3 Port Solenoid Valve VP300/500/700 Series

C E RoHS

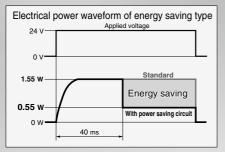
Selectable power consumption!



[Starting 1.55 W, Holding 0.55 W] * Current model: 2.0 W With DC light

Power consumption is reduced by power saving circuit.

Power consumption is decreased by approx. 1/3 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 40 ms at 24 VDC.) Refer to electrical power waveform as shown below.



Built-in full-wave rectifier (AC) Noise reduction

Noise is considerably reduced by changing it to DC mode with a full-wave rectifier.

Reduced apparent power Current $5.6~\text{VA} \rightarrow \textbf{1.55}~\text{VA}~[\text{Standard}]$

Built-in strainer in the pilot valve

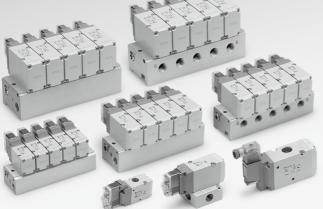
Unexpected troubles due to foreign matter can be prevented. Note) Be sure to mount an air filter on the inlet sid



Rubber material: HNBR Ozone-resistant specification • The pilot valve poppet is made of FKM.

VQZ VP VG VP3

SYJ



SMC

Air Operated Valve VPA300/500/700 Series

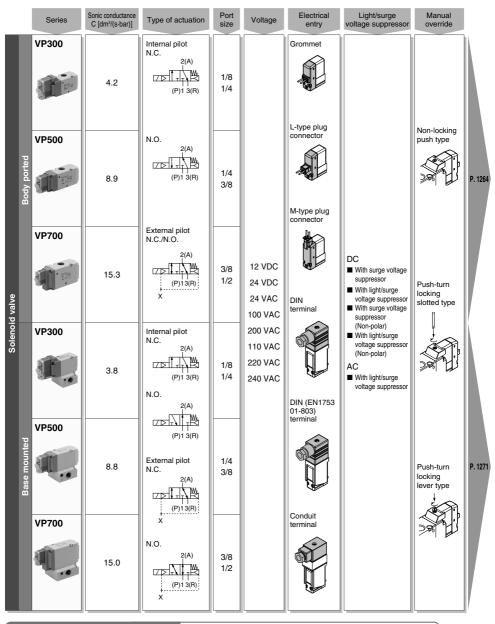


1261 A

VP300/500/700 Series

Model Selection by Operating Conditions (1)

Solenoid Valve: Single Unit



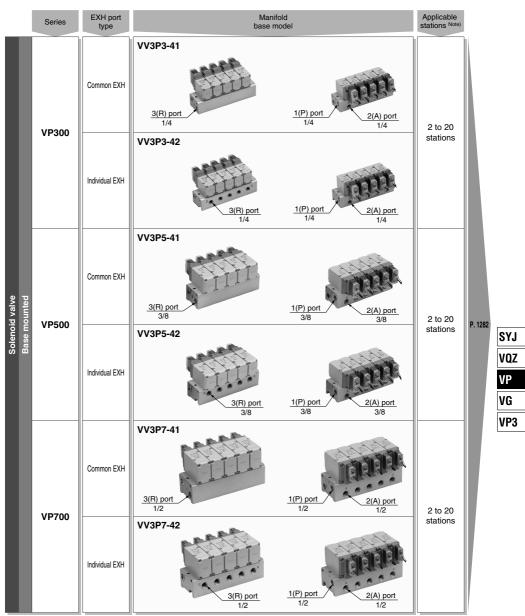
Low wattage specification From page 1278 Power consumption: 0.35 W (Without light) 0.4 W (With light)

SMC

VP300/500/700 Series

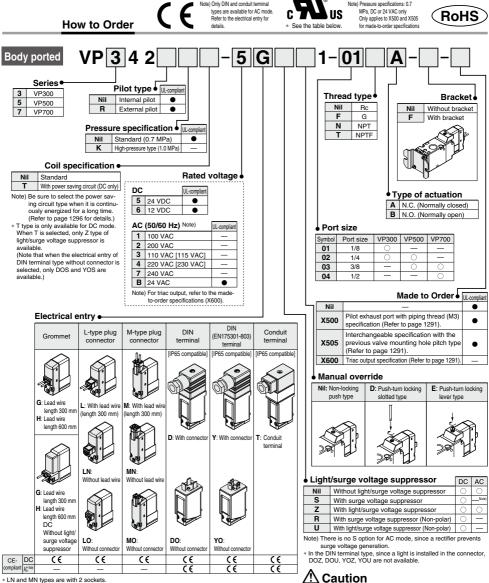
Model Selection by Operating Conditions (2)

Solenoid Valve: Manifold



Note) Supply pressure to 1(P) ports and exhaust air from 3(R) ports on both sides for 10 stations or more.

