

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

Series VFS3000



Model

Type of actuation	Model		Port size Rc	Flow characteristics						Max. ⁽¹⁾ operating cycle (cpm)	Response time ⁽²⁾ (ms)	Mass ⁽³⁾ (kg)	
	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	VFS3100	VFS3110	1/4	6.0	0.15	1.4	5.8	0.12	1.3	1200	20 or less	0.31
				3/8	7.3	0.23	1.8	6.8	0.12	1.6			
2 position	Double	VFS3200	VFS3210	1/4	6.0	0.15	1.4	5.8	0.12	1.3	1500	15 or less	0.41
				3/8	7.3	0.23	1.8	6.8	0.12	1.6			
3 position	Closed center	VFS3300	VFS3310	1/4	5.8	0.21	1.4	5.4	0.14	1.2	600	40 or less	0.43
				3/8	6.8	0.22	1.7	6.3	0.12	1.5			
	Exhaust center	VFS3400	VFS3410	1/4	6.1	0.23	1.4	5.0	0.14	1.2	600	40 or less	0.43
				3/8	7.4	0.20	1.8	5.6	0.18	1.3			
	Pressure center	VFS3500	VFS3510	1/4	6.0	0.22	1.5	5.8	0.16	1.3	600	40 or less	0.43
				3/8	7.2	0.19	1.8	7.1	0.18	1.8			
	Double check	VFS3600	VFS3610	1/4	4.0	—	—	3.5	—	—	600	50 or less	0.91
				3/8	4.0	—	—	3.7	—	—			

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 0.30 kg and 0.27 kg respectively. Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

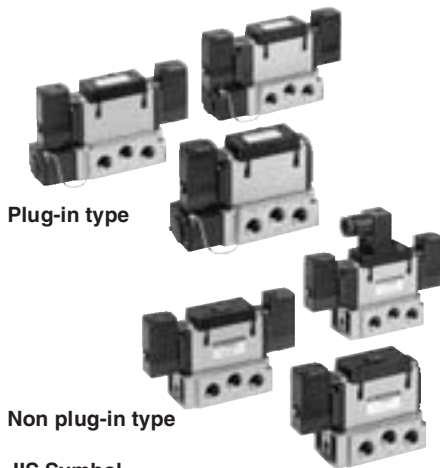
Compact yet provides a large flow capacity
3/8: C: 5.8 dm³/(s·bar)

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	
	0.1 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⁾	
Electricity specifications	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		
DIN terminal, Grommet 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

Pilot type		External pilot ^(Note)
Manual override	Main valve	Direct manual override type
	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)
		12, 100 VDC
Porting specifications		Bottom ported
Option		With light/surge voltage suppressor

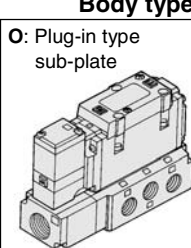
Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure: 0.1 to 1.0 MPa

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in *Series VFS3000*

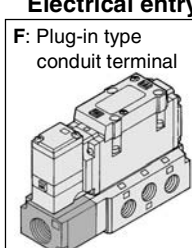
How to Order

Body type

O: Plug-in type sub-plate



F: Plug-in type conduit terminal



Porting specifications

Nil	Side ported
B*	Bottom ported

* Option

Port size

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

* For bottom ported, Rc 1/4 is only available.

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Plug-in

VFS3 1 0 0 - 1 F

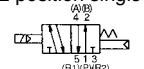
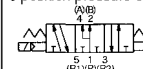
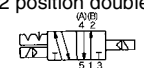
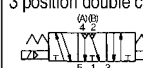
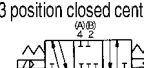
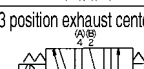
Non plug-in

VFS3 2 1 1 - 2 D

Option

Nil	None
Z	With light/surge voltage suppressor

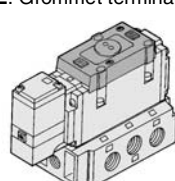
Symbol

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 	

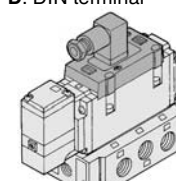
* Reverse pressure: Can be used by external pilot specifications.

Electrical entry

E: Grommet terminal

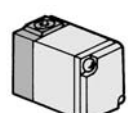


D: DIN terminal

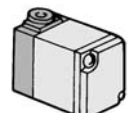


Pilot valve Manual override

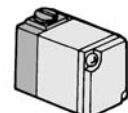
Nil: Non-locking push type (Flush)



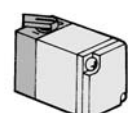
A*: Non-locking push type (Extended)



B*: Locking type (Tool required)

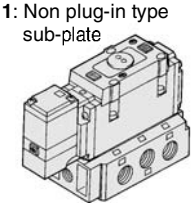


C*: Locking type (Lever)



Body type

1: Non plug-in type sub-plate



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

Pilot type

Nil	Internal pilot
R*	External pilot

* Option

Body Option

0	Standard
1*	Direct manual override

* Option

How to Order Pilot Valve Assembly

SF4 - 1 F - 30

Coil rated voltage

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

* Option

Manual override

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

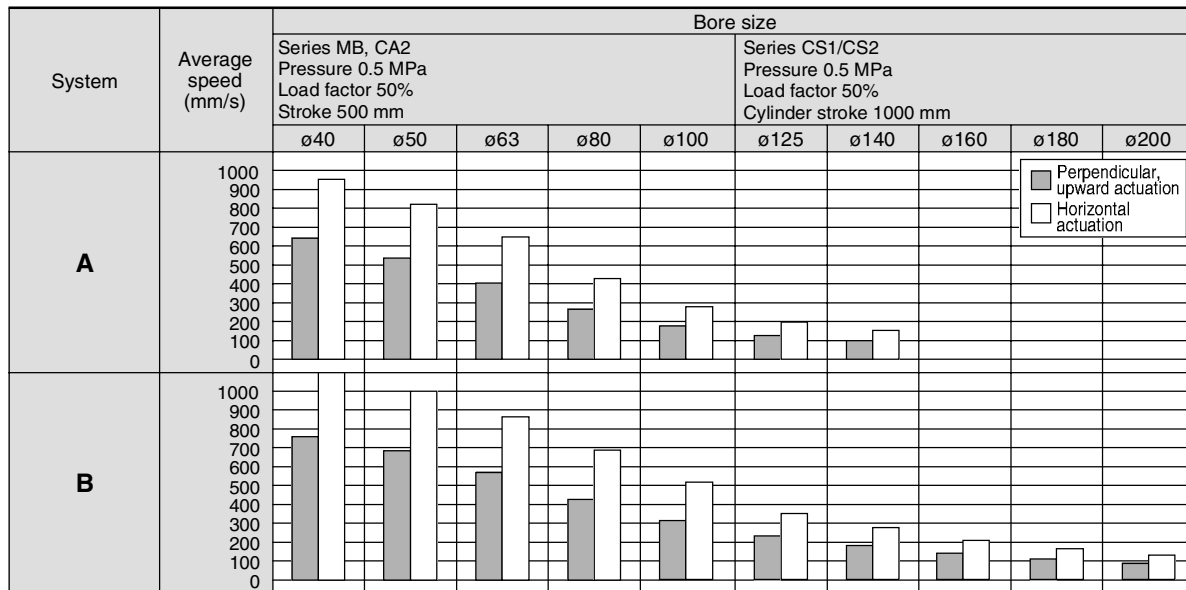
* Option

* Refer to page 1224 for voltage conversion.

Series VFS3000

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 VFS3000 Rc 1/4	AS4000-02 (S = 24 mm ²)	AN200-02 (S = 35 mm ²)	6A x 1 m
B	Series VFS3000 Rc 3/8	AS420-03 (S = 73 mm ²)	AN300-03 (S = 60 mm ²)	10A x 1 m

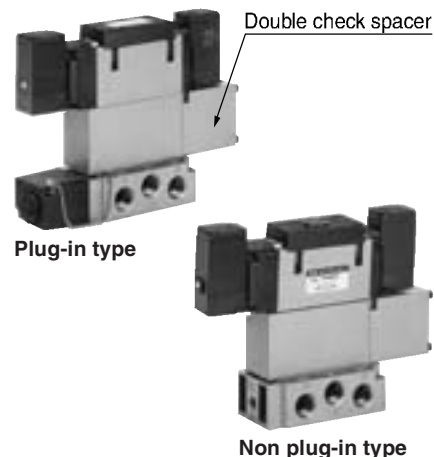


- * It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
- * The average velocity of the cylinder is the value that the stroke is divided by the total stroke time.
- * Load factor: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



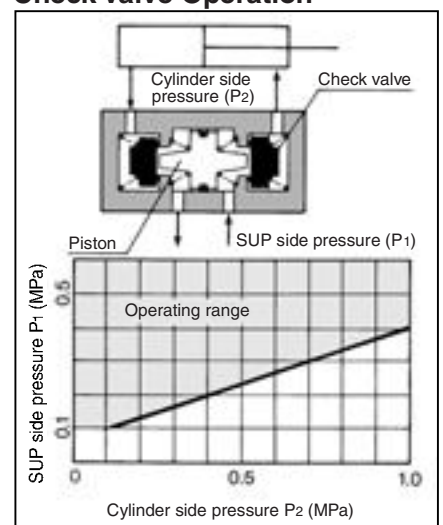
Specifications

Double check spacer part no.	Plug-in type	Non plug-in type
	VVFS3000-22A-1	VVFS3000-22A-2
Applicable valve model	VFS3400-□F	VFS3410-□D VFS3410-□E

⚠ Caution

- In the case of 3 position double check valve (VFS36□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.

