



Large Size 3 Port Solenoid Valve

VP3145/3165/3185

Rubber Seal

Large flow capacity, small exhaust resistance

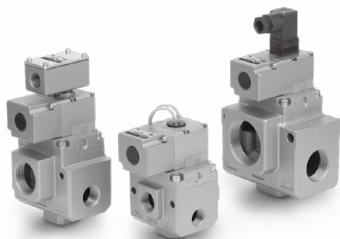
Easy conversion to N.C. or N.O.

Function plate makes it possible to use as a N.C. or N.O. valve with the port unchanged.

Possible to use in vacuum or under low pressures

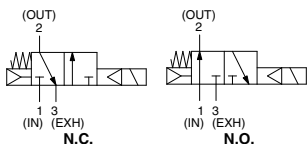
Vacuum: Up to 101.2 kPa
Low pressure: 0 to 0.2 MPa

Free mounting orientation

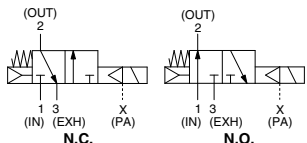


Symbol

Internal pilot
<Standard>



External pilot



Note) N.O. valve operates properly only when appropriate pressure is applied to the pilot.

How to Order

VP3 1 4 5 - 04 1 G A - - -

VP series 3 port solenoid valve

Number of solenoids
1 Single

Body size

4	1/2
6	1
8	1 1/2

Body type
5 Body ported

Valve option

Nil	For general
V	For vacuum/low pressure

Port size (IN, OUT port)

Symbol	Port size Rc (Nominal size)	VP3145	VP3165	VP3185
03	3/8 (10A)	●		
04	1/2 (15A)	●		
06	3/4 (20A)	●	●	
10	1 (25A)		●	
12	1 1/4 (32A)		●	●
14	1 1/2 (40A)			●
20	2 (50A)			●

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz

* Semi-standard

CE/UKCA-compliant

Nil	—
Q	CE/UKCA-compliant (Note)

Note) Electrical entry: D/DL/DS/DZ only

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Pilot option

Nil	Standard (Internal pilot)
1	External pilot

Type of actuation

A	N.C. (Normally closed)
B	N.O. (Normally open)

Electrical entry

		CE/UKCA-compliant
G	Grommet	—
T	Conduit terminal	—
D	DIN terminal	●
TL*	Conduit terminal with indicator light	—
TS*	Conduit terminal with surge voltage suppressor	—
TZ*	Conduit terminal with light/surge voltage suppressor	—
DL*	DIN terminal with indicator light	●
DS*	DIN terminal with surge voltage suppressor	●
DZ*	DIN terminal with light/surge voltage suppressor	●

* Semi-standard

How to Order Pilot Valve Assembly

VT3113 - 00 1 G - -

Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz

* Semi-standard

Electrical entry

		CE/UKCA-compliant
G	Grommet	—
T	Conduit terminal	—
D	DIN terminal	●
TL*	Conduit terminal with indicator light	—
TS*	Conduit terminal with surge voltage suppressor	—
TZ*	Conduit terminal with light/surge voltage suppressor	—
DL*	DIN terminal with indicator light	●
DS*	DIN terminal with surge voltage suppressor	●
DZ*	DIN terminal with light/surge voltage suppressor	●

* Semi-standard

CE/UKCA-compliant

Nil	—
Q	CE/UKCA-compliant (Note)

Note) Electrical entry: D/DL/DS/DZ only



VP3145/3165/3185 Series

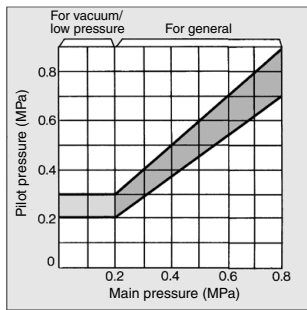
External Pilot

Use external pilot model in the following cases.

- Vacuum or low pressure (0.2 MPa or less): Vacuum/Low pressure type
- Using the valve with supply port external throttle: General type
- Air pressure of supply port is slow: General type
- Resistance in outlet side is small in case of air blowing or filling an air tank: General type

Note 1) Keep external pilot pressure within the pressure range below.

