


5 Port Pilot Operated Solenoid Valve Metal Seal, Body Ported

Series VFS1000

Model

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

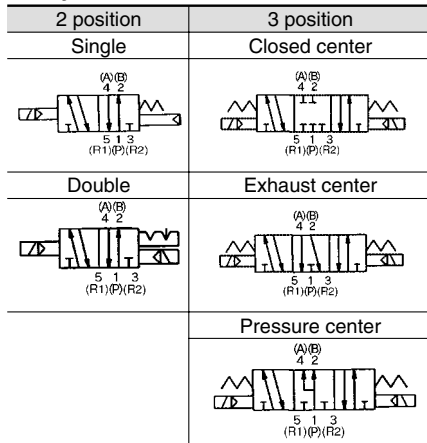

 Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency.
 Note 2) According to JIS B 8375-1981. (The value at supply pressure 0.5 MPa.)
 Note 3) In the case of grommet type
 Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

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

Low power consumption:
1.8 W DC




JIS Symbol



Standard Specifications


Valve specifications		Electricity 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⁾		
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.


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.

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

EVS

VFN

How to Order

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

Symbol

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

Option

F: With foot bracket

 * Mountable only for VFS1120.

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)
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* 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. With surge voltage suppressor is available for grommet type only.

Electrical entry

G: Grommet 	E: Grommet terminal 	T: Conduit terminal 	D, Y: DIN terminal
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Body (Pilot exhaust)