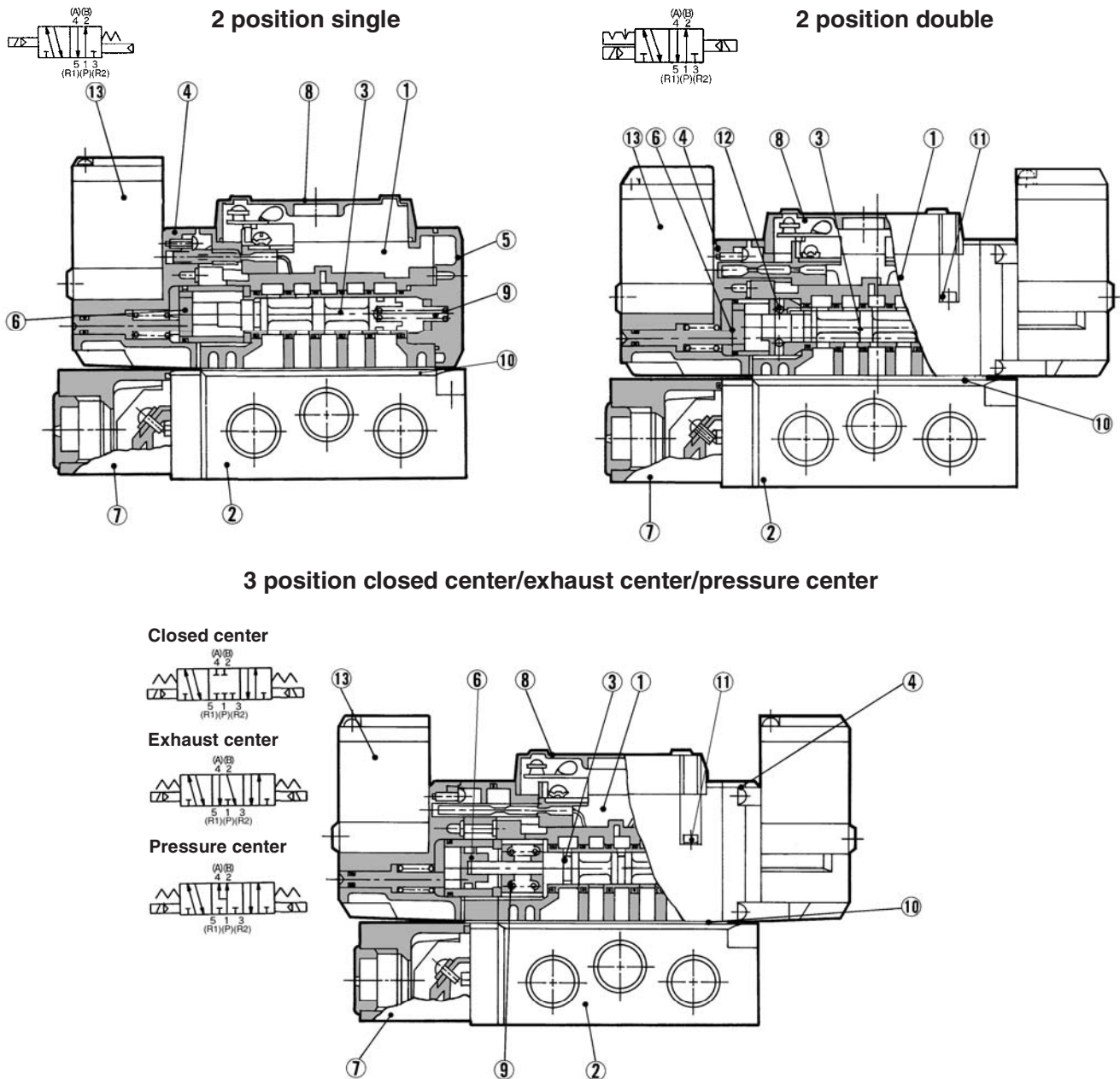
Check Valve Operation



- The combination of VFS31□0, VFS32□0 and double check spacer can be used as prevention for 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 VFS3000*

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	NBR	—
11	Hexagon socket head screw	Steel	—
12	Detent assembly	—	—
13	Pilot valve assembly	—	—

* Refer to "How to Order Pilot Valve Assembly" on page 1163.

Sub-plate Assembly Part No.

Plug-in	VFS3000-P- ⁰² / ₀₃
Non plug-in	VFS3000-S- ⁰² / ₀₃



* Mounting bolt and gasket are not included.

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

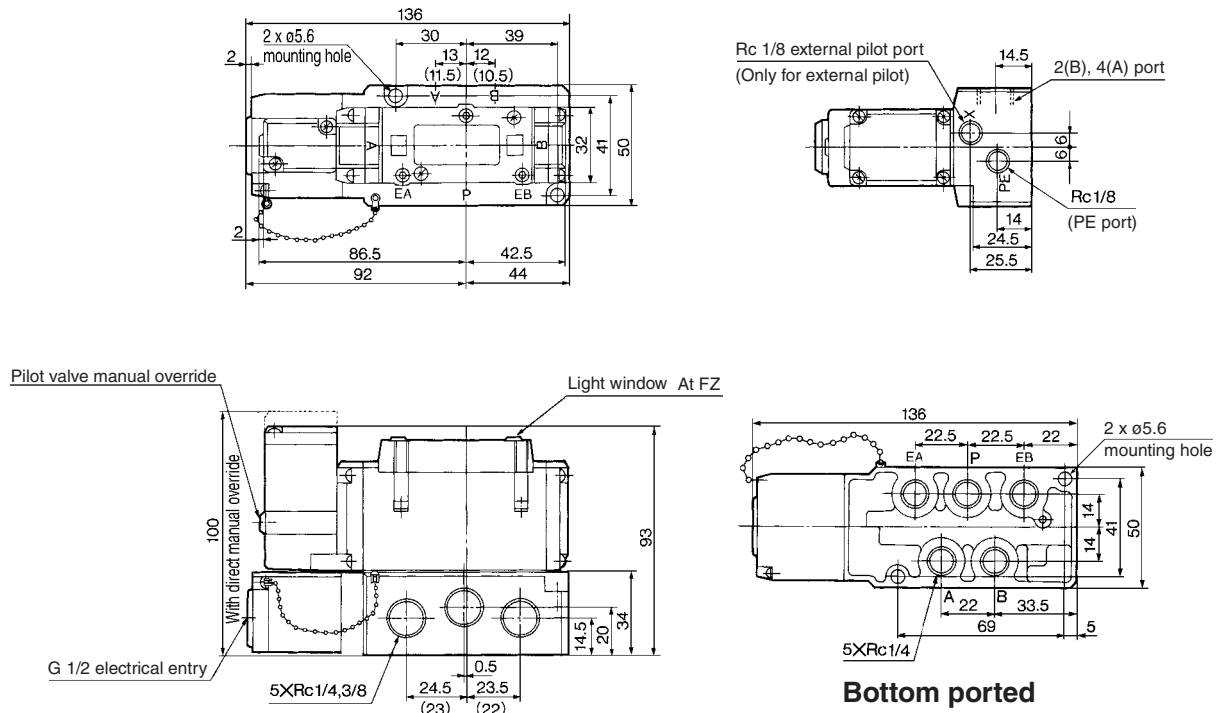
Plug-in	VFS3000-P-R- ⁰² / ₀₃
Non plug-in	VFS3000-S-R- ⁰² / ₀₃

Part no. for mounting bolt and gasket	BG-VFS3000
---------------------------------------	------------

Series VFS3000

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

2 position single: VFS3100-□F



Bottom ported



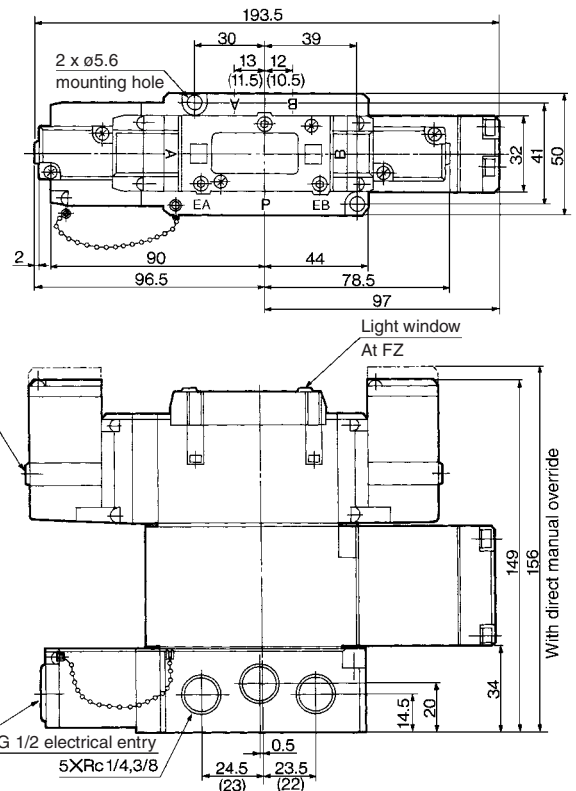
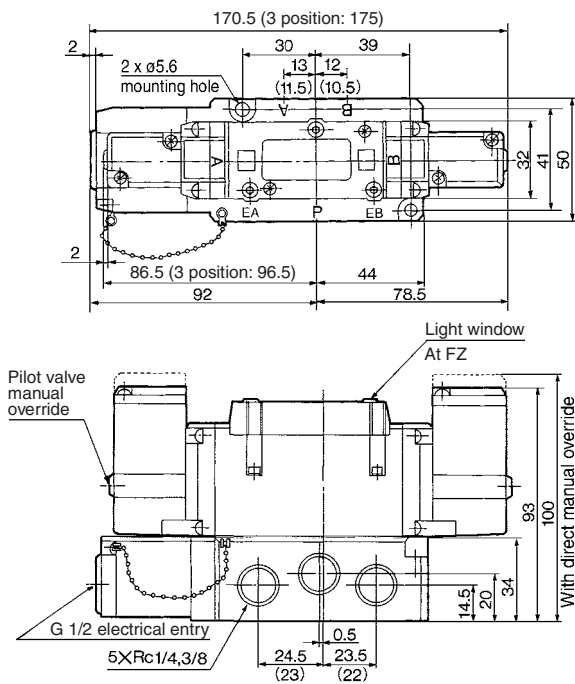
2 position double: VFS3200-□F

