Plug-in Type: With D-sub Connector (For wiring specifications, refer to page 3-5-8.)

- 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	
1	Common	Common	Side
2			Bottom *

* Option

Port size

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

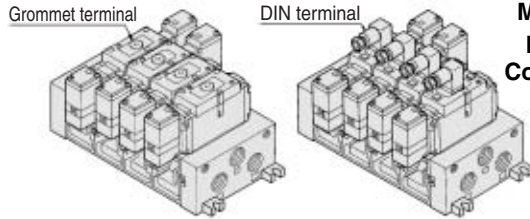
* For bottom ported: Rc 1/4, 3/8 only.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

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 entry

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		1/4
03		3/8
C8	1/2	One-touch fitting for ø8
C10		One-touch fitting for ø10
M		Mixed

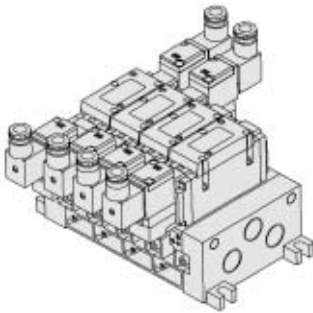
* For bottom ported: Rc 1/4, 3/8 only.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

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	
1	Common	Common	Side
2			Bottom *

* Option

Port size

Symbol	P, EA, EB	A, B *
02		1/4
03		3/8
C8	1/2	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

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

Note) Manifold base is in common with Series VFS3000.

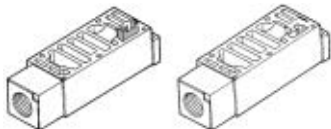
5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR3000

Manifold/Option Parts Assembly

Individual SUP spacer

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

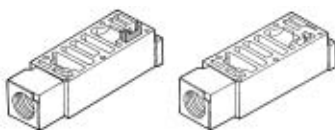
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-P-03-1	VVFS3000-P-03-2



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.

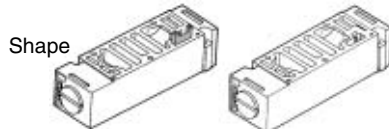
Body type	Plug-in type	Non plug-in type
Part no.	AXT636-1A	



Throttle valve spacer

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

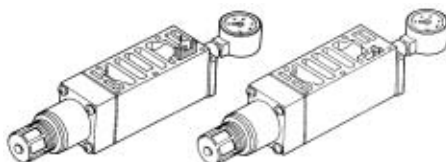
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-20A-1	VVFS3000-20A-2



Interface regulator

Interface regulator set on the manifold block can regulate pressure for each valve. (Refer to "Flow Characteristics" on page 3-5-6 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 3-5-44.

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.

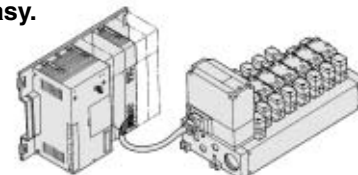


For details, refer to page 3-5-44.

With serial interface unit for serial transmission

Plug-in type

- Solenoid valve wiring process reduced considerably.
- Disperse installation possible. Manifold solenoid valve: 8 stations max. 32 positions (512 solenoids).
- Maintenance and inspection are easy.



For details, refer to "Serial Transmission" catalog separately.