Note 2) Conversion of internal pilot and external pilot can not be done.



Specifications

Fluid		Air					
Type of actuation		N.C. or N.O. (Convertible)					
Pilot type		Internal pilot			External pilot		
		For general		For vacuum/low pressure	For general		
Operating pressure range (MPa)	Main pressure	0.2 to 0.8			-101.2 kPa to 0.2		0.2 to 0.8
	Pilot pressure				0.2 to 0.3		Refer to the graph left.
Ambient and fluid temperature (°C)		0 (No freezing) to 60					
Response time (ms) (at the pressure of 0.5 MPa)		ON	AC	30 or less	OFF	AC	30 or less
			DC	40 or less		DC	30 or less
Max. operating frequency (Hz)		3					
Lubrication		Required (Equivalent to turbine oil Class1 ISO VG32)					
Manual override		Yes (Non-locking)					
Mounting orientation		Unrestricted					
Impact/Vibration resistance (m/s²)		150/50					

Solenoid Specifications

Electrical entry	Standard	Grommet (G), Conduit terminal (T) DIN terminal (D)	
	Option	Conduit terminal with indicator light (TL), Conduit terminal with surge voltage suppressor (TS), Conduit terminal with light/surge voltage suppressor (TZ), DIN terminal with indicator light (DL), DIN terminal with surge voltage suppressor (DS), DIN terminal with light/surge voltage suppressor (DZ)	
Coil rated voltage (V)	AC (50/60 Hz)	100, 200, 110 [*] , 220 [*] , 240 [*]	
	DC	12 [*] , 24	
Allowable voltage fluctuation		-15 to +10% of rated voltage	
Apparent power ^{Note)}	AC	Inrush	73 VA (50 Hz), 58 VA (60 Hz)
		Holding	28 VA (50 Hz), 17 VA (60 Hz)
Power consumption ^{Note)}	DC	12 W	

* Semi-standard

Note) At rated voltage

Flow Rate Characteristics/Weight

Valve model	Port size		Flow rate characteristics						Weight [*] (kg)
			1 → 2 (IN → OUT)			2 → 3 (OUT → EXH)			
	1(IN), 2(OUT)	3(EXH)	C [dm ³ /(s·bar)]	b	Cv	C [dm ³ /(s·bar)]	b	Cv	
VP3145	3/8	3/4	19	0.43	5.5	18	0.47	5.4	1.5
	1/2		23	0.32	6.2	21	0.39	5.8	
	3/4		28	0.36	7.6	26	0.35	7.0	

Valve model	Port size		Effective area (mm ²)		Weight [*] (kg)
			1 → 2 (IN → OUT)	2 → 3 (OUT → EXH)	
VP3165	3/4	1 1/4	230	280	2.0
	1		280	310	
	1 1/4		310	330	
VP3185	1 1/4	2	570	650	2.8
	1 1/2		650	670	
	2		650	670	

* For grommet

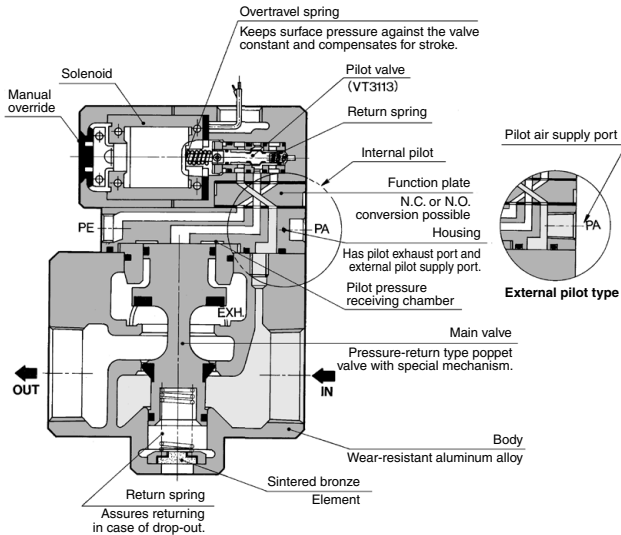
Conduit terminal... +0.2 kg



Large Size 3 Port Solenoid Valve **VP3145/3165/3185 Series**

Construction/Internal Pilot

As in the figure below, this pilot-operated solenoid valve consists of a compact 3 port solenoid valve as the pilot valve and a large 3 port valve as the main valve.
The pilot valve controls opening and closing the main valve. N.C. or N.O. function conversion can be done by switching the pilot passage.



