

5 Port Pilot Operated Solenoid Valve Metal Seal, Body Ported Series **VFS1000**

Model

Type of actuation		Model		Port size	Flow characteristics						Max ⁽¹⁾ operating cycle (cpm)	Response ⁽²⁾ time (ms)	Mass ⁽³⁾ (kg)
		Plug-in	Non plug-in		1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)					
					C [dm³/(s·bar)]	b	Cv	C [dm³/(s·bar)]	b	Cv			
2 position	Single	VFS1120	VFS1130	1/8	1.7	0.22	0.38	1.8	0.19	0.40	1200	15 or less	0.18
	Double	VFS1220	VFS1230	1/8	1.7	0.22	0.39	1.8	0.19	0.40	1200	13 or less	0.26
3 position	Closed center	VFS1320	VFS1330	1/8	1.6	0.20	0.37	1.8	0.20	0.41	600	20 or less	0.27
	Exhaust center	VFS1420	VFS1430	1/8	1.7	0.18	0.38	1.9	0.19	0.44	600	20 or less	0.27
	Pressure center	VFS1520	VFS1530	1/8	1.7	0.24	0.40	1.6	0.18	0.37	600	20 or less	0.27

- Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency.
 Note 2) According to JIS B 8375-1981. (The value at supply pressure 0.5 MPa.)
 Note 3) In the case of grommet type
 Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

**Compact yet provides a
large flow capacity
C: 1.8 dm³/(s·bar)**

**Low power consumption:
1.8 W DC**



Standard Specifications

Valve specifications	Fluid		Air/Inert gas
	Maximum operating pressure		1.0 MPa
	Min. operating pressure	2 position	0.1 MPa
		3 position	0.15 MPa
	Proof pressure		1.5 MPa
	Ambient and fluid temperature		-10 to 60°C ⁽¹⁾
	Lubrication		Non-lube ⁽²⁾
	Pilot valve manual override		Non-locking push type (Flush)
	Shock/Vibration resistance		150/50 m/s ² ⁽³⁾
	Enclosure		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 (DC)		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.

JIS Symbol

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

Option Specifications

Pilot valve manual override	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
Option	With light/surge voltage suppressor ^{Note)}
Foot bracket (With screw)	Part No.: AXT626-10A, VFS1120 (single) only

- Note) Grommet type is available only w/ surge voltage suppressor (which is directly connected with lead wire).

Manifold

Body type	Applicable manifold base (Pilot EXH)
VFS1□20	Bar manifold (Individual EXH)
VFS1□30	Bar manifold (Common EXH base side)

- Note) VFS1□30: Manifold only. Cannot be used as a single unit.

5 Port Pilot Operated Solenoid Valve Metal Seal, Body Ported *Series VFS1000*

How to Order

VFS1 **1** **20** - **1** **G** **01** **01** **01**

Symbol

1 2 position single
(A)(B)
4 2
(R1)(P)(R2)

2 2 position double
(A)(B)
4 2
(R1)(P)(R2)

3 3 position closed center
(A)(B)
4 2
(R1)(P)(R2)

4 3 position exhaust center
(A)(B)
4 2
(R1)(P)(R2)

5 3 position pressure center
(A)(B)
4 2
(R1)(P)(R2)

Body (Pilot exhaust)

20: Individual EXH

30*: Common EXH

* Manifold only

Option

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Port size

01	Rc 1/8
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Manual override

Nil: Non-locking push type (Flush)

A*: Non-locking push type (Extended)

B*: Locking type

C*: Locking type (Lever)

* Option

Light/Surge voltage suppressor

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

* Grommet type is available only w/ surge voltage suppressor, not w/ indicator light.

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

SJ
SY
SV
SYJ
SZ
VP4
S0700
VQ
VQ4
VQ5
VQC
VQZ
SQ
VFS
VFR
VQ7

How to Order Pilot Valve Assembly

SF4 - **1** **DZ** **01** - **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

* D: Conforming to DIN43650 standard; Y: Conforming to DIN43650B standard
** DIN connector is not attached.

