5 Port Pilot Operated Solenoid Valve
Metal Seal, Body Ported
Series VFS3000

Model

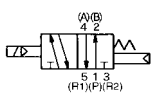
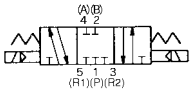
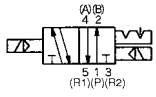
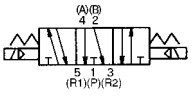
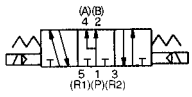
Type of actuation		Model: Plug-in	Model: Non plug-in	Port size Rc	Flow characteristics: 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics: 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Max.(1) operating cycle (cpm)	Response time(2) (ms)	Weight(3) (kg)
2 position	Single	**VFS3120**	**VFS3130**	1/4	5.0	0.20	1.1	6.8	0.30	1.7	1200	20 or less	0.33
				3/8	6.1	0.14	1.4	7.3	0.23	1.8			
	Double	**VFS3220**	**VFS3230**	1/4	5.0	0.20	1.1	6.8	0.3	1.7	1500	15 or less	0.43
				3/8	6.1	0.14	1.4	7.3	0.23	1.8			
3 position	Closed center	**VFS3320**	**VFS3330**	1/4	5.0	0.20	1.1	6.3	0.27	1.6	600	40 or less	0.45
				3/8	5.7	0.20	1.4	6.8	0.21	1.7			
	Exhaust center	**VFS3420**	**VFS3430**	1/4	4.9	0.24	1.1	6.5	0.28	1.6	600	40 or less	0.45
				3/8	5.8	0.15	1.4	7.0	0.22	1.7			
	Pressure center	**VFS3520**	**VFS3530**	1/4	4.9	0.23	1.1	6.6	0.28	1.6	600	40 or less	0.45
				3/8	6.5	0.15	1.6	7.0	0.23	1.7			

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 pressure 0.5 MPa.)
Note 3) In the case of grommet type.
Note 4) Factors of "Note1)" and "Note 2)" are achieved in controlled clean air.

Compact yet provides a large flow capacity 3/8: C: 6.8 dm³/(s·bar)

Low power consumption: 1.8 W DC

JIS Symbol

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

Standard Specifications

Valve specifications	Fluid		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Minimun 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/s² (3)
	Enclosure		Dustproof (Degrees of protection 0) (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		1.8 W (2.04 W: With light/surge voltage suppressor)
	Electrical entry		Grommet, Grommet terminal, Conduit 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 (1)
Pilot valve manual override	Non-locking push type (Extended), Locking type (Tool reguired)
Coil rated voltage	110 to 120, 220, 240 VAC (50/60 Hz)
	12, 100 VDC
Option	With light/surge voltage suppressor (2)
Foot bracket (With screw)	Part no.: VFS3000-52A, VFS3120 (single) only

Note 1) Operating pressure: 0 to 1.0 MPa
Pilot pressure: 0.1 to 1.0 MPa
Note 2) Grommet type is available only w/ surge voltage suppressor (which is directly connected with lead wire), not w/ indicator light.

Manifold

Body type	Applicable manifold base	Pilot EXH
VFS3□20	Stacking manifold	Individual EXH (Valve side)
VFS3□30		Common EXH (Manifold base side)

How to Order

VFS3 1 20 — 1 G — 02 —

Symbol

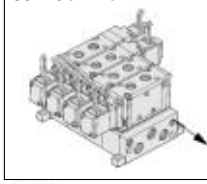
1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

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

Body (Pilot exhaust)

20: Individual EXH

30∗: Common EXH



∗ Manifold only

Pilot type

Nil	Internal pilot
R∗	External pilot

∗ Option. It will be an individual external pilot.

Port size

02	Rc 1/4
03	Rc 3/8

Thread type

Nil	Rc
N∗	NPT
T∗	NPTF
F∗	G

∗ Option

Option

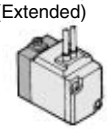
F: With foot bracket

∗ Mountable only for VFS3120.

Manual override

Nil: Non-locking push type (Flush)

A∗: Non-locking push type (Extended)



B∗: Locking type (Tool required)

∗ Option

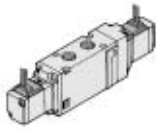
Light/Surge voltage suppressor

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

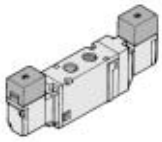
∗ Indicator light is not available for grommet type. W/ surge voltage suppressor is available for grommet type only.

Electrical entry

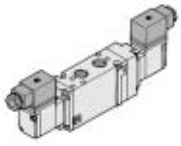
G: Grommet



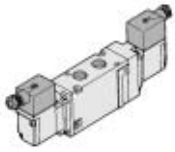
E: Grommet terminal



T: Conduit terminal



D-Y: DIN terminal



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

External pilot port: Body side. For 30 type, common external pilot (on manifold side).

How to Order Pilot Valve Assembly

SF4 — 1 DZ — 21

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

Electrical entry, Light/Surge voltage suppressor

G	Grommet
GS	Grommet with surge voltage suppressor
D	DIN terminal
DZ	DIN terminal with light/surge voltage suppressor
DO	DIN terminal ∗∗
DOZ	DIN terminal with light/surge voltage suppressor ∗∗
Y∗	DIN terminal
YZ∗	DIN terminal with light/surge voltage suppressor
YO∗	DIN terminal ∗∗
YOZ∗	DIN terminal with light/surge voltage suppressor ∗∗
T	Conduit terminal
TZ	Conduit terminal with light/surge voltage suppressor
E	Grommet terminal
EZ	Grommet terminal with light/surge voltage suppressor

∗ Y: Conforming to DIN43650B standard
∗∗ DIN connector is not attached.

Applicable model

14	A side pilot operator for VFS3$^{1}_{2}{}^{3}_{4}{}_{5}$20	Individual pilot exhaust
15	B side pilot operator for VFS3220	
16	B side pilot operator for VFS3$^{3}_{4}{}_{5}$20	
17	A side pilot operator for VFS3$^{1}_{2}{}^{3}_{4}{}_{5}$30	Common pilot exhaust
18	B side pilot operator for VFS3230	
19	B side pilot operator for VFS3$^{3}_{4}{}_{5}$30	

Manual override

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

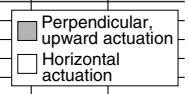
∗ Option

Cylinder Speed Chart

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

Body Ported

Series	Average speed (mm/s)	Bore size													
		Series CJ2 Pressure 0.5 MPa Load factor 50% Stroke 60 mm			Series CM2 Pressure 0.5 MPa Load factor 50% Stroke 300 mm				Series MB Pressure 0.5 MPa Load factor 50% Stroke 500 mm					Series CS1 Pressure 0.5 MPa Load factor 50% Cylinder stroke 1000 mm		
		ø6	ø10	ø16	ø20	ø25	ø32	ø40	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
VFS3120-03	900 800 700 600 500 400 300 200 100 0															



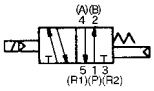
∗ It is when the cylinder is extending that is meter-out controlled by speed controller which is directly connected with cylinder, and its needle valve with being fully open.
∗ The average velocity of the cylinder is what the stroke is divided by the total stroke time.
∗ Load factor: ((Load weight x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

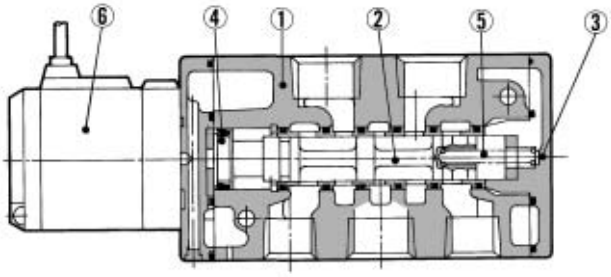
Conditions

Body ported		Series CJ2	Series CM2	Series MB	Series CS1
VFS3120-03	Tube bore x Length	T0604 x 1 m	T1075 x 1 m	T1209 x 1 m	
	Speed controller	AS3001F-06	AS4001F-10	AS4001F-12	
	Silencer	AN200-02			AN202-02

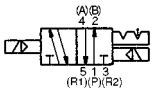
Construction

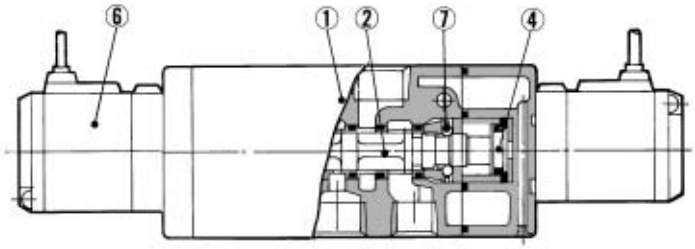
2 position





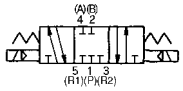
2 position double



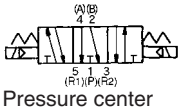


3 position closed center/exhaust center/pressure center

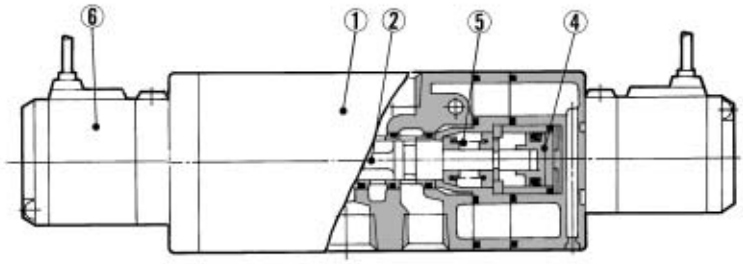
Closed center



Exhaust center



Pressure center



Component Parts

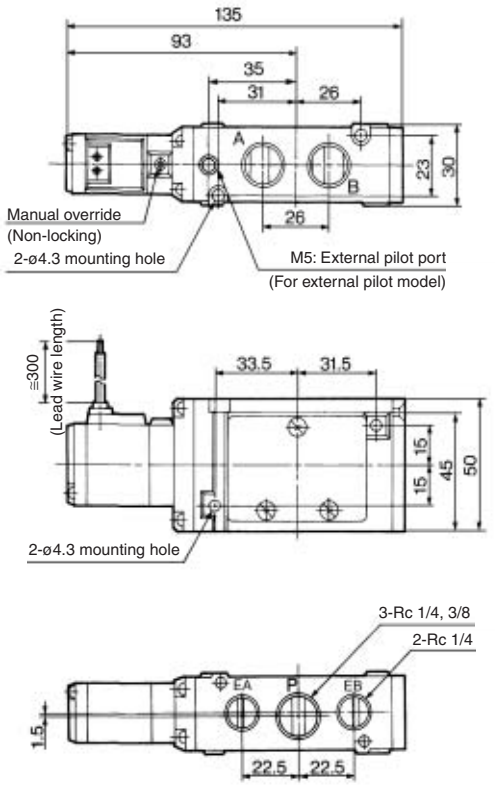
No.	Description	Material	Note
①	Body	Aluminum die-casted	Platinum silver
②	Spool/Sleeve	Stainless steel	—
③	End plate	Resin	Black
④	Piston	Resin	—

Replacement Parts

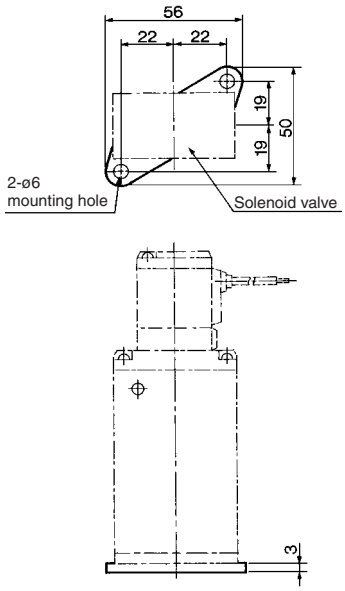
No.	Description	Material	Part no.		
			VFS3120	**VFS3220**	**VFS3320/3420/3520**
⑤	Return spring	Stainless steel	VFS3000-17-1	—	VFS3000-17-2
⑥	Pilot valve assembly	—	Refer to “How to Order Pilot Valve Assembly” on page 3-8-26.		
⑦	Detent assembly	—	—	VFS3000-9A	—