3 position closed center: VFS3300-□F

3 position exhaust center: VFS3400-□F

3 position pressure center: VFS3500-□F

3 position double check: VFS3600-□F

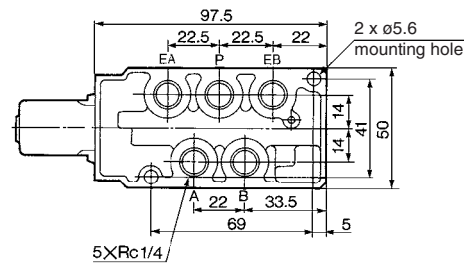
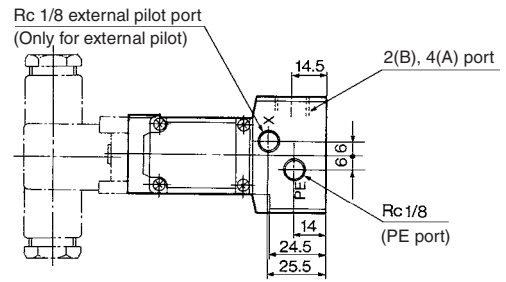
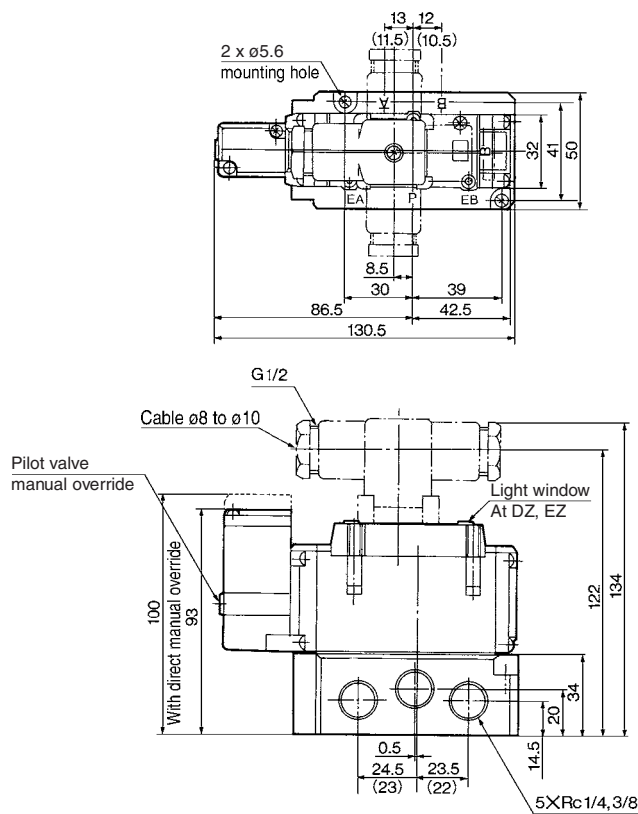


5 Port Pilot Operated Solenoid Valve *Series VFS3000*

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: VFS3110-□E, VFS3110-□D

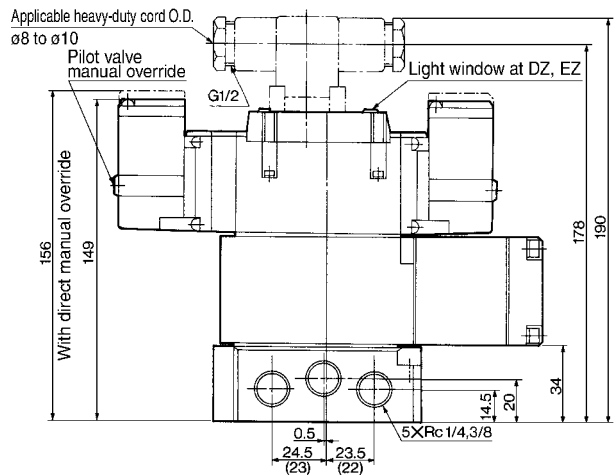
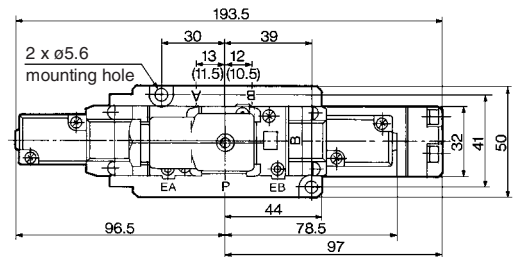
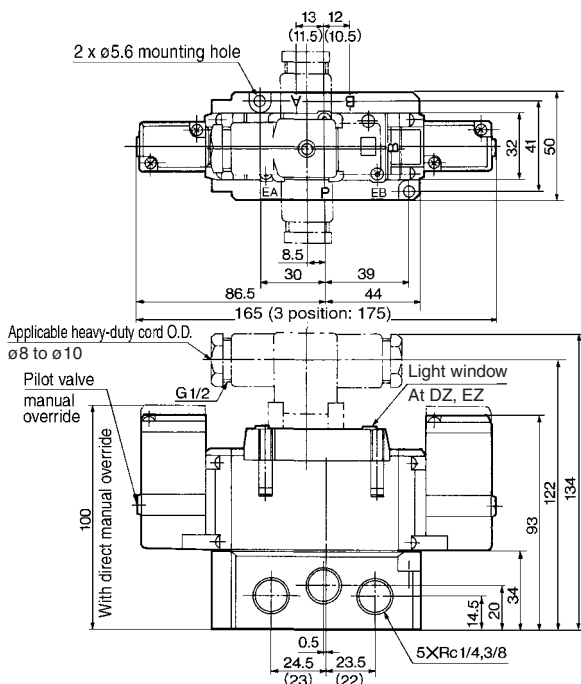


Bottom ported



2 position double: VFS3210-□E, VFS3210-□D
 3 position closed center: VFS3310-□E, VFS3310-□D
 3 position exhaust center: VFS3410-□E, VFS3410-□D
 3 position pressure center: VFS3510-□E, VFS3510-□D

3 position double check: VFS3610-□E, VFS3610-□D

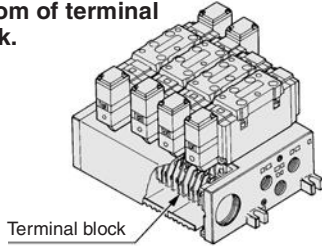


Series VFS3000

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.



VV5FS3-01T-06 1-02

Series VFS3000 Manifold Plug-in type with terminal block

Stations

02	2 stations
⋮	⋮
16	16 stations

Port size

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

Thread type

Symbol	Thread type
Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

CE-compliant

Symbol	CE-compliant
Nil	—
Q	CE-compliant

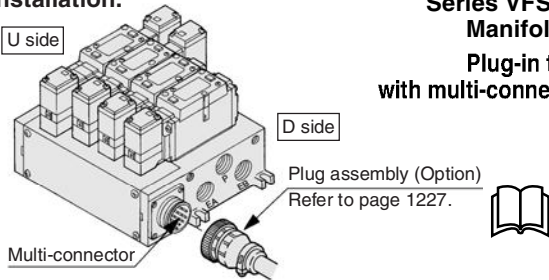
Symbol

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

* 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.



VV5FS3-01CD-05 2-02

Series VFS3000 Manifold Plug-in type with multi-connector

Connector mounting direction

D	D side mounting
U	U side mounting

Stations

02	2 stations
⋮	⋮
08*	8 stations

* Max. 8 stations

Port size

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

Thread type

Symbol	Thread type
Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

CE-compliant

Symbol	CE-compliant
Nil	—
Q	CE-compliant

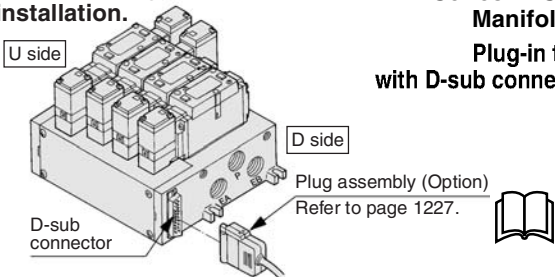
Symbol

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

* 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.



VV5FS3-01FD-06 1-02

Series VFS3000 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

Port size

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

Thread type

Symbol	Thread type
Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

CE-compliant

Symbol	CE-compliant
Nil	—
Q	CE-compliant

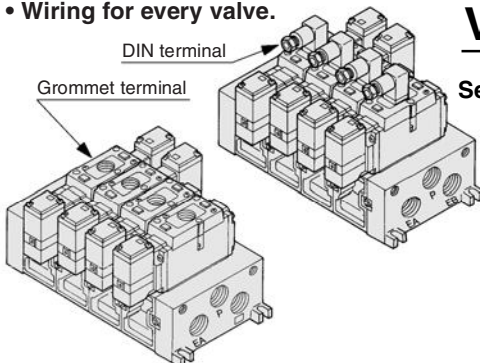
Symbol

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

* Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- Wiring for every valve.



VV5FS3-10-05 2-02

Series VFS3000 Manifold Non plug-in type

Stations

02	2 stations
⋮	⋮
16	16 stations

Port size

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

Thread type

Symbol	Thread type
Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

CE-compliant

Symbol	CE-compliant
Nil	—
Q	CE-compliant

Symbol

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

* Option

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in *Series VFS3000*

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) **VV5FS3-01T-061-02**1
(2 position single) **VFS3100-5FZ**3
(2 position double) **VFS3200-5FZ**2
(Blanking plate) **VVFS3000-10A**1

<Example>

- Non plug-in type: 6 stations
(Manifold base) **VV5FS3-10-061-03**1
(2 position single) **VFS3110-5D**5
(3 position exhaust center) **VFS3410-5D**1
(Individual EXH spacer) **VVFS3000-R-03-2** ...1

Manifold Specifications

Base model	Wiring	Porting specifications A, B port	Port size Rc		Stations	Applicable valve model
			P, EA, EB	A, B		
Plug-in type VV5FS3-01 □	<ul style="list-style-type: none"> • With terminal block • With multi-connector • With D-sub connector 	Side/ Bottom	1/2 ⁽¹⁾	1/4, 3/8	2 to 10 ⁽²⁾	VFS3□00-□F
Non plug-in type VV5FS3-10						<ul style="list-style-type: none"> • DIN terminal • Grommet terminal



Note 1) Appropriate silencer for EA, EB port: "AN403-04" (O.D. ø27).
Note 2) 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
VV5FS3	1 → 4/2 (P → A/B)	C [dm ³ /(s·bar)]	6.0	6.0	6.0
		b	0.20	0.20	0.20
		Cv	1.4	1.4	1.4
	4/2 → 5/3 (A/B → R1/R2)	C [dm ³ /(s·bar)]	7.0	7.0	7.0
		b	0.20	0.20	0.20
		Cv	1.8	1.8	1.8



* Port size: Rc 3/8

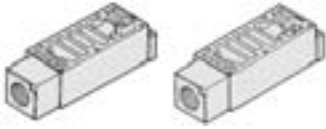
Series VFS3000

Manifold Option Parts Assembly

Individual SUP spacer

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

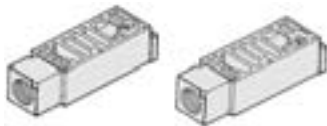
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-P-03-1	VVFS3000-P-03-2



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



* SUP block plate

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

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

* EXH block plate

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

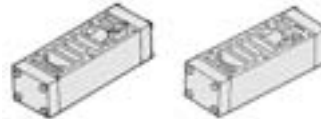
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-20A-1	VVFS3000-20A-2



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.

