

# 3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve

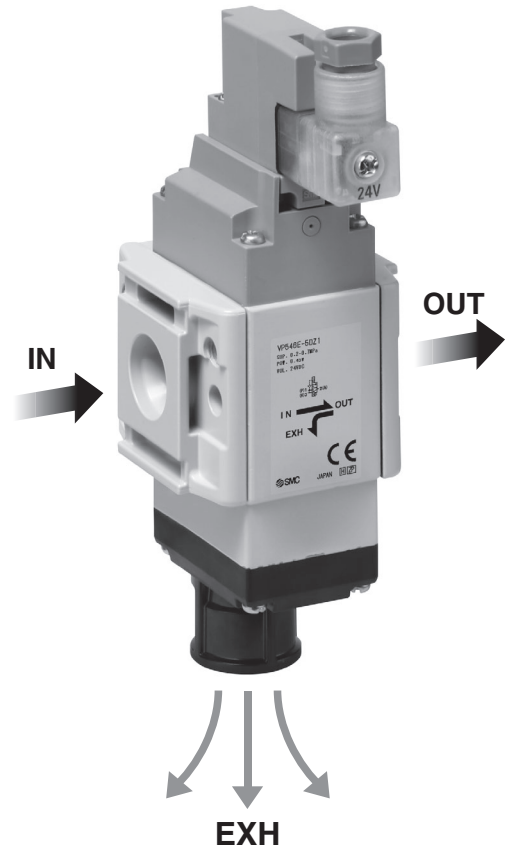
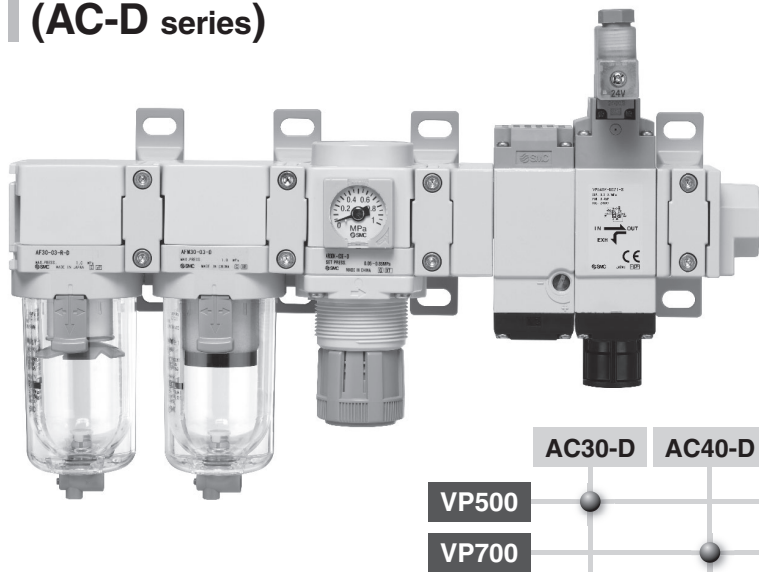


## Flow rate characteristics $Q$ [l/min (ANR)]

VP546E: 1729

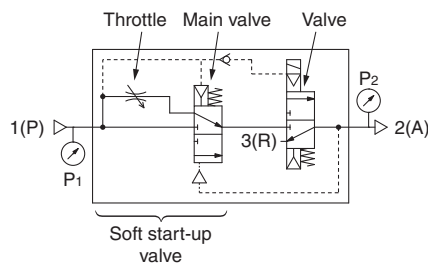
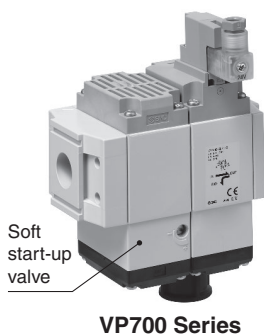
VP746E: 2985

Can be connected to F.R.L. units  
(AC-D series)