2 Position Single Grommet, Grommet terminal, Conduit terminal, DIN terminal

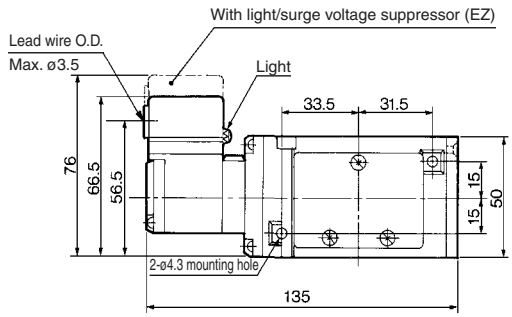
Grommet: VFS3120-□G



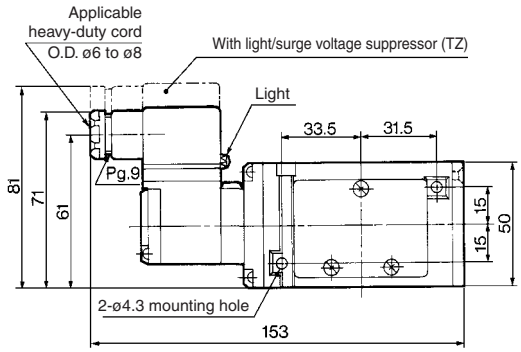
Foot bracket (F)
Part no.: VFS3000-52A



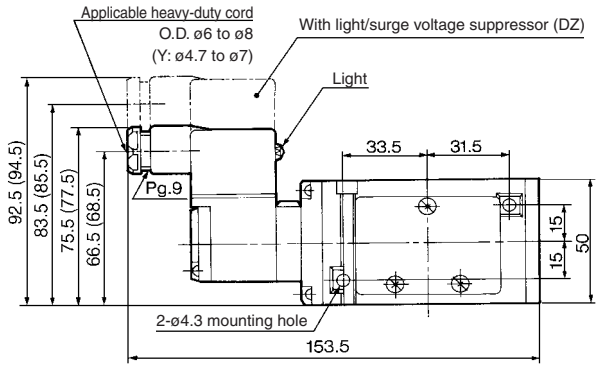
Grommet terminal: VFS3120-□E/EZ



Conduit terminal: VFS3120-□T/TZ



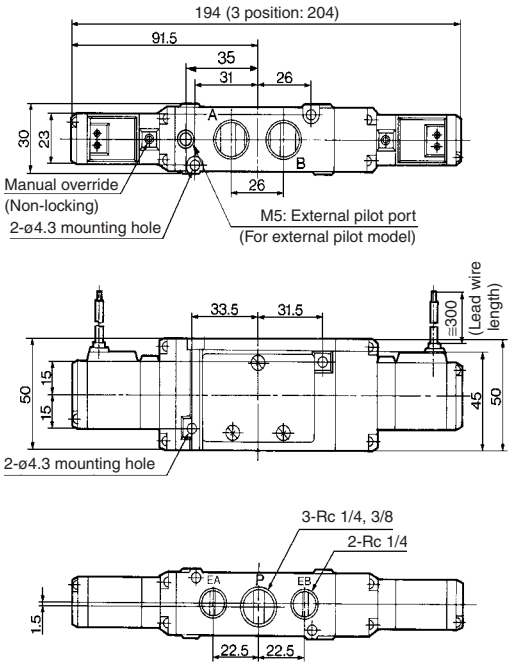
DIN terminal: VFS3120-□D/DZ/Y/YZ



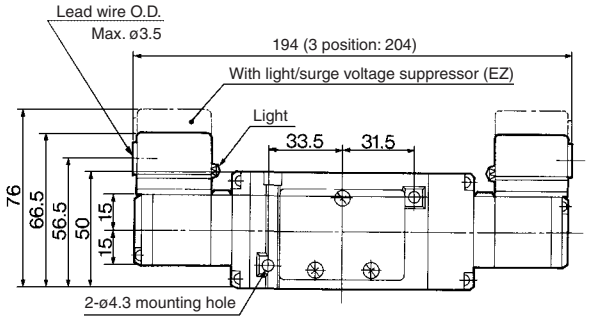
( ): Y, YZ

2 Position Double, 3 Position Grommet, Grommet terminal, Conduit terminal, DIN terminal

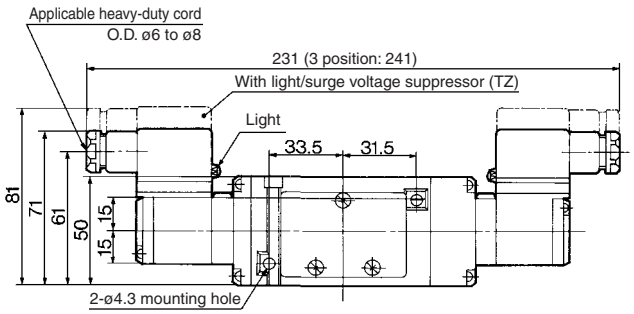
Grommet: VFS3220-□G, VFS3320-□G, VFS3420-□G, VFS3520-□G



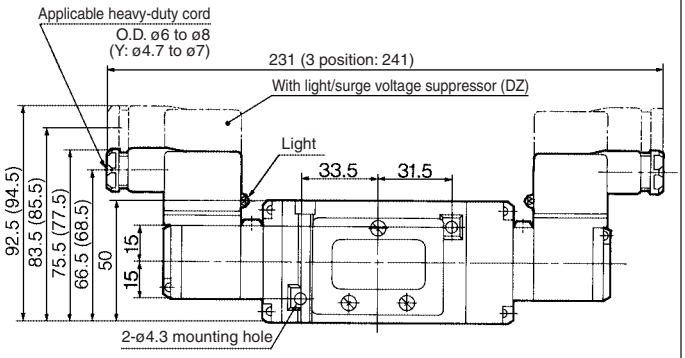
Grommet terminal: VFS3220-□E/EZ VFS3320-□E/EZ VFS3420-□E/EZ VFS3520-□E/EZ



Conduit terminal: VFS3220-□T/TZ VFS3320-□T/TZ VFS3420-□T/TZ VFS3520-□T/TZ



DIN terminal: VFS3220-□D/DZ/Y/YZ VFS3320-□D/DZ/Y/YZ VFS3420-□D/DZ/Y/YZ VFS3520-□D/DZ/Y/YZ



( ): Y, YZ

Series VFS3000
Manifold Specifications
Stacking Type

Keeps environmental air clean from pilot exhaust

Use of the VV5FS3-31 manifold can exhaust intensively the pilot exhaust gas to the base side, and can prevent environmental aggravation due to noise and oil mist.

VV5FS3-31

Part no. for mounting bolt and gasket
BG-VFS3030

Specifications

Manifold base type	Stacking type
Stations	Max. 15 stations

Port Specifications

Symbol	Passage		Porting specifications: Rc		
			Base	Valve	Base
	1(P)	3(R2), 5(R1)	1(P)	2(B), 4(A)	3(R2), 5(R1)
1	Common	Common	Side: 3/8	Top: 1/4 , 3/8	Side: 3/8

Option

Blanking plate	VVFS3000-10A-1	With gasket, screw
SUP block disk	AXT636-10A	—
EXH block disk	AXT636-11A	—

Note) Individual SUP or EXH is possible with bottom porting of SUP or EXH. For your order, please indicate it in the manifold specification sheet.

How to Order Manifold Base

VV5FS3 − 31 − 05 1 − 03 □

Series VFS3000 Manifold

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

P, EA, EB port size
03-Rc 3/8

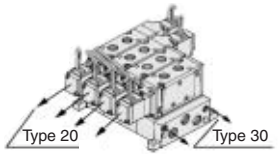
Symbol

	Passage		Porting specifications
	1(P)	3(R2), 5(R1)	2(B), 4(A)
1	Common Rc 3/8	Common Rc 3/8	Top Rc 1/4, Rc 3/8

Stations

02	2 stations
⋮	⋮
15	15 stations

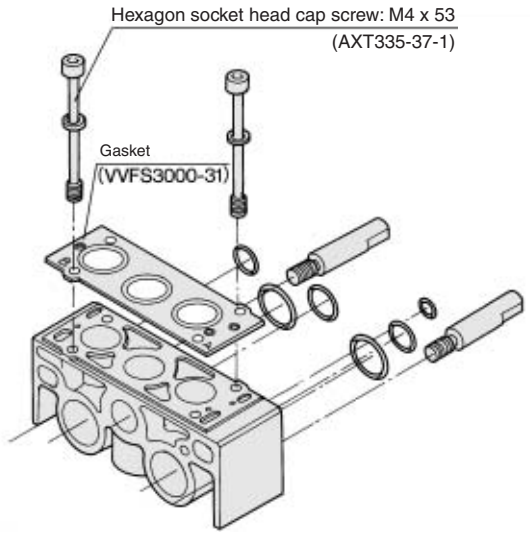
Base model

Model	Pilot exhaust	Applicable valve model
31	Pilot common EXH  Type 20 Type 30	VFS3□20-□□-02/03 VFS3□30-□□-02/03

Note) Also VFS3□20 is possible to manifold. In this case, it uses an individual pilot exhaust.

Exploded View of Manifold

Manifold block assembly VVFS3000-1A-30



• For increasing the manifold bases, please prepare the manifold block assembly no.

How to Order Manifold Assembly

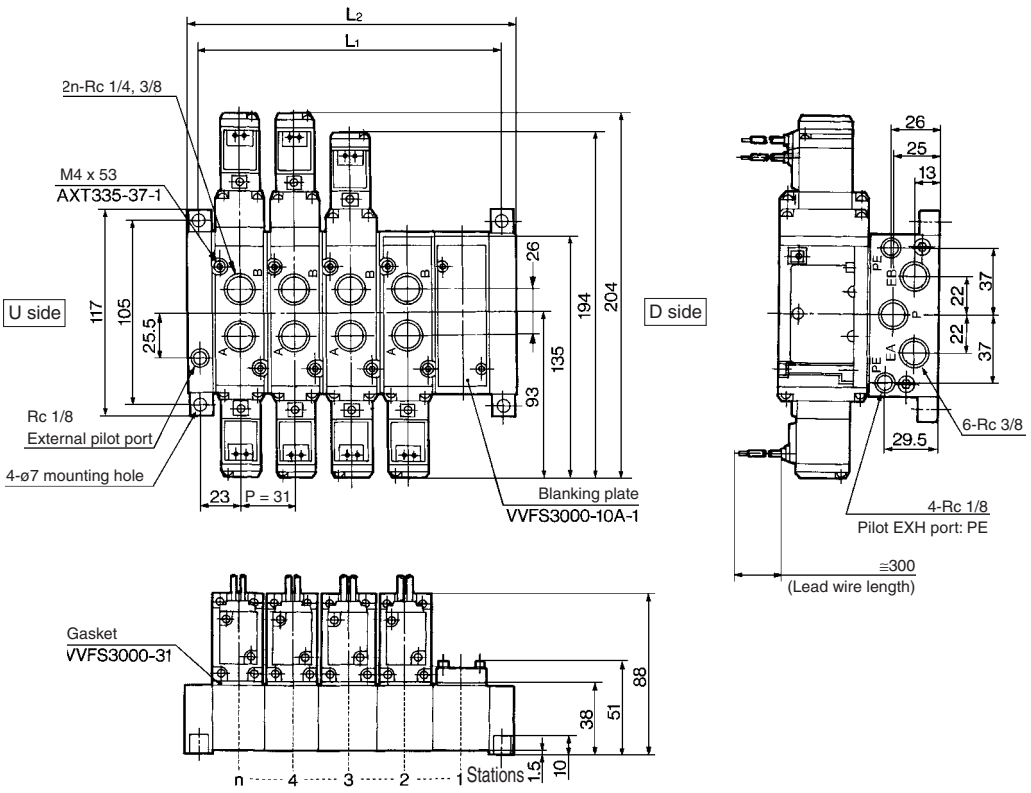
Instruct by specifying the valves and blanking plate to be mounted on the manifold along with the manifold base model no.