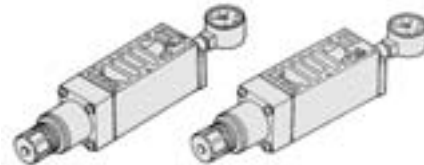
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-22A-1	VVFS3000-22A-2



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	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



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.

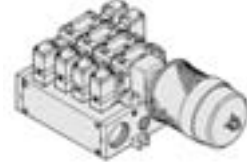
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-10A	

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.

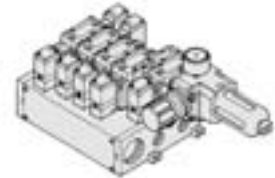


For details, refer to page 1173.

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 1175.

Made to Order Serial transmission kit manifold

Plug-in type

- Solenoid valve wiring process reduced considerably.

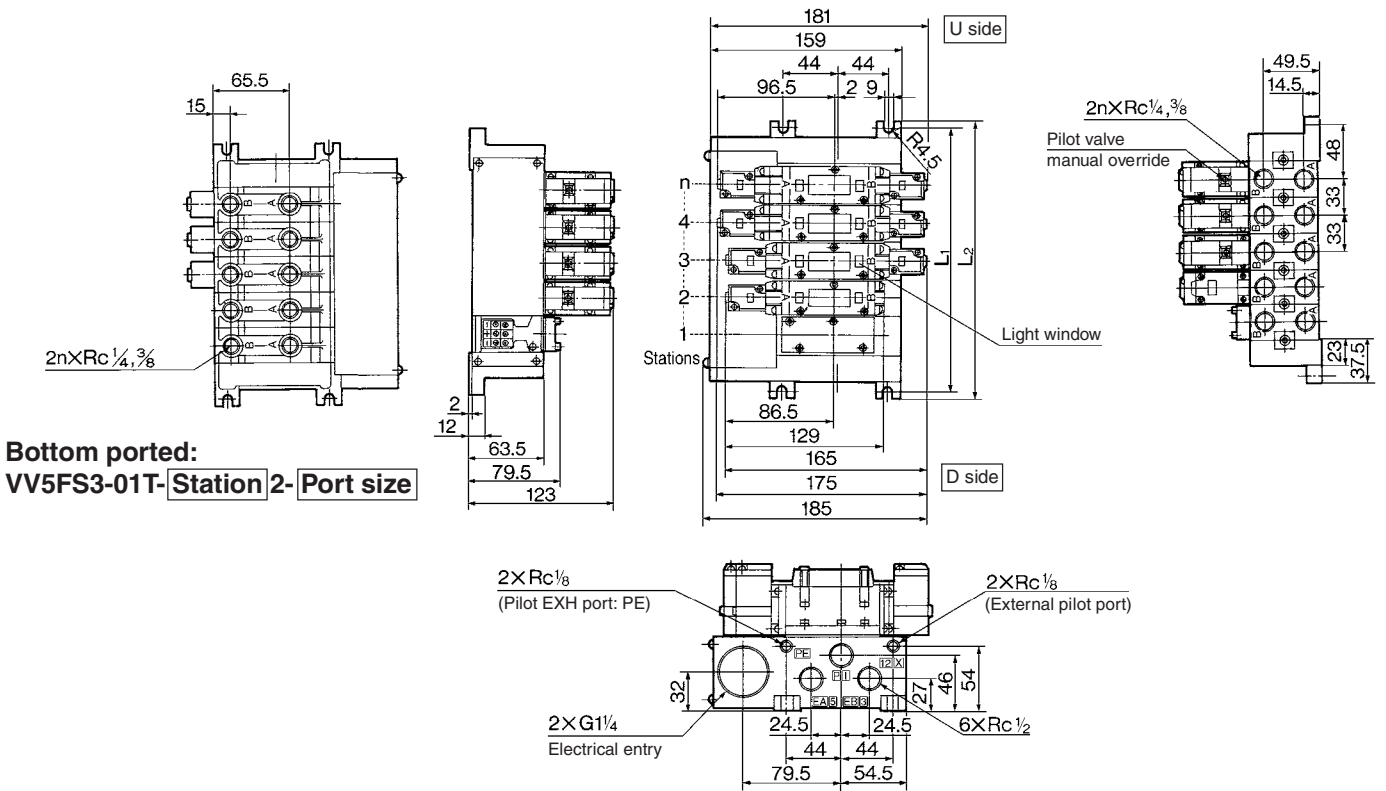


For details, refer to page 1178.

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in *Series VFS3000*

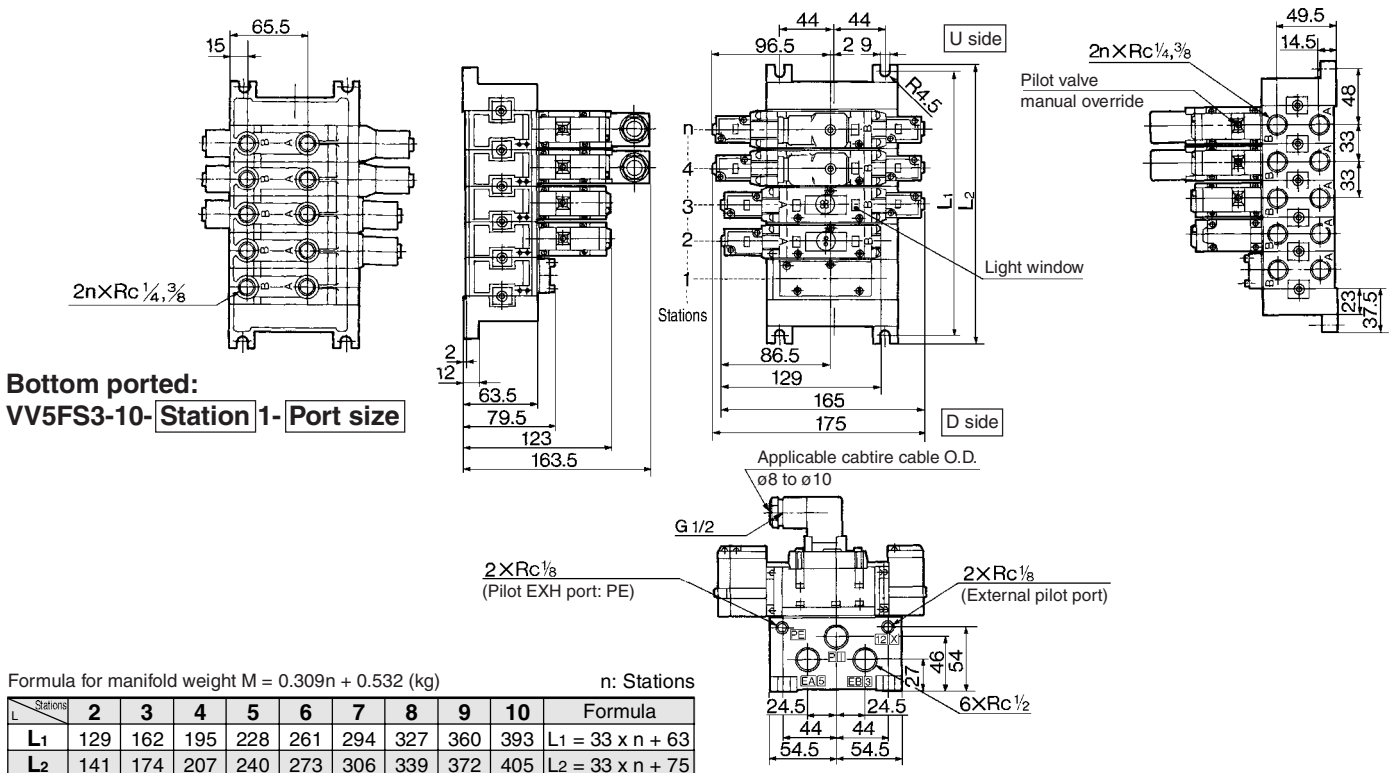
Manifold — Plug-in type, Non plug-in type

