

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in

Series VFS4000



Model

Type of actuation	Model		Port size	Flow characteristics ⁽¹⁾						Max. operating cycle (cpm) ⁽¹⁾	Response time (ms) ⁽²⁾	Mass (kg) ⁽³⁾⁽⁴⁾	
	Plug-in	Non plug-in		1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)						
				C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv				
2 position	Single	VFS4100	VFS4110	3/8	11	0.18	2.6	12	0.20	2.8	1,000	40 or less	0.63
				1/2	12	0.15	2.8	12	0.22	3.1			
	Double	VFS4200	VFS4210	3/8	11	0.18	2.6	12	0.20	2.8	1,200	15 or less	0.75
				1/2	12	0.15	2.8	12	0.22	3.1			
3 position	Closed center	VFS4300	VFS4310	3/8	10	0.18	2.5	10	0.14	2.3	600	50 or less	0.82
				1/2	11	0.18	2.7	11	0.22	2.6			
	Exhaust center	VFS4400	VFS4410	3/8	11	0.16	2.6	10	0.15	2.3	600	50 or less	0.82
				1/2	12	0.15	2.9	10	0.15	2.4			
	Pressure center	VFS4500	VFS4510	3/8	11	0.22	2.7	11	0.22	2.7	600	50 or less	0.82
				1/2	12	0.22	2.9	11	0.22	2.8			
	Double check	VFS4600	VFS4610	3/8	6.3	—	—	6.5	—	—	200	55 or less	1.71
				1/2	6.8	—	—	6.8	—	—			

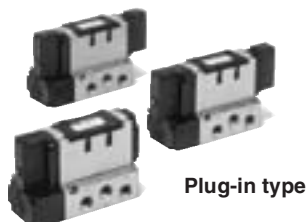
Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency. Note 2) Based on JIS B 8375-1981 (The value at supply press. 0.5 MPa).
Note 3) The figures in the above list are for without sub-plate. In the case of with plug-in sub-plate and with non plug-in sub-plate, add 0.50 kg and 0.43 kg respectively. Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

Compact yet provides a large flow capacity
1/2: C: 12 dm³/(s·bar)

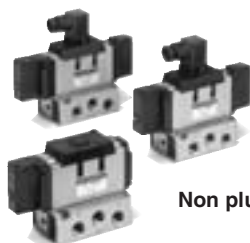
Low power consumption: 1.8 W DC

Easy maintenance

2 types of sub-plates:
Plug-in and non plug-in



Plug-in type



Non plug-in type

JIS Symbol

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

Standard Specifications

Valve specifications	Fluid		Air/Inert gas
	Maximum operating pressure	1.0 MPa	
Minimum operating pressure	2 position	0.1 MPa	
	3 position	0.15 MPa	
Proof pressure	1.5 MPa		
Ambient and fluid temperature	-10 to 60°C ⁽¹⁾		
Lubrication	Non-lube ⁽²⁾		
Pilot valve manual override	Non-locking push type (Flush)		
Shock/vibration resistance	150/50 m/s ² ⁽³⁾		
Enclosure	Type E: Dustproof (level 0), Type F: Dripproof (level 2), Type D: Splashproof (level 4) ⁽⁴⁾		
Coil rated voltage	100, 200 VAC, 50/60 Hz; 24 VDC		
Allowable voltage fluctuation	-15 to +10% of rated voltage		
Coil insulation type	Class B or equivalent (130°C) ⁽⁵⁾		
Apparent power (Power consumption) AC	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	1.8 W (2.04 W: With light/surge voltage suppressor)		
Electrical entry	Plug-in type	Conduit terminal	
	Non plug-in type	Grommet terminal, DIN terminal	

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil Class 1 (ISO VG32), if lubricated.
Note 3) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Note 4) Based on JIS C 0920.

Note 5) Based on JIS C 4003.


Option Specifications

Pilot type		External pilot ^{Note)}
Manual override	Main valve	Direct manual override
	Pilot valve	Non-locking push type (Extended), Locking type (Tool required), Locking type (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, Non-rotating DIN terminal

Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure 2 position: 0.1 to 1.0 MPa, 3 position: 0.15 to 1.0 MPa

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in **Series VFS4000**

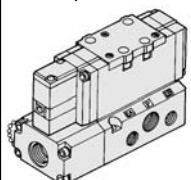
How to Order



Plug-in

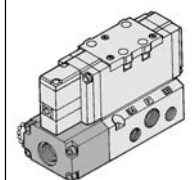
Body type

O: Plug-in type sub-plate



Electrical entry

F: Plug-in type conduit terminal



Porting specifications

Nil	Side ported
B*	Bottom ported

* In the case of external pilot (Option), bottom piping is not available.

Port size

Nil	Without sub-plate
03	Rc 3/8
04*	Rc 1/2

* EA, EB: Rc 3/8

Thread type

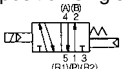
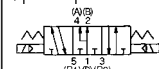
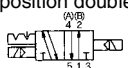

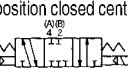

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

CE-compliant

Nil	—
Q	CE-compliant

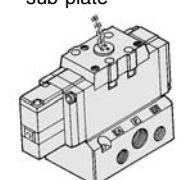
Symbol

1 2 position single 	5 3 position pressure center 
2 2 position double 	6 3 position double check 
3 3 position closed center 	
4 3 position exhaust center 	

* Reverse pressure: Can be used by external pilot specifications.

Body type

1: Non plug-in type sub-plate



Body option

0	Standard
1*	Direct manual override

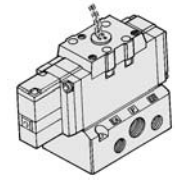
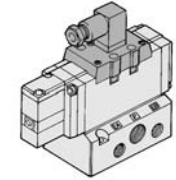
* Option

Option

Nil	None
Z	With light/surge voltage suppressor
P*	Non-rotating DIN terminal

* In the case of w/ "Z", enter "ZP".
* Type "P" is available for DIN type only.

Electrical entry

E: Grommet terminal 	D: DIN terminal 
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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

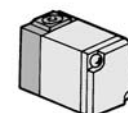
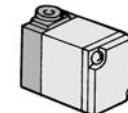
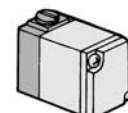
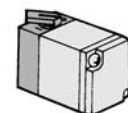
* Option

Pilot type

Nil	Internal pilot
R*	External pilot

* Option

Pilot valve Manual override

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

* Option

Ordering Code Example:

Plug-in: VFS4 2 0 0 - 5 F - 03 -

Non plug-in: VFS4 2 1 0 - 1 E - 03 -

How to Order Pilot Valve Assembly

SF4 - 1 F - 30

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

Manual override

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

* Option

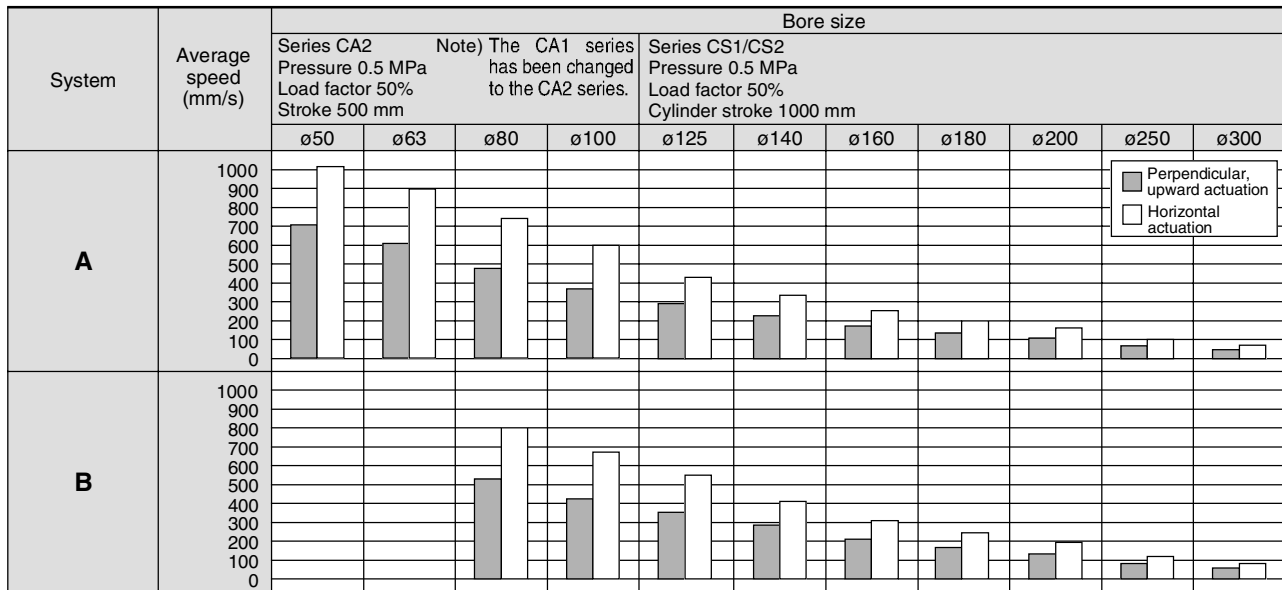


** Refer to page 1224 for voltage conversion.

Series VFS4000

Cylinder Speed Chart

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



System Components

System	Solenoid valve	Speed controller	Silencer	SGP (Steel pipe) Port size x Length
A	Series VFS4000 Rc 3/8	AS420-03 (S = 73 mm ²)	AN300-03 (S = 60 mm ²)	10A x 1
B	Series VFS4000 Rc 1/2	AS420-04 (S = 97 mm ²)	AN400-04 (S = 90 mm ²)	15A x 1

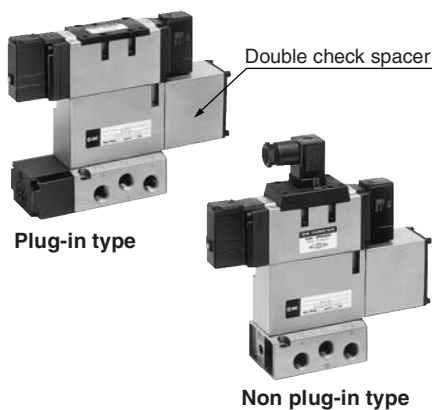


- * It is when the cylinder is extending that is meter-controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
- * The average velocity of the cylinder is what the stroke is divided by the total stroke time.
- * Load factor: ((Load weight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

Double Check Spacer/Specifications

Can hold an intermediate cylinder position for an extended time

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.