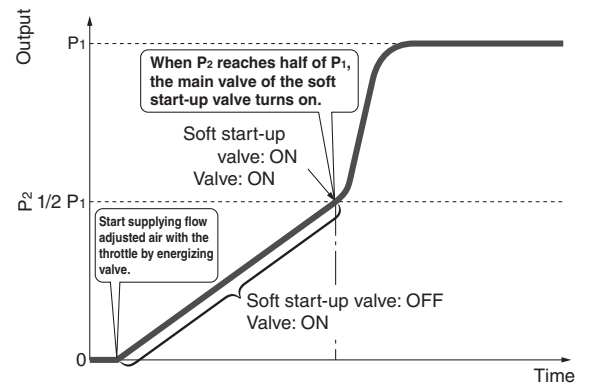


Allows for space saving and reduced piping labour.

A model with a soft start-up function is also available.



Output Pressure ( $P_2$ ) vs Time Graph



Power consumption: **0.35 W** (Without light)

Features a check valve built into the pilot flow path  
(Supports pilot pressure drops caused by pressure fluctuations on the inlet side)

## VP546E/746E Series



21-EU767-UK

# VP546E/746E Series



## How to Order

**Modular Type** **VP 5 46 E** **- 5 DZ** **1 - R** **-**

**Symbol**

Residual pressure relief 3-port solenoid valve

With soft start-up function

**Series**

5	VP500
7	VP700

**Solenoid valve type**

E	Residual pressure relief 3-port solenoid valve
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**Pressure specifications**

—	Standard (0.7 MPa)
K	High pressure (1.0 MPa)

**Rated voltage**

DC	5	24 VDC
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**Electrical entry**

DIN terminal	DIN (EN 175301-803C) terminal
 <b>D:</b> With connector <b>DZ:</b> With connector/ With light/surge voltage suppressor	 <b>DO:</b> Without connector
 <b>Y:</b> With connector <b>YZ:</b> With connector/ With light/surge voltage suppressor	 <b>YO:</b> Without connector

**Soft start-up function**

—	None
S	With soft start-up function

**Flow direction**

—	Left to right
R	Right to left

**Manual override**

—: Non-locking push type	A: Non-locking push type (Manual)	E: Push-turn locking type (Manual)

\* Refer to the catalogue on <https://www.smc.eu> (VP300/500 Low wattage specification) for details of the DIN terminal.

### Caution

- When using the surge voltage suppressor type, residual voltage will remain. For details, refer to the **catalogue** on <https://www.smc.eu> (VP300/500 Low wattage specification).
- Connection threads are not available for the residual pressure relief 3-port solenoid valve. Order a piping adapter and spacer with bracket separately.

## Simple Specials System

For modular connection units (shipped assembled), the simple specials system can be used.



### Short lead times

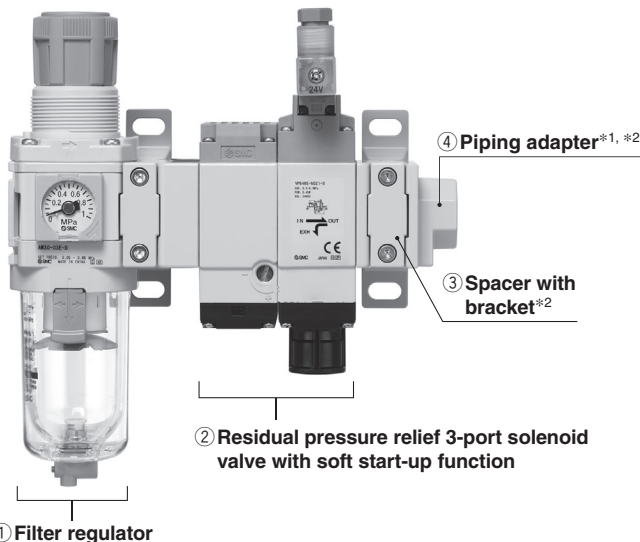
This system enables us to respond to your special needs (accessory assembly or the designing of a modular unit) as quickly as standard products.

Please contact your local sales representative for more details.

