

# Large Size 5 Port Solenoid Valve Rubber Seal

# VP4□50/4□70 Series

## How to Order

**VP4** 1 5 0 - 10 1 T - □ - □

VP series  
5 port solenoid valve

**Type of actuation**

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center

Note) There is no 3 position type for "VP4□70" series.

**Body type**

5	3/4 Standard
7	1 1/4 Standard

**Piping**

0	Side ported
1	Bottom ported
4	Without sub-plate

**Port size**

Symbol	Port size	Applicable valve model
00	Without sub-plate	VP4□54 VP4□74
03*	3/8 (10A)	VP4□50
04	1/2 (15A)	
06	3/4 (20A)	
10	1 (25A)	
12	1 1/4 (32A)	VP4□70
14	1 1/2 (40A)	

\* Only for the side ported type.

**Thread type**

NII	Rc
F	G
N	NPT
T	NPTF

Made to Order specifications  
Refer to page 356.

NII	Standard
X23	With surge voltage suppressor
X40	External pilot

**Electrical entry**

G	Grommet
T	Conduit terminal
D	DIN terminal
TL*	Conduit terminal with indicator light
DL*	DIN terminal with indicator light

\* Semi-standard

**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  
For other rated voltages, please consult with SMC.

## How to Order Pilot Valve Assembly

VT3112 - 00 1 G

**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

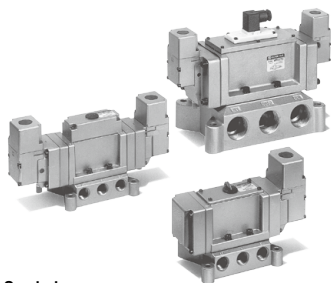
\* Semi-standard

**Electrical entry** <sup>Note)</sup>

G	Grommet
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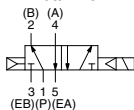
Note) Even if the electrical entry of the solenoid valve is "T", "D", "TL", or "DL", the electrical entry for pilot valve assembly is chosen for "G".

# VP4□50/4□70 Series

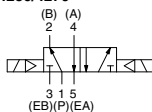


## Symbol

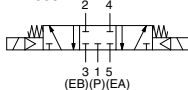
### VP4150/4170



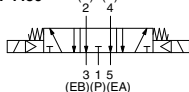
### VP4250/4270



### VP4350



### VP4450



**Made to Order Specifications**  
(For details, refer to page 356.)

## Specifications

Fluid	Air
Operating pressure range (MPa)	0.2 to 0.9
Ambient and fluid temperature (°C)	0 to 60 (No freezing.)
Max. operating frequency (Hz)	3
Lubrication (1)	Required (Turbine oil Class 1 ISO VG32)
Manual override	Yes (Non-locking)
Mounting orientation	Unrestricted
Impact/Vibration resistance (m/s <sup>2</sup> ) (2)	150/50
Accessory (Standard equipment)	Silencer for pilot EXH ("AN101-01")

Note 1) This solenoid valve requires lubrication. Use turbine oil Class 1 (ISO VG32).  
Note 2) 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 1000 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	Standard	Grommet (G) Conduit terminal (T) DIN terminal (D)
	Option	Conduit terminal with indicator light (TL) DIN terminal with indicator light (DL)
Coil rated voltage (V)	AC (50/60 Hz) DC	100, 200, 110*, 220*, 240* 12*, 24
Allowable voltage fluctuation		-15 to +10% of rated voltage
Apparent power (VA) (Note)	AC	Inrush: 73 (50 Hz), 58 (60 Hz) Holding: 28 (50 Hz), 17 (60 Hz)
Power consumption (W) (Note)	DC	12

\* Semi-standard

Note) At rated voltage

## Response Time (Note)

Model		VP4150	VP4170	VP4250	VP4270	VP4350	VP4450
Response time (ms) (at the pressure of 0.5 MPa)	AC	ON	30 or less	40 or less	30 or less	30 or less	30 or less
		OFF	50 or less	65 or less	30 or less	30 or less	30 or less
	DC	ON	40 or less	55 or less	40 or less	45 or less	40 or less
		OFF	40 or less	55 or less	40 or less	45 or less	30 or less

Note) Based on dynamic performance test, JIS B 8419: 2010. (Coil temperature: 20°C, at rated voltage, without surge voltage suppressor.)