Manual override

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

* Option

Applicable model

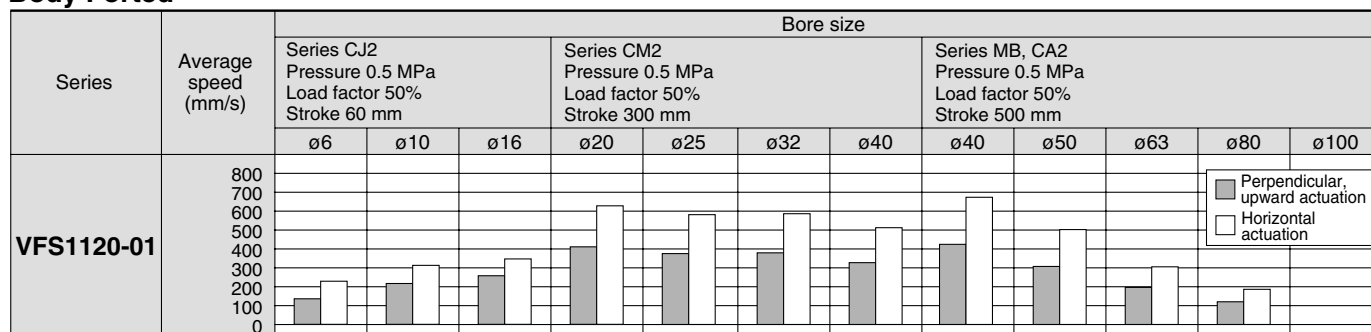
21	For VFS1□20	Individual pilot exhaust
22	For VFS1□30	Common pilot exhaust