<Example>

(Manifold base)	VV5FS3-31-061-03	1
(2 position single)	VFS3130-1D-02	3
(2 position double)	VFS3230-1D-02	2
(Blanking plate)	VVFS3000-10A-1	1

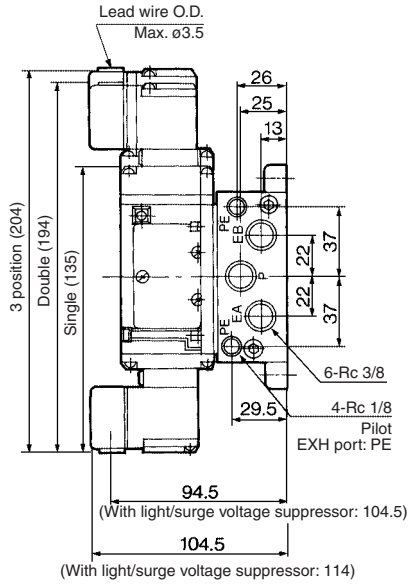
Type 31 Manifold Pilot common exhaust: VV5FS3-31-Station 1-03

Grommet: G

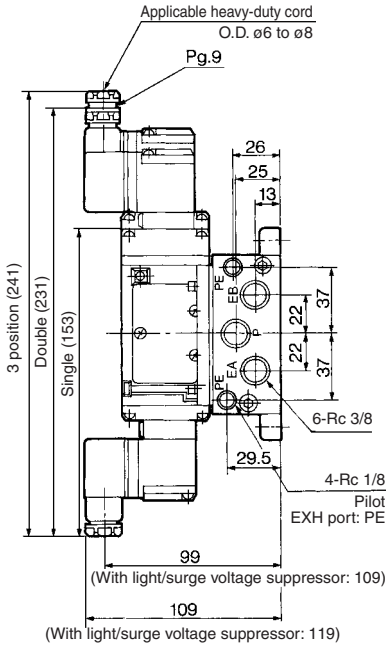


Formula for manifold weight M = 0.184n + 0.16 (kg) n: Station

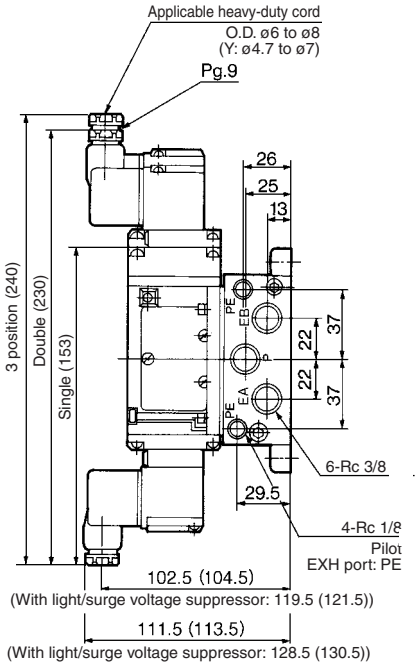
Grommet terminal: E/EZ



Conduit terminal: T/TZ



DIN terminal: D/DZ/Y/YZ



( ): Y, YZ
n: Station

L \ Stations	2	3	4	5	6	7	8	9	10	Formula
L_1	77	108	139	170	201	232	263	294	325	$L_1 = 31 \times n + 15$
L_2	92	123	154	185	216	247	278	309	340	$L_2 = 31 \times n + 30$

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

Model

Type of actuation		Model: Plug-in	Model: Non plug-in	Port size Rc	Flow characteristics: 1 → 4/2 (P → A/B) C [dm³/(s·bar)]	b	Cv	Flow characteristics: 4/2 → 5/3 (A/B → R1/R2) C [dm³/(s·bar)]	b	Cv	Max.(1) operating cycle (cpm)	Response time(2) (ms)	Weight(3) (kg)
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			
	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.

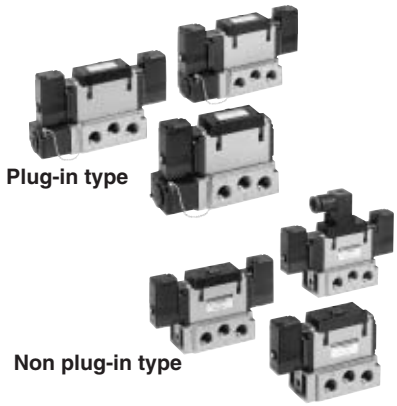
Compact yet provides a large flow capacity
3/8: C: 5.8 dm³/(s·bar)

Low power consumption: 1.8 W DC

Easy maintenance

2 types of sub-plates:

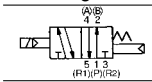
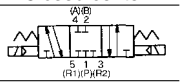
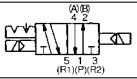
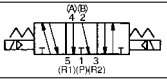
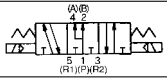
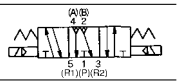
Plug-in and non plug-in



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/s² (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

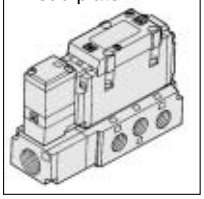
Pilot type		External pilot Note)
Manual override	Main valve	Direct manual override type
	Pilot valve	Non-locking push type (Extended), Locking type (Tool required), Locking type (Lever)
Coil rated voltage		110 to 120, 220, 240 VAC (50/60 Hz)
		12, 100 VDC
Porting specifications		Bottom ported
Option		With light/surge voltage suppressor

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

How to Order

Body type

O: Plug-in type sub-plate



Electrical entry

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 — 02**

Non plug-in VFS3 **2 1 1 — 2 D — 02**

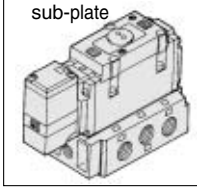
Symbol

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

Pilot type

Nil	Internal pilot
R*	External pilot

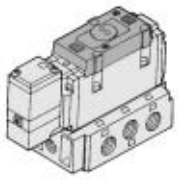
* Option

Option

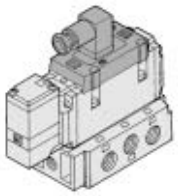
Nil	None
Z	With light/surge voltage suppressor

Electrical entry

E: Grommet terminal



D: DIN terminal



Coil rated voltage

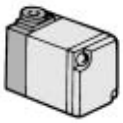
1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

* Option

Pilot 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

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

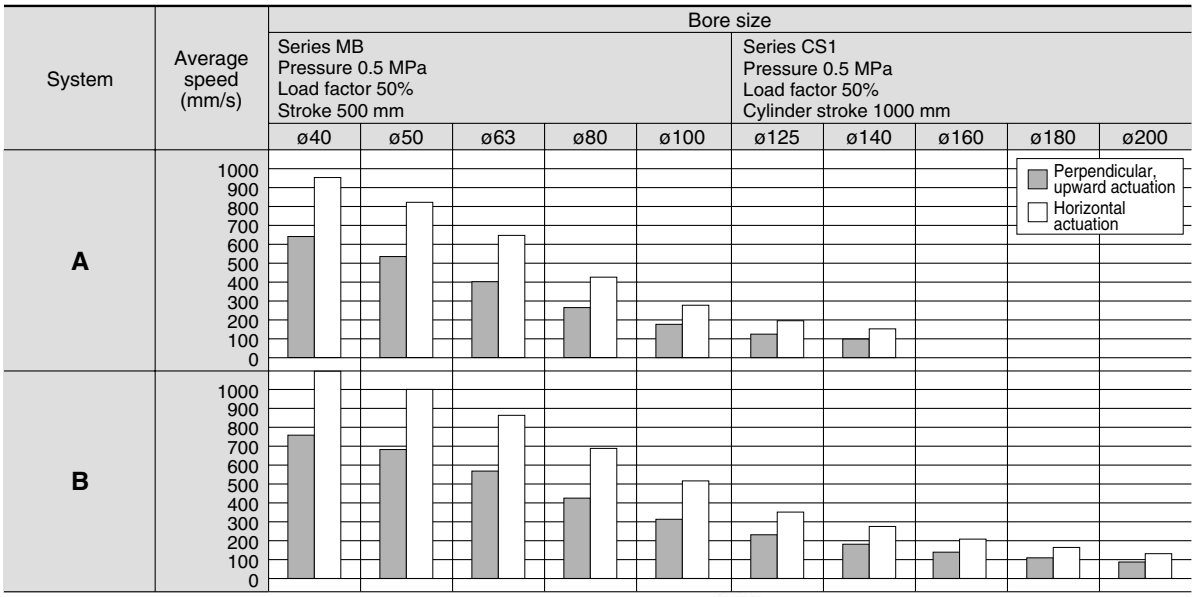
Symbol	Manual override
Nil	Non-locking push type (Flush)
A*	Non-locking push type (Extended)
B*	Locking type (Tool required)
C*	Locking type (Lever)

* Option

* Refer to page 3-8-5 for voltage conversion.

Cylinder Speed Chart

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



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

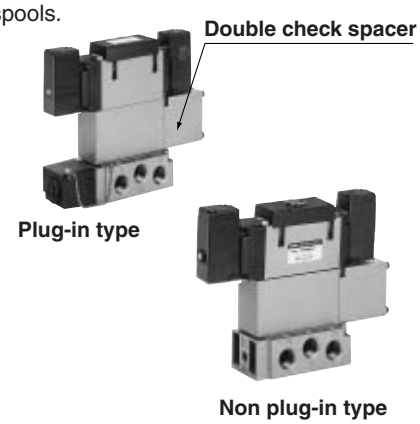
System Components

System	Solenoid valve	Speed controller	Silencer	SGP (Steel pipe) Port size x Length
A	Series VFS3000 Rc 1/4	AS4000-02 (S = 24 mm²)	AN200-02 (S = 35 mm²)	6A x 1 m
B	Series VFS3000 Rc 3/8	AS420-03 (S = 73 mm²)	AN300-03 (S = 60 mm²)	10A x 1 m

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

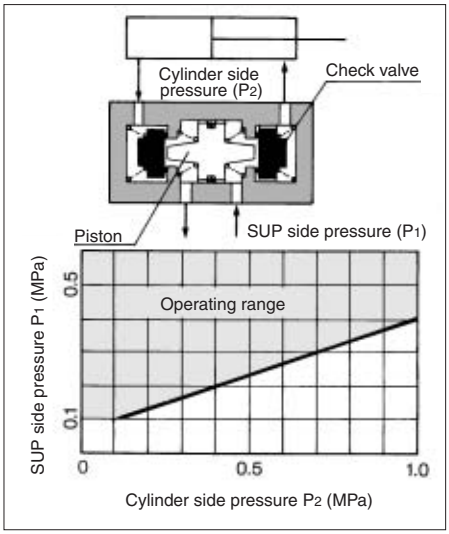
Double check spacer part no.	Plug-in type			Non plug-in type
	VVFS3000-22A-1			**VVFS3000-22A-2**
Applicable valve model	VFS3400-□F			VFS3410-□D VFS3410-□E
Leakage∗ (cm³/min)	Solenoid one side energized	P	EA	230 or less
			EB	
	Solenoid both sides de-energized	P	EA	230 or less
			EB	
		A	EA	0
		B	EB	

∗ Supply pressure: 0.5 MPa

⚠ 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.

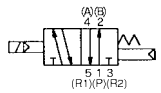
Check Valve Operation

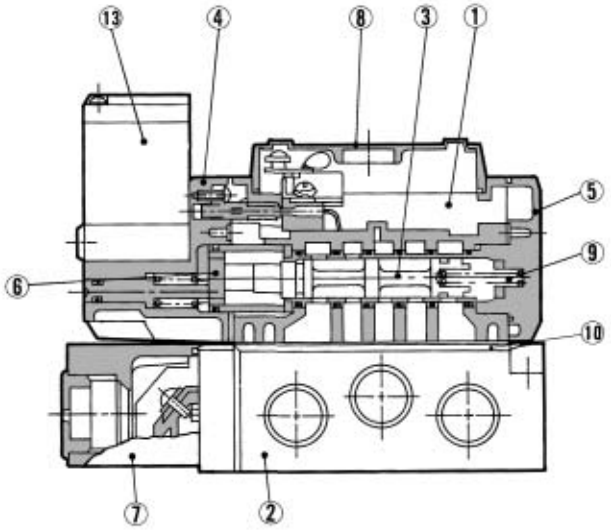


- The combination of VFS31$^{0}_{1}$0, VFS32$^{0}_{1}$0 and double check spacer can be used as prevention for falling at the stroke end but cannot hold the intermediate position of the cylinder.