Plug-in type (With terminal block): VV5FS3-01T- Station 1- Port size



Formula for manifold weight $M = 0.405n + 0.665$ (kg) n: Station

Non plug-in type: VV5FS3-10- Station 1- Port size



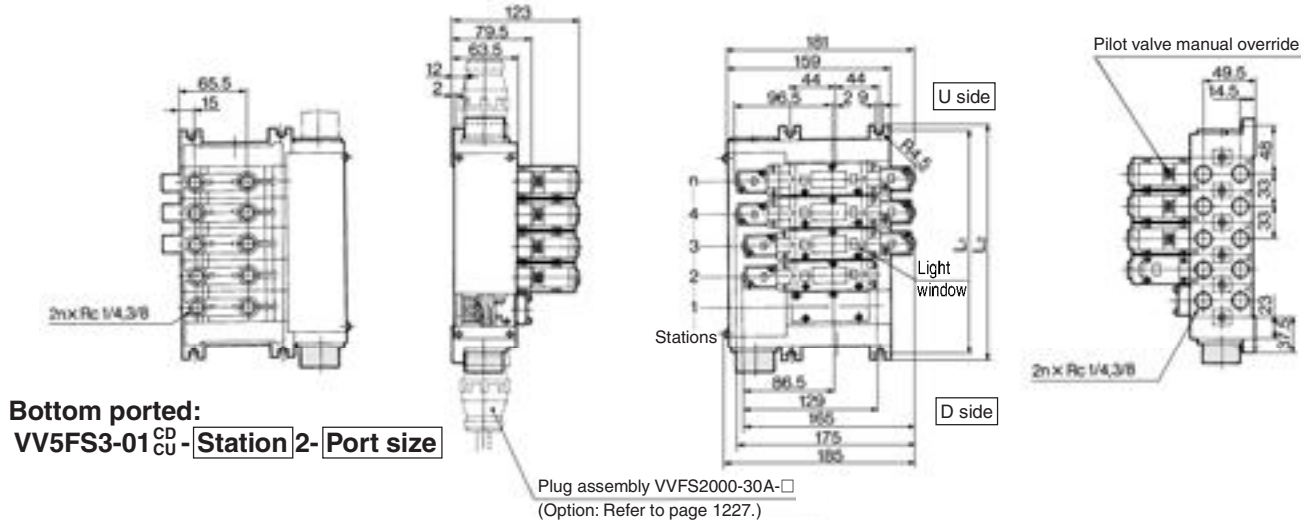
Formula for manifold weight $M = 0.309n + 0.532$ (kg) n: Stations

Stations	2	3	4	5	6	7	8	9	10	Formula
L1	129	162	195	228	261	294	327	360	393	$L1 = 33 \times n + 63$
L2	141	174	207	240	273	306	339	372	405	$L2 = 33 \times n + 75$

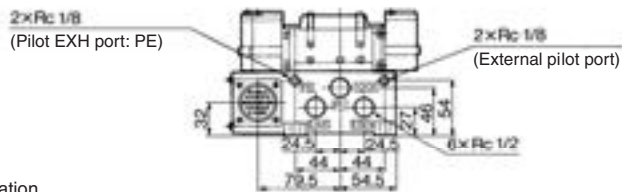
Series VFS3000

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

Plug-in type with multi-connector: VV5FS3-01CD-**Station 1- Port size**, VV5FS3-01CU-**Station 1- Port size**



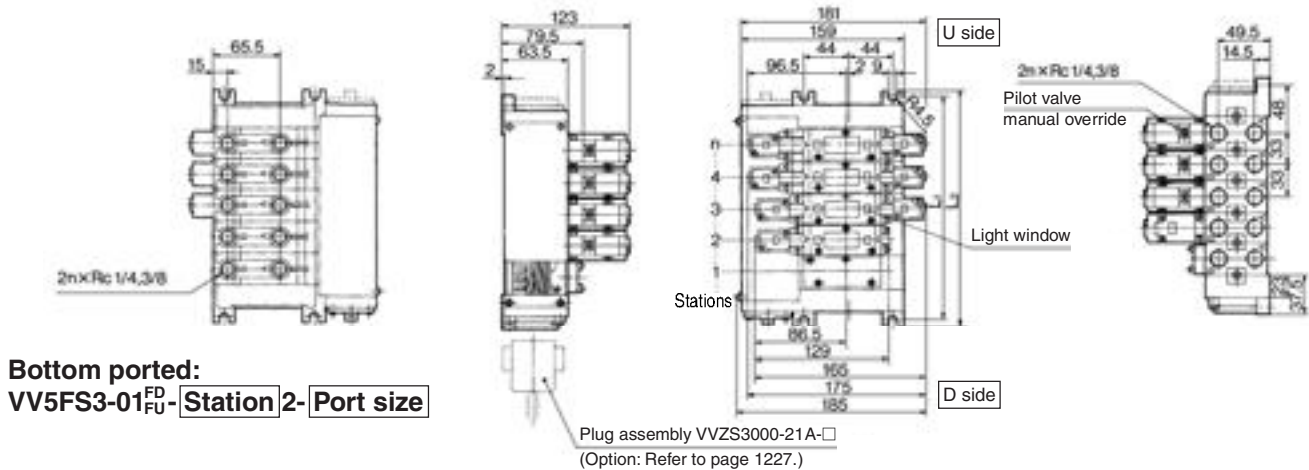
Bottom ported:
VV5FS3-01^{CD}/_{CU}-**Station 2- Port size**



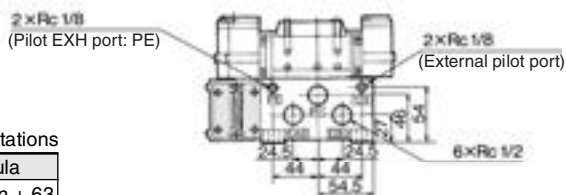
Formula for manifold weight $M = 0.41n + 0.753$ (kg) n: Station
* Wiring specifications: Refer to page 1227.



Plug-in type with D-sub connector: VV5FS3-01FD-**Station 1- Port size**, VV5FS3-01FU-**Station 1- Port size**



Bottom ported:
VV5FS3-01^{FD}/_{FU}-**Station 2- Port size**



Formula for manifold weight $M = 0.41n + 0.677$ (kg) n: Station
* Wiring specifications: Refer to page 1227.

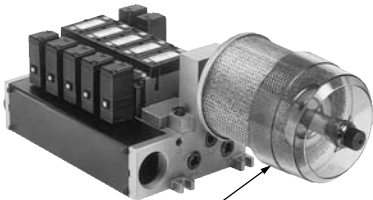


n: Stations

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

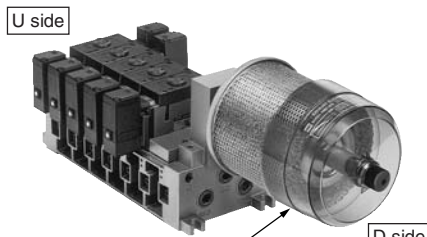
Manifold with Exhaust Cleaner

- 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.



Plug-in type

Exhaust cleaner AMC610-10
(Option)



Non plug-in type

Exhaust cleaner AMC610-10
(Option)

Manifold Specifications

Manifold	Plug-in type: VV5FS3-01□	Non plug-in type: VV5FS3-10
Wiring	With terminal blocks With multi-connector With D-sub connector	DIN terminal Grommet terminal
Applicable valve model	VFS3□00-□F	VFS3□10-□D, VFS3□10-□E
Porting specifications Rc	Common SUP, Common EXH	
	2(B), 4(A) port	1/4, 3/8
	1(P), 3(R2), 5(R1) port	P: 1/2, EXH: 1
Stations	2 to 10 ⁽¹⁾	
Applicable exhaust cleaners	AMC610-10 (Connecting port size R 1) ⁽²⁾	



Note 1) With multi-connector, or with D-sub connector: 8 stations max.
Note 2) Exhaust cleaner "AMC610-10" is not attached.

How to Order

VV5FS3 - 10 - 06 1 - 03 - CD -

Series VFS3000 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: 2-10 stations
Base type 01C, 01F: 2-8 stations

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Port size

Symbol	P	A, B
02	Rc	Rc 1/4
03	1/2	Rc 3/8
M		Mixed

Symbol

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

* Option

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

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>

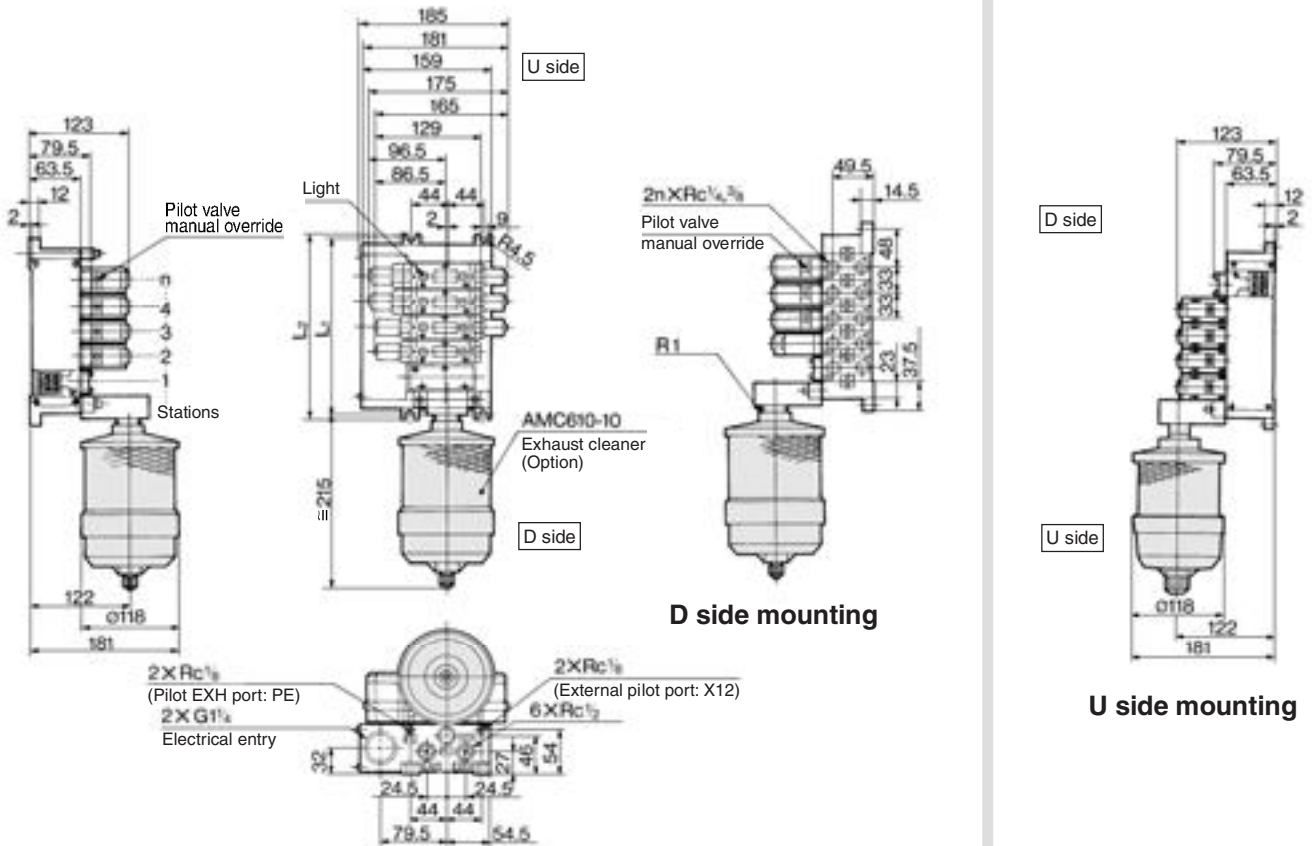
- Plug-in type with terminal block (6 stations)
 - (Manifold base) VV5FS3-01T-061-03-CD 1
 - (2 position single) * VFS3100-5FZ 3
 - (2 position double) * VFS3200-5FZ 2
 - (Blanking plate) * VVFS3000-10A 1
 - (Exhaust cleaner) AMC610-10 1
- Non plug-in type (6 stations)
 - (Manifold base) VV5FS3-10-061-03-CU 1
 - (2 position single) * VFS3110-5E 3
 - (2 position double) * VFS3210-5E 2
 - (Blanking plate) * VVFS3000-10A 1
 - (Exhaust cleaner) AMC610-10 1