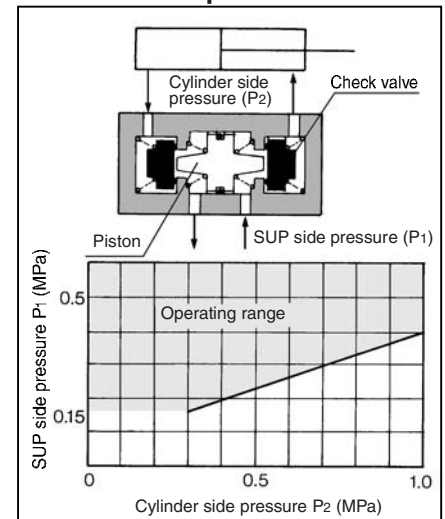
Specifications

Double check spacer part no.	Plug-in type	Non plug-in type
	VVFS4000-22A-1	VVFS4000-22A-2
Applicable valve model	VFS4400-□F	VFS4410-□D VFS4410-□E

⚠ Caution

- In the case of 3 position double check valve (VFS46□0), check the leakage from piping and fittings in between valve and cylinder by means of synthetic detergent solutions, and ensure that there is no such leakage found there. Also check the leakage from cylinder seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is de-energized, can move without stopping at intermediate position.
- Be aware that if the exhaust side is restricted excessively, the intermediate stopping accuracy will decrease and will lead to improper intermediate stops.

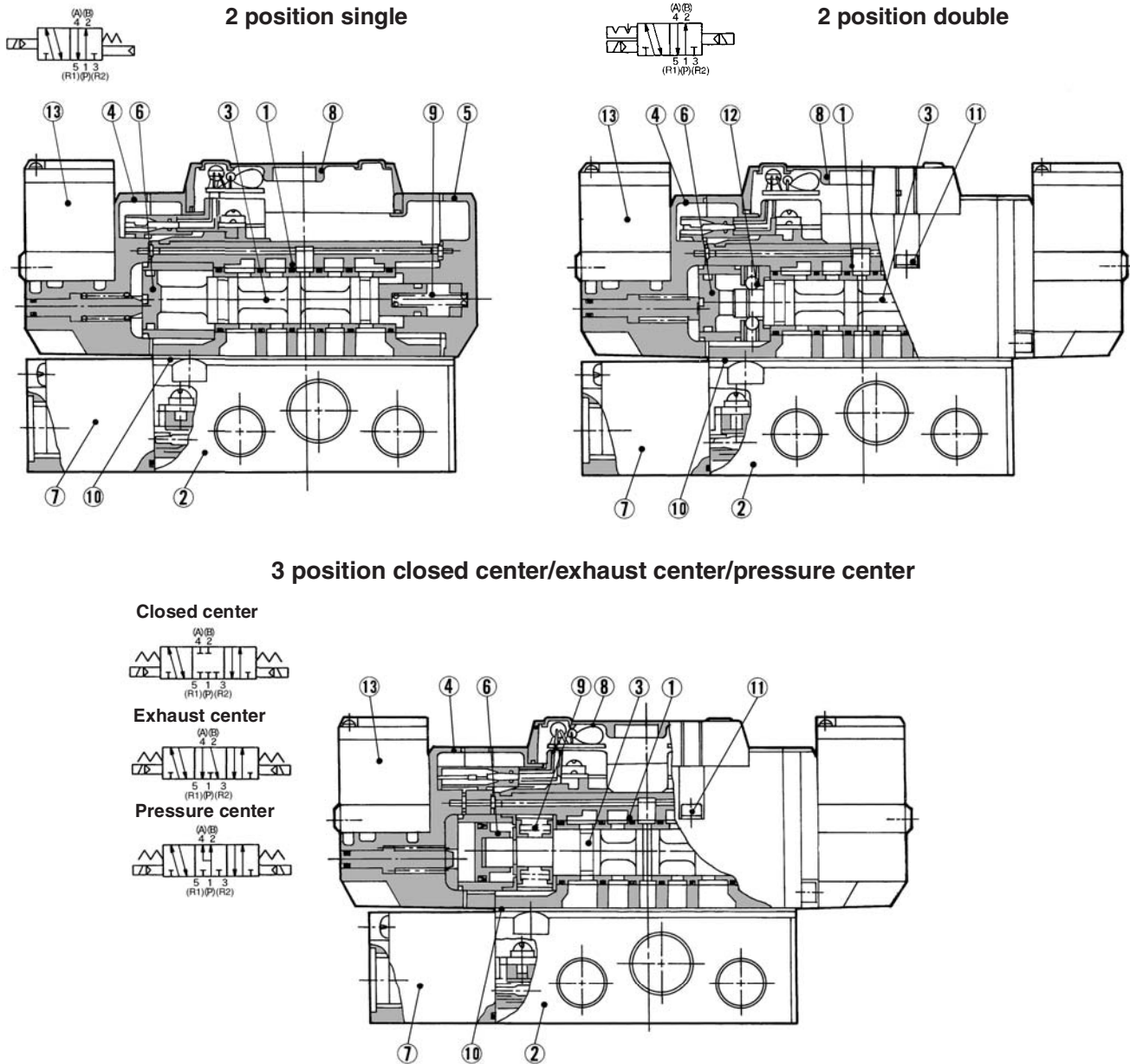
Check Valve Operation



- The combination of VFS41□0, VFS42□0 and Double check spacer for prevention of falling at the stroke end but cannot hold the intermediate position of the cylinder.

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in *Series VFS4000*

Construction



Component Parts

No.	Description	Material	Note
1	Body	Aluminum die-casted	Platinum silver
2	Sub-plate	Aluminum die-casted	Platinum silver
3	Spool/Sleeve	Stainless steel	—
4	Adapter plate	Resin	Black
5	End plate	Resin	Black
6	Piston	Resin	—
7	Junction cover	Resin	—
8	Light cover	Resin	—
9	Return spring	Stainless steel	—
10	Gasket	HNBR	—
11	Hexagon socket head screw	Steel	—
12	Detent assembly	—	—
13	Pilot valve assembly	—	—

* Refer to "How to Order Pilot Valve Assembly" on page 1183.

Sub-plate Assembly Part No.

Plug-in	VFS4000-P- ⁰³ / ₀₄
Non plug-in	VFS4000-S- ⁰³ / ₀₄



* Mounting bolt and gasket are not included.

Sub-plate Assembly (For External Pilot) Part No.

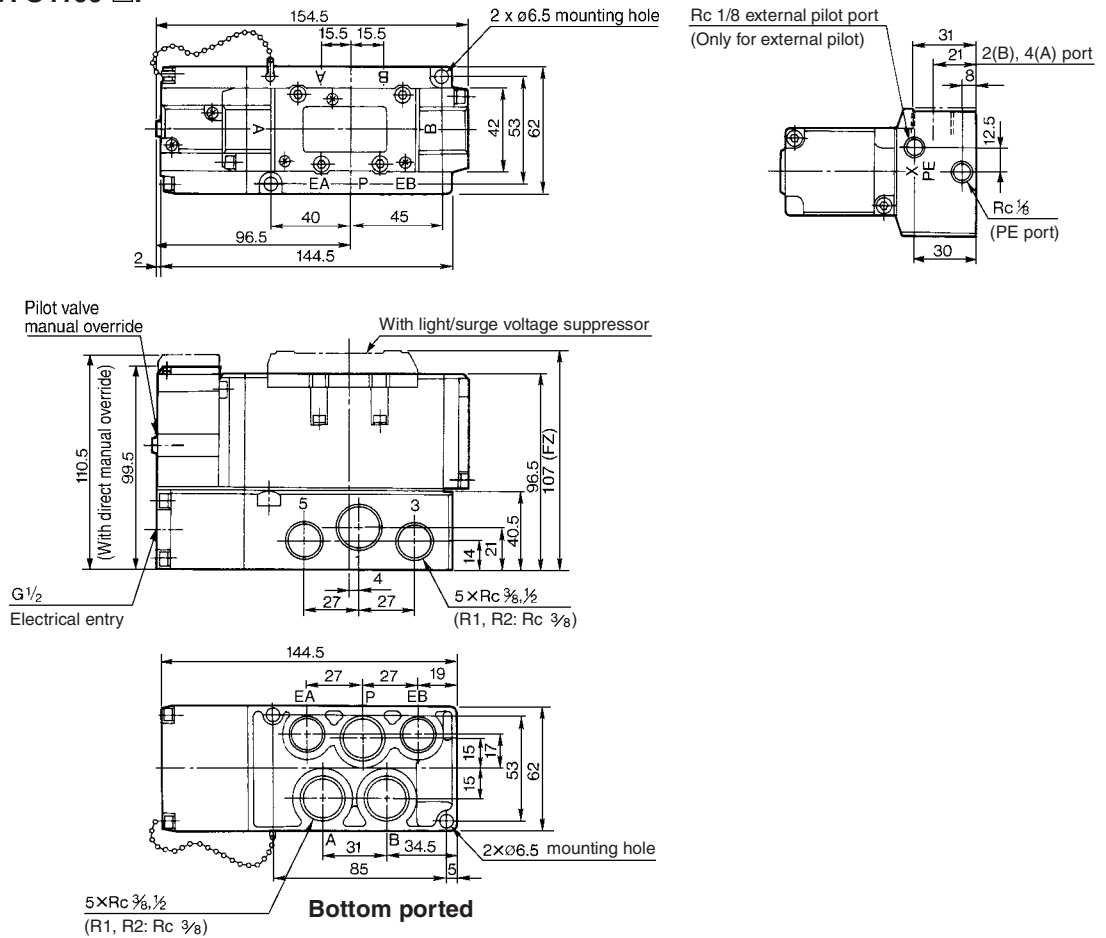
Plug-in	VFS4000-P-R ⁰³ / ₀₄
Non plug-in	VFS4000-S-R ⁰³ / ₀₄

Part no. for mounting bolt and gasket	BG-VFS4000
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Series VFS4000

Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

2 position single: VFS4100-□F

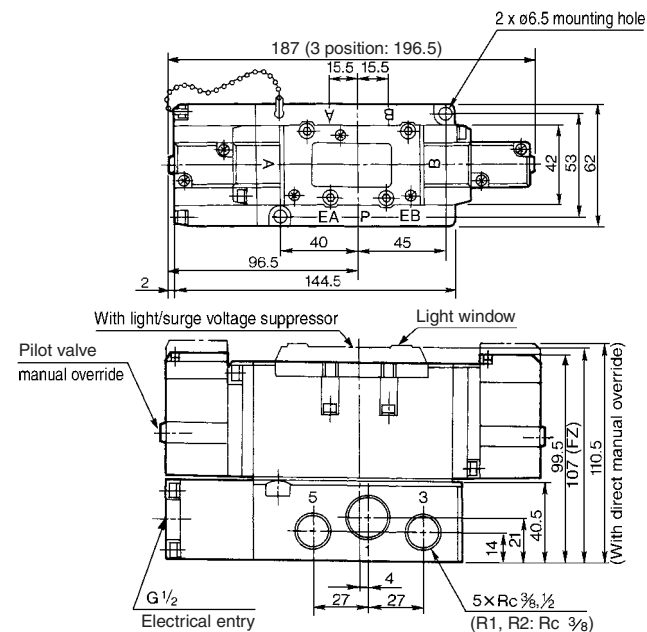


2 position double: VFS4200-□F

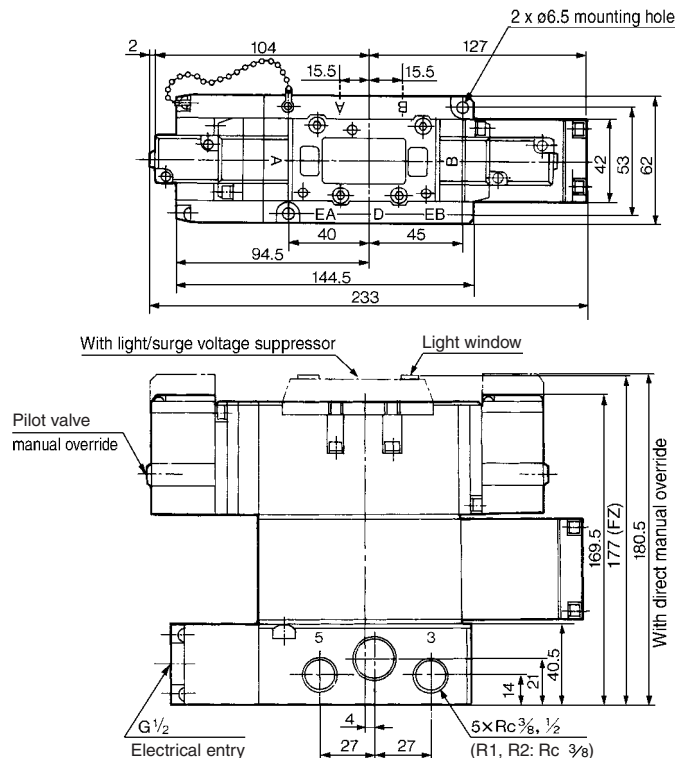
3 position closed center: VFS4300-□F

3 position exhaust center: VFS4400-□F

3 position pressure center: VFS4500-□F



3 position double check: VFS4600-□F

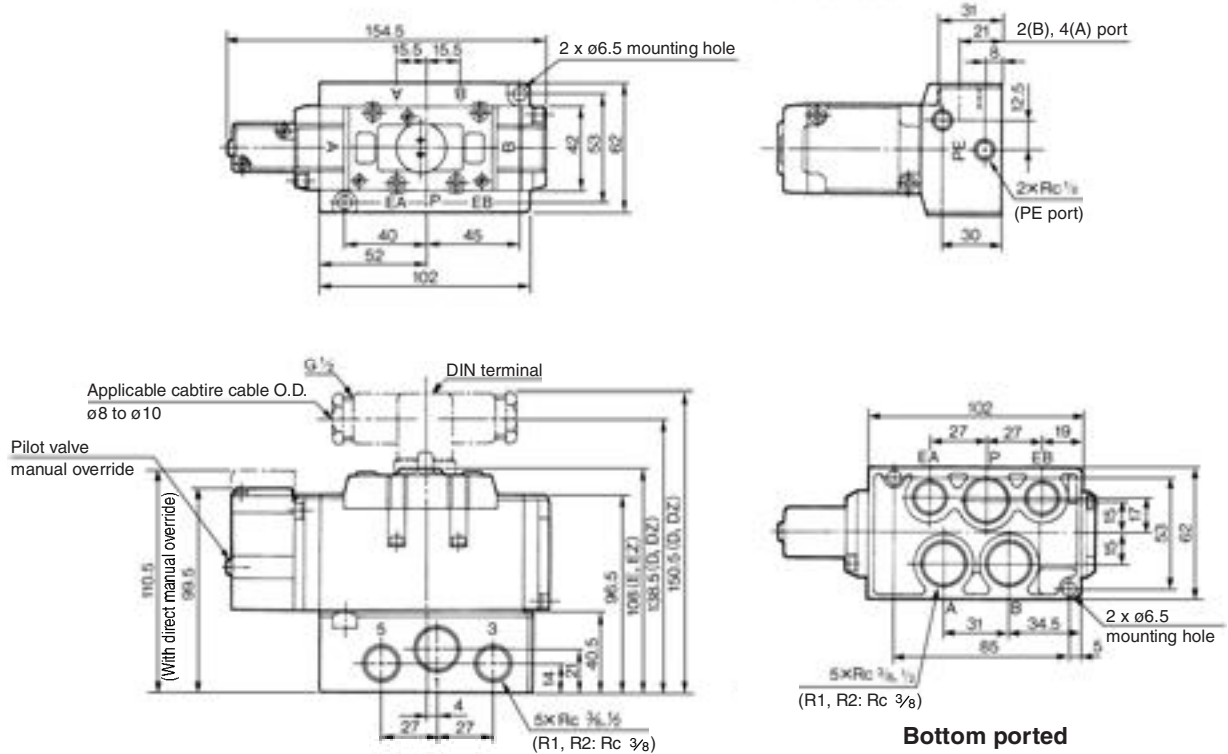


5 Port Pilot Operated Solenoid Valve *Series VFS4000*

Metal Seal, Plug-in/Non Plug-in

Non Plug-in — 2 Position single/Double/3 Position closed center/Exhaust center/Pressure center/Double check

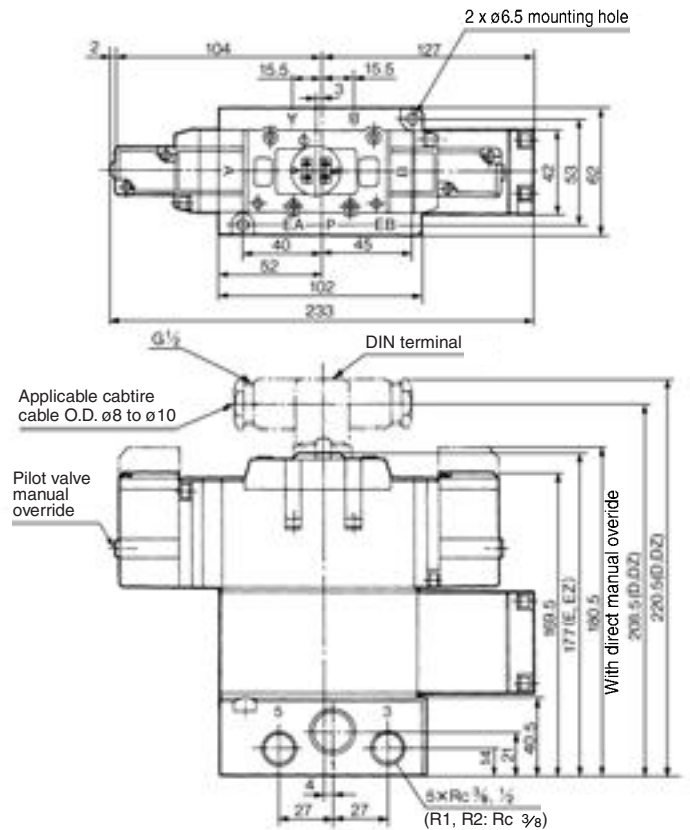
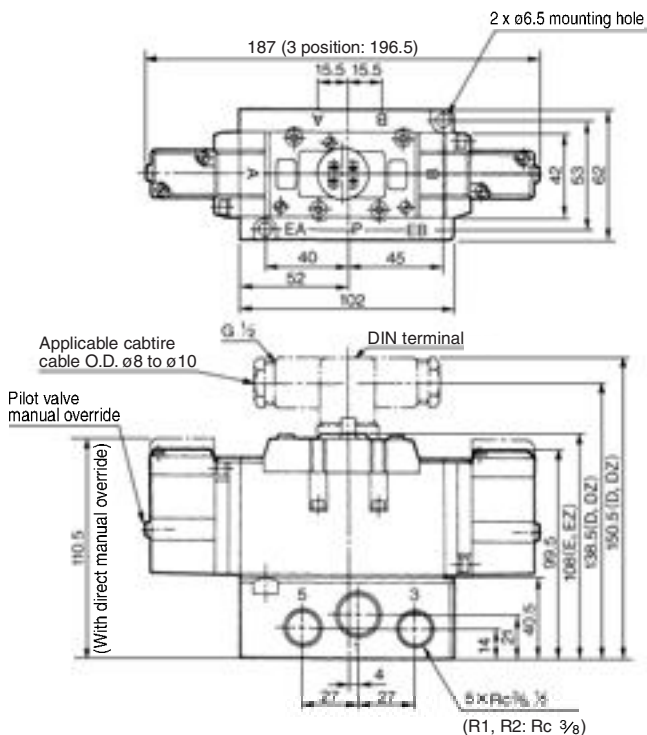
2 position single: VFS4110-□E, VFS4110-□D



Bottom ported

2 position double: VFS4210-□E, VFS4210-□D
 3 position closed center: VFS4310-□E, VFS4310-□D
 3 position exhaust center: VFS4410-□E, VFS4410-□D
 3 position pressure center: VFS4510-□E, VFS4510-□D

3 position double check: VFS4610-□E, VFS4610-□D

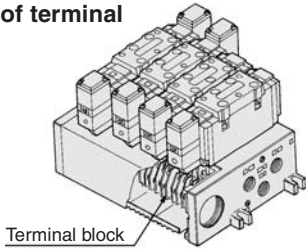


Series VFS4000

Manifold Specifications

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.



VV5FS4-01T-061-03

Series VFS4000 Manifold Plug-in type with terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

CE-compliant

Nil	—
Q	CE-compliant

Port size

Symbol	P, R1, R2	A, B
03	Rc 3/8	Rc 3/8
04	Rc 1/2	Rc 1/2
M		Mixed

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

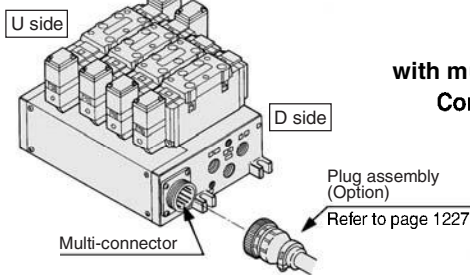
Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* For bottom ported, Rc 3/8 is only available.
* Option

Plug-in Type: With Multi-connector (Wiring specifications: Refer to page 1227.)

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



VV5FS4-01CD-052-03

Series VFS4000 Manifold Plug-in type with multi-connector Connector mounting direction

Stations

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

CE-compliant

Nil	—
Q	CE-compliant

Port size

Symbol	P, R1, R2	A, B
03	Rc 3/8	Rc 3/8
04	Rc 1/2	Rc 1/2
M		Mixed

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

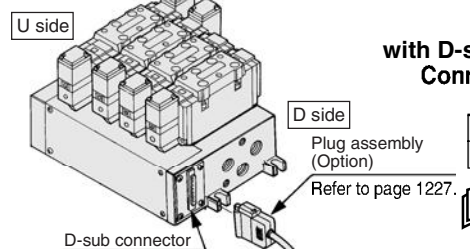
Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* For bottom ported, Rc 3/8 is only available.
* Option

Plug-in Type With: D-sub Connector (Wiring specifications: Refer to page 1227.)

- Wide range of interchangeability (MIL Spec D-sub connector terminal 25 pcs attached.)
- Quick wiring permits easier installation.