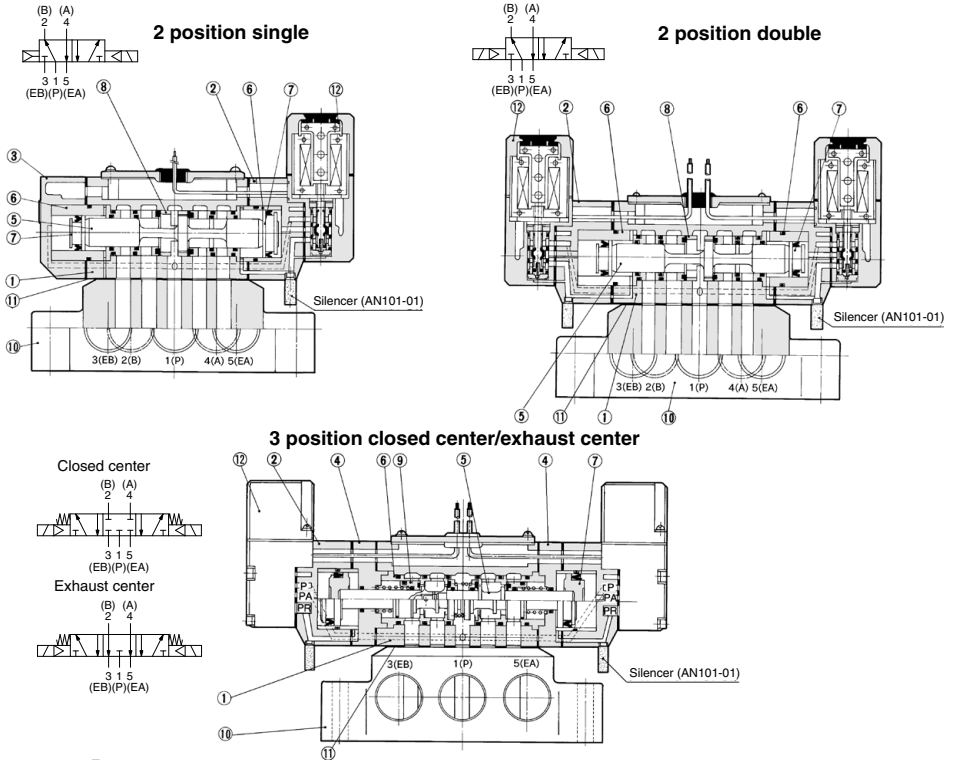
## Flow Rate Characteristics/Weight

Type of actuation	Model	Port size	Flow rate characteristics						Weight (kg)	
			1 → 4/2(P → A/B)			4/2 → 5/3(A/B → EA/EB)				
			C (dm <sup>3</sup> /(s·bar))	b	Cv	C (dm <sup>3</sup> /(s·bar))	b	Cv		
2 position	Single	VP4150	3/8	15	0.22	3.6	16	0.33	4.5	2.5
		1/2	17	0.15	4.0	19	0.28	5.1		
		3/4	21	0.13	5.2	21	0.28	5.6		
	Double	VP4250	3/8	15	0.22	3.6	16	0.33	4.5	3.0
		1/2	17	0.15	4.0	19	0.28	5.1		
		3/4	21	0.13	5.2	21	0.28	5.6		
3 position	Closed center	VP4350	3/8	16	0.28	4.0	15	0.29	4.0	3.6
		1/2	18	0.27	4.7	18	0.23	4.5		
		3/4	22	0.19	5.3	20	0.23	5.0		
	Exhaust center	VP4450	3/8	16	0.28	3.9	16(15)	0.29(0.28)	4.2(4.0)	3.6
		1/2	18	0.24	4.5	19(16)	0.24(0.27)	4.8(4.5)		
		3/4	21	0.15	5.1	22(18)	0.23(0.30)	5.5(4.8)		

( ) : Denotes the normal position.