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

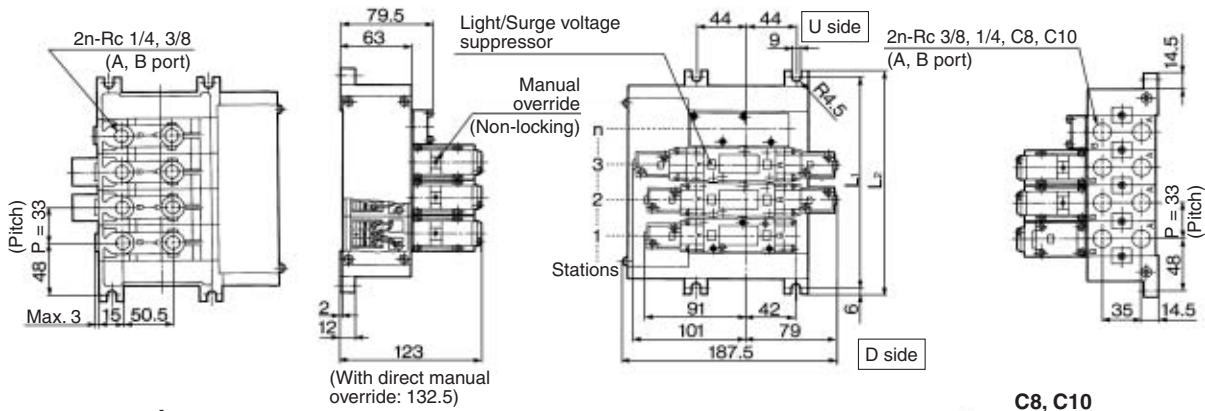
EVS

VFN

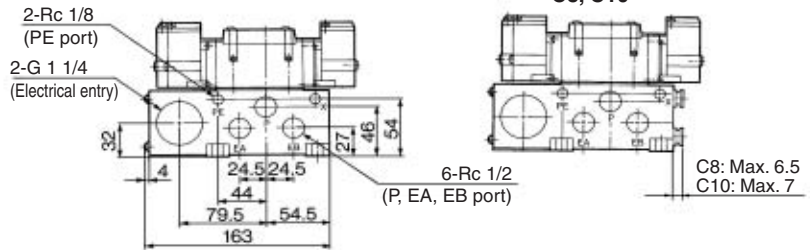
Series VFR3000

Manifold Plug-in type

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



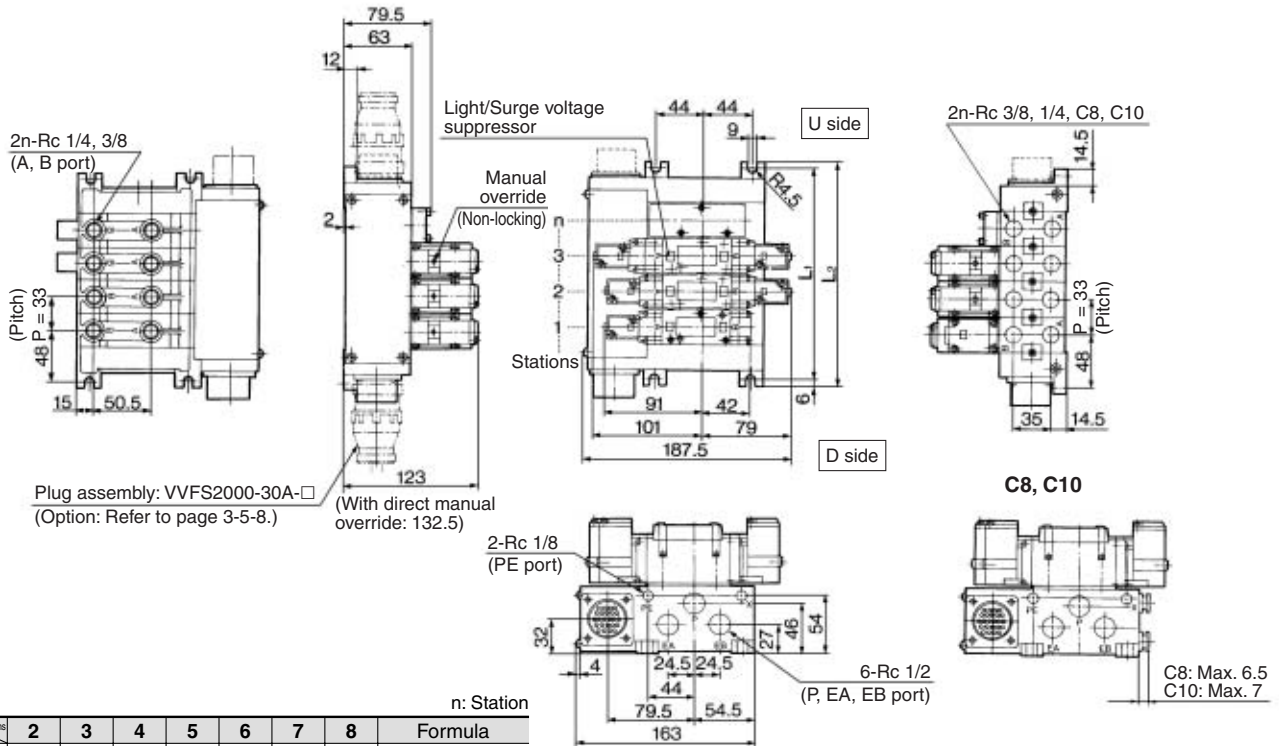
Bottom ported: VV5FR3-01T-Station 2-Port size



n: Station

Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	129	162	195	228	261	294	327	360	393	$L_1 = 33 \times n + 63$
L_2	141	174	207	240	273	306	339	372	405	$L_2 = 33 \times n + 75$

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



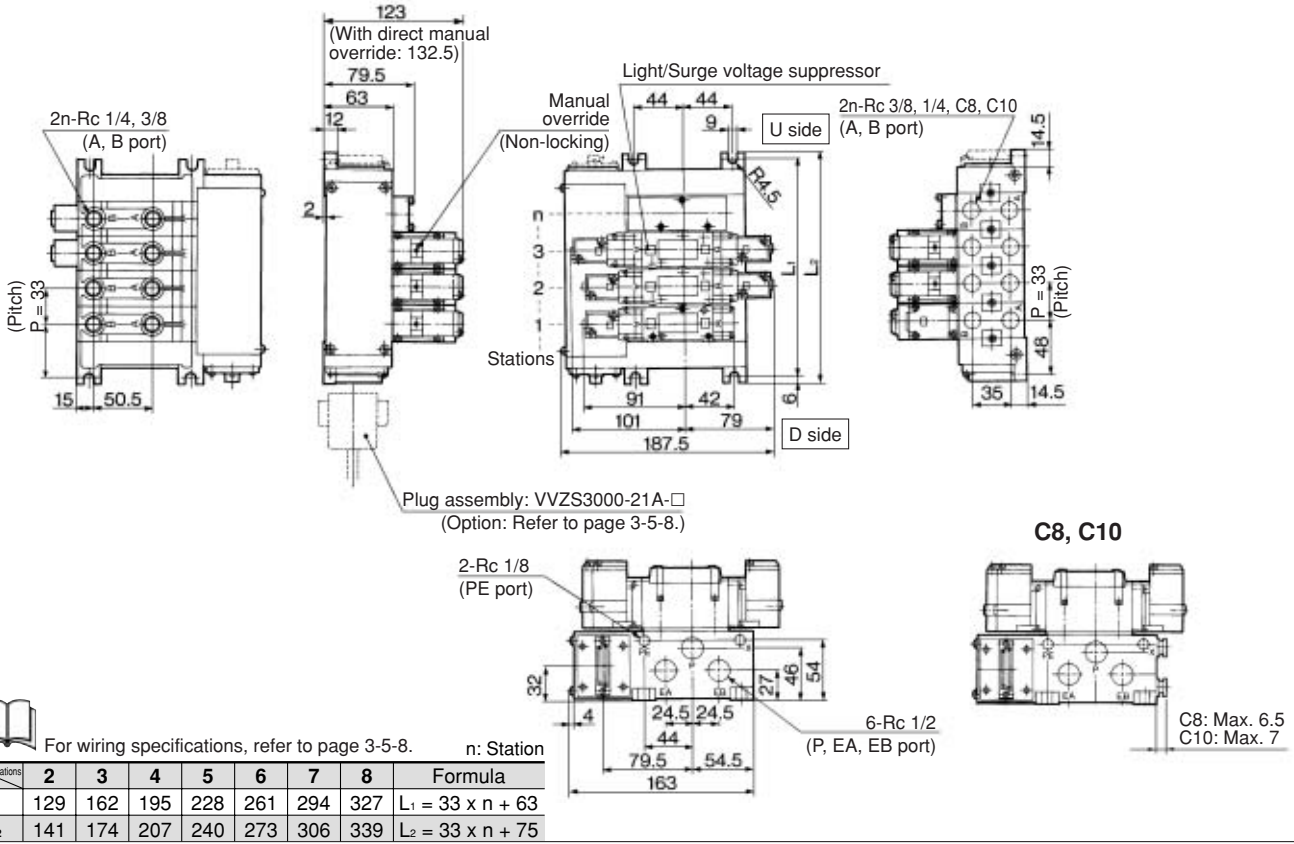
n: Station

Stations	2	3	4	5	6	7	8	Formula
L_1	129	162	195	228	261	294	327	$L_1 = 33 \times n + 63$
L_2	141	174	207	240	273	306	339	$L_2 = 33 \times n + 75$