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

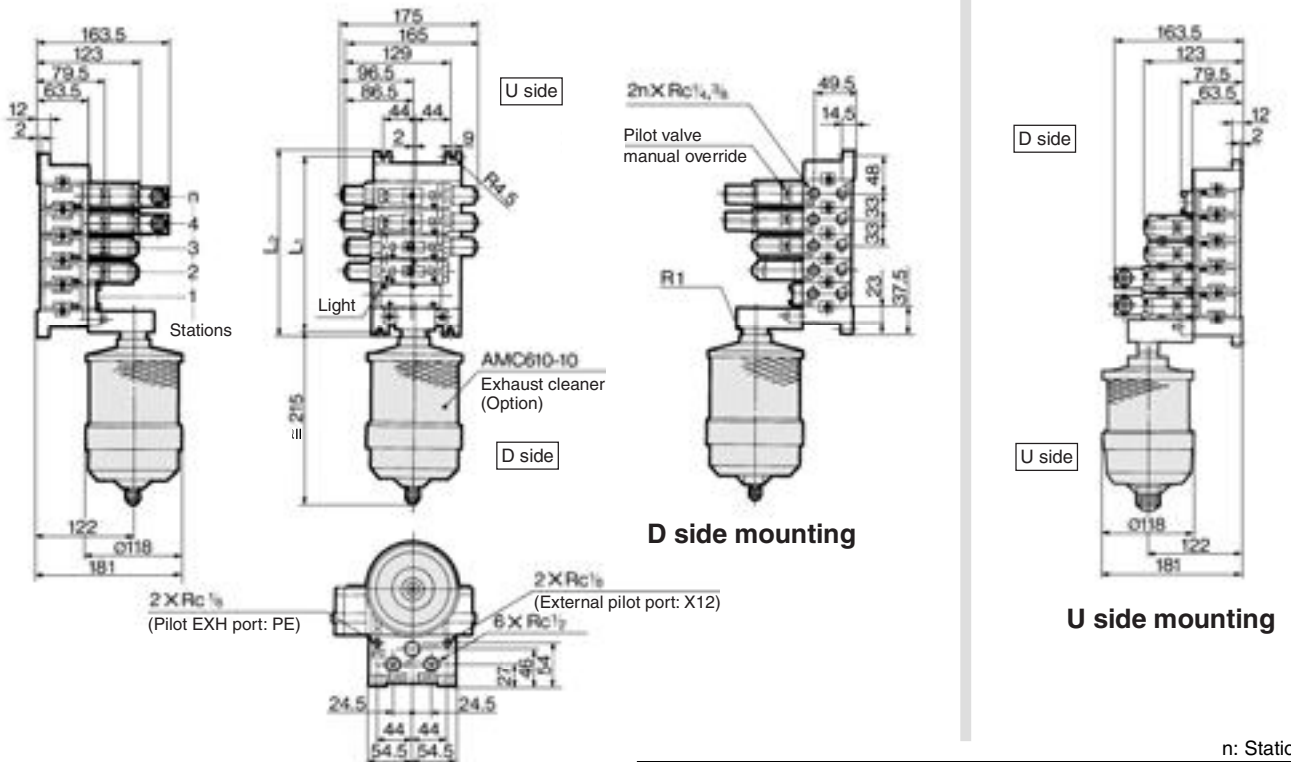
Series VFS3000

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

Plug-in type: VV5FS3-01T-Station 1-Port size-^{CD}_{CU}



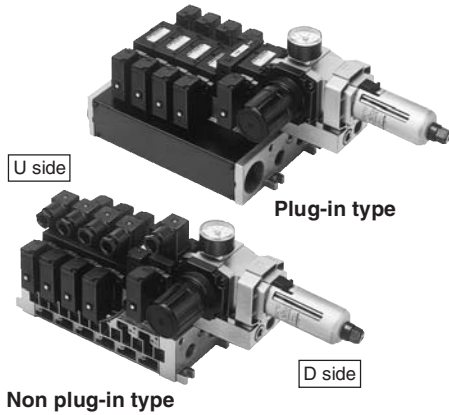
Non plug-in type: VV5FS3-10-Station 1-Port size-^{CD}_{CU}



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

Manifold with Control Unit

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



Caution

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

Manifold Specifications

Manifold	Plug-in type: VV5FS3-01□	Non plug-in type: VV5FS3-10
Wiring	With terminal block With multi-connector With D-sub connector	DIN terminal Grommet terminal
Applicable valve model	VFS3□□00-□F	VFS3□□10-□D, VFS3□□10-□E
Porting specifications Rc	Common SUP, Common EXH	
	2(B), 4(A) port	1/4, 3/8
Stations	1(P), 3(R2), 5(R1) port	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 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>	VVFS3000-24A-1R (D side mounting)
	<Non plug-in type>	VVFS3000-24A-2R (D side mounting)
Pressure switch ⁽³⁾		IS1000P-2-1
Blanking plate	Filter regulator	MP2-3
	Pressure switch	MP3-2
	Release valve	VVFS3000-24A-10
Filter element		INA-13-854-12-5B



Note 1) Voltage: 24 VDC to 100 VAC
Inner voltage drop: 4 V

Note 2) Combination of valve VFS31□□ (single) and a release valve spacer can be used an air release valve.

Note 3) The non plug-in type cannot be mounted afterwards.

How to Order

VV5FS3 - 10 - 08 1 - 02 - AP -

Series VFS3000 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	EA, EB	
1	Common	Common	Side
2			Bottom*

* Option

Port size

Symbol	P, EA, EB	A, B
02	Rc 1/2	Rc 1/4
03		Rc 3/8
M		Mixed

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

CE-compliant

Nil	—
Q	CE-compliant

Control unit type

Control equipment	Symbol								
	Nil	A	AP	M	MP	F	G	C	E
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>

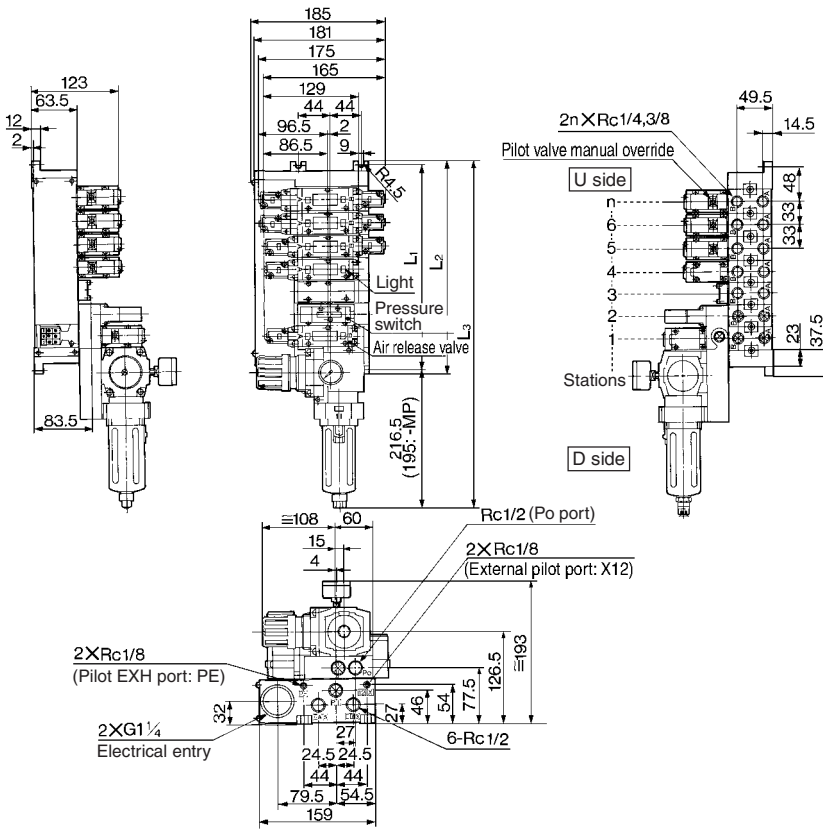
- Plug-in type with terminal block — In order to mount control unit, it requires 2 stations.
 - (Manifold base) VV5FS3-01T-081-03-AP5 1
 - (2 position single) * VFS3100-5FZ 4
 - (2 position double) * VFS3200-5FZ 2
- Non plug-in type — In order to mount control unit, it requires 2 stations.
 - (Manifold base) VV5FS3-10-061-03-A 1
 - (2 position single) * VFS3110-5D 4