Type of actuation	Model	Port size	Effective area (mm <sup>2</sup> )	Weight (kg)	
2 position	Single	VP4150	1	120	3.3
		VP4170	1 1/4	280	9.5
		1 1/2	300		
	Double	VP4250	1	120	3.8
		VP4270	1 1/4	280	10
1 1/2	300				
3 position	Closed center	VP4350	1	110	4.4
	Exhaust center	VP4450	1	110	4.4

## Construction



## Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Platinum silver
2	Plate	Aluminum alloy	Platinum silver
3	Cap	Aluminum alloy	Platinum silver
4	Spacer	Aluminum alloy	Platinum silver
5	Spool	Stainless steel/Aluminum alloy	
6	Sleeve	2 position: Aluminum alloy 3 position: Brass	
7	Piston	2 position: Resin 3 position: Stainless steel	
8	Center sleeve	Resin	
9	Side poppet	Brass, NBR	

## Replacement Parts

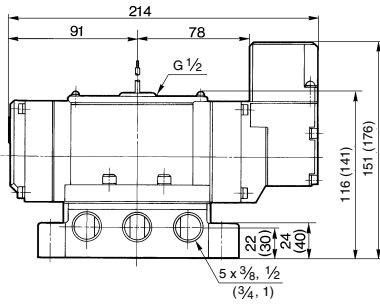
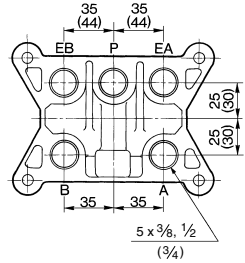
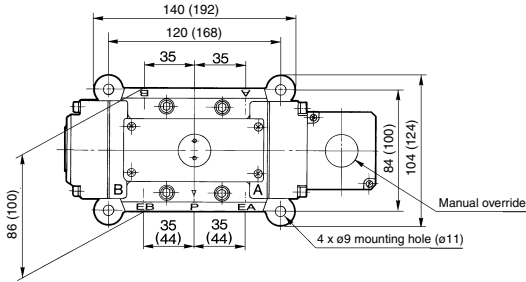
No.	Description	Part no.	Note		
10	Sub-plate	AXT021-1-1-□	VP4□50	Aluminum alloy □ in part numbers are the same symbol for the thread type in "How to Order".	
		AXT021-1-2-□			3/8
		DXT131-15P-06□			1/2
		DXT131-15P-10□			3/4
		DXT131-15P-B04□	VP4□51		1/2
		DXT131-15P-B06□			3/4
		DXT131-15P-B10□			1
		DXT132-15-2P-12□			1 1/4
11	Gasket	XT021-9	VP4□50		
		DXT132-16	VP4□70		
12	Hexagon socket head screw	CA00859 (M6 x 25)	VP4□50	Thread for mounting valve. A spring washer will be required separately for VP4□70. (EC00014 (M8))	
		CA00151 (M8 x 35)	VP4□70		
12	Pilot valve assembly	VT3112-00□G	Refer to "How to Order Pilot Valve Assembly" on page 347.		