20: Individual EXH

30*: Common EXH

* Manifold only

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

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

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

Manual override

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

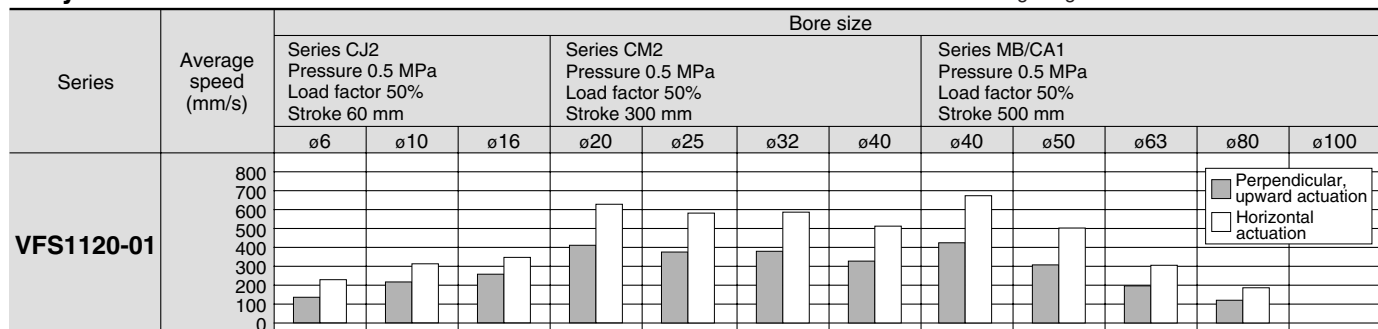
* Option

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Cylinder Speed Chart

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

Body Ported

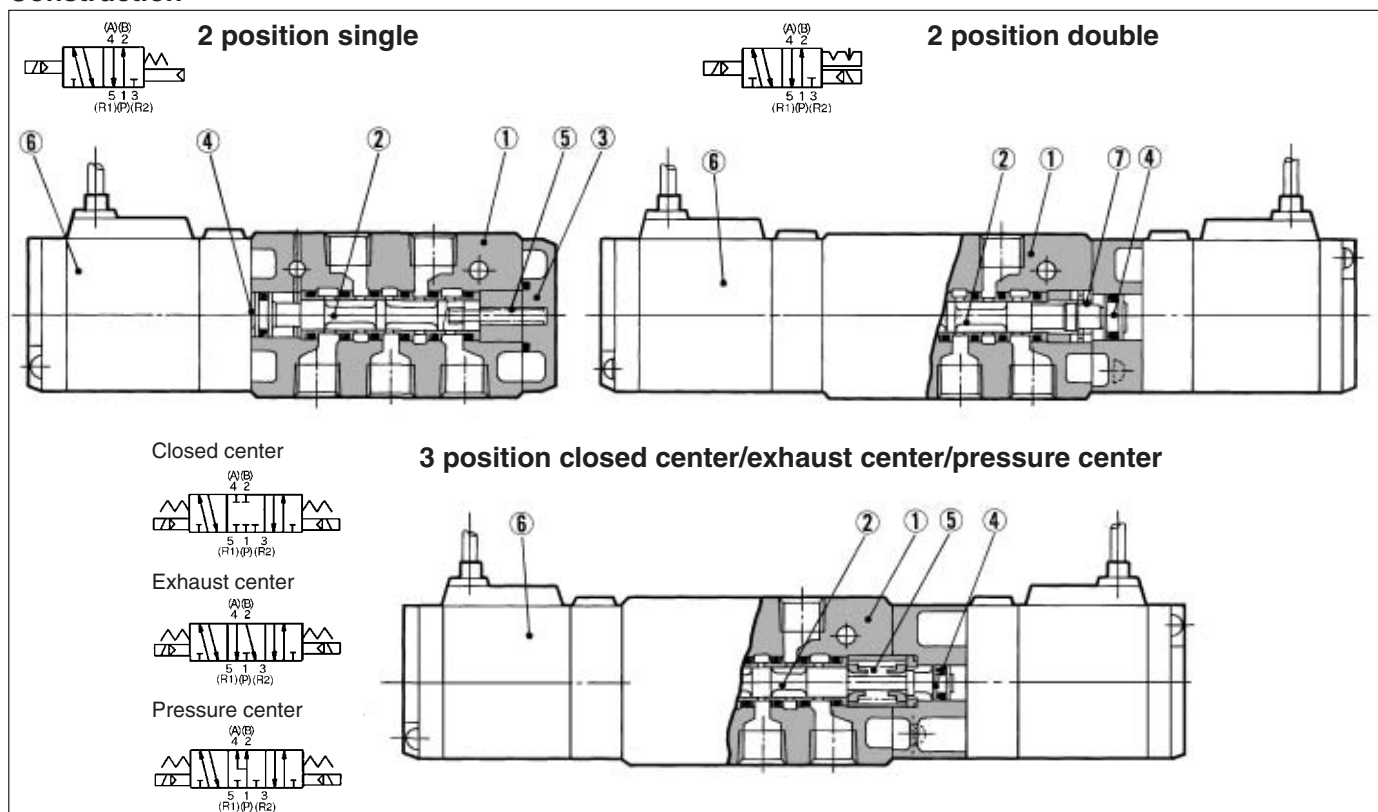