### Repeat orders

Once we receive a simple special part number from one of your previous orders, we will process the order, manufacture the product, and deliver it to you as quickly as possible.

## Assembly Example



- |  |        |
|--|--------|
| ① Filter regulator AW30-03E-D  | 1 pc.  |
| ② Residual pressure relief 3-port solenoid valve with soft start-up function VP546E-5DZ1-S | 1 pc.  |
| ③ Spacer with bracket Y300T-D  | 2 pcs. |
| ④ Piping adapter E300-03-D   | 1 pc.  |

### Applicable Combinations/ Attachment Combinations (Refer to page 3.)

\*1 Connection threads are not available for the residual pressure relief 3-port solenoid valve. Select a piping adapter.  
\*2 Refer to page 3 for details on the spacer with bracket and piping adapter.

# 3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve **VP546E/746E Series**

## Specifications

Fluid	Air	
Type of actuation	N.C.	
Pressure specifications	Standard	High pressure
Internal pilot operating pressure range [MPa]	0.2 to 0.7	0.2 to 1.0
Operating and ambient temperatures [°C]	-10 to 50 (No freezing)	
Max. operating frequency*1 [Hz]	5	
Manual override	Non-locking push type Non-locking push type (Manual) Push-turn locking type (Manual)	
Pilot exhaust	Individual exhaust	
Lubrication	Not required	
Mounting orientation	Unrestricted	
Impact/Vibration resistance*2 [m/s <sup>2</sup> ]	150/30	
Enclosure	IP65	

\*1 Excludes the type with a soft start-up function

\*2 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. The 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)

\* This valve is a large flow rate pilot-operated solenoid valve. If the operating pressure falls below 0.2 MPa due to a pressure drop caused by insufficient air supply, it may not be able to switch properly.

## Solenoid Specifications

Electrical entry		DIN terminal (D) DIN terminal (Y) <EN 175301-803C>	
		D, Y	
Coil rated voltage [V]	DC	24	
Allowable voltage fluctuation	±10% of the rated voltage		
Power consumption [W]	DC	Standard	0.35 (With light: 0.45)
Surge voltage suppressor	Varistor		
Indicator light	LED		

## Response Time/Weight

Model	Pressure specifications	Response time [ms] (at 0.5 MPa)*1		Weight [g]
		Without light/surge voltage suppressor	With light/surge voltage suppressor	
VP546E	Standard (0.2 to 0.7 MPa)	38	38	331 (With soft start-up function: 588)
	High pressure (0.2 to 1.0 MPa)	56	56	
VP746E	Standard (0.2 to 0.7 MPa)	56	56	676 (With soft start-up function: 1194)
	High pressure (0.2 to 1.0 MPa)	80	80	

\*1 Based on dynamic performance test, JIS B 8419-2010 (Coil temperature: 20°C, at rated voltage)

## Flow Rate Characteristics

Model	Port size EXH.	Flow rate characteristics							
		1 → 2 (P → A)				2 → 3 (A → R)			
		C [dm <sup>3</sup> /(s·bar)]	b	Cv	Q [l/min (ANR)] <sup>-1</sup>	C [dm <sup>3</sup> /(s·bar)]	b	Cv	Q [l/min (ANR)] <sup>-1</sup>
VP546E(K)	G3/8	8.8	0.14	2	2040	7.5	0.13	1.7	1729
VP546E(K)-S	G3/8	6.6	0.07	1.5	1476	7.5	0.13	1.7	1729
VP746E(K)	G1/2	13.8	0.11	2.9	3149	12.6	0.18	2.9	2985
VP746E(K)-S	G1/2	10.5	0.12	2.3	2409	12.6	0.18	2.9	2985

