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.
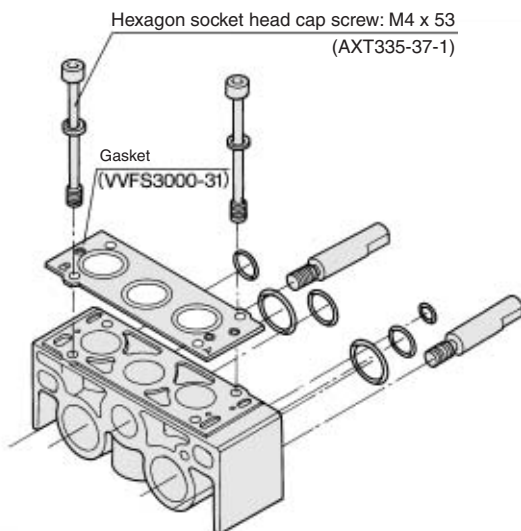
VV5FS3-31

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
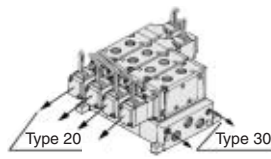
Stations

02	2 stations
⋮	⋮
15	15 stations

Base model

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

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

Hexagon socket head cap screw: M4 x 53
(AXT335-37-1)

Gasket
(VVFS3000-31)

• 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

Series *VFS3000*

Grommet: G

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

Grommet terminal: E/EZ

94.5
(With light/surge voltage suppressor: 104.5)

104.5
(With light/surge voltage suppressor: 114)

Conduit terminal: T/TZ

Applicable heavy-duty cord
O.D. ø6 to ø8
Pg.9

99
(With light/surge voltage suppressor: 109)

109
(With light/surge voltage suppressor: 119)

DIN terminal: D/DZ/Y/YZ

Applicable heavy-duty cord
O.D. ø6 to ø8
(Y: ø4.7 to ø7)
Pg.9

102.5 (104.5)
(With light/surge voltage suppressor: 119.5 (121.5))

111.5 (113.5)
(With light/surge voltage suppressor: 128.5 (130.5))

( ): 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	$L_2 = 31 \times n + 30$

SMC

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.
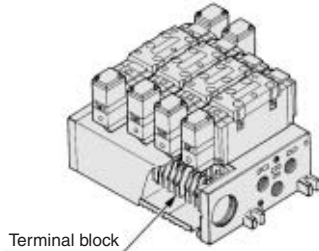
Terminal block

VV5FS3 – 01T – 06 1 – 02 ☐

Series VFS3000 Manifold

Plug-in type with terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Port size

Symbol	P, EA, EB	A, B
02	Rc ½	Rc ¼
03		Rc ⅜
M		Mixed

Symbol

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

∗ Option

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

VK
VZ
VF
VFR
VP4
VZS
VFS
VS4
VQ7
EVS
VFN

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.

U side

D side

Plug assembly (Option)
Refer to page 3-8-8.
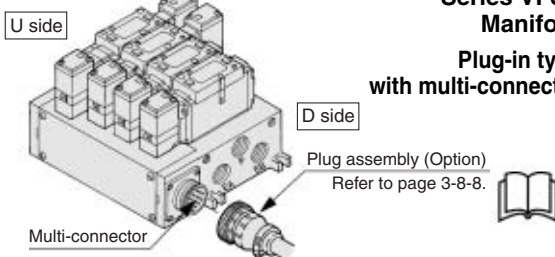
Multi-connector

VV5FS3 – 01C D – 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 ½	Rc ¼
03		Rc ⅜
M		Mixed

∗ Option

Symbol

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

∗ Option

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.

U side

D side

Plug assembly (Option)
Refer to page 3-8-8.
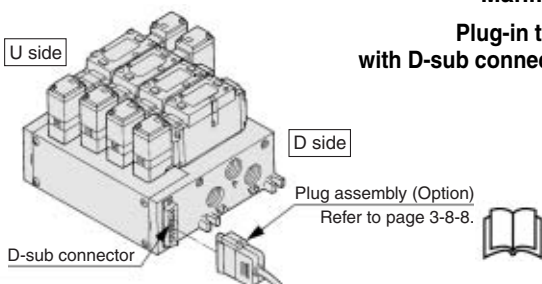
D-sub connector

VV5FS3 – 01F D – 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 ½	Rc ¼
03		Rc ⅜
M		Mixed

∗ Option

Symbol

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

∗ Option

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

Non Plug-in Type: Grommet Terminal, DIN Terminal

- Wiring for every valve.

