

Pilot Operated 5 Port Solenoid Valve

Series VF3000/5000

Single Unit



Note) Only DIN and conduit terminal types are available with AC mode. Refer to the electrical entry for details.

RoHS

How to Order Valve

Base mounted
(VF1000: Not available)

Series

3	VF3000
5	VF5000

* Not available with the VF1000.

Type of actuation

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

Body model

Body option

0: Pilot valve individual exhaust

PE port EA/EB port

VF3000	VF5000
○	—

3: Main/Pilot valve common exhaust

PE port EA/EB port

VF3000	VF5000
○	—

4: Pilot valve base exhaust

PE port

VF3000	VF5000
—	○

VF 3 1 4 0 K T - 5 G Z D 1 - 02

Pressure specifications

Nil	Standard 102 psi (0.7 MPa)
K	High-pressure type 145 psi (1 MPa)

Coil specifications

Nil	Standard
T	With power saving circuit (DC only)

Note) Be sure to select the power saving circuit type when it is continuously energized for long periods of time. (Refer to page 51 for details.)

* T type is available with DC mode only. When T is selected, only Z type of light/surge voltage suppressor is available. (Note that when the electrical entry of DIN terminal type without connector is selected, only DOS and YOS are available.)

Rated voltage

DC		AC (50/60 Hz)	
5	24 VDC	1	100 VAC
6	12 VDC	2	200 VAC
		3	110 VAC [115 VAC]
		4	220 VAC [230 VAC]
		7	240 VAC
		B	24 VAC

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size (Sub-plate)

Symbol	Port size	VF3000	VF5000
Nil	Without sub-plate		
02	1/4	○	○
03	3/8	○	○
04	1/2	—	○

* Without the sub-plate, two mounting screws and a gasket are included.

Manual override

Nil: Non-locking push type	D: Push-turn locking slotted type	E: Push-turn locking lever type

Light/Surge voltage suppressor

Symbol	Light/Surge voltage suppressor	DC	AC
Nil	Without light/surge voltage suppressor	○	○
S	With surge voltage suppressor	○	— (Note)
Z	With light/surge voltage suppressor	○	○
R	With surge voltage suppressor (Non-polar)	○	—
U	With light/surge voltage suppressor (Non-polar)	○	—

Note) S type is not available with AC mode, since a rectifier prevents surge voltage generation.

* In the DIN terminal type, since a light is installed in the connector, DOZ, DOU, YOZ, YOU are not available.

Electrical entry

Grommet	L-type plug connector	M-type plug connector	DIN terminal	DIN (EN175301-803) terminal	Conduit terminal
G: Lead wire length 300 mm H: Lead wire length 600 mm	L: With lead wire (length 300 mm)	M: With lead wire (length 300 mm)	D: With connector	Y: With connector	T: Conduit terminal
G: Lead wire length 300 mm H: Lead wire length 600 mm DC Without light/surge voltage suppressor	LN: Without lead wire	MN: Without lead wire	DO: Without connector	YO: Without connector	
Without light/surge voltage suppressor	LO: Without connector	MO: Without connector			

CE compliant DC AC (Note 2)

Made to Order

Nil	—
X600	TRIAC output specification (Refer to page 14.)

Caution

When using the surge voltage suppressor type, residual voltage will remain. Refer to page 51 for details.

* LN and MN types are with 2 sockets.

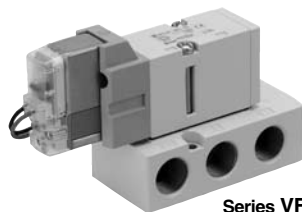
* Refer to page 49 when different length of lead wire for L/M-type plug connector is required.

* Refer to page 50 for details on the DIN (EN175301-803) terminal.

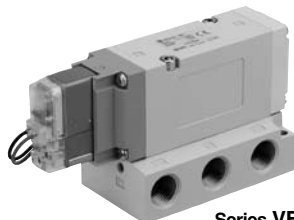
Note 1) When using IP65, select the main/pilot valve common exhaust type or pilot valve base exhaust type.

Note 2) With the same specifications as the DC type, all electrical entries for the 24 VAC type are CE marking compliant.

Specifications



Series VF3000



Series VF5000



Made to Order
(Refer to page 14 for details.)