# VP4□50/4□70 Series

## Dimensions: VP4150

Grommet: VP4150-□□G-□

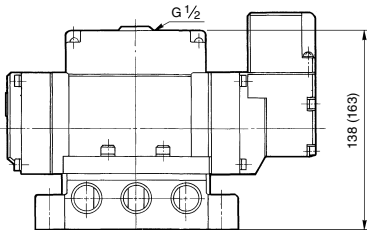
Bottom ported



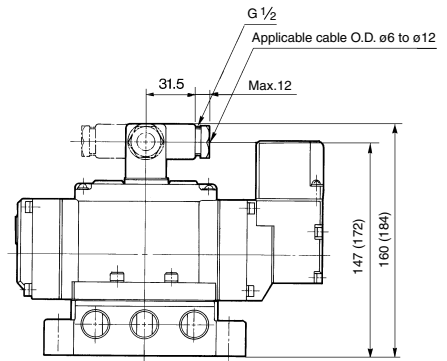
( ) : Rc 3/4, 1

Conduit terminal: VP4150-□□T-□

DIN terminal: VP4150-□□D-□



( ) : Rc 3/4, 1



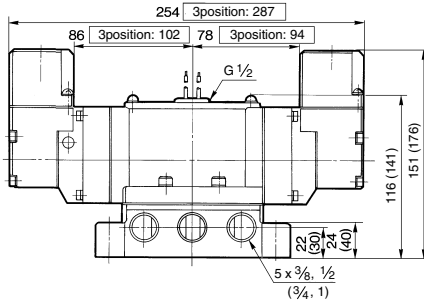
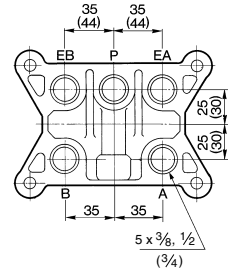
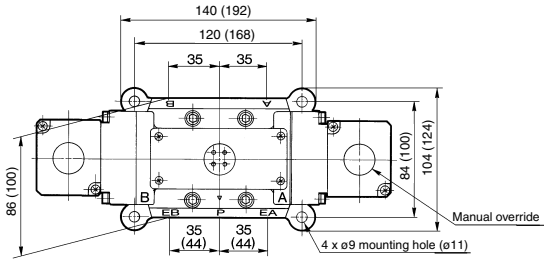
( ) : Rc 3/4, 1

