

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

Series VFS4000



Model

Type of actuation		Model		Port size	Flow characteristics ⁽¹⁾						Max. ⁽¹⁾ operating cycle (cpm)	Response ⁽²⁾ time (ms)	Mass ⁽³⁾⁽⁴⁾ (kg)
		Plug-in	Non plug-in		1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)					
					C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv			
2 position	Single	VFS4100	VFS4110	3/8	11	0.18	2.6	12	0.20	2.8	1,000	40 or less	0.63
				1/2	12	0.15	2.8	12	0.22	3.1			
	Double	VFS4200	VFS4210	3/8	11	0.18	2.6	12	0.20	2.8	1,200	15 or less	0.75
				1/2	12	0.15	2.8	12	0.22	3.1			
3 position	Closed center	VFS4300	VFS4310	3/8	10	0.18	2.5	10	0.14	2.3	600	50 or less	0.82
				1/2	11	0.18	2.7	11	0.22	2.6			
	Exhaust center	VFS4400	VFS4410	3/8	11	0.16	2.6	10	0.15	2.3	600	50 or less	0.82
				1/2	12	0.15	2.9	10	0.15	2.4			
	Pressure center	VFS4500	VFS4510	3/8	11	0.22	2.7	11	0.22	2.7	600	50 or less	0.82
				1/2	12	0.22	2.9	11	0.22	2.8			
	Double check	VFS4600	VFS4610	3/8	6.3	—	—	6.5	—	—	200	55 or less	1.71
				1/2	6.8	—	—	6.8	—	—			

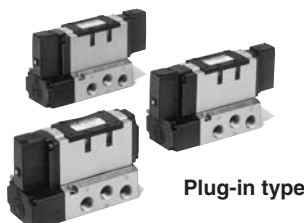
Note 1) Based on JIS B 8375 (once per 30 days) for the minimum operating frequency. Note 2) Based on JIS B 8375-1981 (The value at supply press. 0.5 MPa).
Note 3) The figures in the above list are for without sub-plate. In the case of with plug-in sub-plate and with non plug-in sub-plate, add 0.50 kg and 0.43 kg respectively. Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

Compact yet provides a large flow capacity
1/2: C: 12 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	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)
Electricity specifications	Shock/Vibration resistance		150/50 m/s ² ⁽³⁾
	Enclosure		Type E: Dustproof (level 0), Type F: Dripproof (level 2), Type D: Splashproof (level 4) ⁽⁴⁾
	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 Grommet 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 ^(Note)
Manual override	Main valve	Direct manual override
	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
Porting specifications		12, 100 VDC
Option		Bottom ported
		With light/surge voltage suppressor, Non-rotating DIN terminal

Note) Operating pressure: 0 to 1.0 MPa
Pilot pressure 2 position: 0.1 to 1.0 MPa, 3 position: 0.15 to 1.0 MPa

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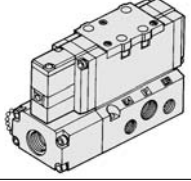
How to Order



Plug-in

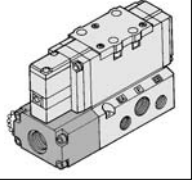
Body type

O: Plug-in type sub-plate



Electrical entry

F: Plug-in type conduit terminal



Porting specifications

Nil	Side ported
B*	Bottom ported

* In the case of external pilot (Option), bottom piping is not available.

Port size

Nil	Without sub-plate
03	Rc 3/8
04*	Rc 1/2

* EA, EB: Rc 3/8

Thread type

Nil	Rc
N*	NPT
T*	NPTF
F*	G

* Option

Non plug-in



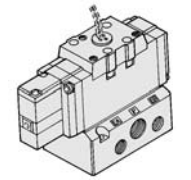
Symbol

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

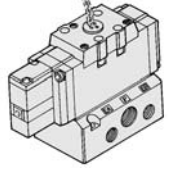
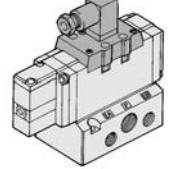
Option

Nil	None
Z	With light/surge voltage suppressor
P*	Non-rotating DIN terminal

* In the case of w/ "Z", enter "ZP".
* Type "P" is available for DIN type only.

Electrical entry

E: Grommet terminal	D: DIN terminal
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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

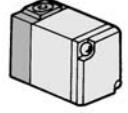
Pilot type

Nil	Internal pilot
R*	External pilot

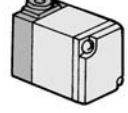
* Option

Pilot valve Manual override

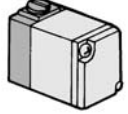
Nil: Non-locking push type (Flush)



A*: Non-locking push type (Extended)



B*: Locking type (Tool required)



C*: Locking type (Lever)



* Option

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

How to Order Pilot Valve Assembly

SF4 - 1 F - 30

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

Manual override

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

* Option

** Refer to page 1224 for voltage conversion.