VV5FS4-01FD-061-03

Series VFS4000 Manifold Plug-in type with D-sub connector Connector mounting direction

Stations

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

CE-compliant

Nil	—
Q	CE-compliant

Port size

Symbol	P, R1, R2	A, B
03	Rc 3/8	Rc 3/8
04	Rc 1/2	Rc 1/2
M		Mixed

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

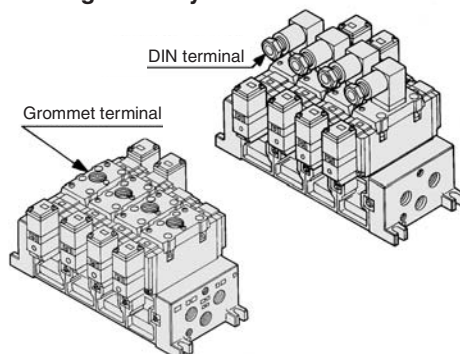
Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* For bottom ported, Rc 3/8 is only available.
* Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- Wiring for every valve.



VV5FS4-10-052-03

Series VFS4000 Manifold Non plug-in type

Stations

02	2 stations
⋮	⋮
10	10 stations

CE-compliant

Nil	—
Q	CE-compliant

Port size

Symbol	P, R1, R2	A, B
03	Rc 3/8	Rc 3/8
04	Rc 1/2	Rc 1/2
M		Mixed

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* For bottom ported, Rc 3/8 is only available.
* Option

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in **Series VFS4000**

How to Order Manifold Assembly

Please indicate manifold base type, corresponding valve, and option parts.

<Example>

- Plug-in type with terminal block: 6 stations
(Manifold base) **VV5FS4-01T-061-03**1
(2 position single) **VFS4100-5FZ**3
(2 position double) **VFS4200-5FZ**2
(Blanking plate) **VVFS4000-10A**1
- Non plug-in type: 6 stations
(Manifold base) **VV5FS4-10-061-04**1
(2 position single) **VFS4110-5D**5
(3 position exhaust center) **VFS4410-5D**1
(Individual EXH spacer) **VVFS4000-R-04-2**.....1

Manifold Specifications

Base model	Wiring	Porting specifications	Port size Rc		Stations	Applicable valve model
		A, B port	P, R1, R2	A, B		
Plug-in type VV5FS4-01 □	<ul style="list-style-type: none"> • With terminal block • With multi-connector • With D-sub connector 	Side/ Bottom	1/2	3/8, 1/2	2 to 10*	VFS4□00-□F
Non plug-in type VV5FS4-10	<ul style="list-style-type: none"> • DIN terminal • Grommet terminal 					VFS4□10-□D VFS4□10-□E



* With multi-connector, or with D-sub connector: 8 stations max.

Flow Characteristics at the Number of Manifold Stations (Operated individually)

Model	Passage/Stations	Station 1	Station 5	Station 10	
VV5FS4	1 → 4/2 (P → A/B)	C [dm ³ /(s-bar)]	10.5	10.5	10.5
		b	0.20	0.20	0.20
		Cv	2.5	2.5	2.5
	4/2 → 5/3 (A/B → R1/R2)	C [dm ³ /(s-bar)]	11	11	11
		b	0.20	0.20	0.20
		Cv	2.9	2.9	2.9



* Port size: Rc 1/2

Series VFS4000

Manifold Option Parts Assembly

Individual SUP spacer

An individual SUP spacer set on manifold block can form SUP port for every valve.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-P-03-1	VVFS4000-P-03-2



Individual EXH spacer

An individual EXH spacer set on manifold block can form EXH port for every valve. (common EXH type)

Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-R-04-1	VVFS4000-R-04-2



* SUP block plate

When supplying manifold with more than two different pressures, high and low, insert a block plate in between stations subjected to Plug-in different pressures.

Body type	Plug-in type	Non plug-in type
Part no.	AXT634-10A	

* EXH block plate

When valve exhaust affects the other stations on the circuit or when a reverse pressure valve is used to a standard manifold valve, insert EXH block plate in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Part no.	AXT634-11A	



EXH block plate

SUP block plate

Throttle valve spacer

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

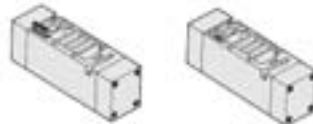
Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-20A-1	VVFS4000-20A-2



Double check spacer

If the double check spacer with a built-in double check valve is combined, it will enable the cylinder to stop in the intermediate stroke and maintain its position for a long time without being affected by the leakage between the spools.

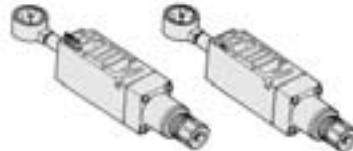
Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-22A-1	VVFS4000-22A-2



Interface regulator

Interface regulator set on manifold block can regulate the pressure to each valve. (Refer to page 1225 for "Flow Characteristics".)

Body type	Plug-in type	Non plug-in type
P port regulation	ARBF4050-00-P-1	ARBF4050-00-P-2
A port regulation	ARBF4050-00-A-1	ARBF4050-00-A-2
B port regulation	ARBF4050-00-B-1	ARBF4050-00-B-2



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.

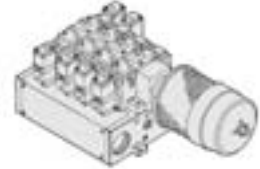
Body type	Plug-in type	Non plug-in type
Part no.	VVFS4000-10A	

Manifold Option

With exhaust cleaner

Plug-in type/Non Plug-in type

- Valve exhaust noise dampening: 35 dB or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.

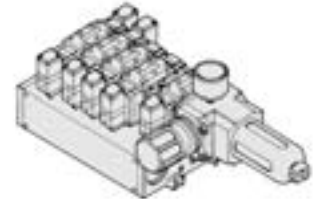


For details, refer to page 1193.

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 1195.

Made to Order Manifold with serial transmission kit

Plug-in type

- Solenoid valve wiring process reduced considerably.

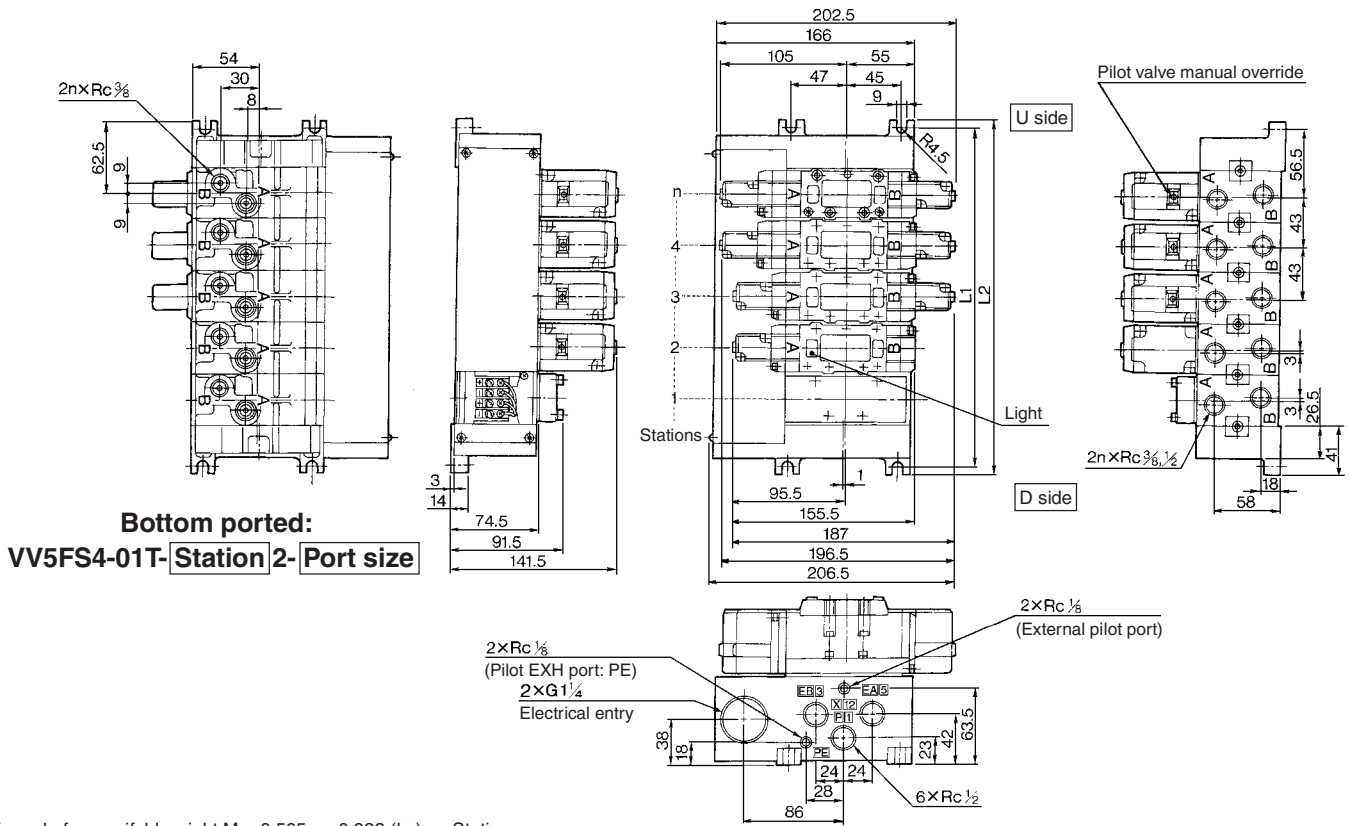


For details, refer to page 1198.