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

Manifold Plug-in type

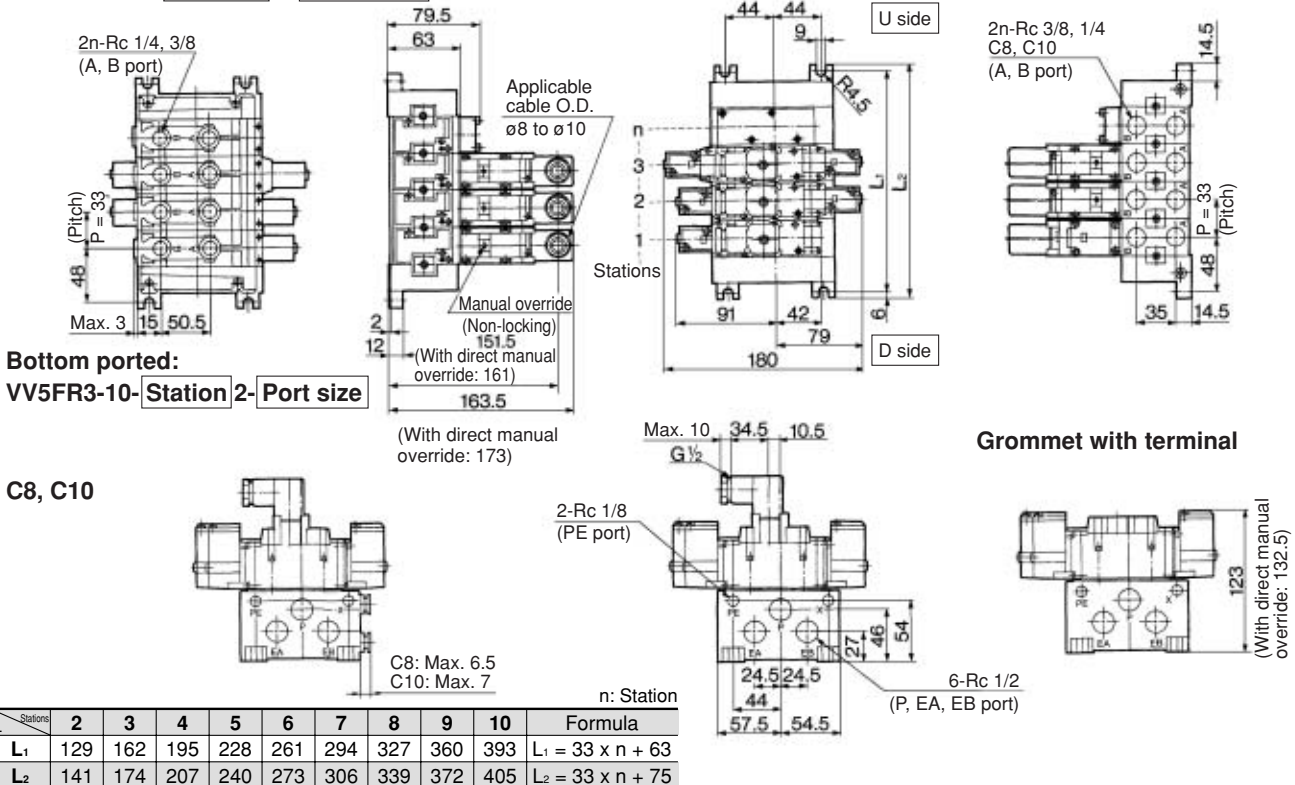
With D-sub connector: VV5FR3-01FD-Station 1-Port size, VV5FR3-01FU-Station 1-Port size