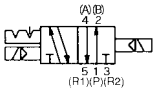
Construction

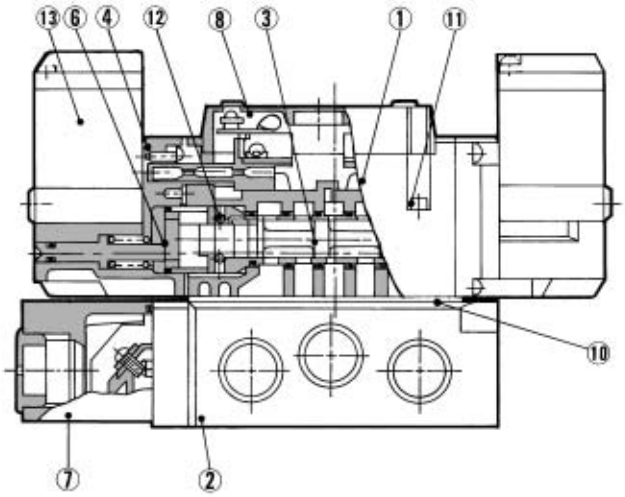
2 position single





2 position double



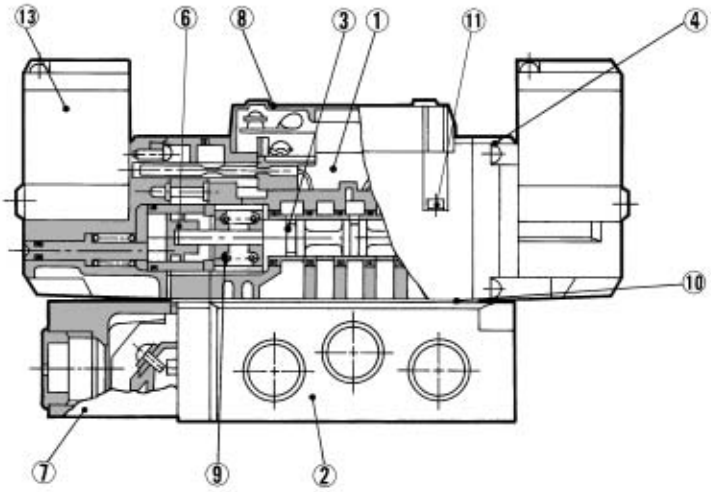


3 position closed center/exhaust center/pressure center

Closed center

Exhaust center

Pressure center



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	—

Sub-plate Part No.

Plug-in	VFS3000-P-$^{02}_{03}$
Non plug-in	VFS3000-S-$^{02}_{03}$

∗ Mounting bolt and gasket are not included.

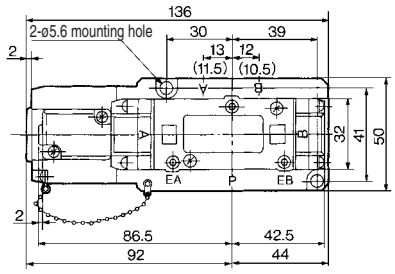
Part no. for mounting bolt and gasket
BG-VFS3000

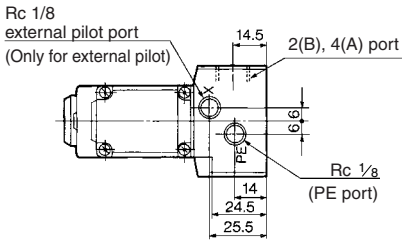
Replacement Parts

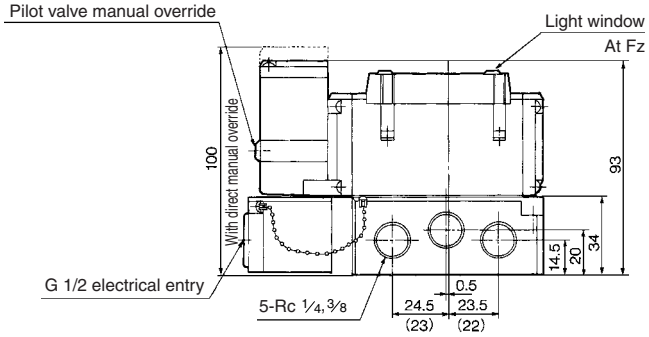
No.	Description	Material	Part no.		
			VFS31□□	**VFS32□□**	**VFS33□□/34□□/35□□**
⑨	Return spring	Stainless steel	VFS3000-17-1	—	VFS3000-17-2
⑩	Gasket	NBR	VFS3000-20	VFS3000-20	VFS3000-20
⑪	Hexagon socket head screw	Steel	M3 x 32	M3 x 32	M3 x 32
⑫	Detent assembly	—	—	VFS3000-9A	—
⑬	Pilot valve assembly	—	Refer to “How to Order Pilot Valve Assembly” on page 3-8-54.		

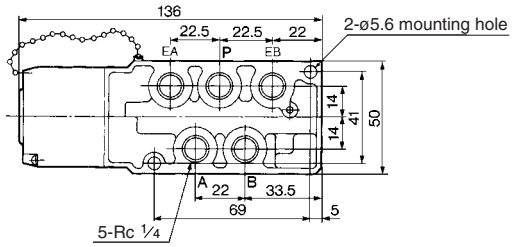
Plug-in 2 position single, 3 position closed center/exhaust center/pressure center/double check

2 position single: VFS3100-□F





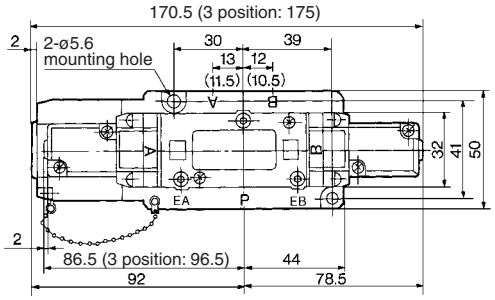


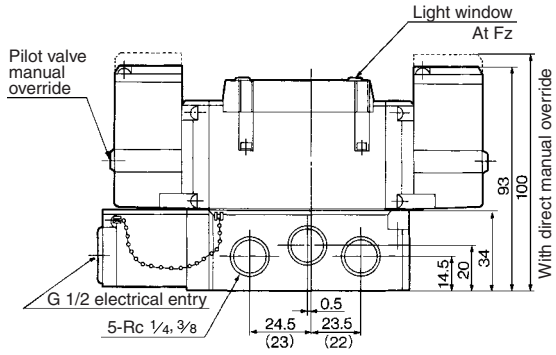


Bottom ported

( ): Rc 1/4

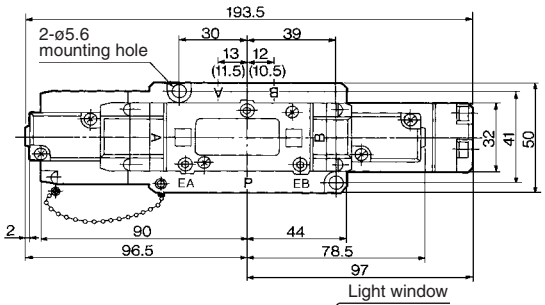
2 position double: VFS3200-□F
3 position closed center: VFS3300-□F
3 position exhaust center: VFS3400-□F
3 position pressure center: VFS3500-□F

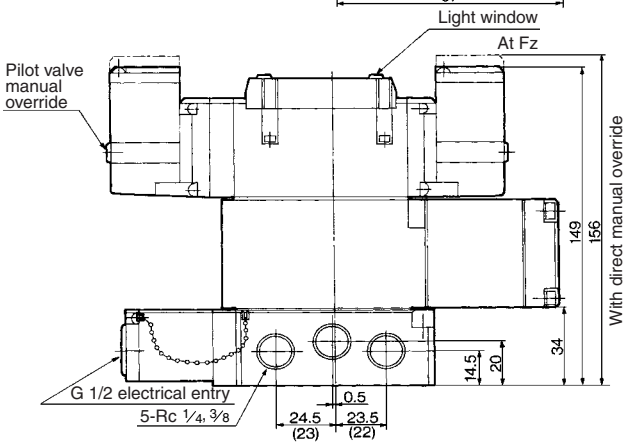




( ): Rc 1/4

3 position double check: VFS3600-□F

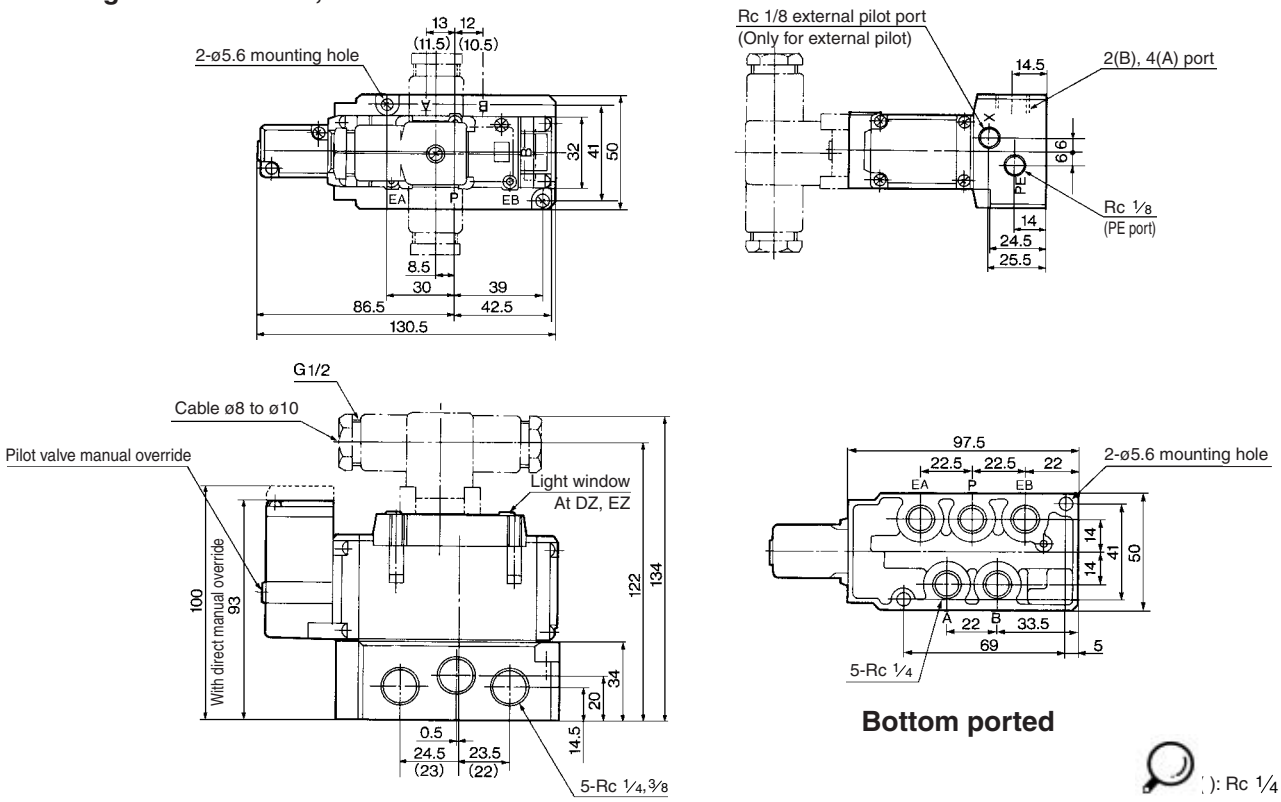




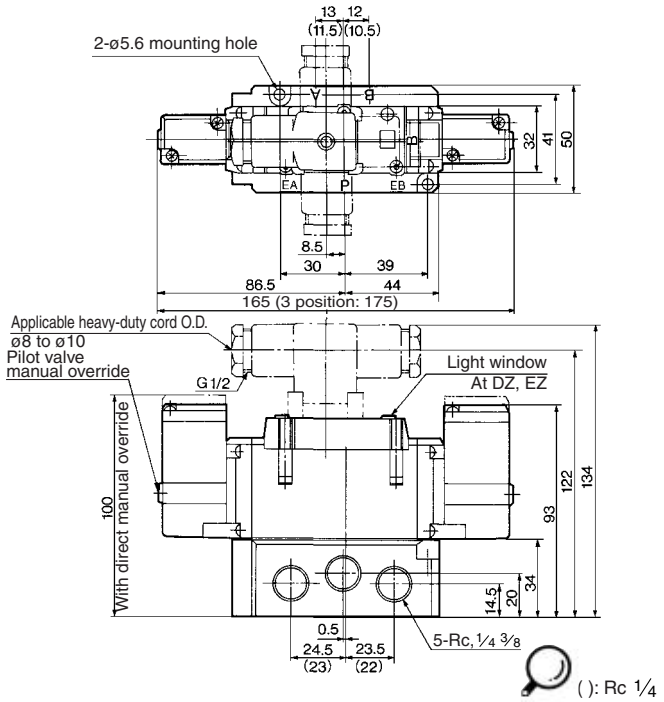
( ): Rc 1/4

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

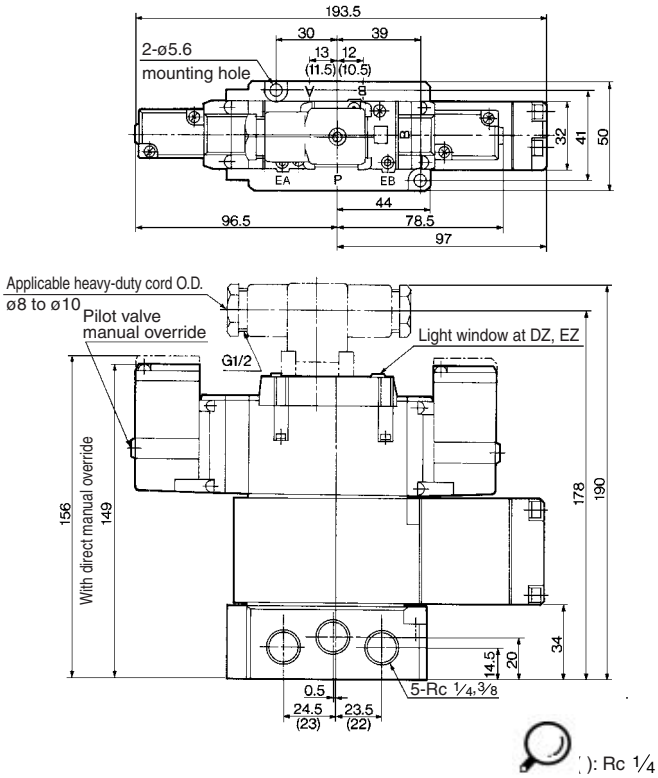
2 position single: VFS3110-□E, VFS3110-□D