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

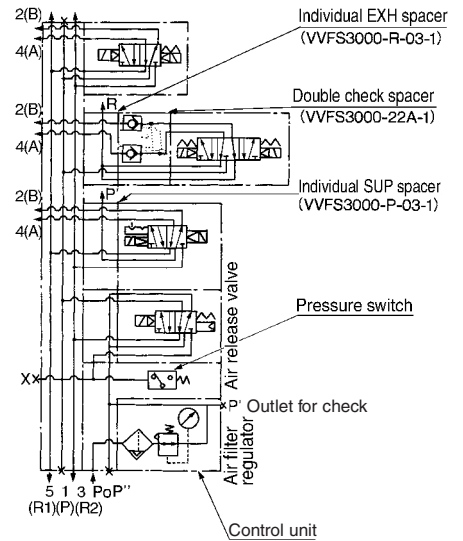
Series VFS3000

Manifold with Control unit — Plug-in type, Non plug-in type

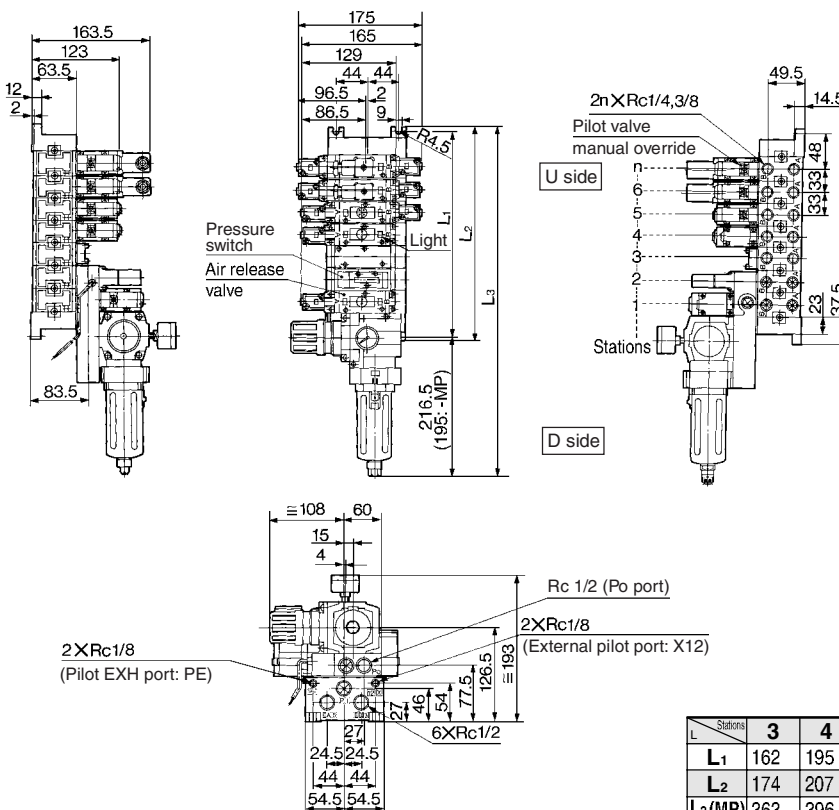
Plug-in type: VV5FS3-01T- Station 1- Port size -AP Voltage for release valve



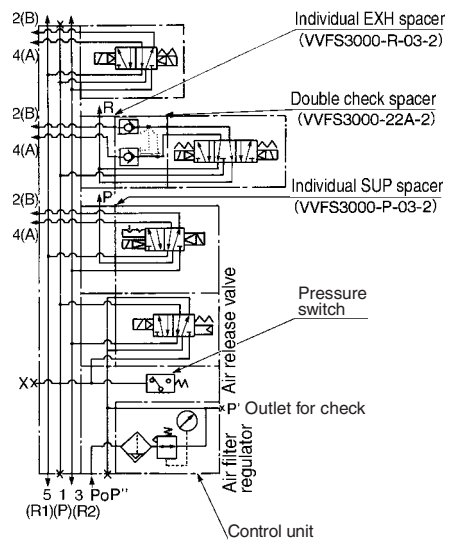
Example for manifold



Non plug-in type: VV5FS3-10- Station 1- Port size -AP Voltage for release valve



Example for manifold



L 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



Made to Order

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

How to Order

How to Order Manifold

VV5FS3 - 01S V - 08 1 - 02 - X279

Plug-in type
Serial transmission kit

Stations

2	2 stations
⋮	⋮
17	17 stations

Note 1) Max. 17 stations. Add 1 station for serial unit mounting.
Note 2) Max. 17 stations for all-single wiring. (No. of valves: 16)
For the standard double wiring, the maximum number of stations is 9. (No. of valves: 8)

Port size

Symbol	P, R1, R2	A, B
02		Rc 1/4
03	Rc 1/2	Rc 3/8
M		Mixed

* For bottom ported: Rc 1/8 only

Thread type

Nil	Rc
N	NPT
T	NPTF
F	G

Combination symbol

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

* Option

Compatible with SI unit U side mounting only

Applicable models

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

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

Correspondence of SI unit output numbers and solenoid valve coils

<Wiring Example 1> Double wiring (Standard)

D side

U side

SI unit output no.	1	2	3	4	5	6	7	8	9	SI unit
	Double	Double	Single	Single	Single	Double	Single	Single		
	AB	AB	AB	AB	AB	AB	AB	AB		

01 23 45 67 89 1011 1213 1415

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

D side

U side

SI unit output no.	1	2	3	4	5	6	7	8	9	10	SI unit
	Double	Double	Single	Single	Single	Double	Single	Double	Single		
	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

VFS3 - 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

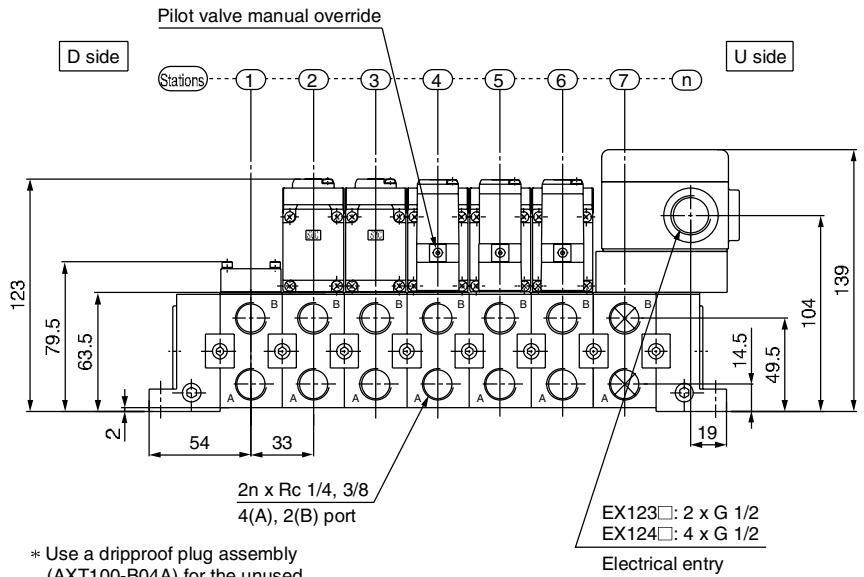
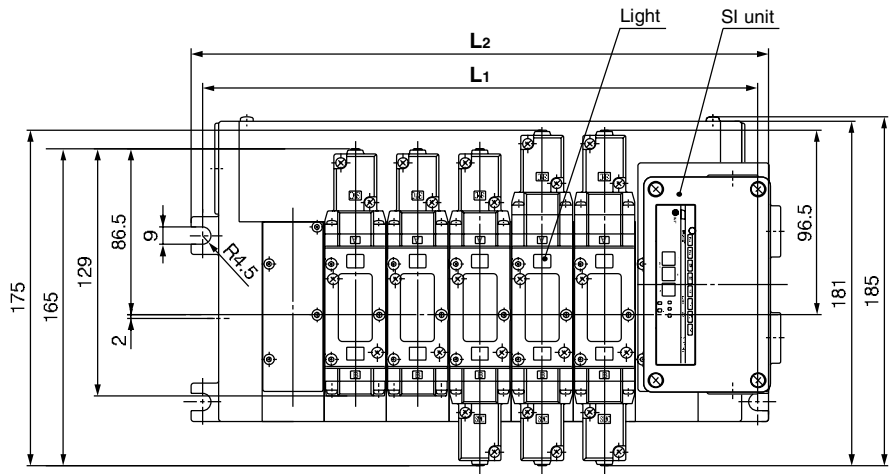
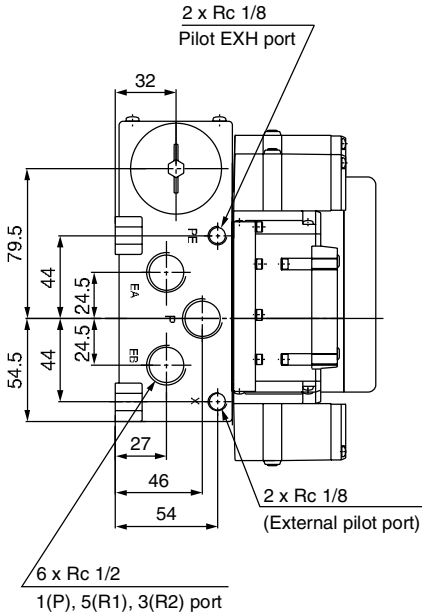
Coil rated voltage

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

5 Port Pilot Operated Solenoid Valve Metal Seal, Plug-in/Non Plug-in **Series VFS3000**

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

VVFS3-01S Model - Stations Symbol - Port size Thread -X279



* Use a dripproof plug assembly (AXT100-B04A) for the unused conduit port (G 1/2).