DIN terminal

Grommet terminal
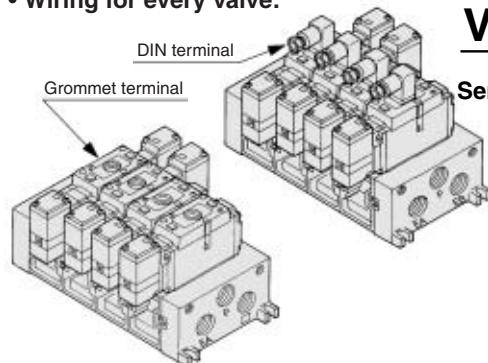
VV5FS3 – 10 – 05 2 – 02 ☐

Series VFS3000 Manifold

Non plug-in type

Stations

02	2 stations
⋮	⋮
10	10 stations

Port size

Symbol	P, EA, EB	A, B
02	Rc ½	Rc ¼
03		Rc ⅜
M		Mixed

Symbol

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

∗ Option

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

∗ Option

SMC

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 P, EA, EB	Port size Rc A, B	Stations	Applicable valve model
Plug-in type VV5FS3-01□	• With terminal block • With multi-connector • With D-sub connector	Side/ Bottom	$\frac{1}{2}$ (1)	$\frac{1}{4}, \frac{3}{8}$	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	$1 \rightarrow 4/2$ (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
	$4/2 \rightarrow 5/3$ (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

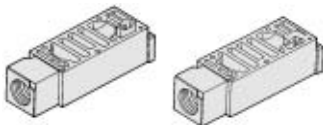An individual SUP spacer set on manifold block can form SUP port for every valve.

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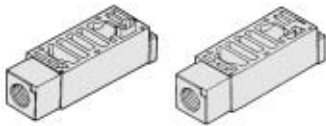
Individual EXH spacer

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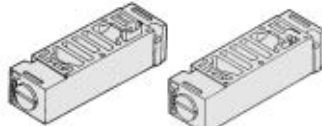
Body type	Plug-in type	Non plug-in type
Part no.	AXT636-1A	

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.

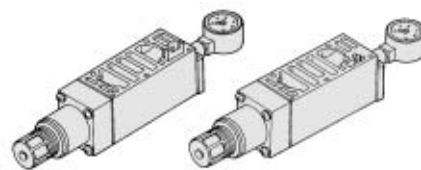| Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-22A-1	VVFS3000-22A-2
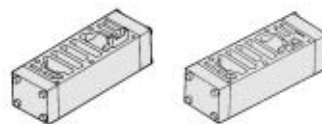
Interface regulator

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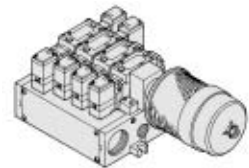
Body type	Plug-in type	Non plug-in type
Part no.	VVFS3000-10A	

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.**

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.**
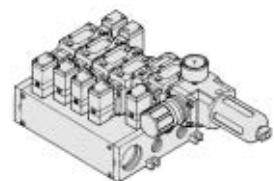
With serial interface unit for serial transmission

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.

SMC

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

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

181
159
44 44
96.5 2 9
R4.5

2n-Rc ¼, ⅜
Pilot valve manual override

U side

49.5
14.5
48
33 33
33
23
37.5

65.5
15

n
4
3
2
1
Stations

L₁
L₂

Light window

2n-Rc ¼, ⅜

2
12
63.5
79.5
123

86.5
129
165
175
185

D side

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

2-Rc ⅛
(Pilot EXH port: PE)

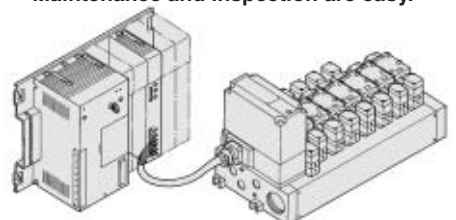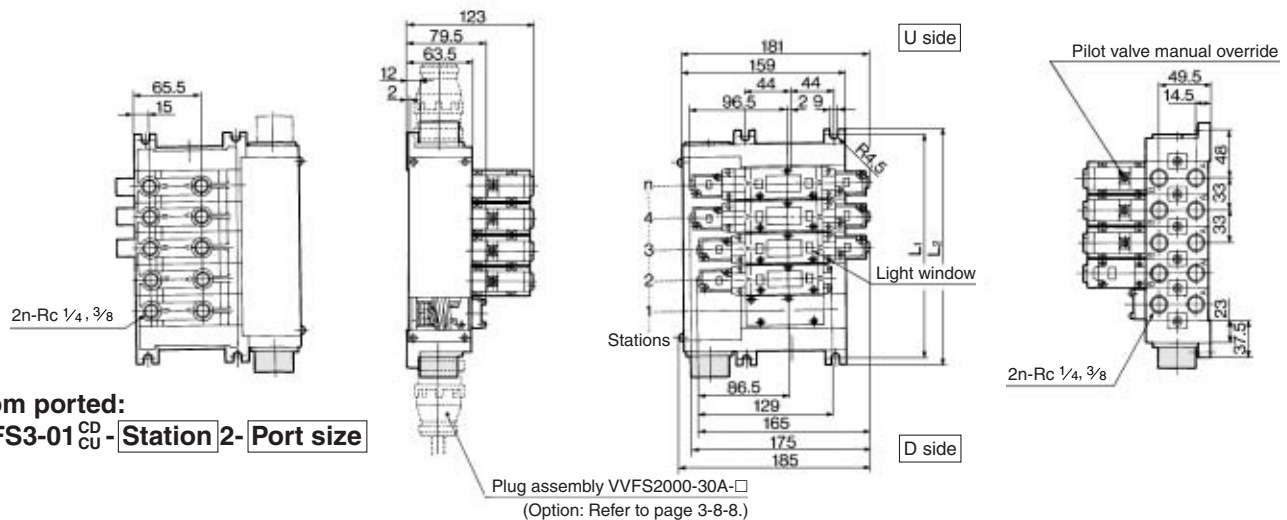2-Rc ⅛
(External pilot port)