**Rubber Seal**  
**Large Size 5 Port Solenoid Valve** *VP4□50/4□70 Series*

**Dimensions: VP4250/4350/4450**

**Grommet: VP4250-□□G-□, VP4350-□□G-□  
 VP4450-□□G-□**

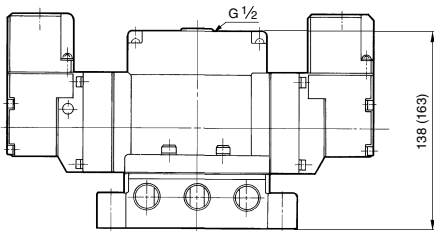
**Bottom ported**



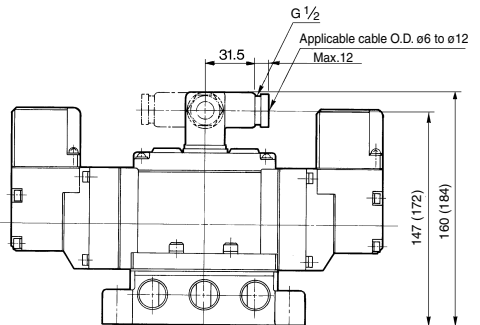
( ) : Rc 3/4, 1

**Conduit terminal: VP4250-□□T-□  
 VP4350-□□T-□  
 VP4450-□□T-□**

**DIN terminal: VP4250-□□D-□  
 VP4350-□□D-□  
 VP4450-□□D-□**



( ) : Rc 3/4, 1



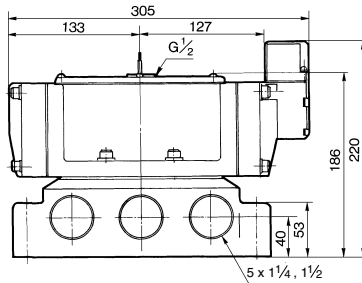
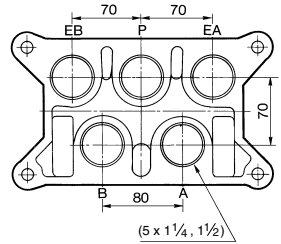
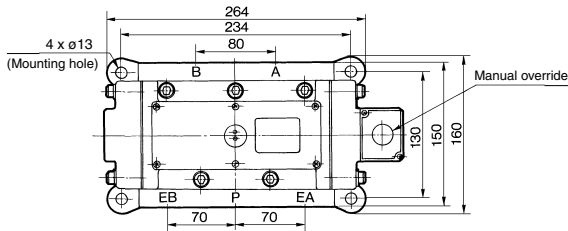
( ) : Rc 3/4, 1

# VP4□50/4□70 Series

## Dimensions: VP4170

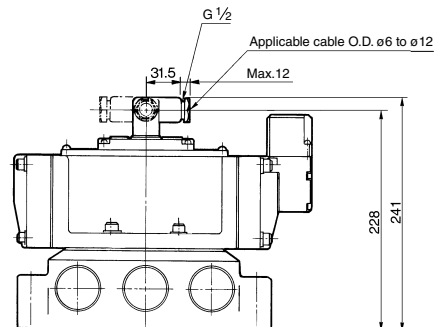
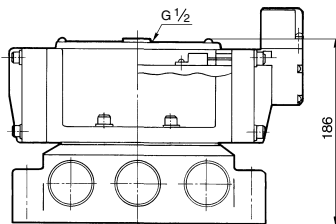
Grommet: VP4170- $\frac{12}{14}$ □G-□

Bottom ported



Conduit terminal: VP4170- $\frac{12}{14}$ □T-□

DIN terminal: VP4170- $\frac{12}{14}$ □D-□

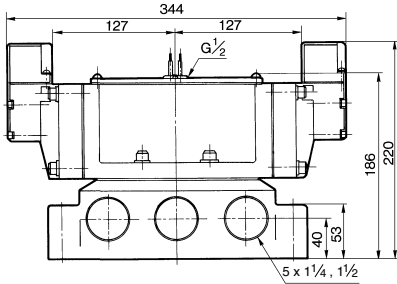
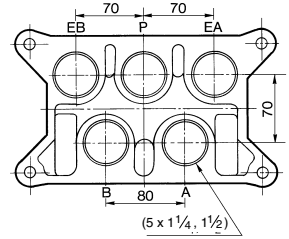
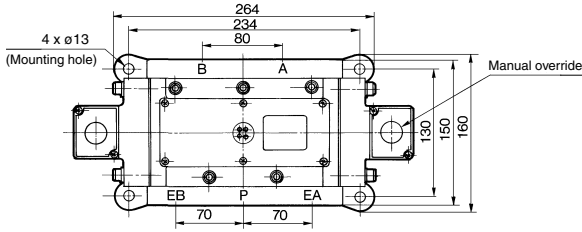


Rubber Seal  
Large Size 5 Port Solenoid Valve **VP4□50/4□70 Series**

**Dimensions: VP4270**

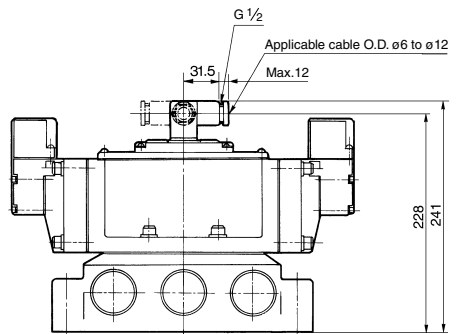
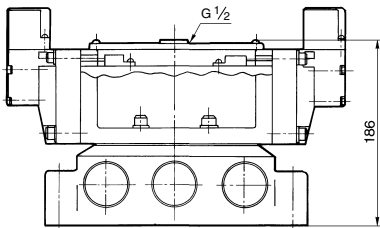
Grommet: VP4270- $\frac{12}{14}$ □G-□