Series VFS1000

Cylinder Speed Chart

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

Body Ported

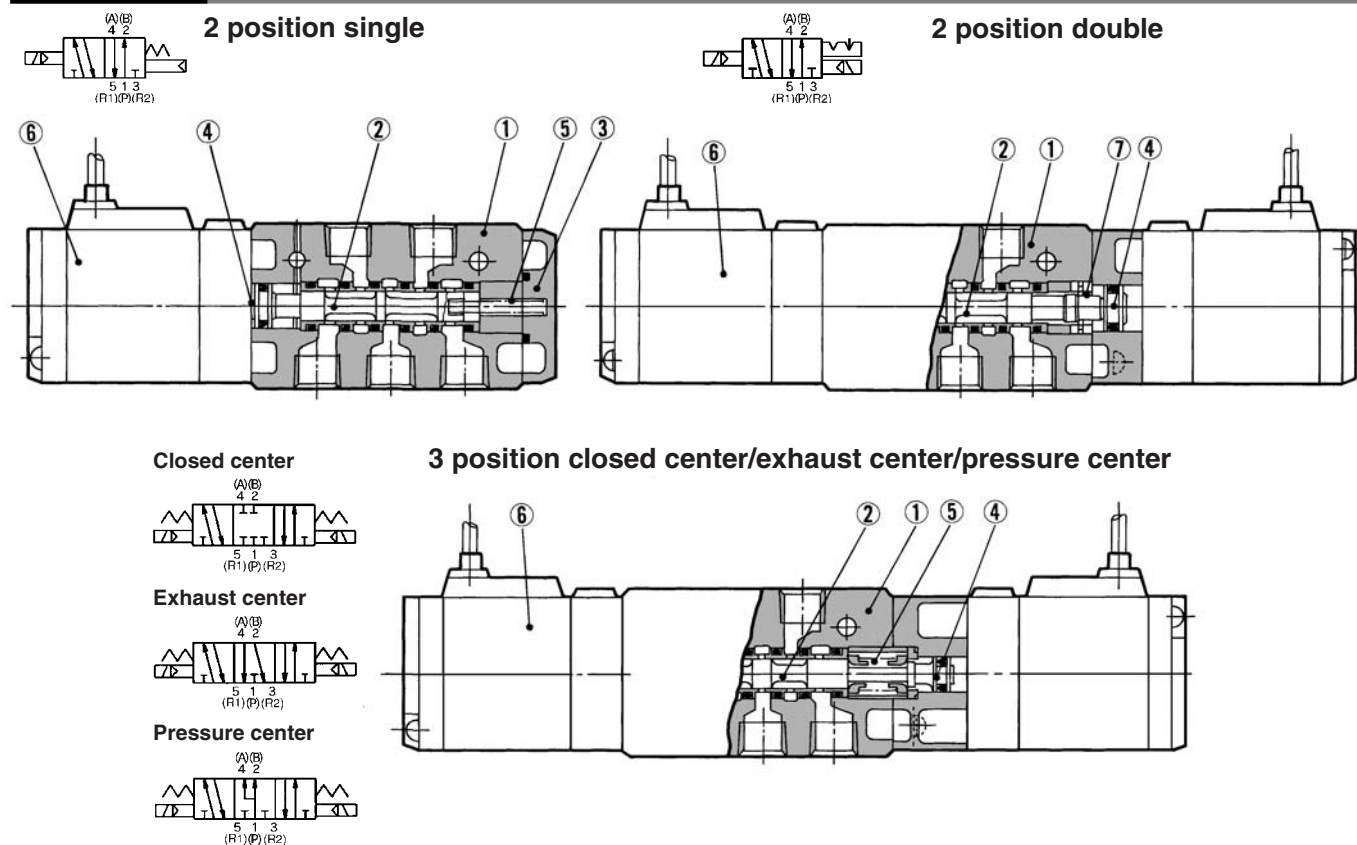


Conditions

Body ported	Series CJ2	Series CM2	Series MB, CA2
VFS1120-01	T0604 x 1 m	T0806 x 1 m	
Speed controller	AS3001F-06	AS3001F-08	
Silencer	AN101-01		

- * 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%

Construction



Component Parts

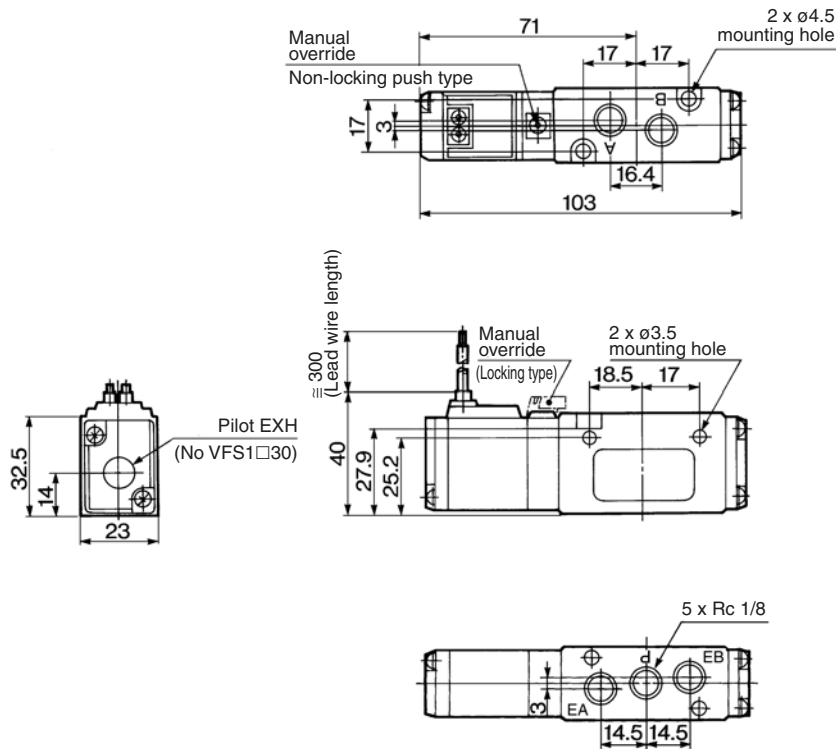
No.	Description	Material	Note
1	Body	Aluminum die-casted	Platinum silver
2	Spool/Sleeve	Stainless steel	—
3	End plate	Resin	—
4	Piston	Resin	—
5	Return spring	Stainless steel	—
6	Pilot valve assembly	—	—
7	Detent assembly	—	—

* Refer to "How to Order Pilot Valve Assembly" on page 1115.