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



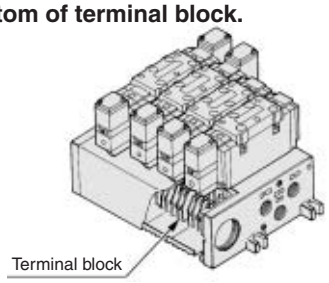
3 position double check: VFS3610-□E, VFS3610-□D



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 □

- **VV5FS3**: Series VFS3000 Manifold
- **01T**: Plug-in type with terminal block
- **Stations**

02	2 stations
⋮	⋮
10	10 stations

- **Symbol**

Symbol	Passage P	Passage EA, EB	Porting specifications (A, B)
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

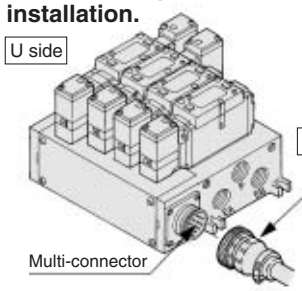
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

Plug-in Type: With Multi-connector (Wiring specifications: Refer to page 3-8-8.)

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



VV5FS3 − 01C D − 05 2 − 02 □

- **VV5FS3**: Series VFS3000 Manifold
- **01C**: Plug-in type with multi-connector
- **Connector mounting direction**

D	D side mounting
U	U side mounting

- **Stations**

02	2 stations
⋮	⋮
08*	8 stations

∗ Max. 8 stations

- **Symbol**

Symbol	Passage P	Passage EA, EB	Porting specifications (A, B)
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

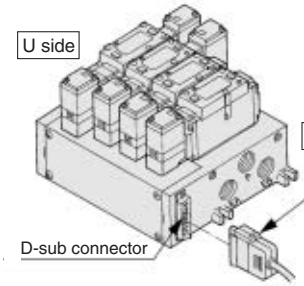
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

Plug-in Type: With D-sub Connector (Wiring specifications: Refer to page 3-8-8.)

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



VV5FS3 − 01F D − 06 1 − 02 □

- **VV5FS3**: Series VFS3000 Manifold
- **01F**: 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 P	Passage EA, EB	Porting specifications (A, B)
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

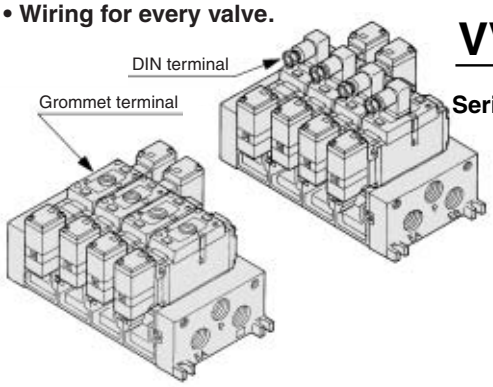
- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- **Wiring for every valve.**



VV5FS3 − 10 − 05 2 − 02 □

- **VV5FS3**: Series VFS3000 Manifold
- **10**: Non plug-in type
- **Stations**

02	2 stations
⋮	⋮
10	10 stations

- **Symbol**

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

∗ Option

- **Port size**

Symbol	P, EA, EB	A, B
02	Rc1/2	Rc 1/4
03		Rc 3/8
M		Mixed

- **Thread type**

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

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	Port size Rc		Stations	Applicable valve model
		A, B port	P, EA, EB	A, B		
Plug-in type VV5FS3-01□	• 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	• DIN terminal • Grommet terminal					VFS3□10-□D VFS3□10-□E

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 [dm³/(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 [dm³/(s·bar)]	7.0	7.0	7.0
		b	0.20	0.20	0.20
		Cv	1.8	1.8	1.8

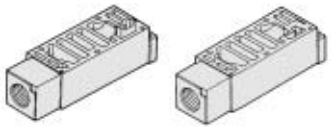
∗ Port size: Rc 3/8

Manifold Option Parts Assembly

Individual SUP spacer

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

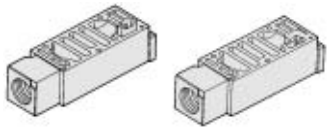
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-P-03-1	VVFS3000-P-03-2



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 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

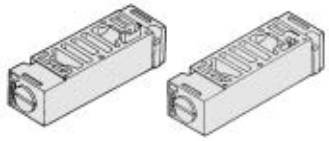
When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used to standard manifold valve, insert EXH block disk between stations to separate valve exhaust.

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.

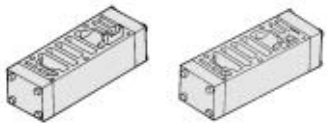
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-20A-1	VVFS3000-20A-2



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.

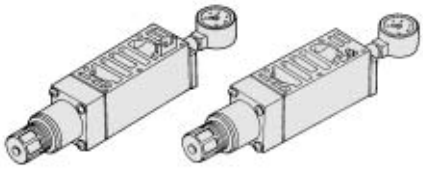
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-22A-1	VVFS3000-22A-2



Interface regulator

Interface regulator set on manifold block can regulate the pressure to each valve. (Refer to page 3-8-6 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

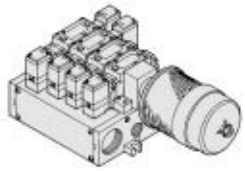
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

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

Manifold Option

With exhaust cleaner

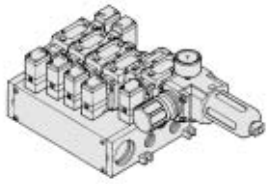
Plug-in type/Non Plug-in type
- **Valve exhaust noise dampening: 35 dB or more.**
- **Oil mist collection: Rate of collection 99.9% or more.**
- **Piping process reduced.**



For details, refer to page 3-8-63.

With control unit

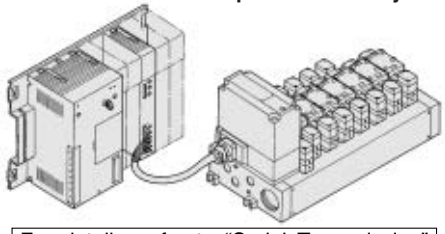
Plug-in type/Non Plug-in type
- **Filter, regulation valve, pressure switch and air release valve are all combined to form one unit.**
- **Piping processes are eliminated.**



For details, refer to page 3-8-65.

With serial interface unit for serial transmission

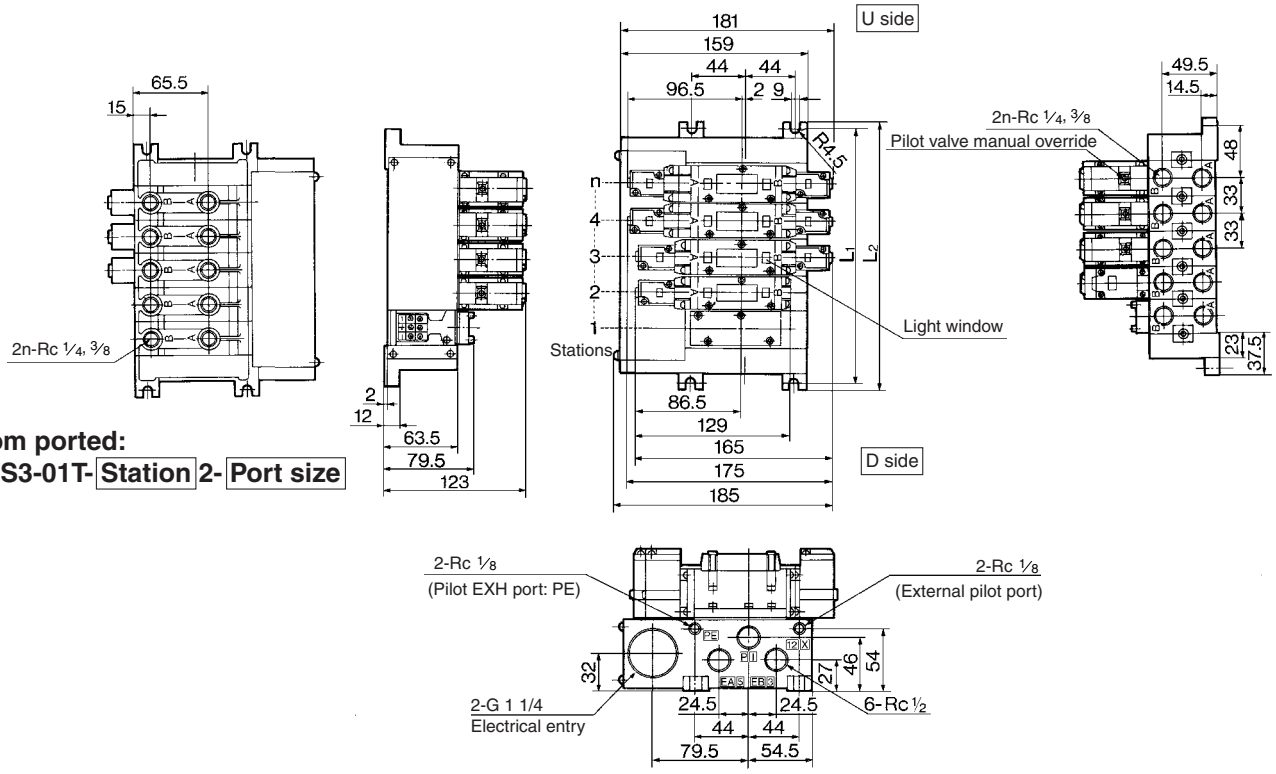
Plug-in type
- **Solenoid valve wiring process reduced considerably.**
- **Disperse installation possible. Manifold solenoid valve: 8 stations max. 32 positions (512 solenoids).**
- **Maintenance and inspection are easy.**