Note) Pilot valve and body are shown in a different direction from the actual product in order to show the construction and air passage.

Piping (Vacuum Use)

1. Piping in general:

EXH port =	Vacuum pump/ Blower	} (Suction side)
OUT port =	Tank/ Vacuum pad	
	Plug (2 port valve)	} (Load side)
IN port =	Air releasing Air pressure-in	

2. Following the above piping, vacuum passage is switched between OUT and EXH, therefore, N.C./N.O. indication on the function plate and switching of the vacuum passage are reversed; N.C. (Normally closed) in vacuum passage are reversed:

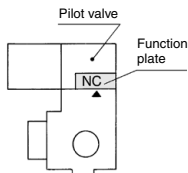
"N.C." indicated on the plate
→ N.O. in vacuum passage
(Normally open)

"N.O." indicated on the plate
→ N.C. in vacuum passage
(Normally closed)

N.C./N.O. Conversion

To convert valve operation from N.C. to N.O. or N.O. to N.C., remove the pilot valve, move the function plate along the gasket, both top and bottom until the mark ► meets N.C. (N.O.)

Please note however, that the N.O. valve functions properly only when the appropriate pressure is applied to the valve.

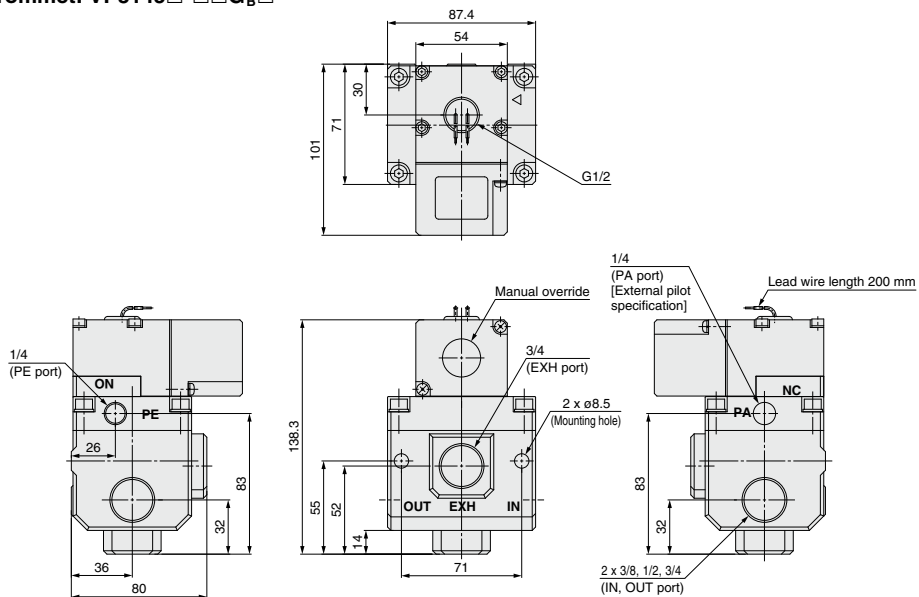




VP3145 Series

Dimensions: VP3145

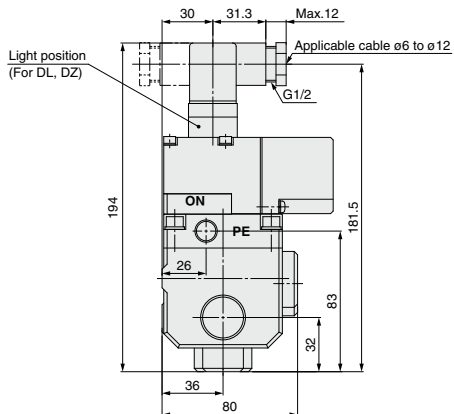
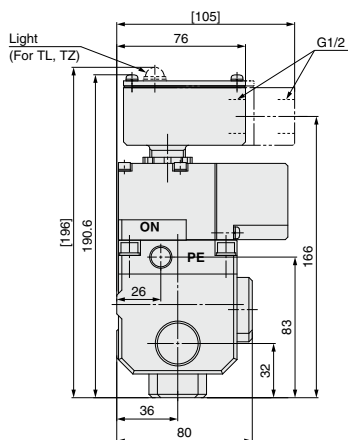
Grommet: VP3145□-□□G_B□



Note) External pilot port (PA port) 1/4 is processed for threads in external pilot model only.