- VK
- VZ
- VF
- VFR**
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

Manifold Non plug-in type

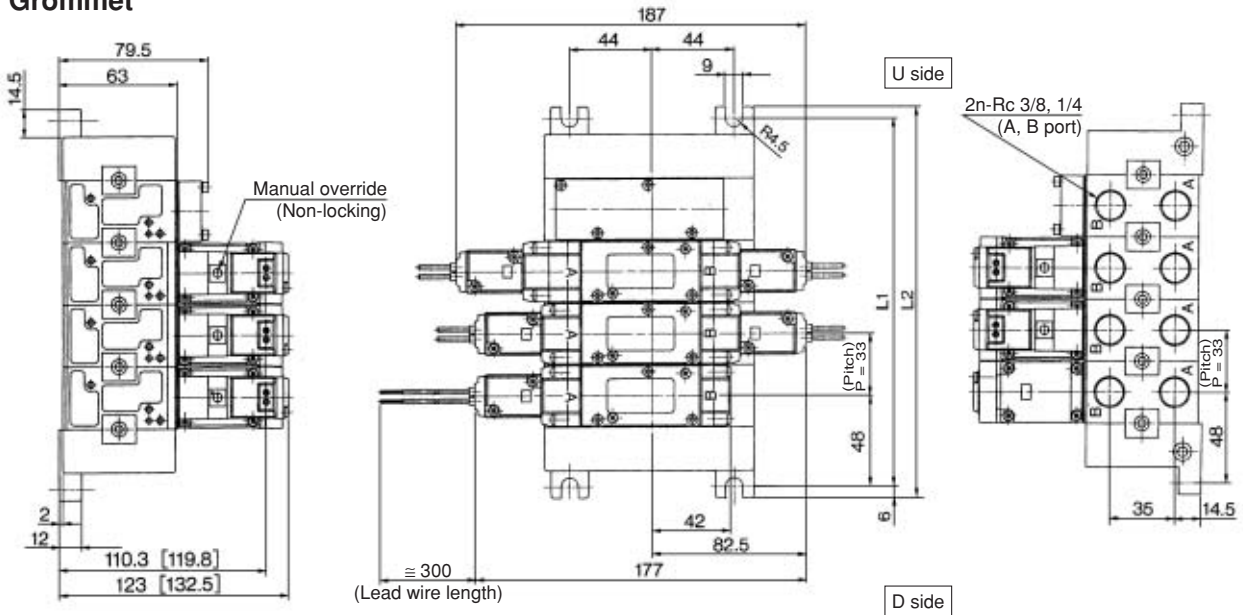
VV5FR3-10-Station 1-Port size



Series VFR3000

Manifold Plug-in type

VV5FR3-40-Station 1- Port size
G: Grommet

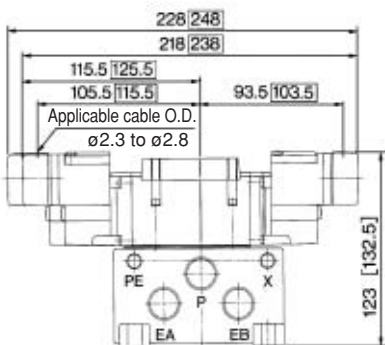


n: Station

Station	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

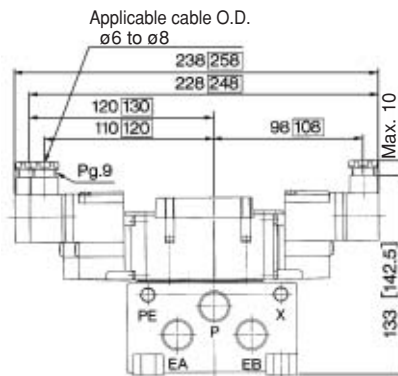
[]: With direct manual override

E: Grommet terminal



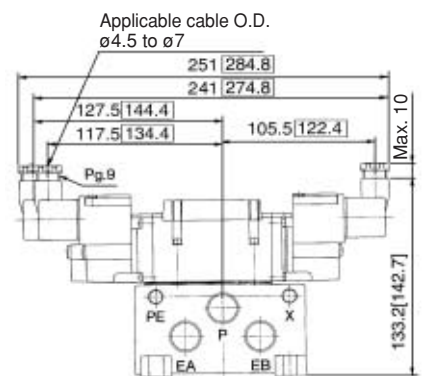
: With light/surge voltage suppressor

T: Conduit terminal



: With light/surge voltage suppressor

D, Y: DIN terminal

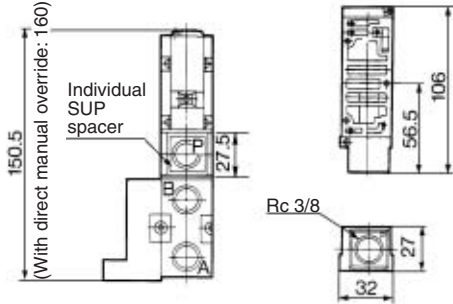


: With light/surge voltage suppressor

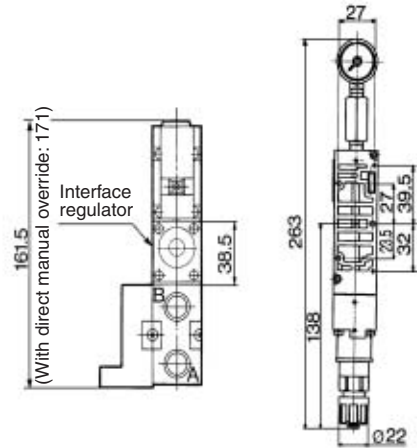
5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR3000

Manifold/Option Parts Assembly Plug-in type/Non plug-in type

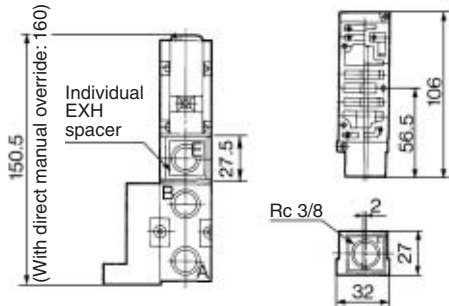
Individual SUP spacer:
VVFS3000-P-03-1 (Plug-in type)
VVFS3000-P-03-2 (Non plug-in type)



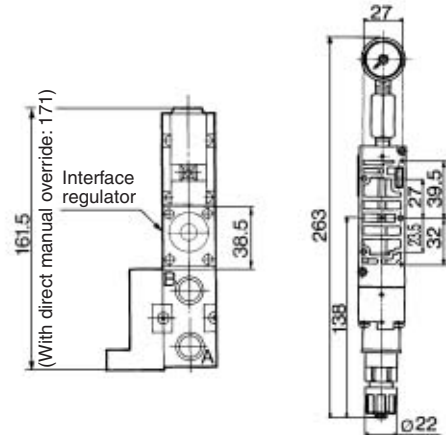
Interface regulator/P port regulation:
ARBF3050-00-P-1 (Plug-in type)
ARBF3050-00-P-2 (Non plug-in type)



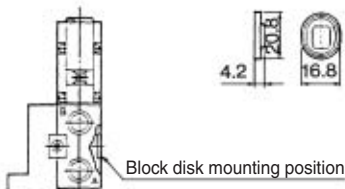
Individual EXH spacer:
VVFS3000-R-03-1 (Plug-in type)
VVFS3000-R-03-2 (Non plug-in type)



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

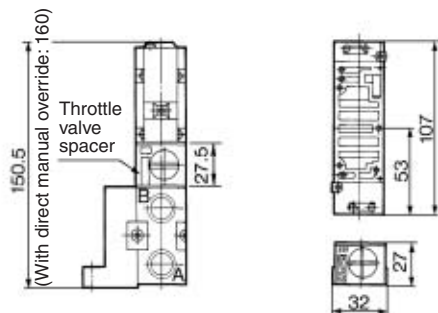


SUP/EXH block disk: AXT636-1A

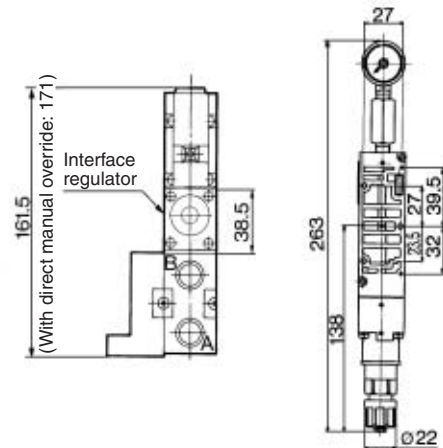


Block disk mounting position
 Note) Used with exclusive manifold block

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



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



- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

Series VFR3000

Manifold with Exhaust Cleaner

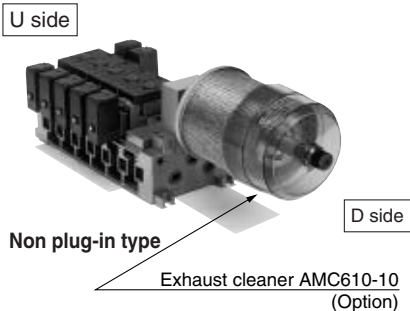
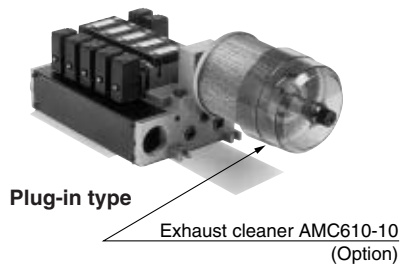
- Serves to protect working environment.
- Valve exhaust noise dampening: 35 dB or more.
- Collection rate of drainage and oil mist: 99.9% or more
- Piping work is reduced.

Manifold Specifications

Manifold	Plug-in type: VV5FR3-01□	Non plug-in type: VV5FR3-10	Non plug-in type: VV5FR3-40
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	VFR3□1□-□D VFR3□1□-□E	VFR3□4□-□G, VFR3□4□-□E VFR3□4□-□T, VFR3□4□-□D
Porting specifications	Common SUP, Common EXH		
	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	

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



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

Exhaust cleaner mounting direction

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

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

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

Symbol

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

* Option

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.