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

Manifold Plug-in type, Non plug-in type

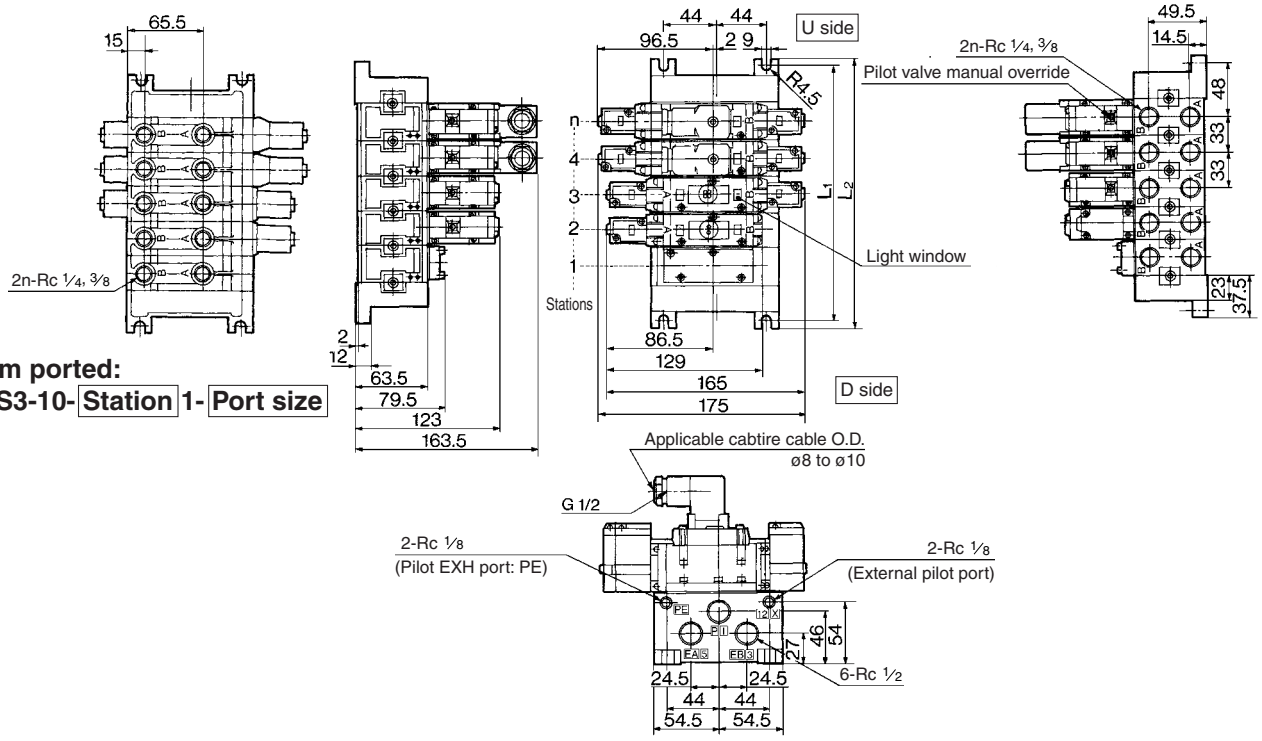
Plug-in type (With terminal block): VV5FS3-01T- Station 1- Port size



Bottom ported:
VV5FS3-01T- Station 2- Port size

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

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



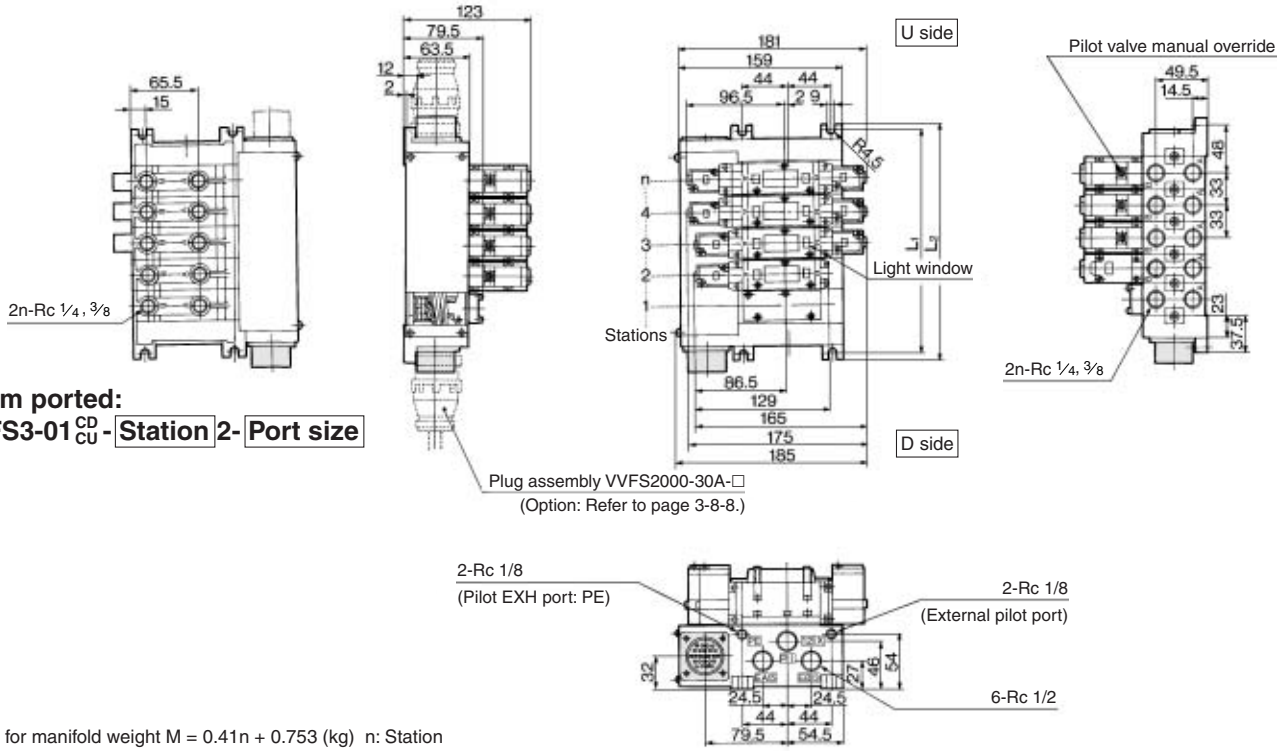
Bottom ported:
VV5FS3-10- Station 1- Port size

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

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

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

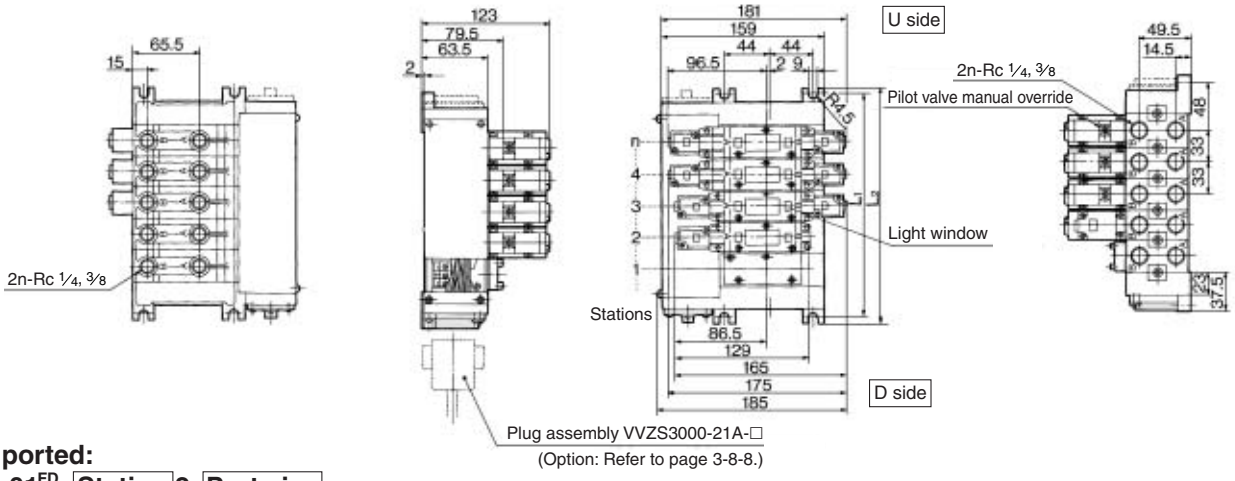


Bottom ported:
VV5FS3-01CD/CU-Station 2-Port size

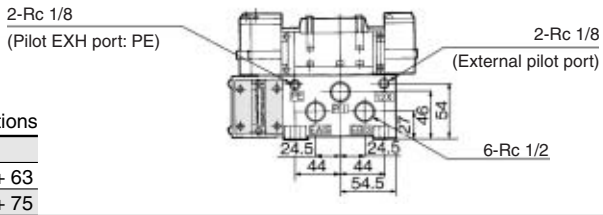
Formula for manifold weight M = 0.41n + 0.753 (kg) n: Station

* Wiring specifications: Refer to page 3-8-8.

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



Bottom ported:
VV5FS3-01FD/FU-Station 2-Port size



Formula for manifold weight M = 0.41n + 0.677 (kg) n: Station

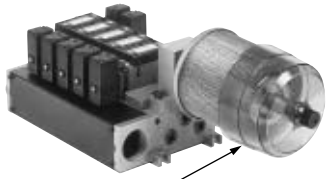
* Wiring specifications: Refer to page 3-8-8.

n: Stations

L \ Stations	2	3	4	5	6	7	8	Formula
L1	129	162	195	228	261	294	327	L1 = 33 x n + 63
L2	141	174	207	240	273	306	339	L2 = 33 x n + 75

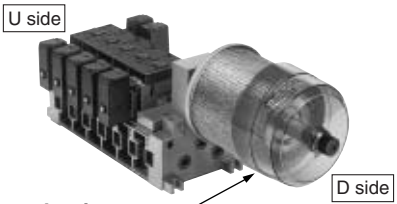
Manifold with Exhaust Cleaner

- **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	Rc 1/4, 3/8	
	1(P), 3(R2), 5(R1) port	P: Rc 1/2, EXH: Rc 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	

Stations

02	2 stations
⋮	⋮
10	10 stations

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

Symbol

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

* Option

Port size

Symbol	P	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

Exhaust cleaner mounting direction

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

⚠ Caution

When using an exhaust cleaner, mount it downwards.

* For details about exhaust cleaners, refer to Best Pneumatic Vol. 5.

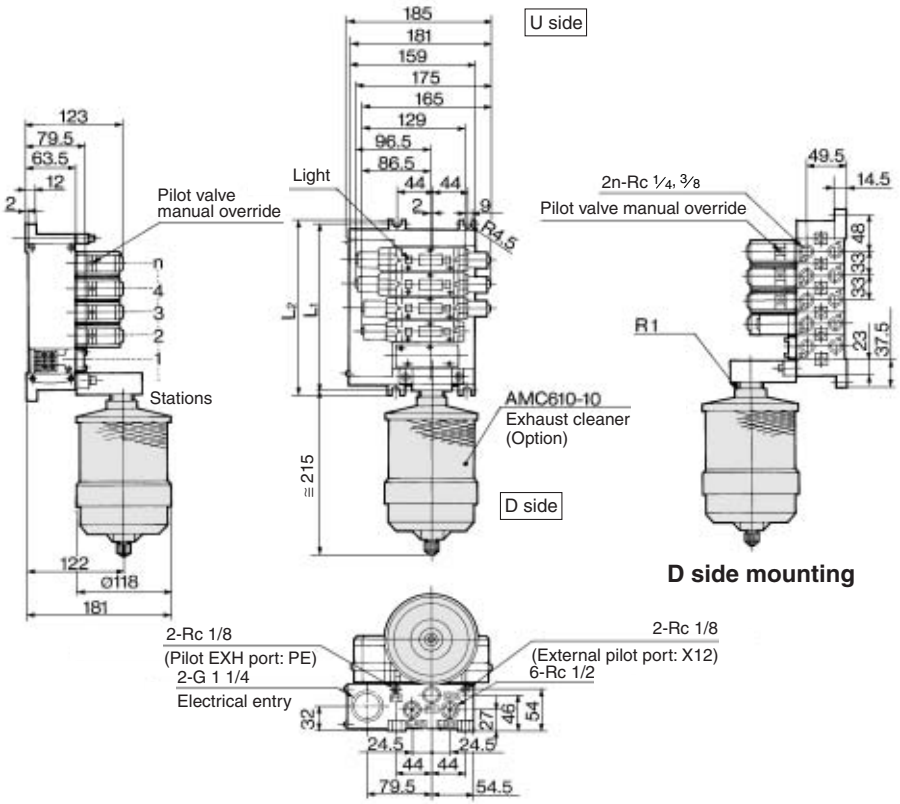
Please indicate manifold base type, corresponding valve, and option parts.