Conduit terminal: VP3145□-□□T□A_B□

DIN terminal: VP3145□-□□D□A_B□



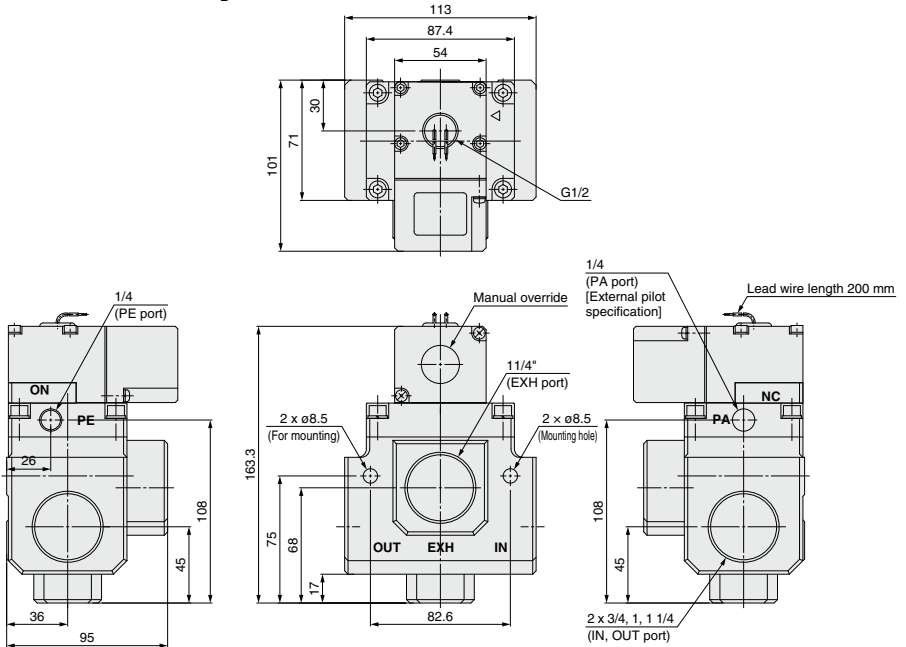
[]: With indicator light (TL, TZ)



Large Size 3 Port Solenoid Valve **VP3165 Series**

Dimensions: **VP3165**

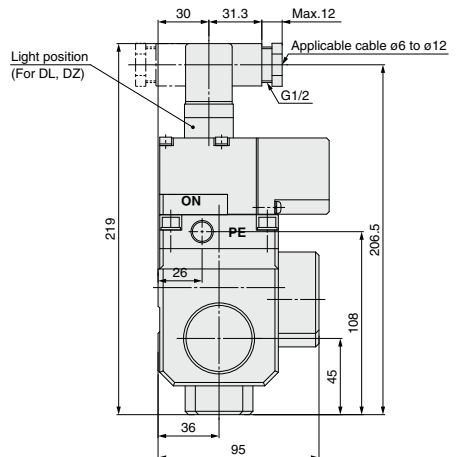
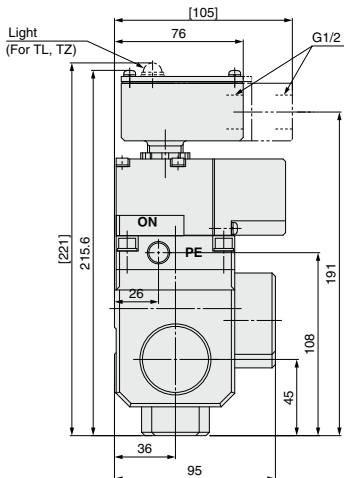
Grommet: **VP3165□-□□G_B□**



Note) External pilot port (PA port) 1/4 is processed for threads in external pilot model only.