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in *Series VFS4000*

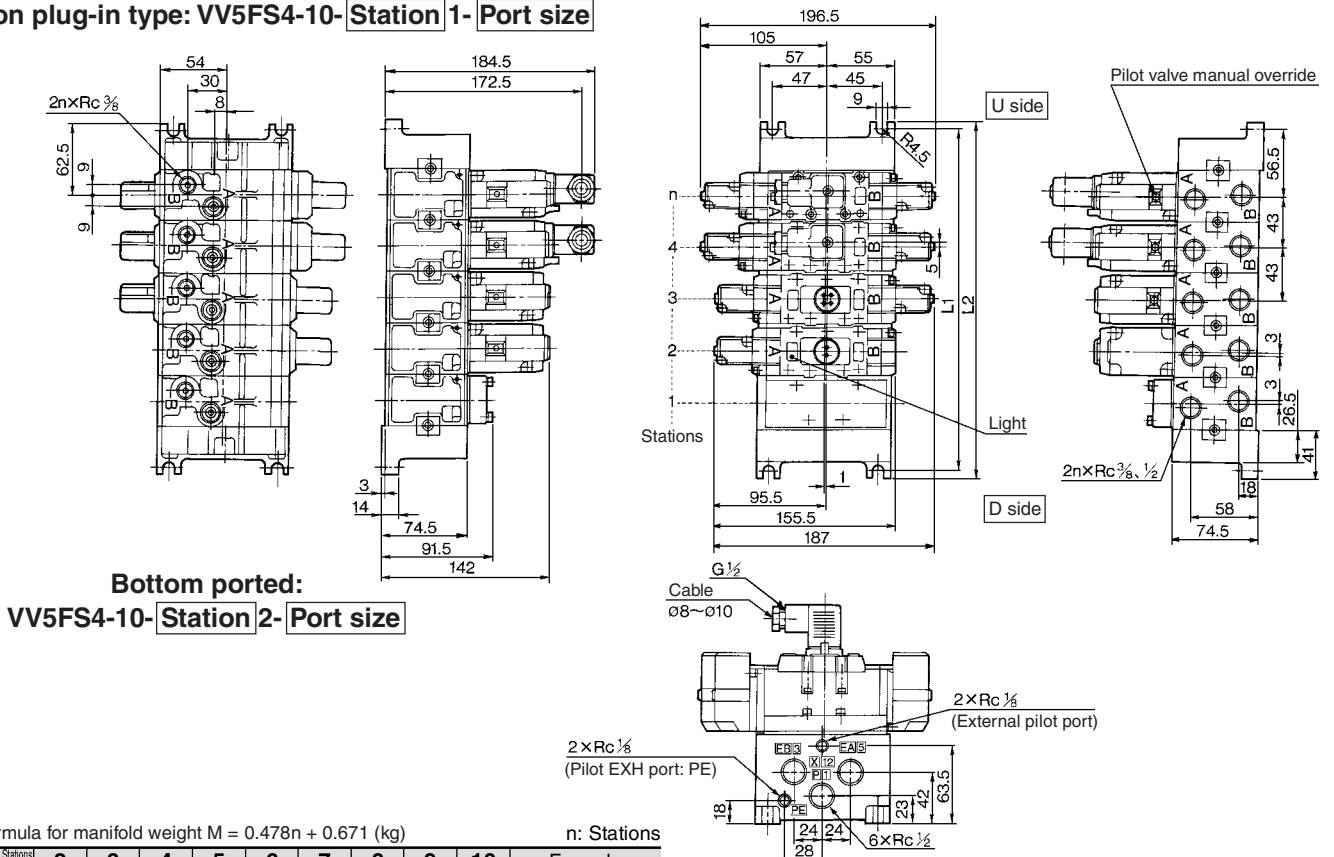
Manifold — Plug-in type, Non plug-in type

Plug-in type (With terminal block): VV5FS4-01T-Station 1- Port size



Formula for manifold weight $M = 0.565n + 0.923$ (kg) n: Stations

Non plug-in type: VV5FS4-10-Station 1- Port size



Formula for manifold weight $M = 0.478n + 0.671$ (kg)

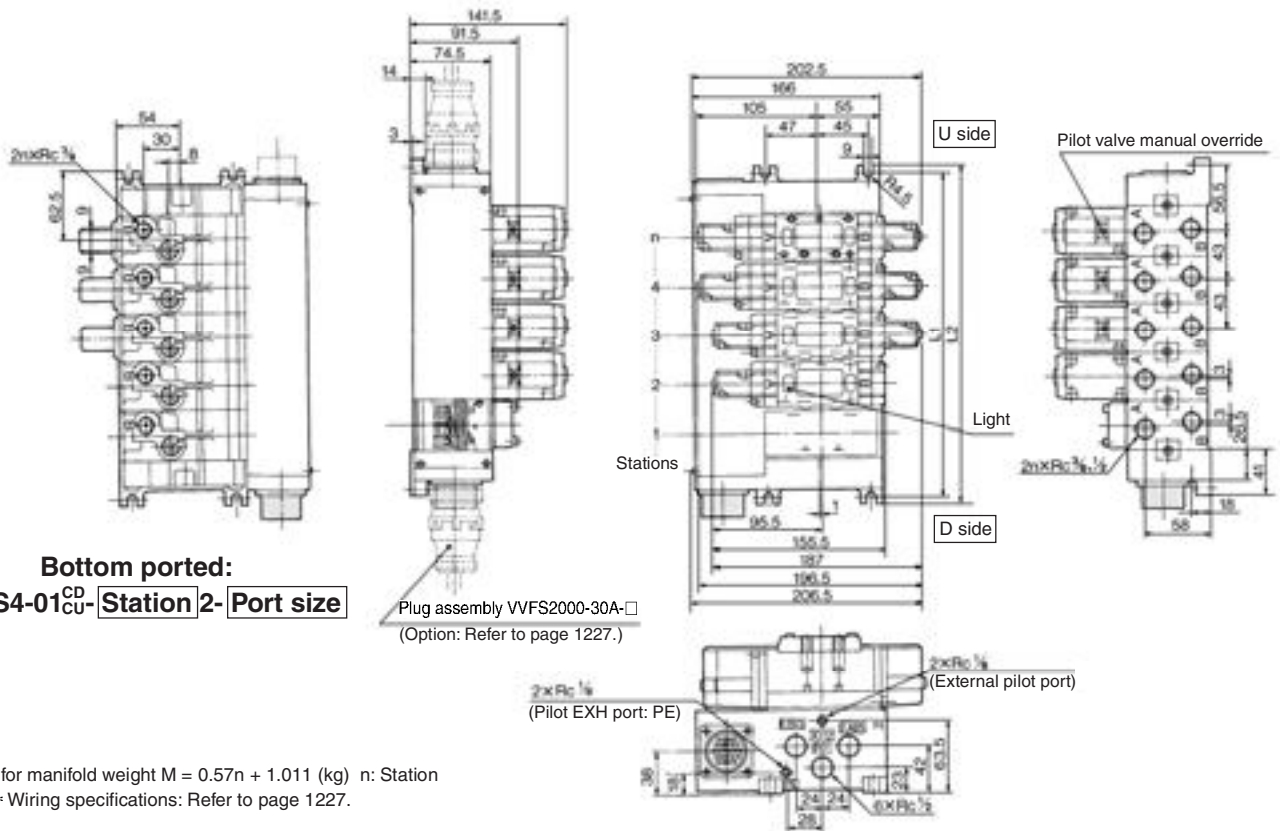
n: Stations

Stations	2	3	4	5	6	7	8	9	10	Formula
L1	156	199	242	285	328	371	414	457	500	$L1 = 43 \times n + 70$
L2	168	211	254	297	340	383	426	469	512	$L2 = 43 \times n + 82$

Series VFS4000

Manifold — Plug-in type with multi-connector/D-sub connector

Plug-in type with multi-connector: VV5FS4-01CD-Station 1-Port size, VV5FS4-01CU-Station 1-Port size



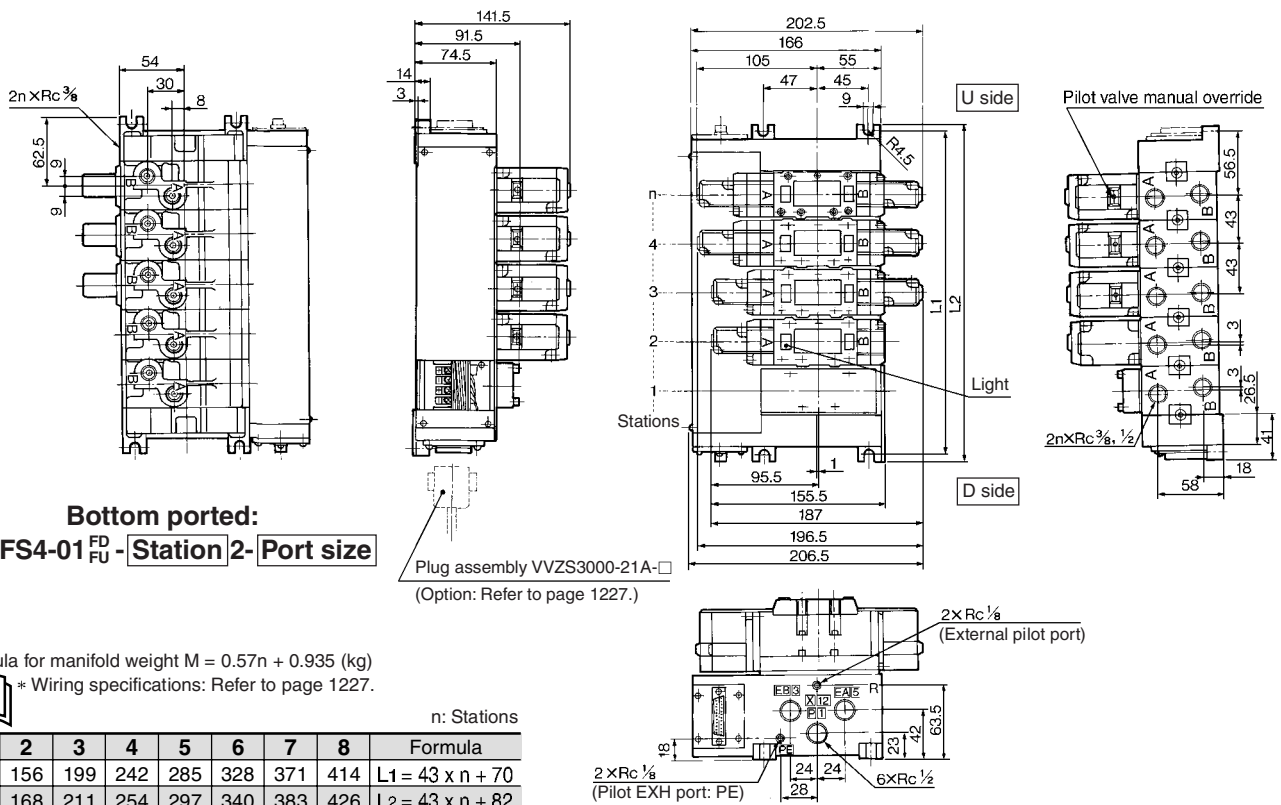
Bottom ported:
VV5FS4-01CD-Station 2-Port size

Plug assembly VVFS2000-30A-□
(Option: Refer to page 1227.)

Formula for manifold weight $M = 0.57n + 1.011$ (kg) n: Station
* Wiring specifications: Refer to page 1227.



Plug-in type with D-sub connector: VV5FS4-01FD-Station 1-Port size, VV5FS4-01FU-Station 1-Port size



Bottom ported:
VV5FS4-01FD-Station 2-Port size

Plug assembly VVZS3000-21A-□
(Option: Refer to page 1227.)

Formula for manifold weight $M = 0.57n + 0.935$ (kg)
* Wiring specifications: Refer to page 1227.