<Example>

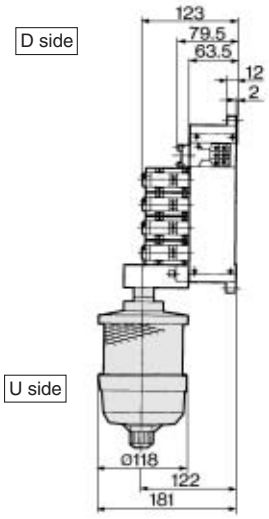
- Plug-in type with terminal block (6 stations)
  - (Manifold base) VV5FS3-01T-061-03-CD ····· 1
  - (2 position single) VFS3100-5FZ ····· 3
  - (2 position double) VFS3200-5FZ ····· 2
  - (Blanking plate) VVFS3000-10A ····· 1
  - (Exhaust cleaner) AMC610-10 ····· 1
- Non plug-in type (6 stations)
 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

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

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

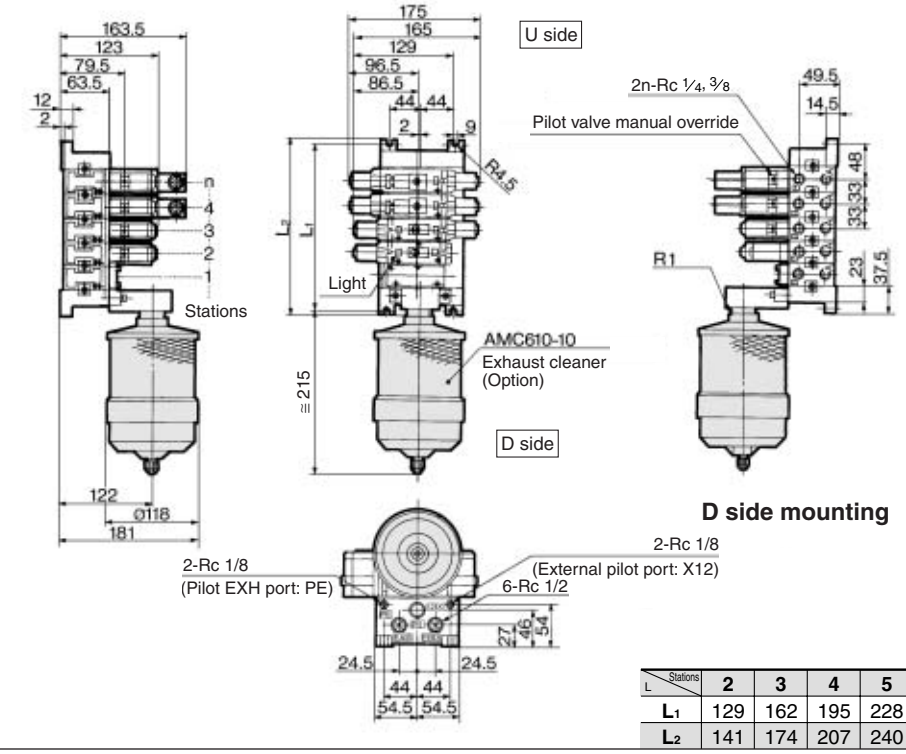


D side mounting

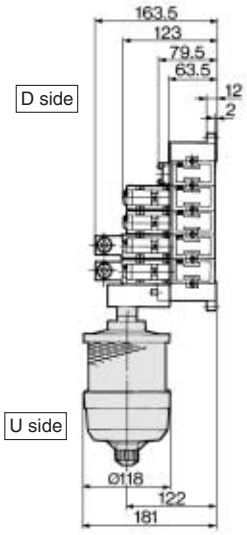


U side mounting

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



D side mounting



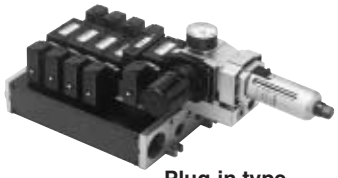
U side mounting

n: Stations

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

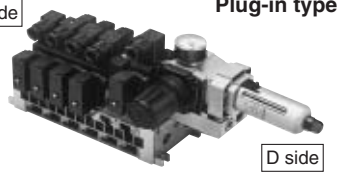
Manifold with Control Unit

- **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.**



Plug-in type

U side



D side

Non plug-in type

⚠ 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	Rc 1/4, 3/8
	1(P), 3(R2), 5(R1) port	Rc 1/2
Stations	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.

VK
VZ
VF
VFR
VP4
VZS
VFS
VS4
VQ7
EVS
VFN

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 P	Passage EA, EB	Porting specifications (A, B)
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

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	1

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

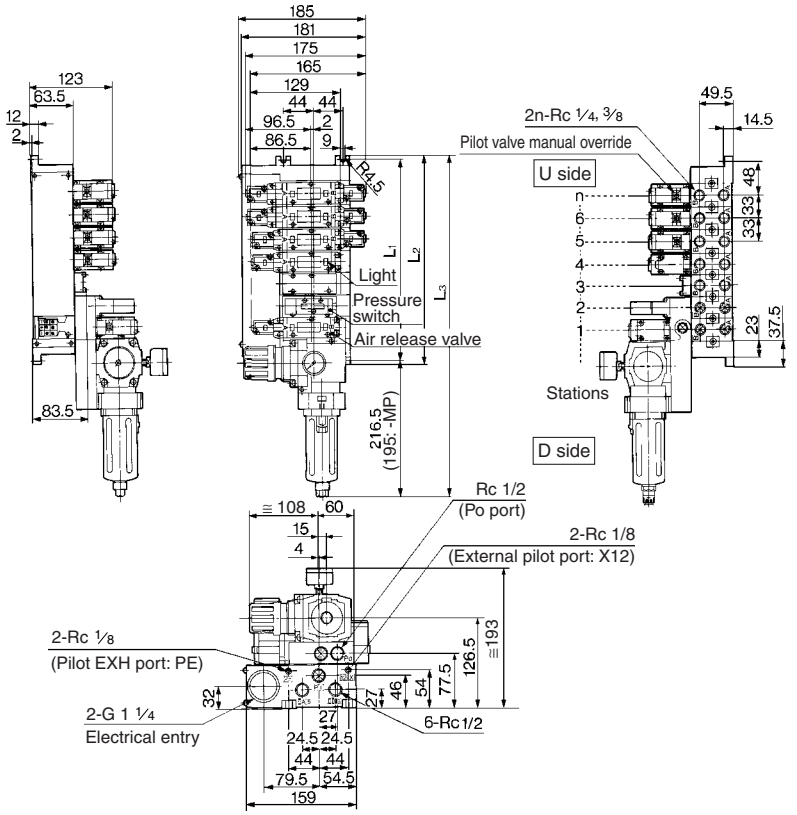
<Example>
- Plug-in type with terminal block — In order to mount control unit, it requires 2 stations.
  (Manifold base) VV5FS3-01T-081-03-AP5 ····· 1
  (2 position single) VFS3100-5FZ ····· 4
  (2 position double) VFS3200-5FZ ····· 2

<Example>
- 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

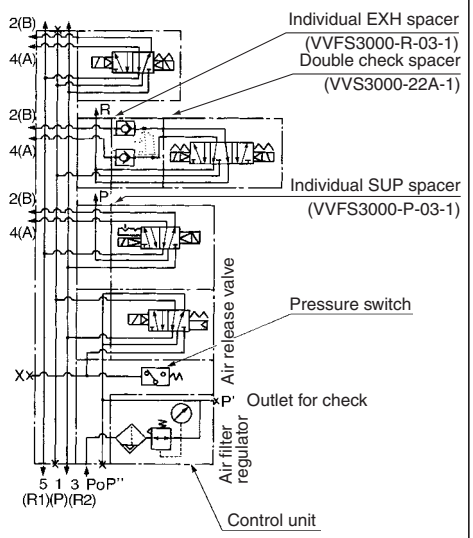
Manifold with Control Plug-in type, Non plug-in type

Plug-in type:

VV5FS3-01T- Station 1- Port size -AP Voltage for release valve

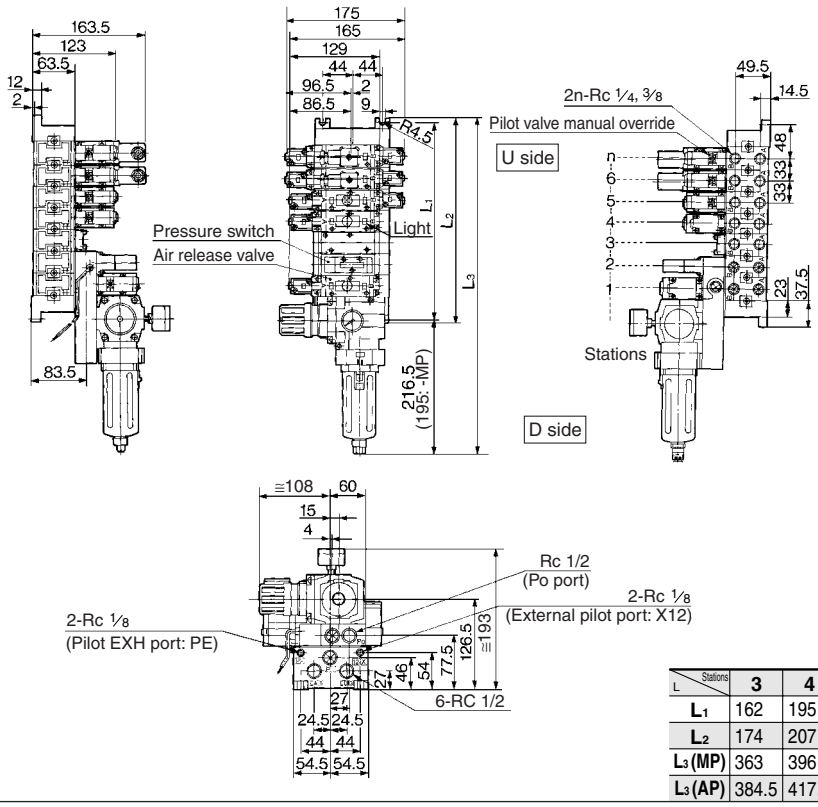


Example for manifold

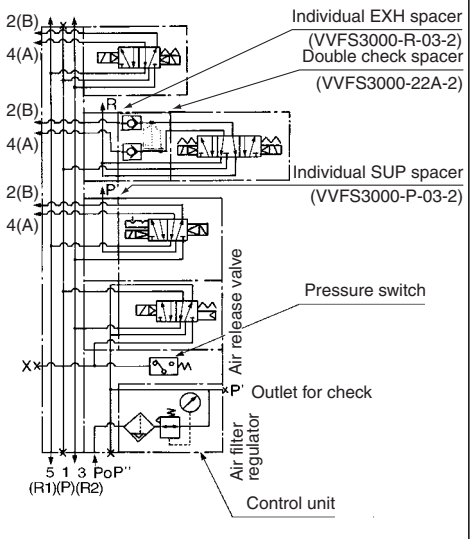


Non plug-in type:

VV5FS3-10- Station 1- Port size -AP Voltage for release valve



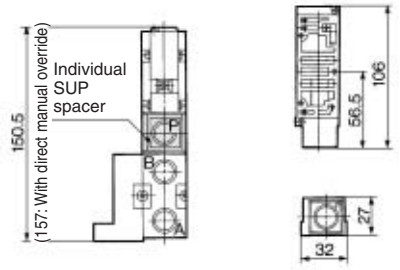
Example for manifold



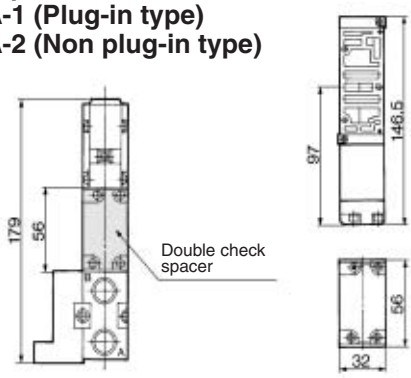
L \ Stations	3	4	5	6	7	8	9	10	Formula
L1	162	195	228	261	294	327	360	393	L1 = 33 x n + 63
L2	174	207	240	273	306	339	372	405	L2 = 33 x n + 75
L3 (MP)	363	396	429	462	495	528	561	594	L3 = 33 x n + 264
L3 (AP)	384.5	417.5	450.5	483.5	516.5	549.5	582.5	615.5	L3 = 33 x n + 285.5

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)

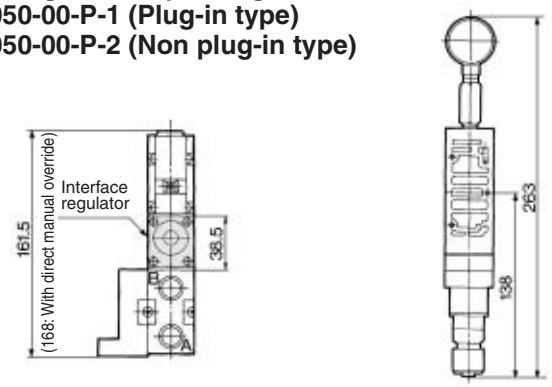


Double check spacer:
VVFS3000-22A-1 (Plug-in type)
VVFS3000-22A-2 (Non plug-in type)