Rubber Seal 3 Port/Pilot Poppet Type Body Ported/Single Unit VP300/500/700 Series



* Refer to page 1295 for details on the DIN (EN175301-803) terminal.

Note) With the same specifications as the DC type, all lead wire entries for the 24 VAC type are CE marking compliant



When using the surge voltage suppressor type, residual voltage will remain. Refer to page 1300 for details

^{*} Refer to page 1294 when different length of lead wire for L/M-type plug connector is required.

Pilot Poppet Type Body Ported/Single Unit **VP300/500/700** Series

Low power consumption 1.5 W (DC)

Possible to use as either a selector or divider valve Possible to change from N.C. to N.O.

• Refer to page 1300 for changing the type of actuation.

Possible to use in vacuum applications







External Pilot

Use external pilot type in the following cases

· For vacuum or for low pressure 0.2 MPa or less

- · Since this valve has slight air leakage, it can not be used for holding vacuum (including positive pressure holding) in the pressure container.
- . When having P port downsized in diameter · When using A port as the atmospheric releasing port, e.g. air blower



X500	Pilot exhaust port with piping thread (M3) specification		
X505	Interchangeable specification with the previous valve mounting hole pitch type		
X600	Triac output specification		

Specifications

Fluid		Air		
Type of actuation		N.C. or N.O. (Convertible)		
Internal pilot	Standard	0.2 to 0.7		
Operating pressure range (MPa)	High-pressure type	0.2 to 1.0		
External pilet	Standard	-100 kPa to 0.7		
External pilot Operating pressure range (MPa)	High-pressure type	-100 kPa to 1.0		
operating pressure range (mra)	Pilot pressure range	Same as operating pressure (Min. 0.2 MPa)		
Ambient and fluid temperature (°C)		-10 to 50 (No freezing)		
Max. operating frequency (Hz)		5		
Manual override		Non-locking push type		
		Push-turn locking slotted type Push-turn locking lever type		
Pilot exhaust type		Individual exhaust		
Lubrication		Not required		
Mounting orientation		Unrestricted		
Impact/Vibration resistance (m/s ²) Note)		300/50		
Enclosure		Dust-tight (IP65 for D, Y, T)		

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)

Solenoid Specifications

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

Note) Refer to page 1296 for details.

Response Time

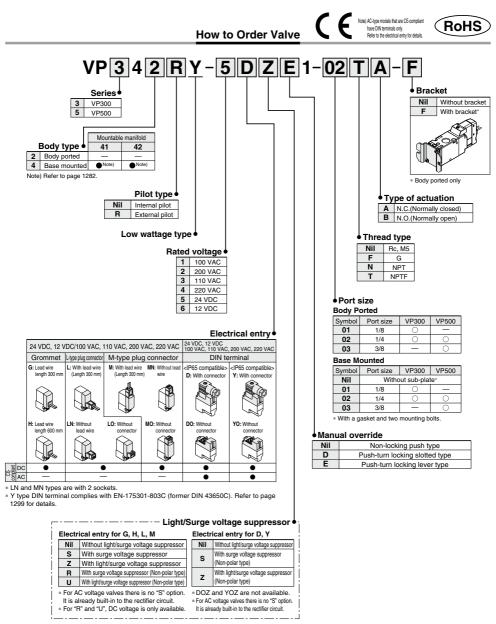
		Response time ms (at 0.5 MPa)					
Model	Pressure specifications	Without light/surge With light/surge volt		oltage suppressor	AC		
		voltage suppressor	S, Z type	R, U type	AU		
VP342	Standard (0.2 to 0.7)	13 or less	38 or less	16 or less	38 or less		
VF342	High-pressure type (0.2 to 1.0)	17 or less	42 or less	20 or less	42 or less		
VP542	Standard (0.2 to 0.7)	14 or less	39 or less	17 or less	39 or less		
VF J4Z	High-pressure type (0.2 to 1.0)	18 or less	43 or less	21 or less	43 or less		
VP742	Standard (0.2 to 0.7)	19 or less	44 or less	22 or less	44 or less		
VF/42	High-pressure type (0.2 to 1.0)	22 or less	47 or less	25 or less	47 or less		

Note) Based on dynamic performance test, JIS B 8419: 2010. (Coil temperature: 20°C, at rated voltage)