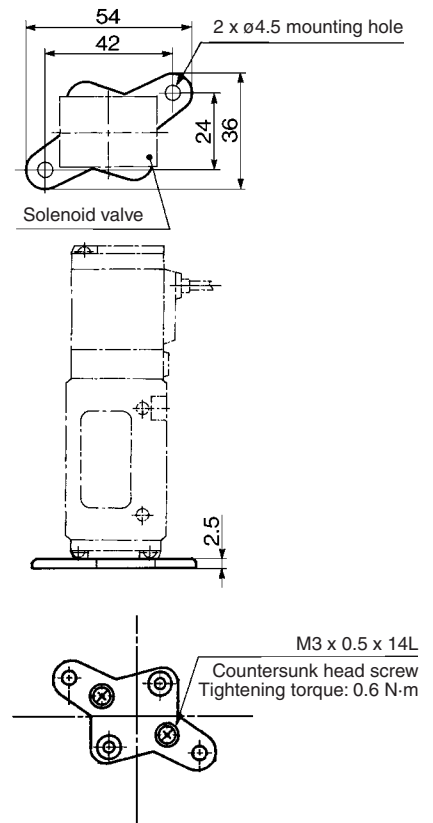
5 Port Pilot Operated Solenoid Valve Metal Seal, Body Ported **Series VFS1000**