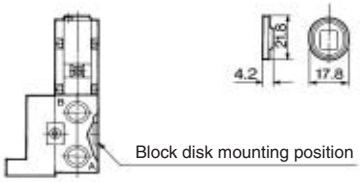


Individual EXH spacer:
VVFS3000-R-03-1 (Plug-in type)
VVFS3000-R-03-2 (Non plug-in type)

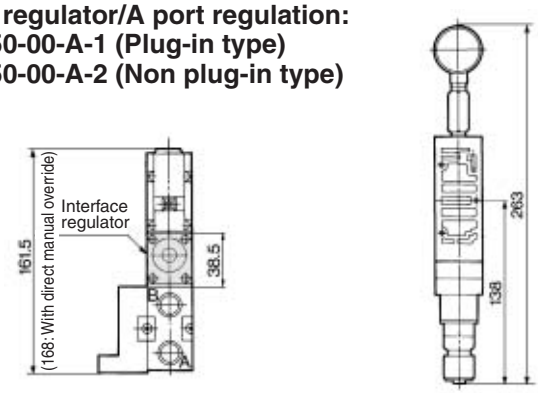
Interface regulator/P port regulation:
ARBF3050-00-P-1 (Plug-in type)
ARBF3050-00-P-2 (Non plug-in type)



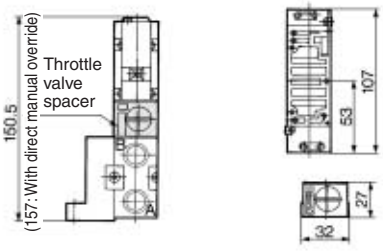
SUP/EXH block disk: AXT636-1A



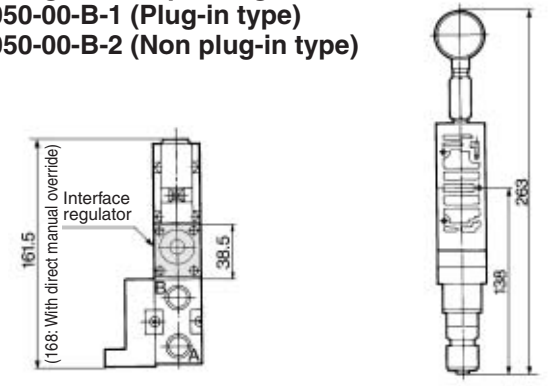
Interface regulator/A port regulation:
ARBF3050-00-A-1 (Plug-in type)
ARBF3050-00-A-2 (Non plug-in type)



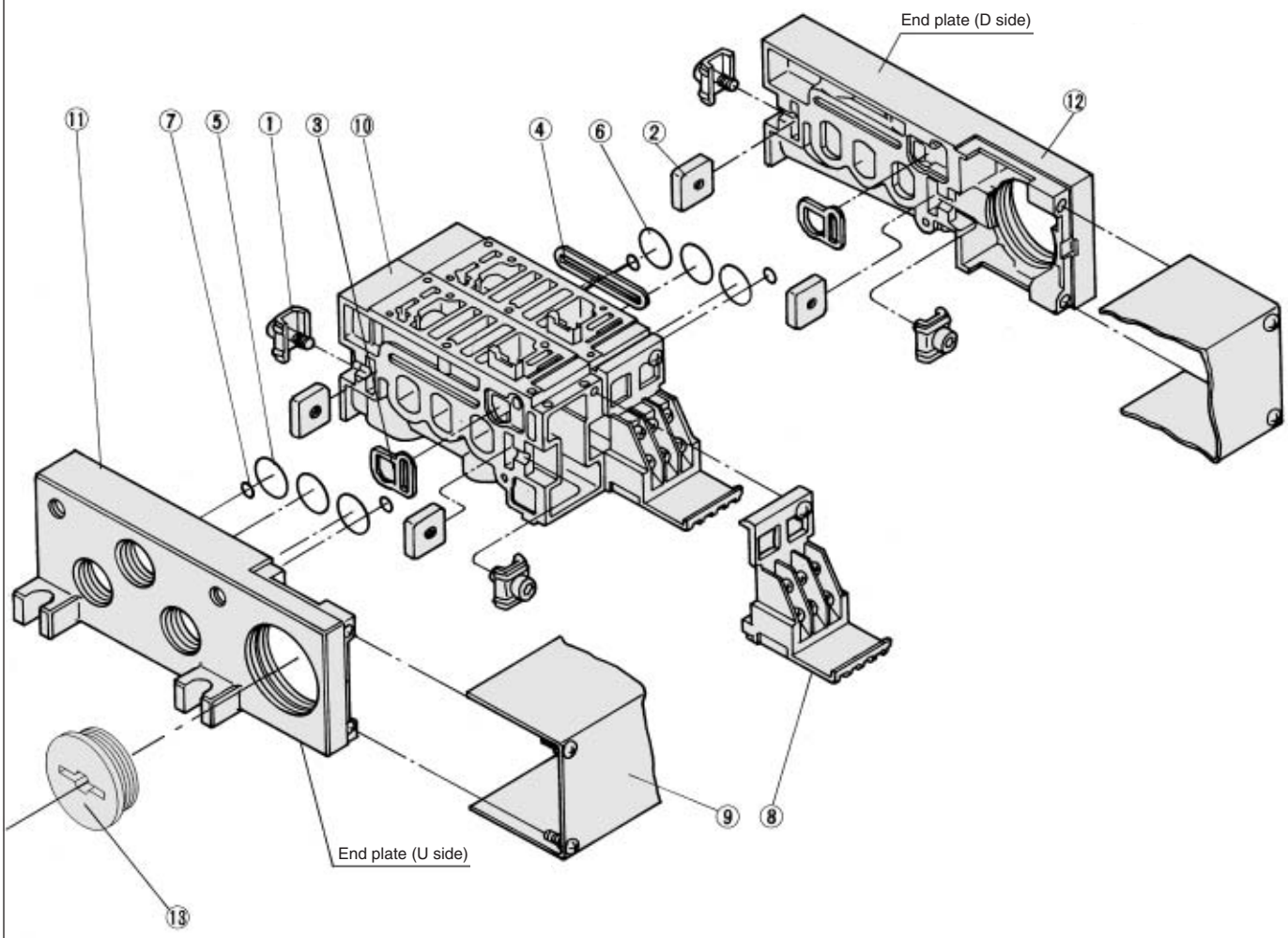
Throttle valve spacer:
VVFS3000-20A-1 (Plug-in type)
VVFS3000-20A-2 (Non plug-in type)



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-Stations
		For 01SU	AZ738-22A-Stations
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-$^{02}_{03}$	Manifold block ⑩, Terminal ⑧, Metal joint ①, ②, Gasket ③, ④, O-ring ⑥, ⑦, Receptacle assembly	Plug-in type
		VVFS3000-1A-2-$^{02}_{03}$	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

MODEL
NVFS3000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS3100	1/4	1.8	20 or less
			3/8	2	
	Double	NVFS3200	1/4	1.8	15 or less
			3/8	2	
3 Position	Closed Center	NVFS3300	1/4	1.8	40 or less
			3/8	2	
	Exhaust Center	NVFS3400	1/4	1.8	40 or less
			3/8	2	
	Pressure Center	NVFS3500	1/4	1.8	40 or less
			3/8	2	
	Perfect (Double Check)	NVFS3600	1/4	1.1	50 or less
			3/8	1.2	

SYMBOLS

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Perfect (double check)
	

TECHNICAL SPECIFICATIONS STANDARD

Valve	Fluid		Air and Inert Gas
	Max Operating Pressure		150 PSI (1MPa)
	Min Operating Pressure		22 PSI (0.15MPa)
	Ambient & Fluid Temperature		14~140°F (-10~60°C)
	Lubrication		Not Required
	Pilot Operator Manual Override		Non Locking Push Type (Flush)
	Protection Construction		Dust Proof
Electrical	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		Class B or Equivalent
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC		1.8W
	Electrical Entry	Plug In	Conduit Terminal (Base Access)

TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type		External Pilot Type
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting		Bottom Ported Subplate
Option		W/Indicator Light & Surge Voltage Suppressor

SEE INSIDE FRONT COVER FOR DETAILS OF YOUR LOCAL SALES OFFICE

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT, REQUEST CATALOG REFERENCE N233

HOW TO ORDER NVFS3000

NVFS 3 ○ 0 ○ ○ — ○ F ○ ○ — ○ ○

POSITION
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 Perfect

BODY TYPE
0 .....Plug-In Type

MANUAL OPTION
0 .....Standard
1 .....Std & Direct Manual (Special Order)

PILOT OPERATOR
- .....Internal
R .....External (Special Order)

VOLTAGE
1 .....100VAC (Special Order)
2 .....200VAC (Special Order)
3 .....110VAC
4 .....220VAc
5 .....24VDC
6 .....12VDC
9 .....Others (Special Order)

ELECTRICAL ENTRY
F .....Through Base

OPTIONS
- .....None
Z .....With Indicator Light and Surge Voltage Suppressor

MANUAL OVERRIDE
- .....Non Locking Push Type (Flush)
*A ...Non Locking Push Type (Extended)
B .....Lock Type (Screw Type)
*C ...Lock Type (Lever)

Note) * Special Order

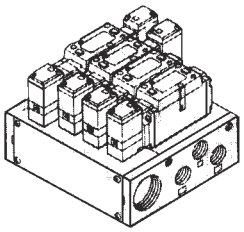
PORTING
- .....Side
*B ...Bottom
Note) *1/8 NPTF Only

PORT SIZE
- .....Without Subplate
02T ...1/4 NPTF
03T ...3/8 NPTF*
* Not available for Bottom Ported

HOW TO ORDER MANIFOLD

Plug-in Type: With Terminal Blocks

●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.



NVV5FS3 — 01T — 06 1 — 02T

Series NVFS3000 Manifold valve

Plug-in type With terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Porting Symbol

Symbol	Port specifications P	Port specifications EA, EB	Porting Specifications (A,B)
1	Common	Common	Side
※2			Bottom (Option)
	Mixed		

※ Special Order.

Port size

Symbol	A, B
02T	1/4NPTF
03T	3/8NPTF

* Bottom ported 1/4NPTF only.

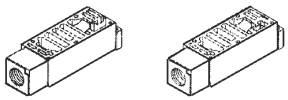
HOW TO ORDER MANIFOLD / OPTION PARTS ASSEMBLY

Manifold/Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

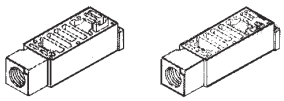
Body type	Plug-in type
Part No.	NVVFS3000-P-03T-1



EXH Relocation spacer

An individual EXH spacer on the manifold block can form individual R port for the valve.

Body type	Plug-in type
Part No.	NVVFS3000-R-03T-1



SUP gallery block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type
Part No.	AXT636-1A

EXH gallery block disc

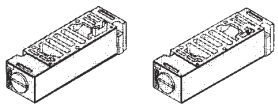
When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

Body type	Plug-in type
Part No.	AXT636-1A

Interface Speed Control

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

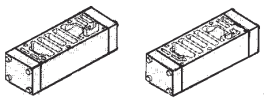
Body type	Plug-in type
Part No.	NVVFS3000-20A-1



Double Check "Perfect" spacer

The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across spool seals.

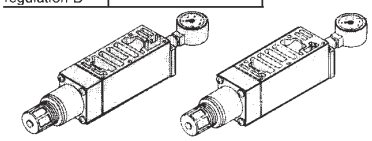
Body type	Plug-in type
Part No.	NVVFS3000-22A-1



Interface regulator

Spacer type regulating valve on manifold block can regulate the pressure to the valve.

Body type	Plug-in type
Pressure regulation P	NARBF3000-N0-P-1
Pressure regulation A	NARBF3000-N0-A-1
Pressure regulation B	NARBF3000-N0-B-1



Blank plate

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

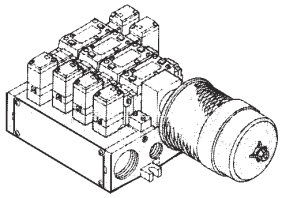
Body type	Plug-in type
Part No.	VVFS3000-10A

Manifold Options

Exhaust Cleaner Unit

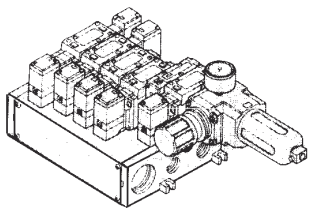
Plug-in type

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



Control Unit

- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.



For more information, refer to catalog N233