Low Wattage Specification VP300/500 Series

Body Ported Base Mounted



SMC

Specifications

Fluid	Air	
Type of actuation	N.C. or N.O. (Convertible)	
Internal pilot operating pressure range (MPa)	0.2 to 0.7	
External pilot operating pressure range (MPa)	-100 KPa to 0.7	
Pilot pressure range	Equivalent to operating pressure (Min. 0.2)	
Ambient and fluid temperature (°C)	-10 to 50 (No freezing)	
Max. operating frequency (Hz)	5	
Manual override	Non-locking push type Push-turn locking slotted type Push-turn locking lever type	
Pilot exhaust type	Individual exhaust	
Lubrication	Not required	
Mounting orientation	Unrestricted	
Impact/Vibration resistance (m/s ²) Note)	150/30	
nclosure Dustproof (IP65 for D and Y)		

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)

Solenoid Specifications

Electrical entry			Grommet (G), (H) L-type plug connector (L) M-type plug connector (M)	DIN terminal (D) DIN (43650B) terminal (Y)		
			G, H, L, M	D, Y		
Coil rated voltage (V)	DC		24, 12			
Con rated voltage (v)	AC	(50/60 Hz)	100, 110,	200, 220		
Allowable voltage fluct	uatio	n	±10% of rat	rated voltage*		
Power consumption (W)	DC	Standard	0.35 {With light: 0.4 (With light of DIN terminal: 0.45)}			
		100 V	0.78 (With light: 0.81)	0.78 (With light: 0.87)		
		110 V [115 V]	0.86 (With light: 0.89) [0.94 (With light: 0.97)]	0.86 (With light: 0.97) [0.94 (With light: 1.07)]		
Apparent power (VA)*	AC	200 V	1.18 (With light: 1.22)	1.15 (With light: 1.30)		
	220 V [230 V]		1.30 (With light: 1.34) [1.42 (With light: 1.46)]	1.27 (With light: 1.46) [1.39 (With light: 1.60)]		
Surge voltage suppress	sor		Diode (DIN terminal, Non-polar type: Varistor)			
Indicator light			LED (Neon bulb is used for AC mode of D and Y.)			

* 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.

* For details, refer to page 1298.

Response Time

		Response time ms (at 0.5 MPa)				
Series	Type of actuation	Without light/surge	With light/surge voltage suppressor		AC type	
		voltage suppressor	S, Z type	R, U type	AC type	
VP300	VP342Y	16	40	21	40	
VF 300	VP344Y	16	40	21	40	
VP500	VP542Y	31	45	36	44	
VP500	VP544Y	31	45	36	44	

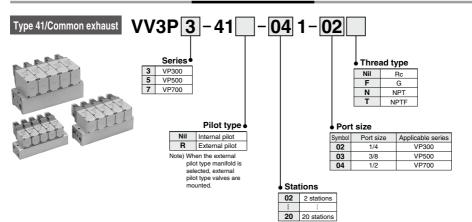
Note) Based on dynamic performance test, JIS B 8419: 2010.

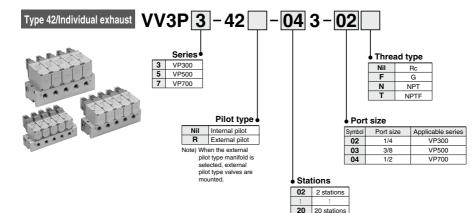
(Coil temperature: 20°C, at rated voltage)

SYJ VQZ VP VG VP3

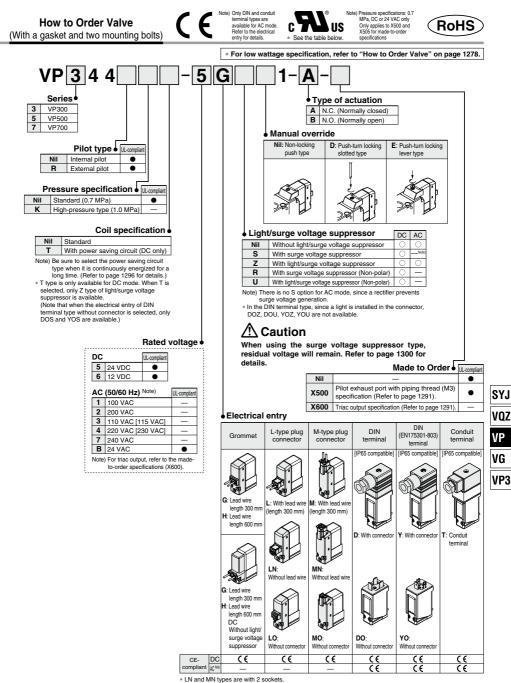
Rubber Seal/3 Port/Pilot Poppet Type Manifold Common Exhaust Type 41 / Individual Exhaust Type 42 VP300/500/700 Series

How to Order Manifold





Pilot Poppet Type Common Exhaust Type 41 /Individual Exhaust Type 42 VP300/500/700 Series



* Refer to page 1294 when different length of lead wire for L/M-type plug connector is required.

Refer to page 1295 for details on the DIN (EN175301-803) terminal

Note) With the same specifications as the DC type, all lead wire entries for the 24 VAC type are CE marking compliant



VP300/500/700 Series

Piping is concentrated on the base side.