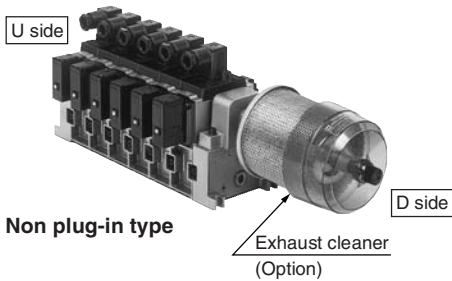
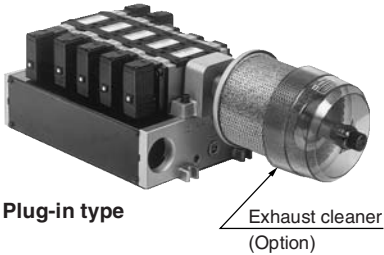


n: Stations

Stations	2	3	4	5	6	7	8	Formula
L1	156	199	242	285	328	371	414	$L1 = 43 \times n + 70$
L2	168	211	254	297	340	383	426	$L2 = 43 \times n + 82$

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: VV5FS4-01□	Non plug-in type: VV5FS4-10
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal
Applicable valve model	VFS4□00-□F	VFS4□10-□D, VFS4□10-□E
Porting specifications Rc	Common SUP/Common EXH	
	2(B), 4(A) port	Side: 3/8, 1/2, Bottom: 3/8 (Option)
Stations	1(P), 3(R2), 5(R1) port	P: 1/2, EXH: 1, 1 1/2
Applicable exhaust cleaners	2 to 10 ⁽¹⁾	
	AMC610-10 (Connecting port size R 1), AMC810-14 (Connecting port size R 1 1/2) ⁽²⁾	

Note 1) With multi-connector, or with D-sub connector: 8 stations max.
Note 2) Stations of 5 or more and high frequency of operation should be used with AMC810-14.
Exhaust cleaners AMC610-10 and AMC810-14 are not attached.

How to Order

VV5FS4 - 10 - 06 1 - 03 - CD -

Series VFS4000 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

Connector mounting direction

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

Stations

02	2 stations
⋮	⋮
10	10 stations

Base type 01T, 10: 2 to 10 stations
Base type 01C, 01F: 2 to 8 stations

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Port size

Symbol	P	A, B
03	Rc 3/8	
04	Rc 1/2	Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

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

* Please indicate exhaust cleaner size or port size.

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

⚠ Caution

When using an exhaust cleaner, mount it downwards.



* Refer to Best Pneumatics Vol. 6 for Exhaust Cleaner details.

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

<Example>

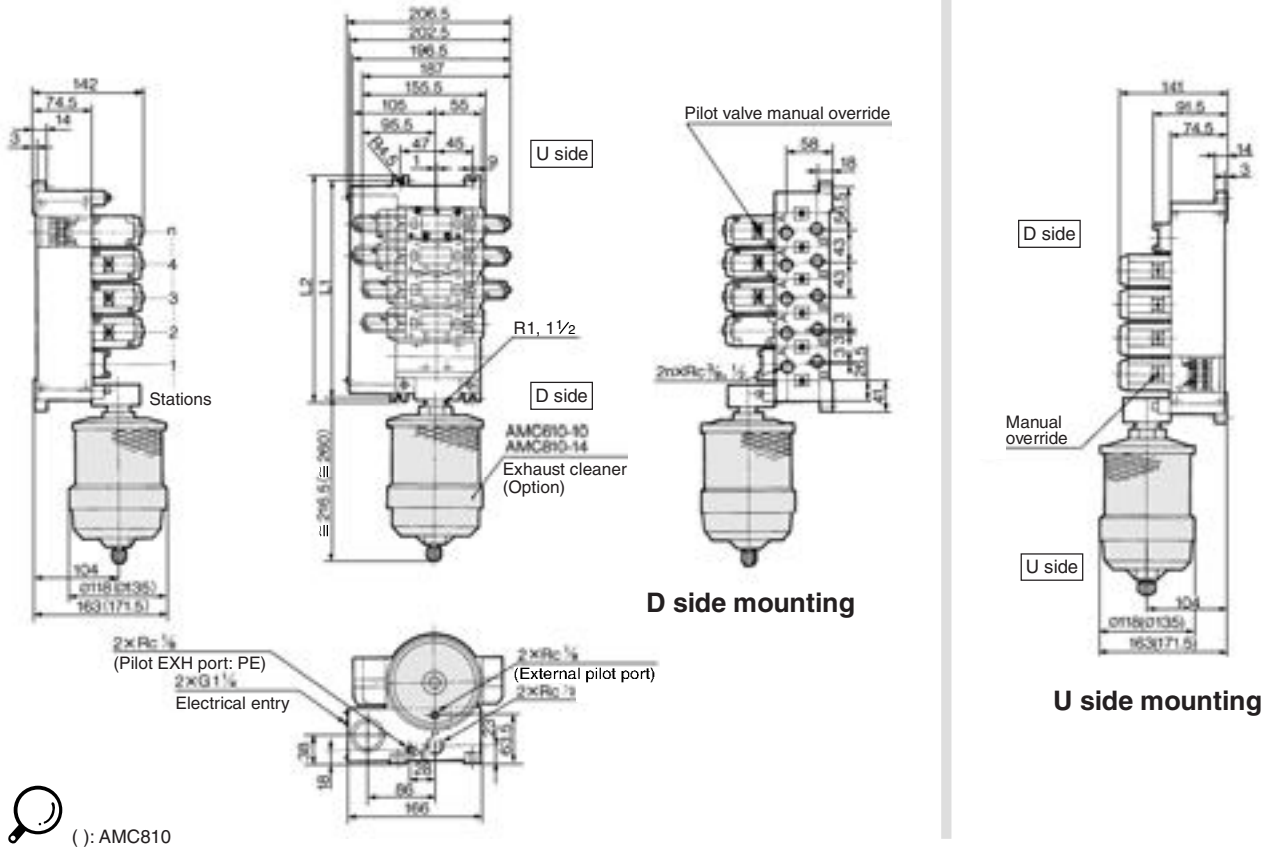
- Plug-in type with terminal block (6 stations)
(Manifold base) VV5FS4-01T-061-03-CD 1
(2 position single) * VFS4100-5FZ 3
(2 position double) * VFS4200-5FZ 2
(Blanking plate) * VVFS4000-10A 1
(Exhaust cleaner) AMC610-10 1
- Non plug-in type (6 stations)
(Manifold base) VV5FS4-10-061-04-CU 1
(2 position single) * VFS4110-5E 3
(2 position double) * VFS4210-5E 2
(Blanking plate) * VVFS4000-10A 1
(Exhaust cleaner) AMC810-14 1

The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the solenoid valve.

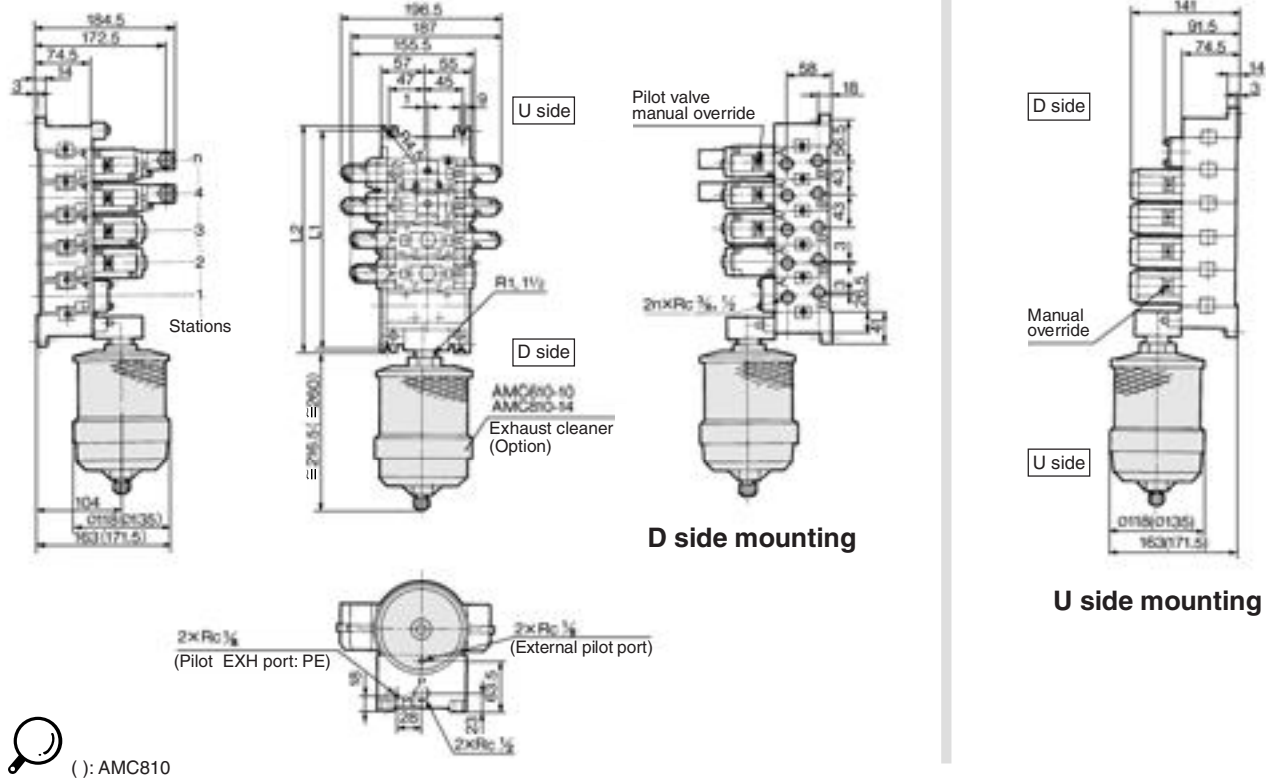
Series VFS4000

Manifold with Exhaust Cleaner — Plug-in type, Non plug-in type

Plug-in type: VV5FS4-01T-Station 1-Port size -^{CD}_{CU}



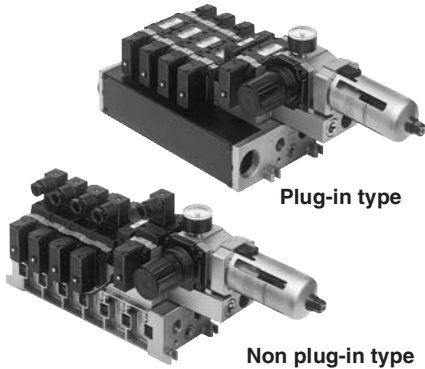
Non plug-in type: VV5FS4-10-Station 1-Port size -^{CD}_{CU}



n: Stations										
Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	156	199	242	285	328	371	414	457	500	L ₁ = 43 x n + 70
L ₂	168	211	254	297	340	383	426	469	512	L ₂ = 43 x n + 82

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

When using an air filter with auto-drain or manual drain, mount the filter vertically.

Manifold Specifications

Manifold	Plug-in type: VV5FS4-01□	Non plug-in type: VV5FS4-10
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal
Applicable valve model	VFS4□00-□F	VFS4□10-□D, VFS4□10-□E
Porting specifications Rc (PT)	Common SUP, Common EXH	
	2(B), 4(A) port	Side: 3/8, 1/2, Bottom: 3/8
Stations	1(P), 3(R2), 5(R1) port	Side: 1/2
	2 to 10*	

⦿ * With multi-connector, or with D-sub connector: 8 stations max.