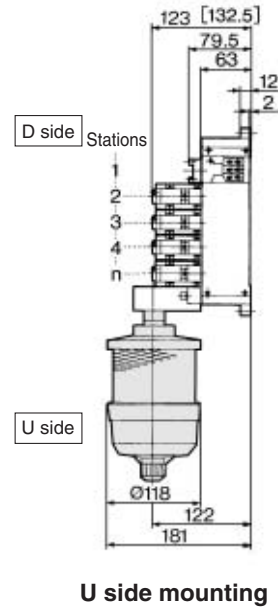
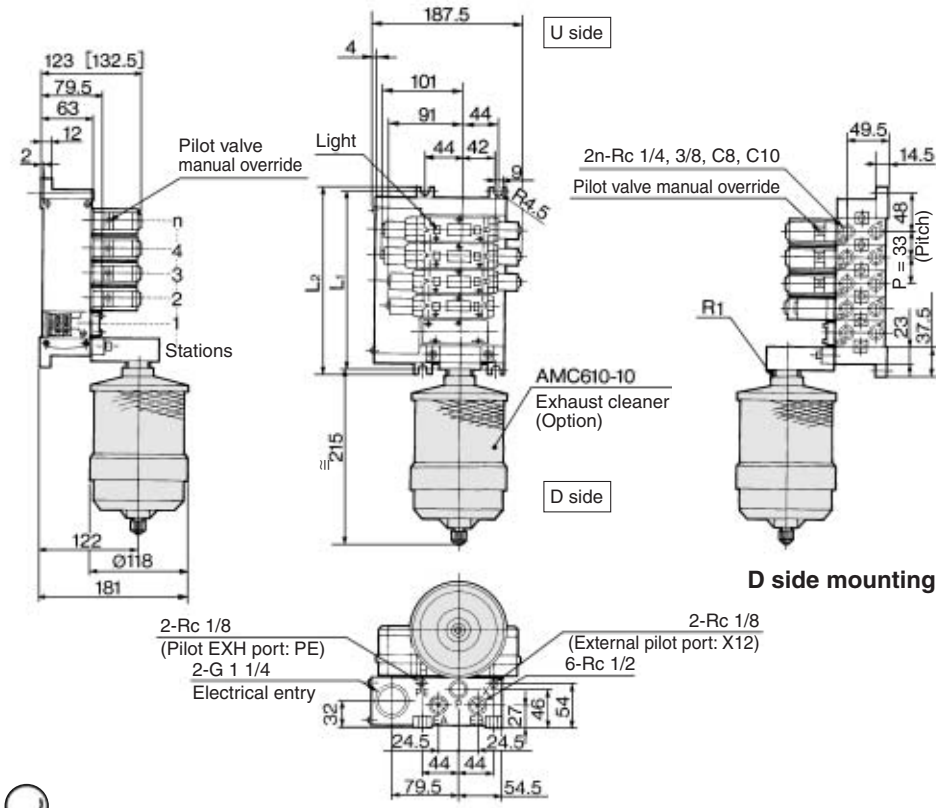


Refer to Best Pneumatics Vol. 5 for Exhaust Cleaner details.

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

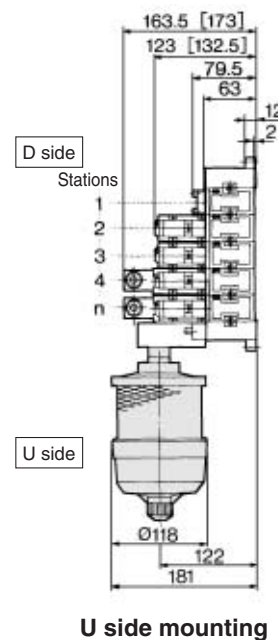
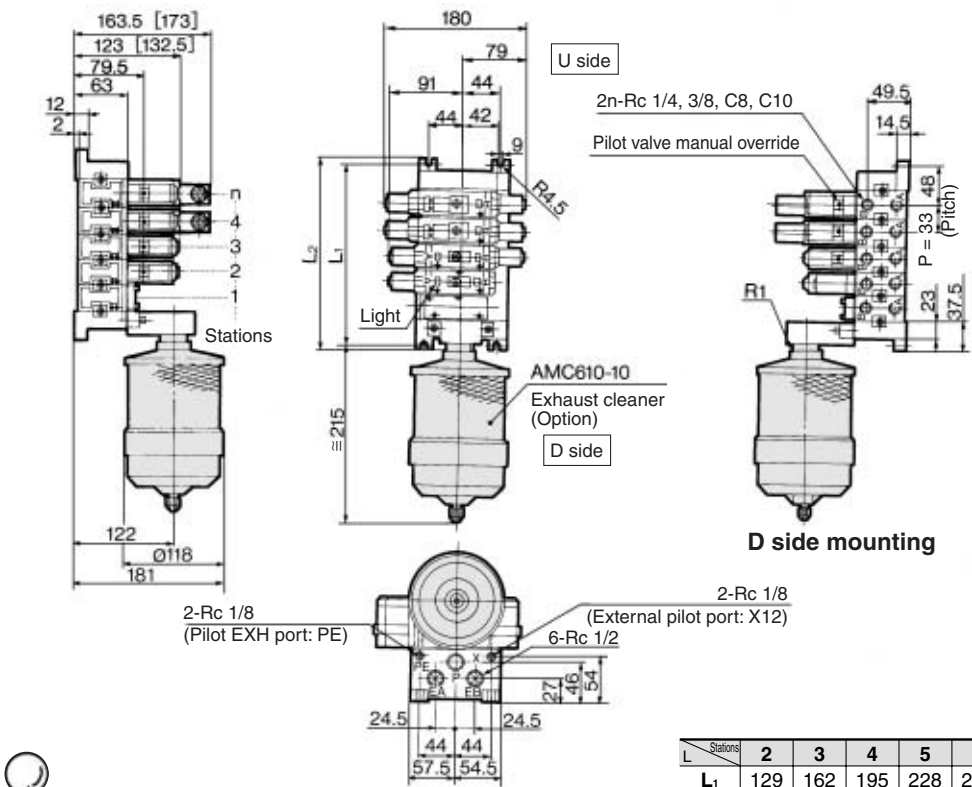
Plug-in type: VV5FR3-01T-Station 1-Port size -^{CD}/_{CU}



- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

[]: With direct manual override

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



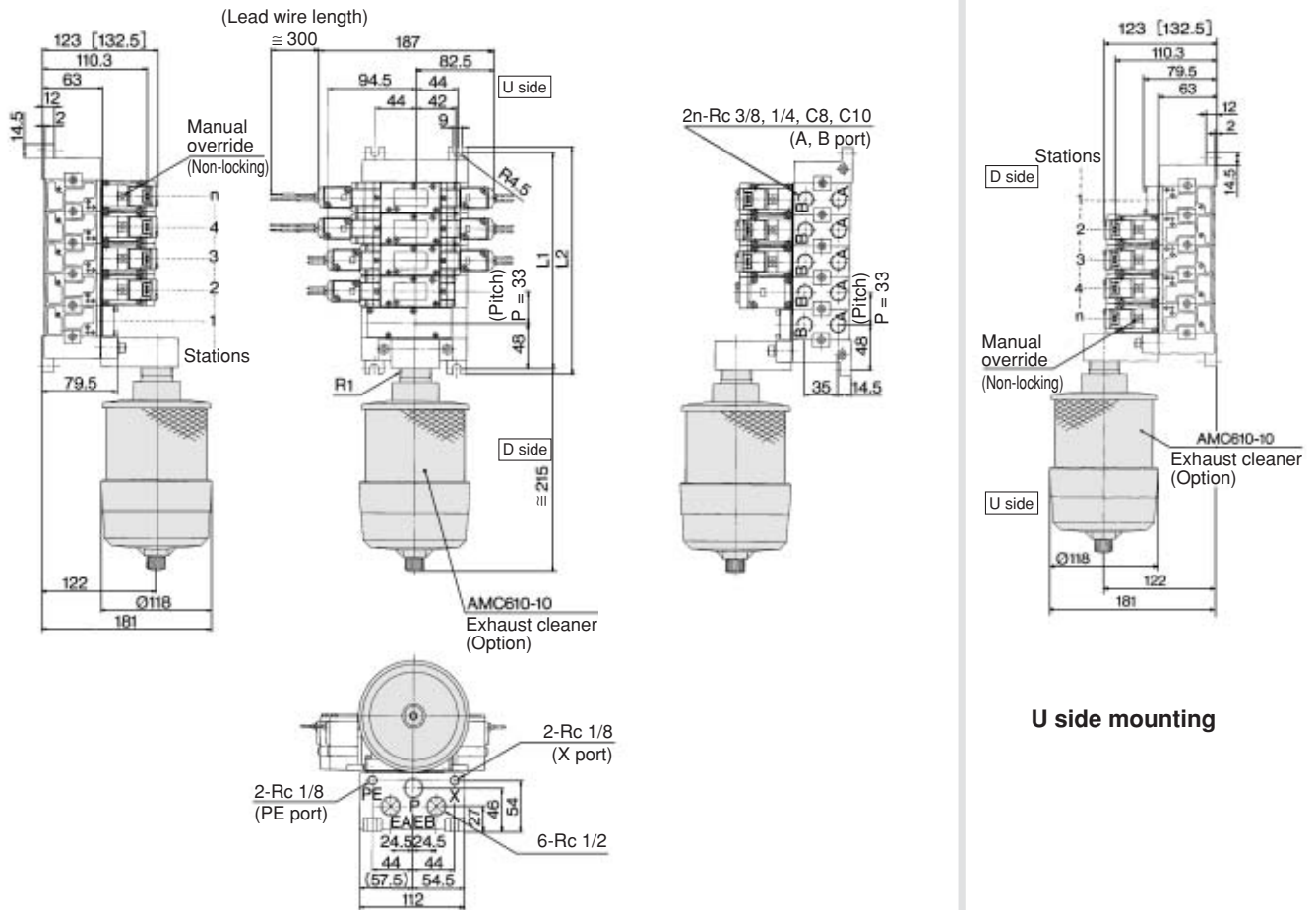
[]: With direct manual override

L 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 - $\frac{CD}{CU}$



U side mounting

n: Station

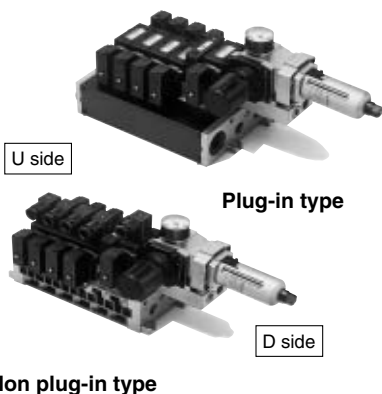
Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	129	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63
L ₂	141	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75



[]: With direct manual override

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.



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: VV5FR3-01□	Non plug-in type: VV5FR3-10	Non plug-in type: VV5FR3-40
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	VFR3□1□-□D VFR3□1□-□E	VFR3□4□-□G, VFR3□4□-□E VFR3□4□-□T, VFR3□4□-□Y
Porting specifications	Common SUP, Common EXH		
	A, B port	Side: Rc 1/4, 3/8, C8, C10 Bottom: Rc 1/4, 3/8 (Option)	
Rc	P, EA, EB port	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.

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

EVS

VFN

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

Air release valve coil rating

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			2 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.

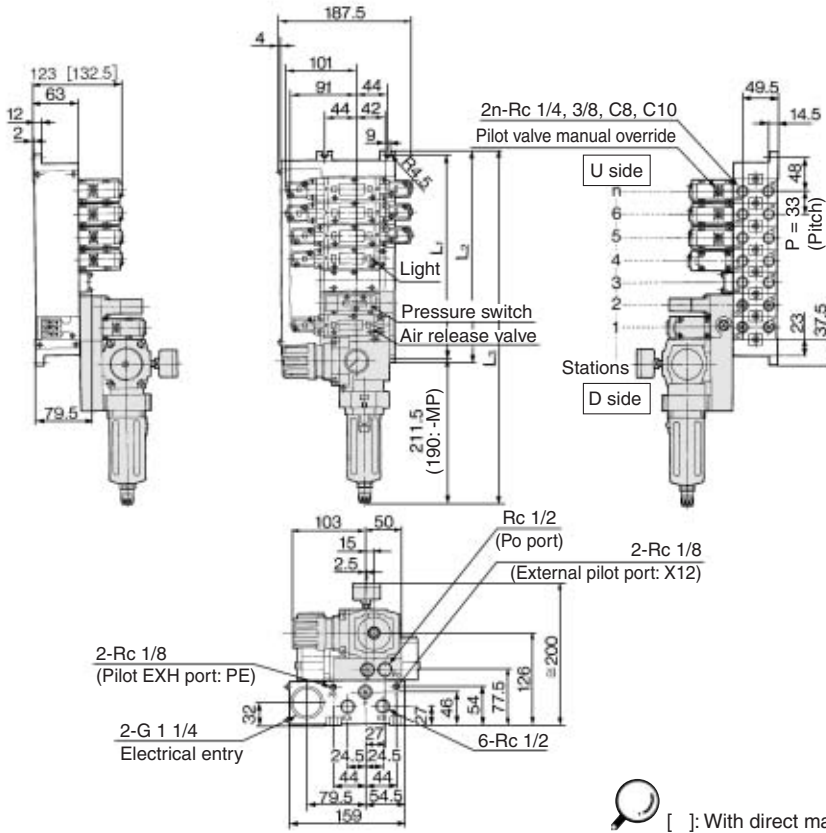
The 1st and 2nd station are used for control unit mounting. When ordering, specify the part nos. in order from the 3rd. station in the D side. When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