Bottom ported



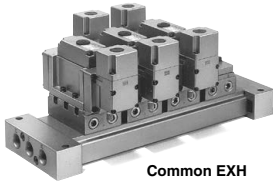
Conduit terminal: VP4270- $\frac{12}{14}$ □T-□

DIN terminal: VP4270- $\frac{12}{14}$ □D-□

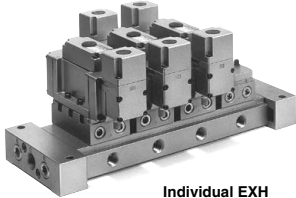


# VP4□50 Series

# Manifold Specifications



Common EXH



Individual EXH

## How to Order

**VVP4 5 0 - 04 1 - 04 - □**

**VP series 5 port solenoid valve Manifold**

**Base size**

5	3/4
6	1

**Porting specifications**

Symbol	P	A, B	E
0	Side	Side	Side
1	Side	Bottom <sup>Note)</sup>	Side

Note) A/B port piping: 3/8 or 1/2

**Thread type**

NII	Rc
F	G
N	NPT
T	NPTF

**A/B Port size**

Symbol	Port size	VVP450	VVP460
04	1/2	●	—
06	3/4	●	●
10	1	—	●
M <sup>Note)</sup>	Mixed	●	●

Note) In the case of "Mix", put "M" in the part number and indicate each port size in other places.

**Base specifications**

1	Common EXH
2	Individual EXH

**Valve stations**

02	2 stations
⋮	⋮
10	10 stations

## Precautions

No manifold is available for VP4□70 series.

## How to Order Manifold Assembly

Specify the valves and blanking plate to be mounted on the manifold along with the manifold base model no.  
 <Example> Base (4 stations), Common EXH, 100 VAC, DIN terminal, A/B port: Rc 3/4  
 VVP460-041-06..... 1 pc.  
 \*VP4154-001D..... 2 pcs.  
 \*VP4254-001D..... 1 pc.  
 \*XT038N-4A..... 1 pc.

↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

## Specifications

<b>Manifold type</b>	B mount
<b>Exhaust type</b>	Common EXH, Individual EXH <sup>(1)</sup>
<b>Supply type</b>	Common SUP
<b>Valve stations</b>	Max. 10 stations (VVP460: Max. 8 stations) <sup>(2)</sup>

Note 1) If throttling exhaust air, use individual exhaust type so that backing pressure does not cause trouble.  
 Note 2) In the case of 4 stations or more, supply air pressure from both sides and exhaust from both sides.

## Simultaneous Operation of Manifold Valves

Simultaneous operation of manifold valves can cause pressure drop.

## Model

Series	Exhaust specifications	Port size			Applicable valve model
		P	A, B	E	
VVP450	Common	3/4	1/2, 3/4	3/4	VP4154-00□□ VP4254-00□□ VP4354-00□□ VP4454-00□□
	Individual				
VVP460	Common	1	3/4, 1	1	
	Individual				

## Option

Blanking plate assembly	XT038N-4A	With gaskets and bolts
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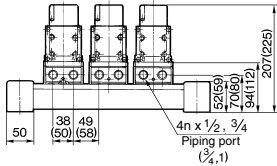
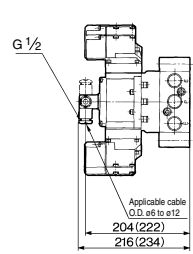
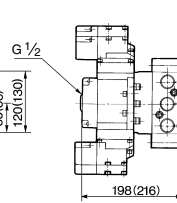
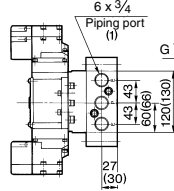
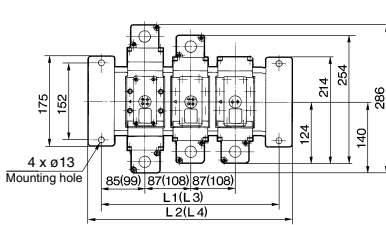
## Dimensions: VVP450/460