Conditions

		Body ported	Series CJ2	Series CM2	Series MB/CA1
VFS1120-01	Tube bore x Length		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 what 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	—

Replacement Parts

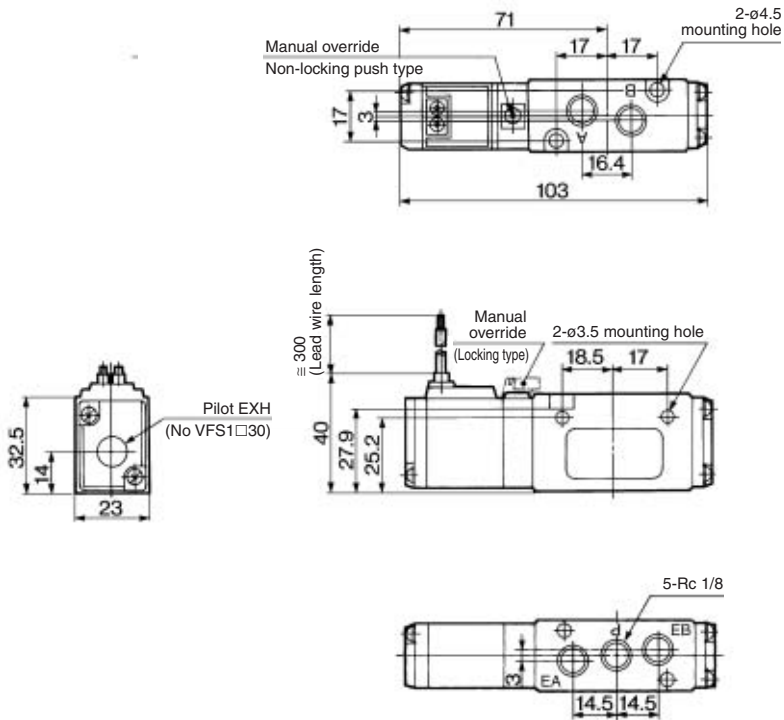
No.	Description	Material	Part no.		
			VFS1120	VFS1220	VFS1320/1420/1520
⑤	Return spring	Stainless steel	AXT626-6	—	AXT626-19
⑥	Pilot valve assembly	—	Refer to "How to Order Pilot Valve Assembly" on page 3-8-10.		
⑦	Detent assembly	—	—	AXT624-11A	—

- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

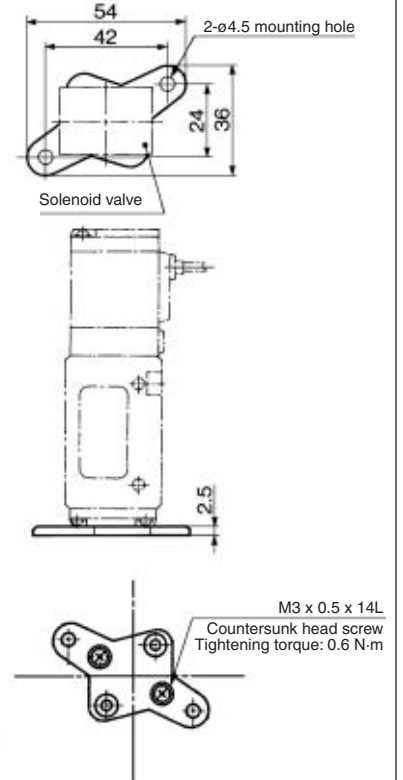
Series VFS1000

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

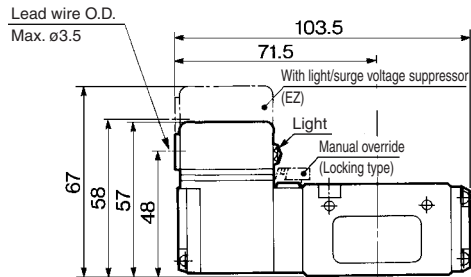
Grommet: VFS1120-□G



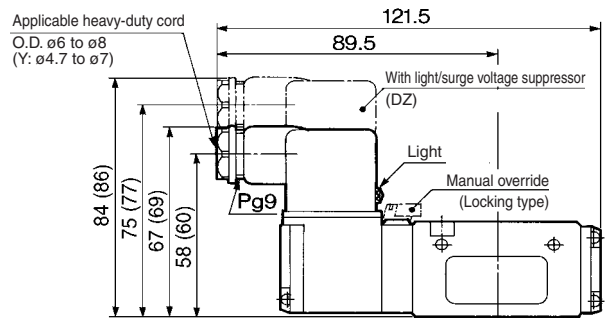
Foot bracket (F) Part no.: AXT626-10A



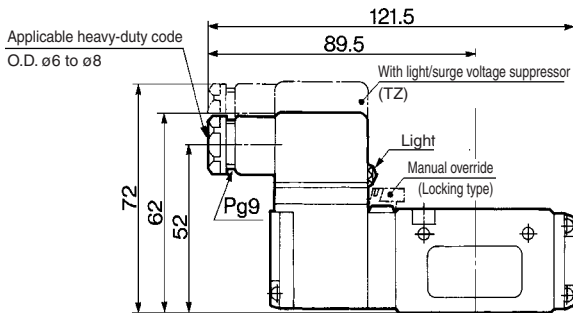
Grommet terminal: VFS1120-□E/EZ



DIN terminal: VFS1120-□D/DZ/Y/YZ



Conduit terminal: VFS1120-□T/TZ

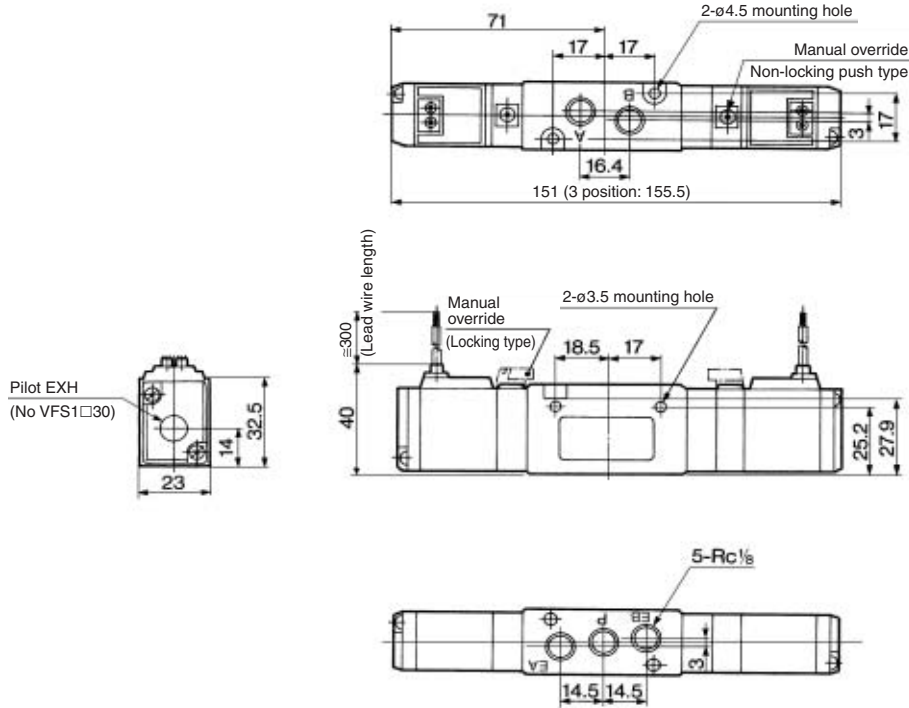


(): Y, YZ

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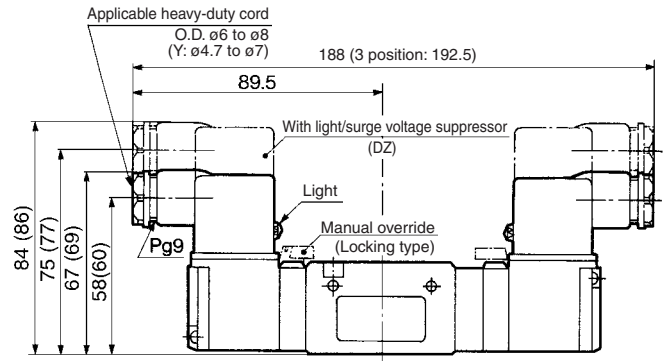
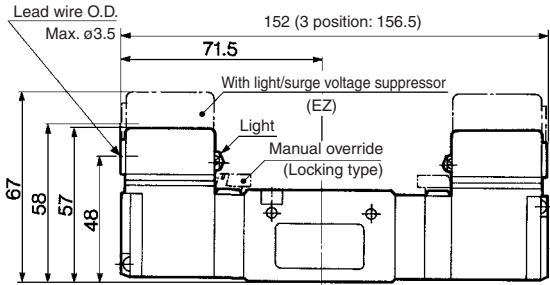
2 Position Double, 3 Position Grommet, Grommet terminal, Conduit terminal, DIN terminal

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

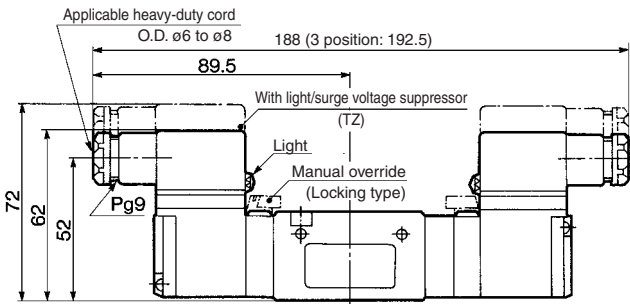


**Grommet terminal: VFS1220-□E/EZ VFS1320-□E/EZ
VFS1420-□E/EZ
VFS1520-□E/EZ**

**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

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

EVS

VFN