\*1 These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

# VP546E/746E Series

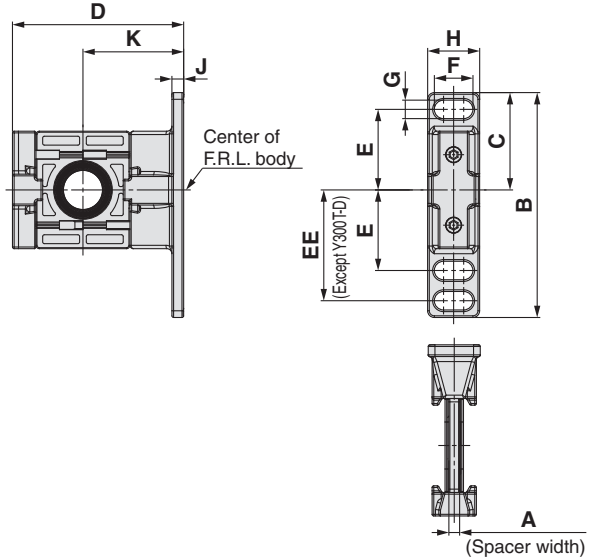
## Spacer with Bracket

Y **300** T-D

① ②



Spacer with bracket (Y□T-D)



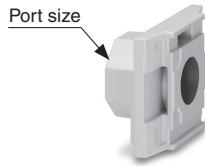
	Symbol	Description	①	
			Body size [Applicable AC size]	
			300 [AC30]	400 [AC40]
②	Bracket	T	Spacer with bracket	● ●

Model	A	B	C	D	E	EE	F	G	H	J	K	Applicable size
Y300T-D	4.2	85	42.5	67.5	35	—	14	7	20	6	41	AC30-D
Y400T-D	5.2	115	50	85.5	40	55	18	9	26	7	50	AC40-D

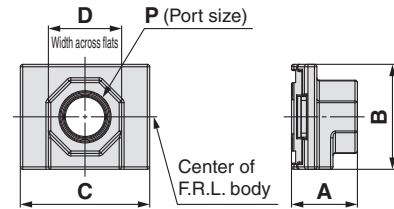
## Piping Adapter: 3/8, 1/2

E **300** - □ **03** - D

① ② ③



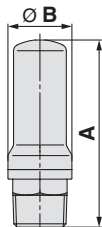
	Symbol	Description	①	
			Body size [Applicable AC size]	
			300 [AC30]	400 [AC40]
②	Pipe thread type	—	Rc	● ●
		N	NPT	● ●
		F	G	● ●
		+		
③	Port size	02	1/4	● ●
		03	3/8	● ●
		04	1/2	● ●
		06	3/4	— ●



Model	P	A	B	C	D	Applicable AC size
E300-D	1/4, 3/8, 1/2	27	43	53	30	AC30-D
E400-D	1/4, 3/8, 1/2, 3/4	30	51	71	36	AC40-D

## Silencer

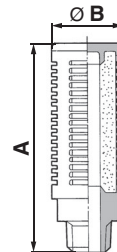
Compact resin type



[mm]

Model	Port size R	A	B
AN30-03	3/8	58.5	20
AN40-04	1/2	68	24

High noise reduction type



[mm]

Model	Port size R	A	B
AN302-03	3/8	84	28
AN402-04	1/2	95	34

## Applicable Combinations/Attachment Combinations

Residual pressure relief 3-port solenoid valve	Air combination	Spacer with bracket	Piping adapter	Silencer
VP546E	AC30□-D	Y300T-D	E300-□03-D	AN30-03 AN302-03
VP746E	AC40□-D	Y400T-D	E400-□04-D	AN40-04 AN402-04

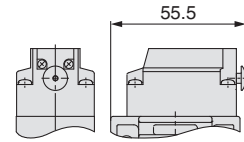
# 3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve **VP546E/746E Series**