Common EXH: VVP450- Stations 1- Port size -   
 VVP460- Stations 1- Port size -

Grommet

Conduit terminal

DIN terminal



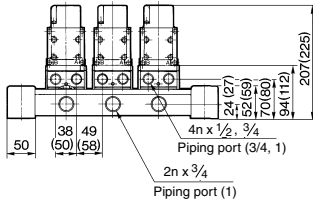
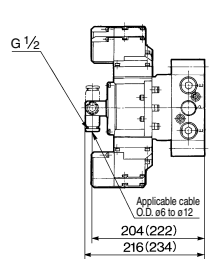
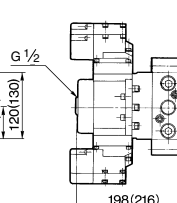
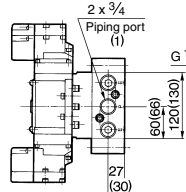
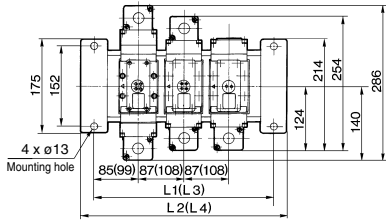
( ) : VVP460

Individual EXH: VVP450- Stations 2- Port size -   
 VVP460- Stations 2- Port size -

Grommet

Conduit terminal

DIN terminal



( ) : VVP460

### L Dimension

Model	Station	n: Station									
		2	3	4	5	6	7	8	9	10	Formula
VVP450	L <sub>1</sub>	257	344	431	518	605	692	779	866	953	L <sub>1</sub> =87 x n+83
	L <sub>2</sub>	307	394	481	568	655	742	829	916	1003	L <sub>2</sub> =87 x n+133
VVP460	L <sub>3</sub>	306	414	522	630	738	846	954	—	—	L <sub>3</sub> =108 x n+90
	L <sub>4</sub>	356	464	572	680	788	896	1004	—	—	L <sub>4</sub> =108 x n+140

# Made to Order Specifications:

## VP4□50/4□70 Series

### External Pilot/With Surge Voltage Suppressor



External Pilot

**-X40**

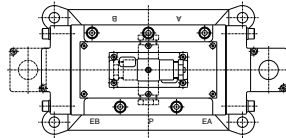
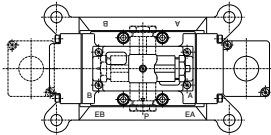
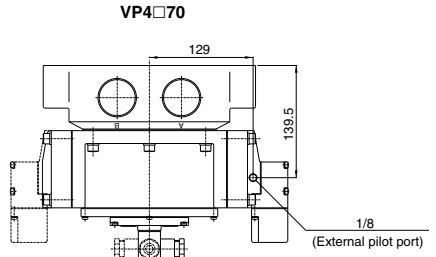
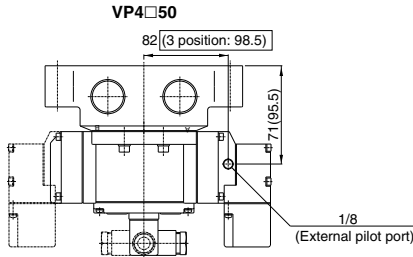
**Model no.**

VP4 □ □ □ - □ □ □ (- □) - X40

Entry is the same as standard products.

#### Dimensions

Same as those of standard models. For the external pilot port position, refer to the below.



Dimensions: Port size 3/8, 1/2  
( ): Port size 3/4, 1

With Surge Voltage Suppressor

**-X23**

**Model no.**

VP4 □ □ □ - □ □ □ (- □) - X23

Entry is the same as standard products.

Electrical entry

T	Conduit terminal
D	DIN terminal
TL	Conduit terminal with indicator light
DL	DIN terminal with indicator light

#### Dimensions

Same as those of standard models.