All external pilots are gathered in the base.

Common external pilot port allows one piping.

2 types of exhaust ports

Common or individual exhaust type are available. For individual exhaust type, exhaust can be restricted.

Easy to change between N.C. and N.O.

Type of actuation can be easily changed from normally closed to normally open by changing the direction of a valve and end-plate only 180° .

Refer to page 1300 for changing the type of actuation.

VV3P3-41-051-02



Manifold Specifications

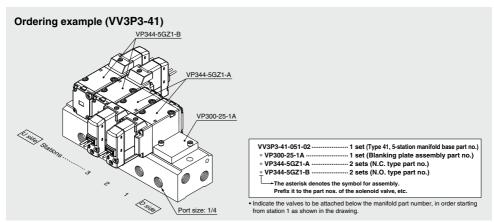
			Piping specifications				Manifold base
Series	Series Base model	1P (SUP) port type	3R (EXH) port type	Port size	Applicable valve	Applicable stations Note)	Weight: W [g] Stations: n
VP300	VV3P3-41		Common	1/4	VP344 VP544	2 to 20 stations 2 to 20 stations	
VP300	VV3P3-42		Individual				
VP500	VV3P5-41	Common	Common				
VF500	VV3P5-42		Individual	3/8	VP544	2 to 20 stations	W = 1900 + 150
VP700	VV3P7-41		Common	1/0	VP744	2 to 20 stations	W = 410n + 380
VP700	VV3P7-42		Individual	1/2	VP744		

Note) Supply pressure to 1(P) ports and exhaust pressure from 3(R) ports on both sides for 10 stations or more.

Manifold Option

Description	Part no.	Applicable manifold base model
Blanking plate assembly (With a gasket and two mounting bolts)	VP300-25-1A	VV3P3
	VP500-25-1A	VV3P5
	VP700-25-1A	VV3P7

How to Order Manifold Assembly (Example)





VP300/500/700 Series Made to Order

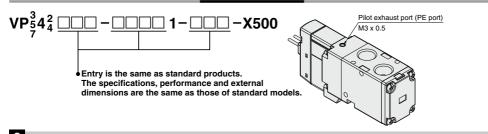
Please contact SMC for detailed dimensions, specifications and lead times.



1 Pilot Exhaust Port with Piping Thread (M3) Specification

In this specification, piping to the pilot exhaust port (PE port) is available when the valve is used in an environment where the exhaust from the pilot valve is not allowable, or intrusion of ambient dust should be prevented.

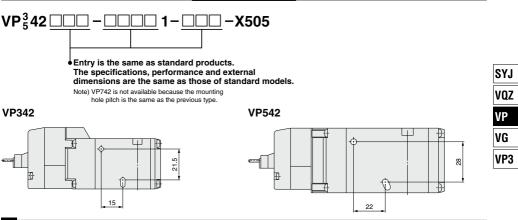
How to Order Valve



2 Body Ported Interchangeable Specification with the Previous Valve Mounting Hole Pitch Type

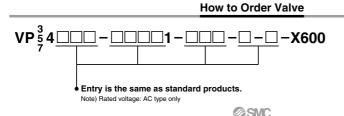
The mounting hole has been changed to the long type in order to provide interchangeability with the previous VP300/500 series.

How to Order Valve

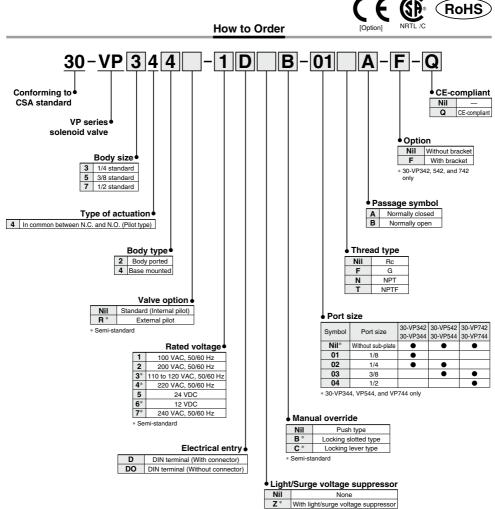


3 TRIAC Output Specification

For AC type valve, use this specification when the pilot valve is not recovered even though valve power supply is turned OFF at the equipment using output unit with large leakage voltage over 8% of the rated voltage (TRIAC output such as PLC or SSR, etc.). Combination with low wattage specification is not possible.



Rubber Seal 3 Port/Pilot Poppet Type VP300/500/700 Series



^{*} Semi-standard

▲ Caution

For safety instructions, specific product precautions, product specifications, dimensions, and model selection, refer to the individual product catalog (discontinued products). However, note that the DIN connector differs from the standard product.