Formula $L_1 = 33n + 63$ $L_2 = 33n + 75$
n: Stations (Max. 17stations)

Dimensions

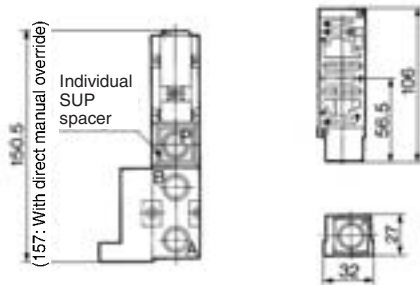
n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
L₁	129	162	195	228	261	294	327	360	393	426	459	492	525	558	591	624
L₂	141	174	207	240	273	306	339	372	405	438	471	504	537	570	603	636

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

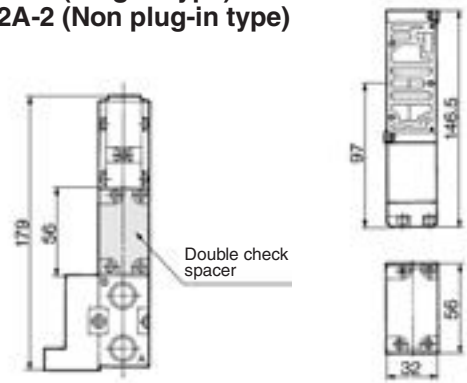
Series VFS3000

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

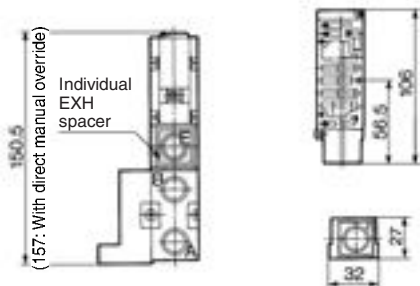
Individual SUP spacer:
 VVFS3000-P-03-1 (Plug-in type)
 VVFS3000-P-03-2 (Non plug-in type)



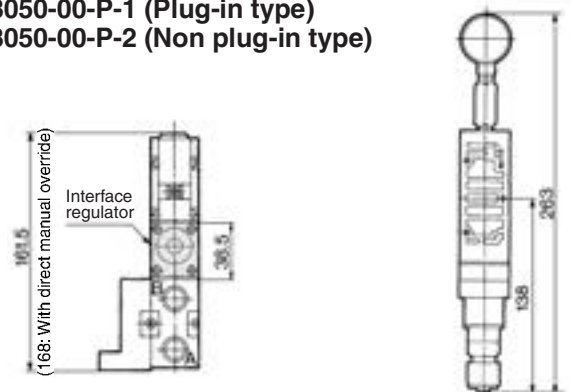
Double check spacer:
 VVFS3000-22A-1 (Plug-in type)
 VVFS3000-22A-2 (Non plug-in type)



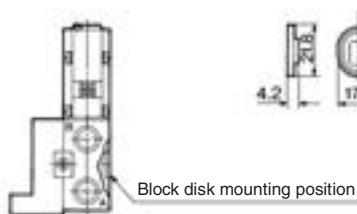
Individual EXH spacer:
 VVFS3000-R-03-1 (Plug-in type)
 VVFS3000-R-03-2 (Non plug-in type)



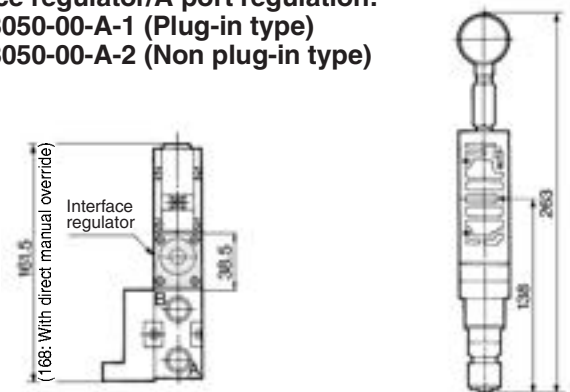
Interface regulator/P port regulation:
 ARBF3050-00-P-1 (Plug-in type)
 ARBF3050-00-P-2 (Non plug-in type)



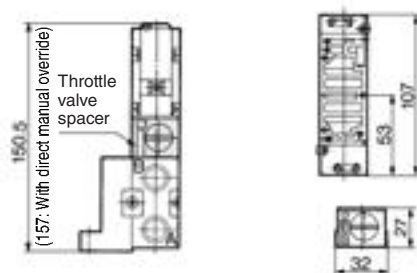
SUP/EXH block plate: AXT636-1A



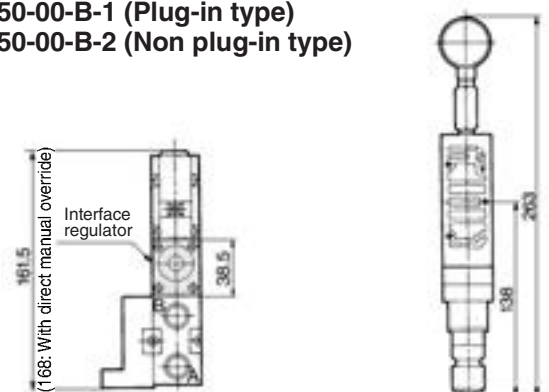
Interface regulator/A port regulation:
 ARBF3050-00-A-1 (Plug-in type)
 ARBF3050-00-A-2 (Non plug-in type)



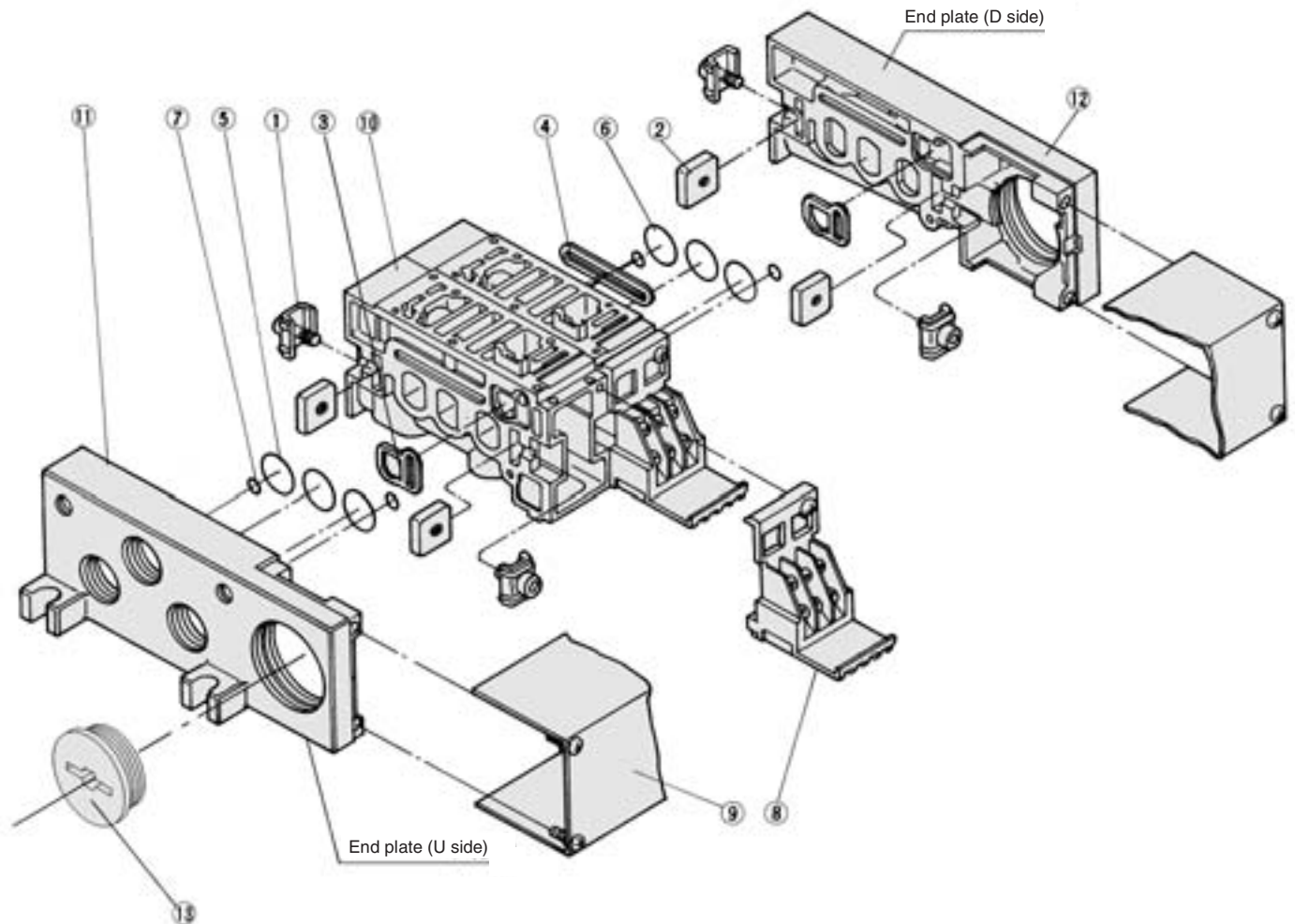
Throttle valve spacer:
 VVFS3000-20A-1 (Plug-in type)
 VVFS3000-20A-2 (Non plug-in type)



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



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



Replacement Parts

No.	Description	Material	Part no.
1	Connection fitting A	Steel plate	VVFS3000-5-1A
2	Connection fitting B	Steel plate	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 (End plate)
6	O-ring	NBR	20 x 16 x 2 (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- <small>Stations</small>
		For 01S	AZ738-22A- <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 with terminal block.

No.	Description	Assembly part no.	Component parts	Applicable manifold base
10	Manifold block assembly	VVFS3000-1A-1- <small>02</small> / <small>03</small>	Manifold block ⑩, Terminal ⑧, Metal joint ①, ②, Gasket ③, ④, O-ring ⑥, ⑦, Receptacle assembly	Plug-in type
		VVFS3000-1A-2- <small>02</small> / <small>03</small>	Manifold block ⑩, Metal joint 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, Metal joint ①, ②, O-ring ⑤, ⑥	Plug-in type
		VVFS3000-2A-2	End plate (U) ⑪, Metal joint ①, ②, O-ring ⑤, ⑥	Non plug-in type
12	End plate (D side) assembly	VVFS3000-3A-1	End plate (D) ⑫, Metal joint ①, ②, Gasket ③	Plug-in type
		VVFS3000-3A-2	End plate (D) ⑫, Metal joint ①, ②, Gasket ③	Non plug-in type