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

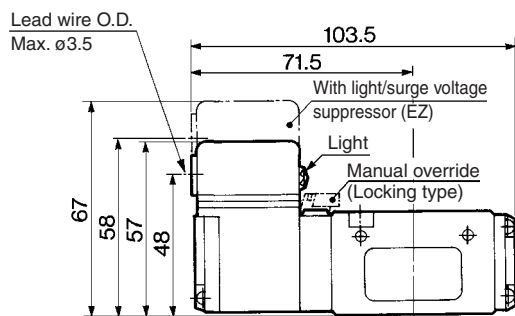
Grommet : VFS1120-□G



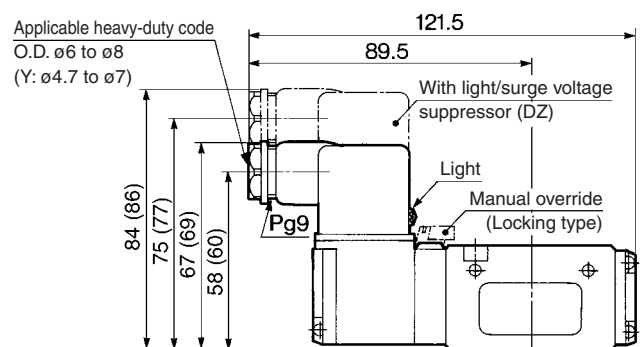
Foot bracket (F) Part no. : AXT626-10A



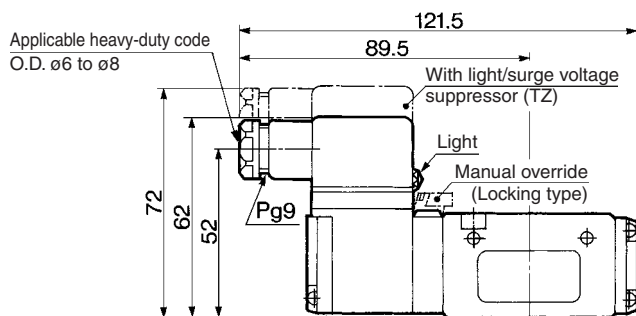
Grommet terminal: VFS1120-□E/EZ



DIN terminal: VFS1120-□D/DZ/Y/YZ



Conduit terminal: VFS1120-□T/TZ

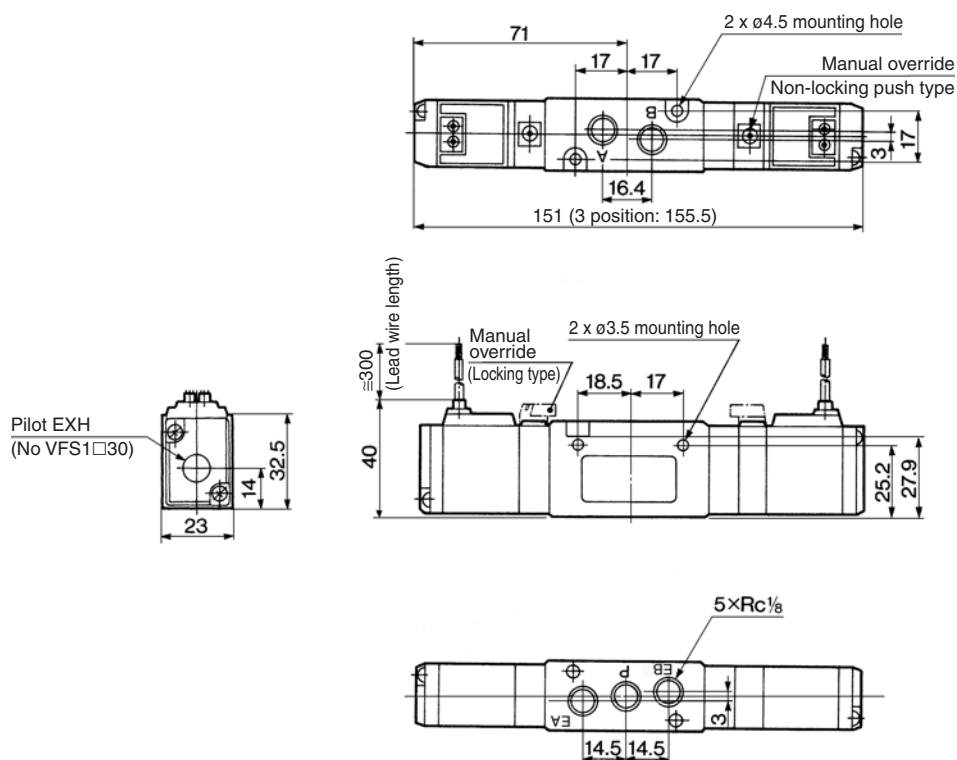


(): Y, YZ

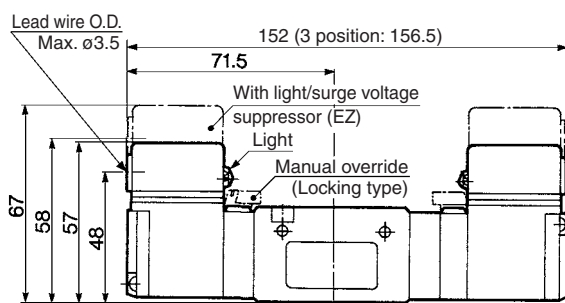
Series VFS1000

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

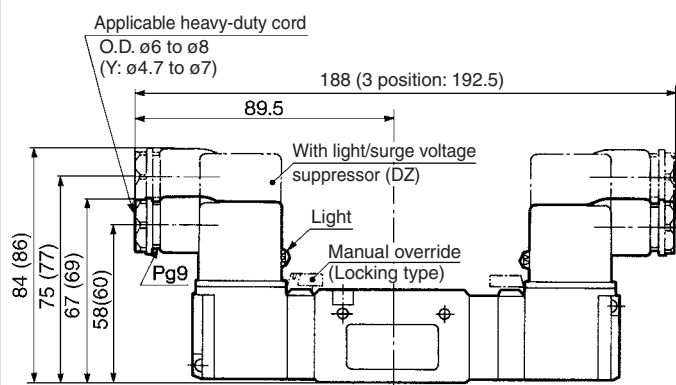
Grommet: VFS1220-□G, VFS1320-□G, VFS1420-□G, VFS1520-□G



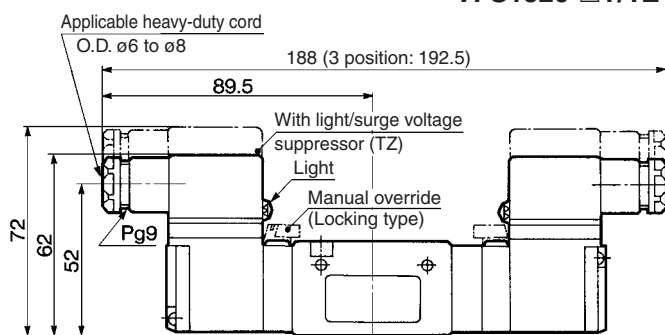
Grommet terminal: VFS1220-□E/EZ VFS1320-□E/EZ
VFS1420-□E/EZ
VFS1520-□E/EZ



DIN terminal : VFS1220-□D/DZ/Y/YZ
VFS1320-□D/DZ/Y/YZ
VFS1420-□D/DZ/Y/YZ
VFS1520-□D/DZ/Y/YZ



Conduit terminal: VFS1220-□T/TZ VFS1320-□T/TZ
VFS1420-□T/TZ
VFS1520-□T/TZ



(): Y, YZ