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

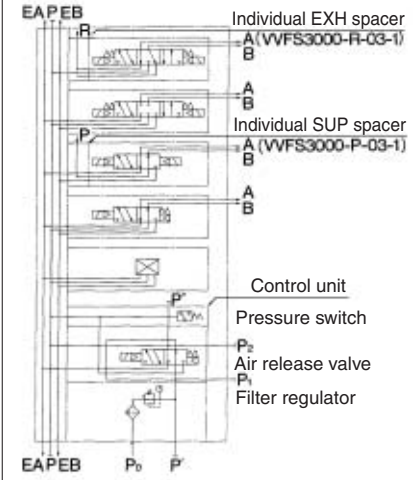
Manifold with Control Unit Plug-in type/Non plug-in type

Plug-in type:

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

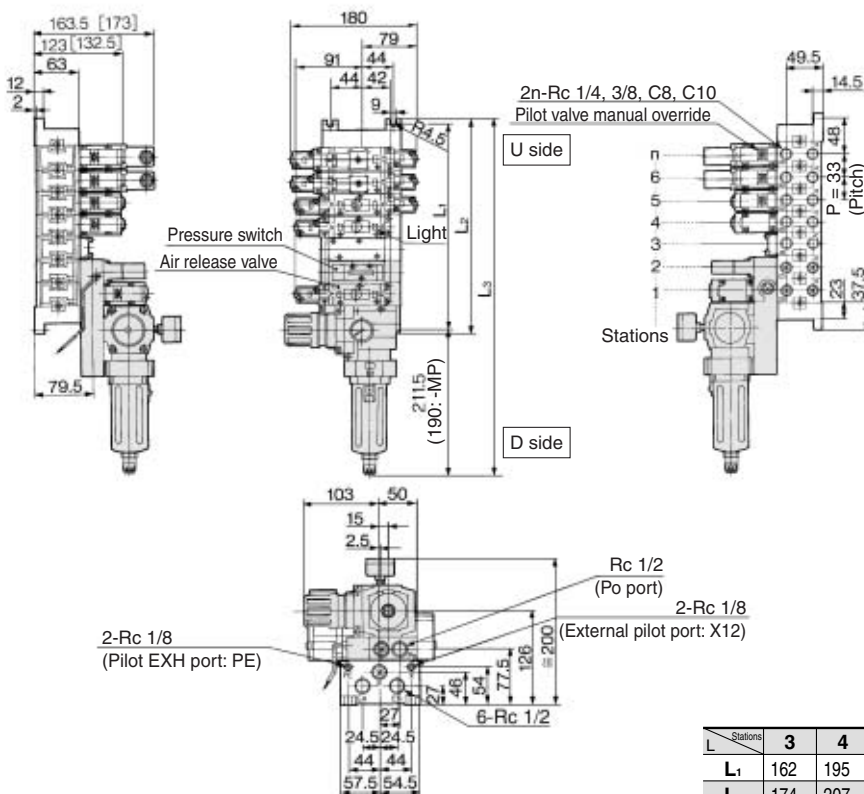


Example for manifold

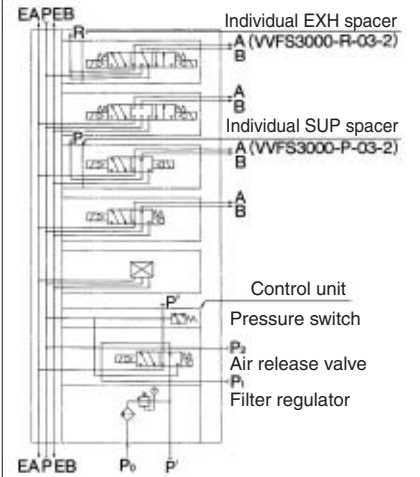


Non plug-in type:

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



Example for manifold



- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

n: Station

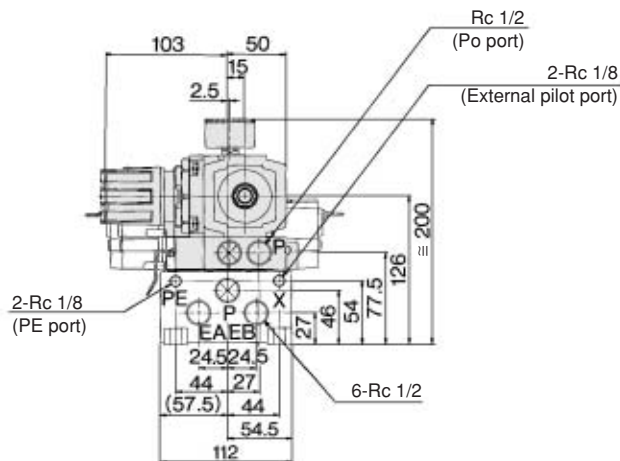
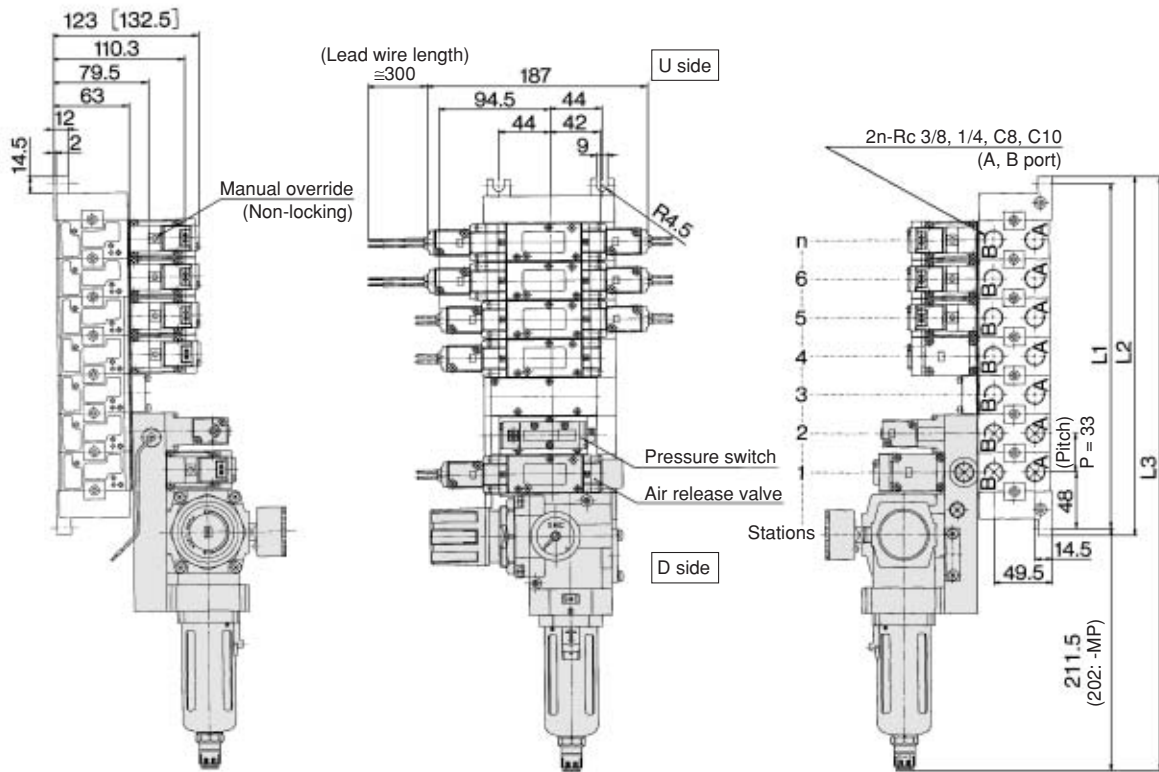
Stations	3	4	5	6	7	8	9	10	Formula
L₁	162	195	228	261	294	327	360	393	L ₁ = 33 x n + 63
L₂	174	207	240	273	306	339	372	405	L ₂ = 33 x n + 75
L₃ (MP)	363	396	429	462	495	528	561	594	L ₃ = 33 x n + 264
L₃ (AP)	384.5	417.5	450.5	483.5	516.5	549.5	582.5	615.5	L ₃ = 33 x n + 285.5