32

PE
P1 12 X
EA5 EB3

27
46
54

2-G 1 1/4
Electrical entry

24.5 24.5
44 44
79.5 54.5

6-Rc ½

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

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

44 44
96.5 2 9
R4.5

2n-Rc ¼, ⅜
Pilot valve manual override

U side

49.5
14.5
48
33 33
33
23
37.5

65.5
15

n
4
3
2
1
Stations

L₁
L₂

Light window

2n-Rc ¼, ⅜

2
12
63.5
79.5
123
163.5

86.5
129
165
175

D side

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

Applicable cabtire cable O.D.
ø8 to ø10

G 1/2

2-Rc ⅛
(Pilot EXH port: PE)

2-Rc ⅛
(External pilot port)

PE
P1 12 X
EA5 EB3

27
46
54

24.5 24.5
44 44
54.5 54.5

6-Rc ½

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

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

VK
VZ
VF
VFR
VP4
VZS
VFS
VS4
VQ7
EVS
VFN

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

U side

Pilot valve manual override

Light window

Stations

D side

Plug assembly VVFS2000-30A-□
(Option: Refer to page 3-8-8.)

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

2n-Rc ¼ , ⅜

2n-Rc ¼, ⅜

2-Rc 1/8
(Pilot EXH port: PE)

2-Rc 1/8
(External pilot port)

6-Rc 1/2

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

U side

2n-Rc ¼, ⅜
Pilot valve manual override

Light window

Stations

D side

Plug assembly VVZS3000-21A-□
(Option: Refer to page 3-8-8.)
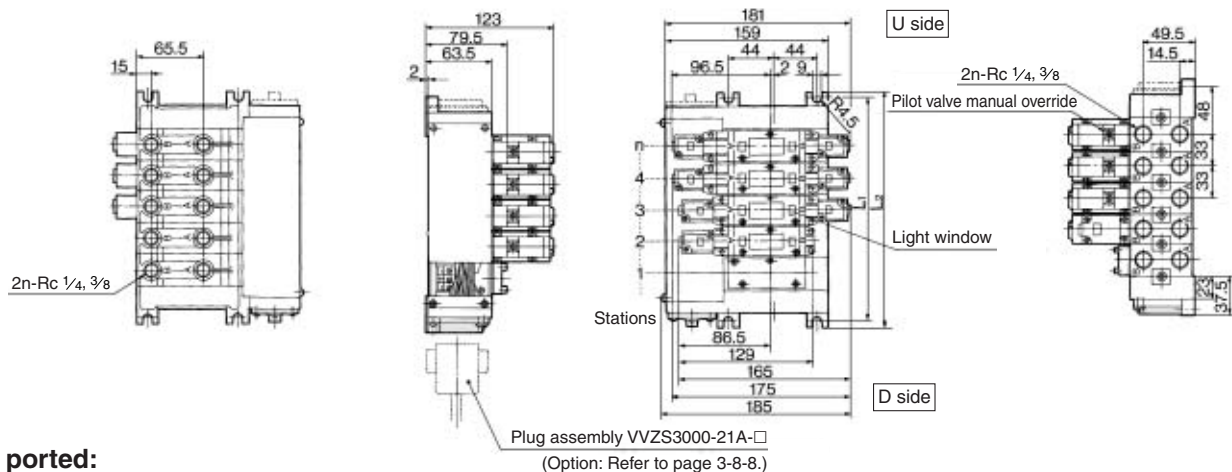
Bottom ported:
VV5FS3-01 FD/FU - Station **2-** Port size

2n-Rc ¼, ⅜

Formula for manifold weight $M = 0.41n + 0.677$ (kg) n: Station
∗ Wiring specifications: Refer to page 3-8-8.

2-Rc 1/8
(Pilot EXH port: PE)

2-Rc 1/8
(External pilot port)

6-Rc 1/2

n: Stations

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

⊗SMC