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 ⁽¹⁾	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa or less
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 48 VAC/DC: 40 mA 100 VAC/DC: 20 mA
Air release valve (Single only)	
Operating pressure range	0.1 to 1.0 MPa

Control Unit/Option

Air release valve spacer ⁽²⁾	<Plug-in type>	
	VVFS4000-24A-1R (D side mounting)	
Pressure switch	<Non plug-in type>	
	VVFS4000-24A-2R (D side mounting)	
Blanking plate ⁽³⁾	Filter regulator	MP2-3
	Pressure switch	MP3-2
	Release valve	VVFS4000-24A-10
Filter element	11104-5B	

- ⦿ Note 1) Voltage: 24 VDC to 100 VAC
Inner voltage drop: 4 V
- Note 2) Combination of a valve VFS41□□ (single) and a release valve spacer can be used as an air release valve.
- Note 3) The non plug-in type cannot be mounted afterwards.

How to Order

VV5FS4 - 01C D - 08 1 - 03 - AP - - - → CE-compliant

Series VFS4000 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

Connector mounting direction

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

Stations

02	2 stations
⋮	⋮
10*	10 stations

* Base type 01T, 10: 2 to 10 stations
Base type 01C, 01F: 2 to 8 stations

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	R1, R2	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, R1, R2	A, B
03		Rc 3/8
04	Rc 1/2	Rc 1/2
M		Mixed

* For bottom ported, Rc 3/8 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Air release valve coil rating

Nil	None (F, G type only)
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

Control unit type

Symbol	Nil	A	AP	M	MP	F	G	C	E
Control equipment									
Air filter with auto-drain		●	●			●			
Air filter with manual drain				●	●		●		
Regulator		●	●	●	●	●	●		
Air release valve		●	●	●	●			●	●
Pressure switch			●		●				
Blanking plate (Air release valve)						●	●		
Blanking plate (Filter, Regulator)								●	
Blanking plate (Pressure switch)	●		●		●	●	●		
Number of manifold blocks required for mounting (stations)	2	2	2	2	2	2	2	2	1

How to Order Manifold Assembly [Example]

Add the valve and option part numbers in order starting from the first station on the D side.

<Example>

- Plug-in type with terminal block: In order to mount control unit, it requires 2 stations.
 - (Manifold base) VV5FS4-01T-081-03-AP5 1
 - (2 position single) * VFS4100-5FZ 4
 - (2 position double) * VFS4200-5FZ 2
- Non plug-in type: In order to mount control unit, it requires 2 stations.
 - (Manifold base) VV5FS4-10-061-03-A 1
 - (2 position single) * VFS4110-5D 4

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



Made to Order

Serial Transmission Kit Manifold: EX123/124 Integrated Type (For Output)
Serial Transmission System

How to Order

How to Order Manifold

VV5FS4 - 01S U V - 08 1 - 03 [] - X199

Plug-in type
Serial transmission kit

SI unit mounting position

D	D side mounting
U	U side mounting

Stations

2	2 stations
:	:
10	10 stations

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Port size

Symbol	P, R1, R2	A, B
03		Rc 3/8
04	Rc 1/2	Rc 1/2
M		Mixed

* For bottom ported: Rc 1/8 only

Note 1) Max. 10 stations. Add 1 station for serial unit mounting.
Note 2) Max. 10 Stations: For single and double mixed wiring. (No. of valves: 9)
Max. 9 stations: For standard double wiring (No. of valves: 8)

SI unit can be mounted on either U or D side.

Combination symbol

Symbol	Port specification		Piping specification A, B
	P	R1, R2	
1	Common	Common	Side
2*			Bottom

* Option

Refer to pages 1653 to 1655 for the details of the EX123/124 integrated type (for output) serial transmission system.

Applicable models

Symbol	SI unit part no.		Description
	For U side mounting	For D side mounting	
0	—	—	Without SI unit
F1	EX123U-SUW1	EX123D-SUW1	NKE Corporation: Uni-wire System (16 outputs)
H	EX123U-SUH1	EX123D-SUH1	NKE Corporation: Uni-wire H System (16 outputs)
J1	EX123U-SSL1	EX123D-SSL1	SUNX Corporation: S-LINK System (16 outputs)
J2	EX123U-SSL2	EX123D-SSL2	SUNX Corporation: S-LINK System (8 outputs)
Q	EX124U-SDN1	EX124D-SDN1	DevieNet (2 power supply systems)
R1	EX124U-SCS1	EX124D-SCS1	OMRON Corporation: CompoBus/S (16 outputs) (2 power supply systems)
R2	EX124U-SCS2	EX124D-SCS2	OMRON Corporation: CompoBus/S (8 outputs) (2 power supply systems)
V	EX124U-SMJ1	EX124D-SMJ1	CC-Link (2 power supply systems)

Correspondence of SI unit output numbers and solenoid valve coils

<Wiring Example 1> Double wiring (Standard)

SI unit output no.	D side								U side
	1	2	3	4	5	6	7	8	9
	Double	Double	Single	Single	Single	Double	Single	Single	SI unit
	AB	AB	AB	AB	AB	AB	AB	AB	
	01	23	45	67	89	1011	1213	1415	

<Wiring Example 2> Single/Double mixed wiring (Option)

SI unit output no.	D side								U side	
	1	2	3	4	5	6	7	8	9	10
	Double	Double	Single	Single	Single	Double	Single	Double	Single	SI unit
	AB	AB	A	A	A	AB	A	AB	A	
	01	23	4	5	6	78	9	1011	11	

* Mixed wiring is available as an option. Use the manifold specification sheet to specify this.

How to Order Valves

VFS4 [] 00 [] - 5 F [] []

Symbol

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center
6	3 position double check

Pilot type

Nil	Internal pilot
R	External pilot

24 VDC

Pilot valve manual override

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

Option

Nil	None
Z	With light/surge voltage suppressor

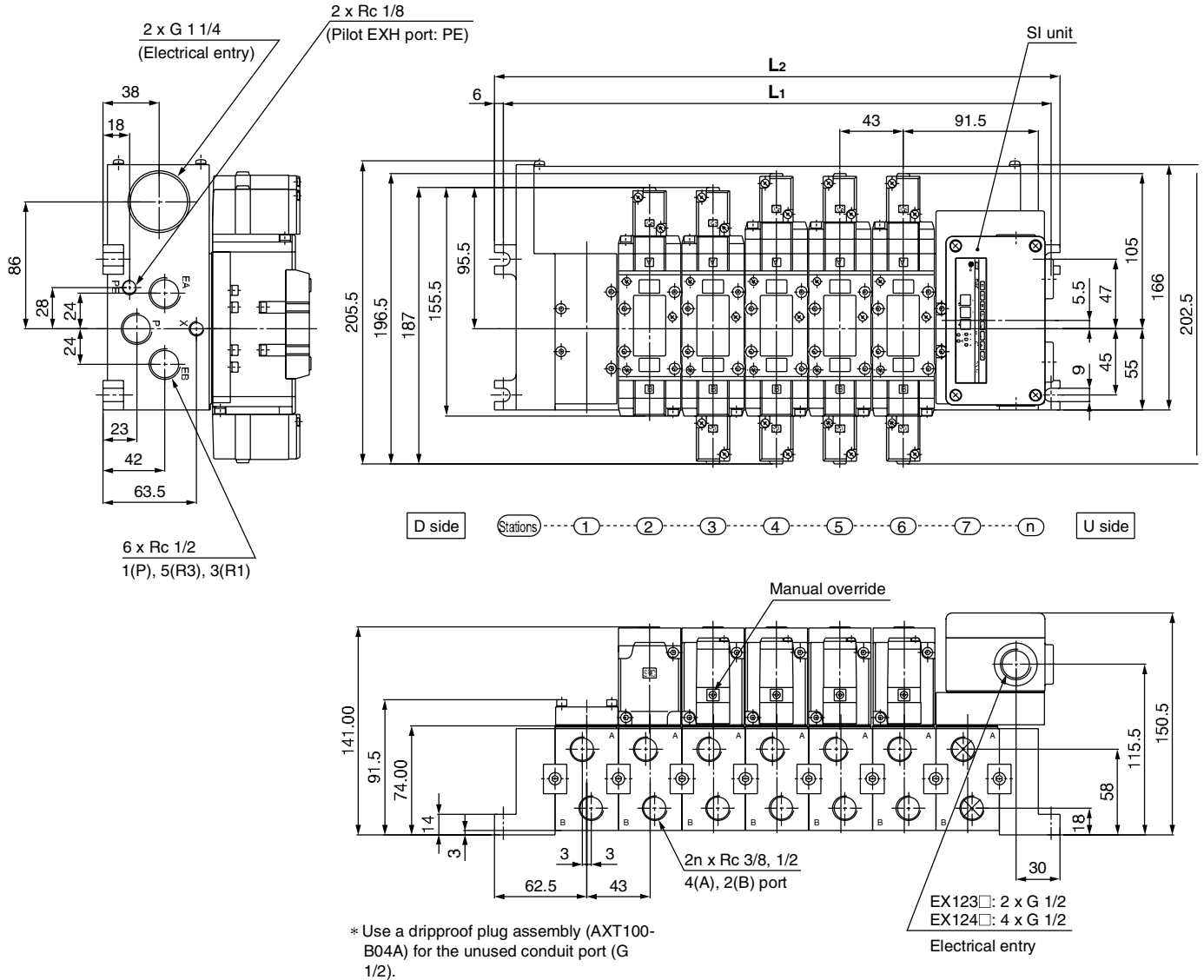
Coil rated voltage

Nil	None
-----	------

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in **Series VFS4000**

Serial Transmission Kit Manifold (EX123/124): Plug-in Type

VV5FS4-01S **Mounting position** **Model** - **Stations** **Symbol** - **Port size** **Thread** -X199



Dimensions

Formula $L_1 = 43n + 70$ $L_2 = 43n + 82$
n: Stations (Max. 10 stations)

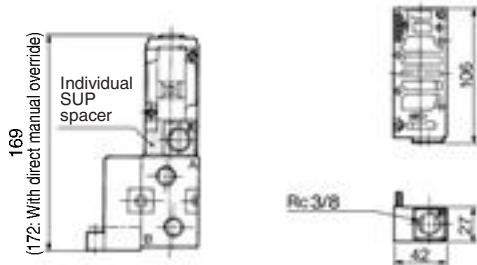
L \ n	2	3	4	5	6	7	8	9	10
L ₁	156	199	242	285	328	371	414	457	500
L ₂	168	211	254	297	340	383	426	469	512

Note) Actual number of manifold base stations: Add 1 SI unit mounting station to the number of valve stations.