Conduit terminal: **VP3165□-□□T□□**

DIN terminal: **VP3165□-□□D□□**



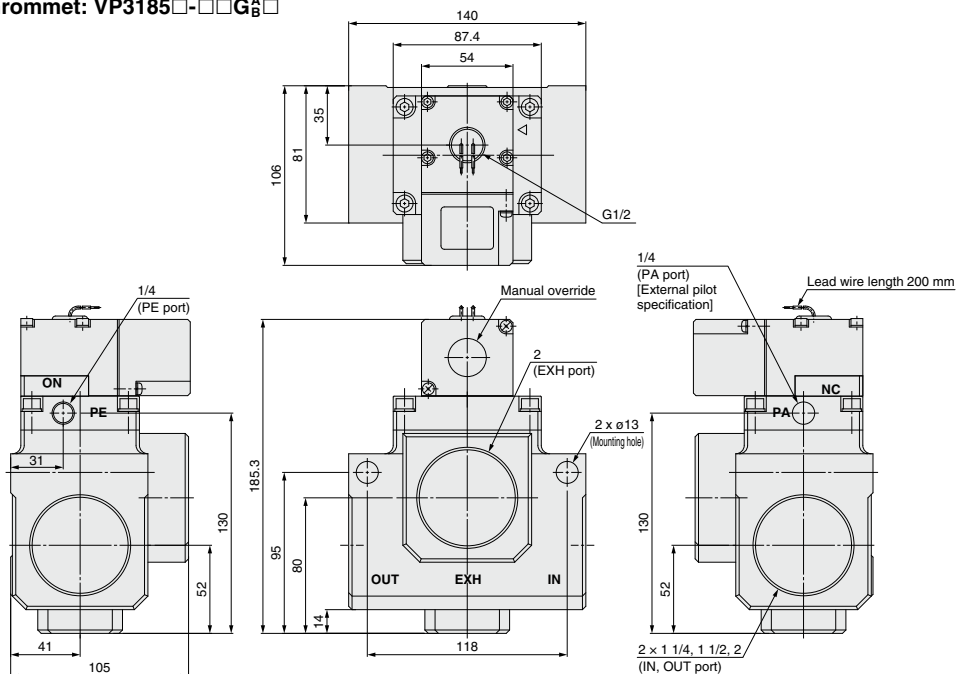
[]: With indicator light (TL, TZ)



VP3185 Series

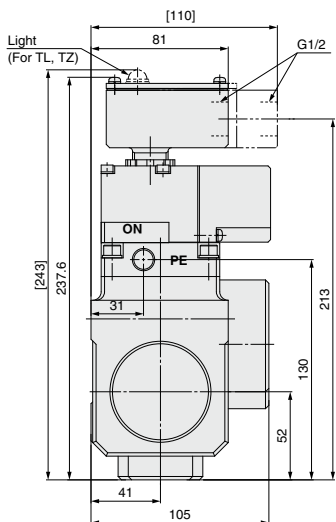
Dimensions: VP3185

Grommet: VP3185□-□□G_B□

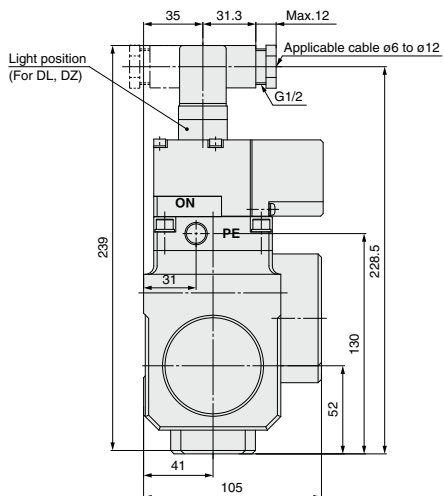


Note) External pilot port (PA port) 1/4 is processed for threads in external pilot model only.

Conduit terminal: VP3185□-□□T_B□



DIN terminal: VP3185□-□□D_B□



[]: With indicator light (TL, TZ)