[] : With direct manual override

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



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



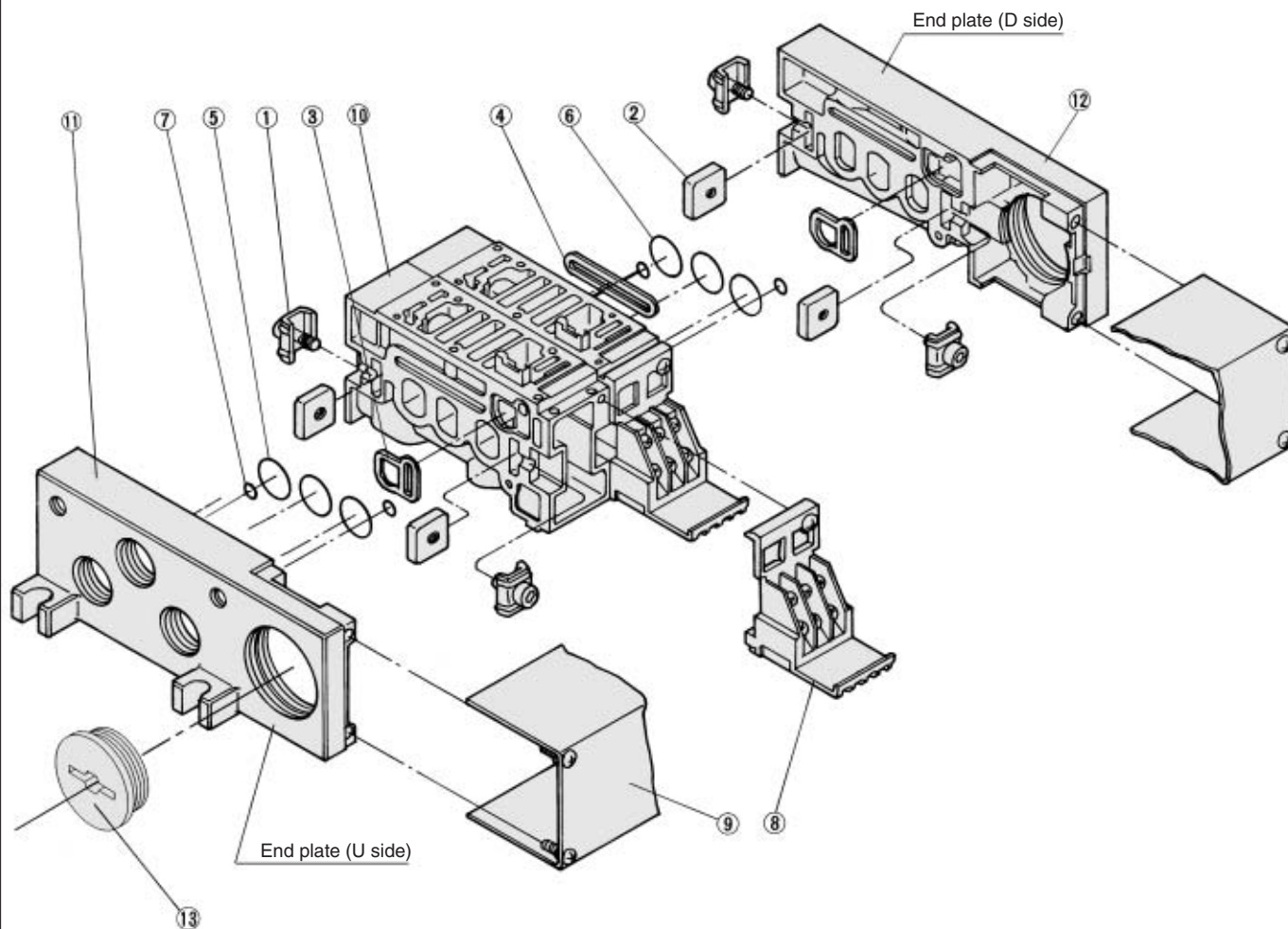
[]: With direct manual override



(): 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



- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

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- Stations For 01SU AZ738-22A- Stations
⑬	Rubber plug	NBR	AXT336-9

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 <small>Note)</small>	VVFS3000-1A-1- ⁰² / ₀₃ / _{C10}	Manifold block ⑩, Terminal ⑧, Connection bracket ①, ②, Gasket ③, ④, O-ring ⑥, ⑦, Receptacle assembly	Plug-in type
		VVFS3000-1A-2- ⁰² / ₀₃ / _{C10}	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 ③	Non plug-in type



Note) For side ported