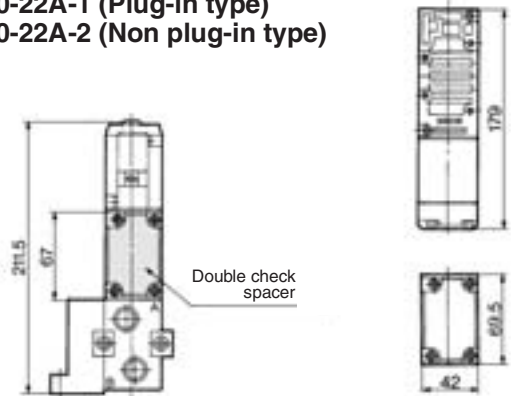
**5 Port Pilot Operated Solenoid Valve
Metal Seal, Plug-in/Non Plug-in *Series VFS4000***

Manifold Option Parts — Plug-in type, Non plug-in type

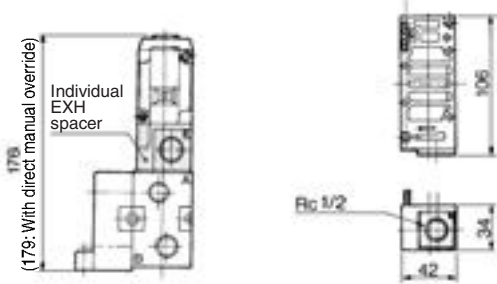
Individual SUP spacer:
VVFS4000-P-03-1 (Plug-in type)
VVFS4000-P-03-2 (Non plug-in type)



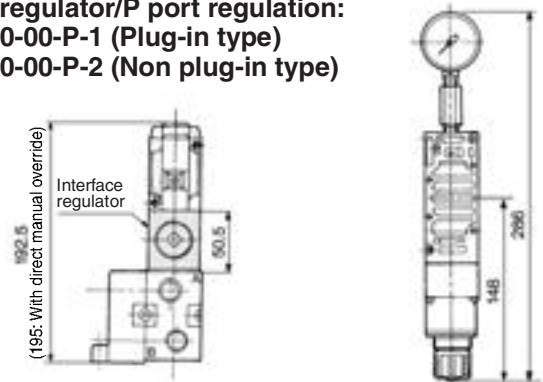
Double check spacer:
VVFS4000-22A-1 (Plug-in type)
VVFS4000-22A-2 (Non plug-in type)



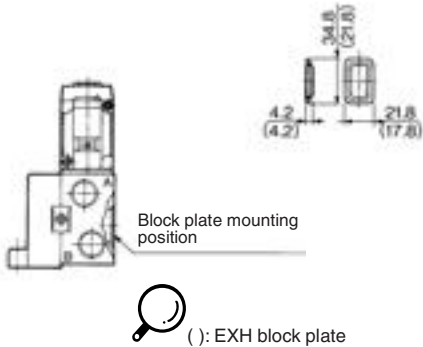
Individual EXH spacer:
VVFS4000-R-04-1 (Plug-in type)
VVFS4000-R-04-2 (Non plug-in type)



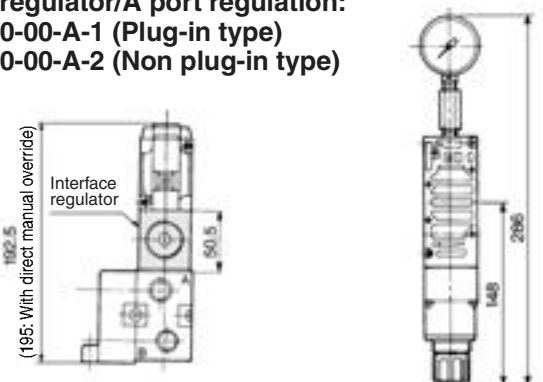
Interface regulator/P port regulation:
ARBF4050-00-P-1 (Plug-in type)
ARBF4050-00-P-2 (Non plug-in type)



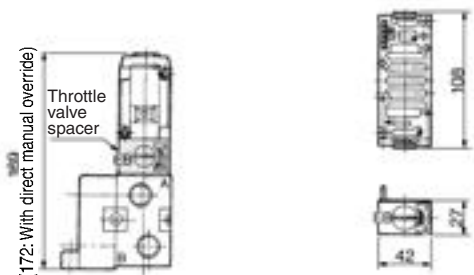
SUP block plate: AXT634-10A
EXH block plate: AXT634-11A



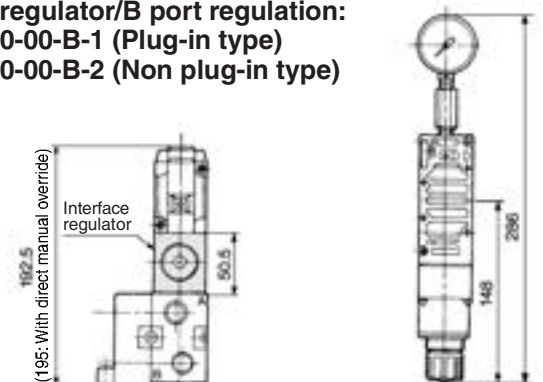
Interface regulator/A port regulation:
ARBF4050-00-A-1 (Plug-in type)
ARBF4050-00-A-2 (Non plug-in type)



Throttle valve spacer:
VVFS4000-20A-1 (Plug-in type)
VVFS4000-20A-2 (Non plug-in type)

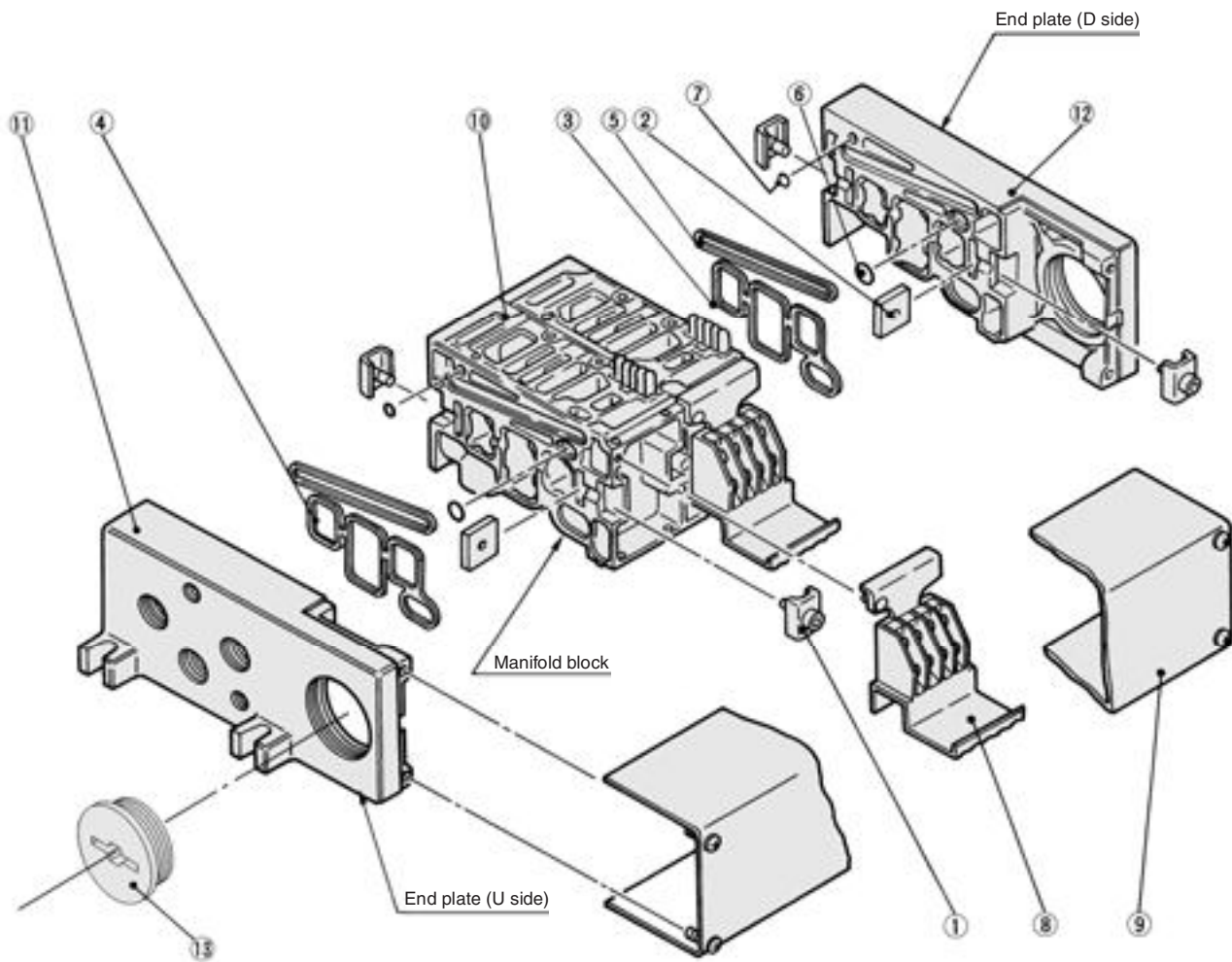


Interface regulator/B port regulation:
ARBF4050-00-B-1 (Plug-in type)
ARBF4050-00-B-2 (Non plug-in type)



5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in **Series VFS4000**

Manifold Base Construction — Plug-in type, Non Plug-in type



Replacement Parts

No.	Description	Material	Part no.
1	Connection fitting A	Steel plate	VVF4000-5-1A
2	Connection fitting B	Steel plate	VVF4000-5-2
3	Gasket	NBR	VVF4000-7 (End plate)
4	Gasket	NBR	VVF4000-7-1 (Manifold block)
5	Gasket	NBR	VVF4000-8
6	O-ring	NBR	AS568-011
7	O-ring	NBR	P-3
8	Terminal assembly	—	VVF4000-6A
9	Junction cover assembly	For 01T	VVF4000-4A- <small>[Stations]</small>
		For 01SU	AZ738-30A- <small>[Stations]</small>
13	Rubber plug	NBR	AXT336-9

- For increasing the manifold bases, please order the manifold block assembly number of the principal part assembly ⑩. For plug-in type: The manifold base with terminal stand (integrated with a junction cover) is required with the ⑨ junction cover assembly.

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	VVF4000-1A-1- <small>03</small> / <small>04</small>	Manifold block ⑩, Terminal ⑧, Metal joint ①, ②, Gasket ④, Receptacle assembly	Plug-in type
		VVF4000-1A-2- <small>03</small> / <small>04</small>	Manifold block ⑩, Metal joint ①, ②, Gasket ④	Non plug-in type
11	End plate (U side) assembly	VVF4000-2A-1	End plate (U) ⑪, Metal joint ①, ②	Plug-in type
		VVF4000-2A-2	End plate (U) ⑪, Metal joint ①, ②	Non plug-in type
12	End plate (D side) assembly	VVF4000-3A-1	End plate (D) ⑫, Metal joint ①, ②, Gasket ③, ⑤, O-ring ⑥, ⑦	Plug-in type
		VVF4000-3A-2	End plate (D) ⑫, Metal joint ①, ②, Gasket ③, ⑤, O-ring ⑤, ⑥	Non plug-in type