Symbol	Specification
X600	TRIAC output specification

Model			VF3000	VF5000
Fluid			Air	
Operating pressure range	Standard	2-position single/3-position	22 to 102 psi (0.15 to 0.7 MPa)	
		2-position double	15 to 102 psi (0.1 to 0.7 MPa)	
	High-pressure type	2-position single/3-position	22 to 145 psi (0.15 to 1.0 MPa)	
		2-position double	15 to 145 psi (0.1 to 1.0 MPa)	
Ambient and fluid temperature			14 to 144°F (–10 to 50°C) (No freezing)	
Max. operating frequency (Hz)		2-position single/double	10	5
		3-position	3	3
Manual override			Non-locking push type Push-turn locking slotted type Push-turn locking lever type	
Pilot exhaust type			Individual exhaust, Main/ Pilot valve common exhaust	Pilot valve base exhaust
Lubrication			Not required	
Mounting orientation			Unrestricted	
Impact/Vibration resistance (m/s²) ^(Note)			300/50	
Enclosure			Dustproof (IP65* for D, Y, T)	

Note) Impact resistance: No malfunction occurred when it is tested 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)

* Based on IEC 60529. When using IP65, select the main/pilot valve common exhaust type or pilot valve base exhaust type.

Solenoid Specifications

Electrical entry			Grommet (G), (H) L-type plug connector (L) M-type plug connector (M)	DIN terminal (D) DIN (EN175301-803) terminal (Y) Conduit terminal (T)
			G, H, L, M	D, Y, T
Coil rated voltage (V)	DC		24, 12	
	AC (50/60 Hz)		24, 100, 110, 200, 220, 240	
Allowable voltage fluctuation			±10% of rated voltage*	
Power consumption (W)	DC	Standard	1.5 (With light: 1.55)	1.5 (With light: 1.75)
		With power saving circuit	0.55 (With light only)	0.75 (With light only)
Apparent power (VA)*	AC	24 V	1.5 (With light: 1.55)	1.5 (With light: 1.75)
		100 V	1.55 (With light: 1.65)	1.55 (With light: 1.7)
		110 V [115 V]		
		200 V		
		220 V [230 V]		
		240 V		
Surge voltage suppressor			Diode (Non-polar type: Varistor)	
Indicator light			LED (Neon light is used for AC mode of D, Y, T.)	

* It is in common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.

* Allowable voltage fluctuation is –15% to +5% of the rated voltage for 115 VAC or 230 VAC.

* Since voltage drops due to the internal circuit in S, Z, T types (with power saving circuit), the allowable voltage fluctuation should be within the following range.

24 VDC: –7% to +10% 12 VDC: –4% to +10%

Response Time

Series	Type of actuation		Pressure specifications	Operating pressure range psi (MPa)	Response time (ms) (at 73psi (0.5 MPa))			
					Without light/surge voltage suppressor	With light/surge voltage suppressor		AC
						S, Z type	R, U type	
VF1000	2-position	Single	Standard	22 to 102 (0.15 to 0.7)	20	45	23	45
		Double		15 to 102 (0.1 to 0.7)	12	12	12	12
		Single	High-pressure type	22 to 145 (0.15 to 1.0)	23	48	26	48
		Double		15 to 145 (0.1 to 1.0)	15	15	15	15
VF3000	2-position	Single	Standard	22 to 102 (0.15 to 0.7)	20	45	23	45
		Double		15 to 102 (0.1 to 0.7)	12	12	12	12
	3-position			22 to 102 (0.15 to 0.7)	30	55	33	55
	2-position	Single	High-pressure type	22 to 145 (0.15 to 1.0)	23	48	26	48
		Double		15 tp 145 (0.1 to 1.0)	15	15	15	15
	3-position			22 to 145 (0.15 to 1.0)	33	58	36	58
VF5000	2-position	Single	Standard	22 to 102 (0.15 to 0.7)	30	55	33	55
		Double		15 to 102 (0.1 to 0.7)	15	15	15	15
	3-position			22 to 102 (0.15 to 0.7)	50	75	53	75
	2-position	Single	High-pressure type	22 to 145 (0.15 to 1.0)	33	58	36	58
		Double		15 to 145 (0.1 to 1.0)	18	18	18	18
	3-position			22 to 145 (0.15 to 1.0)	53	78	56	78

Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 68°F (20°C), at rated voltage)