## Dimensions

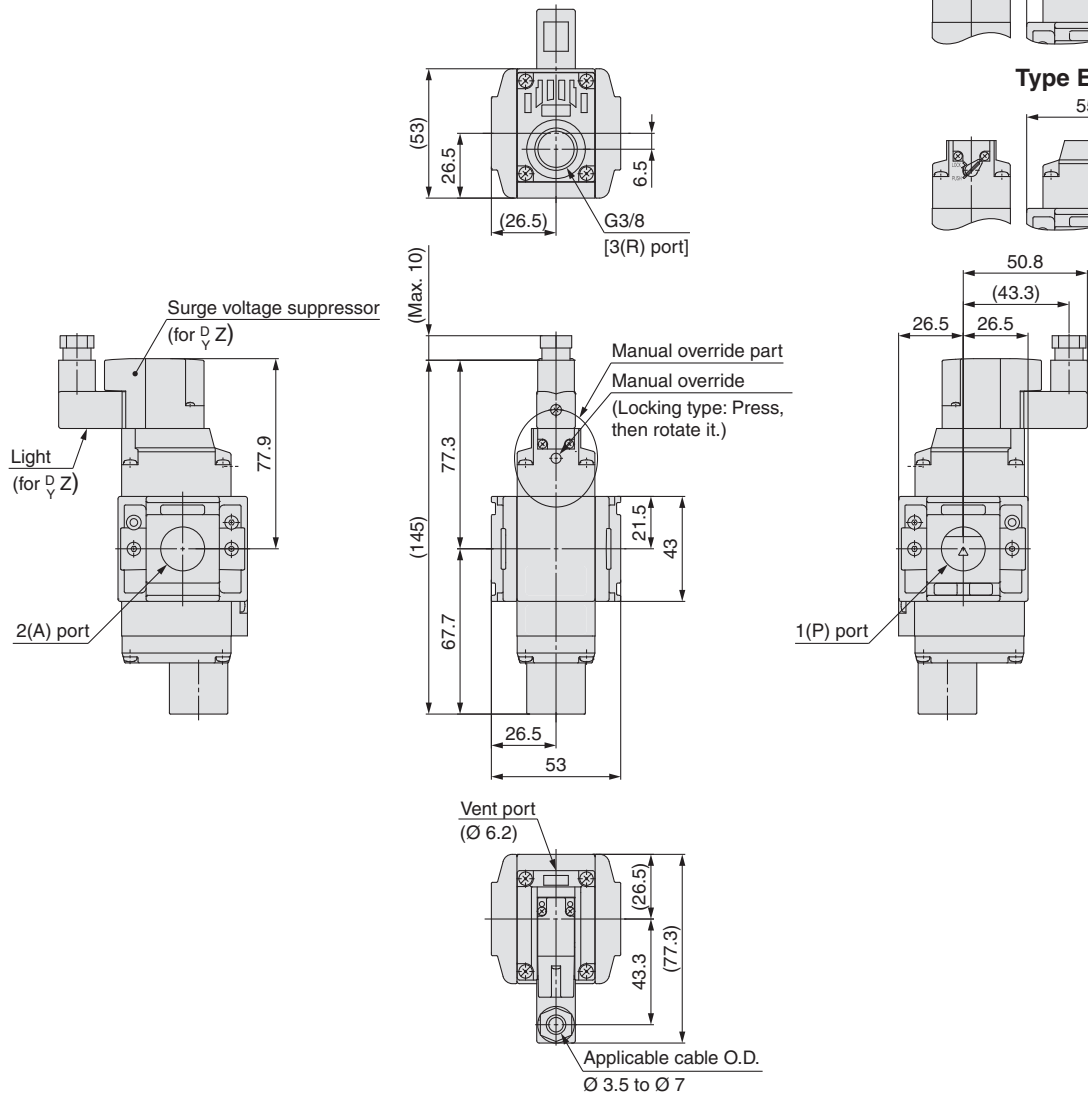
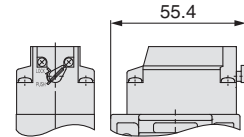
VP546E□-5□□□1-□

Details of manual override part  
(for manual operation)

Type A



Type E



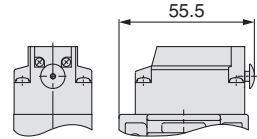
# VP546E/746E Series

## Dimensions

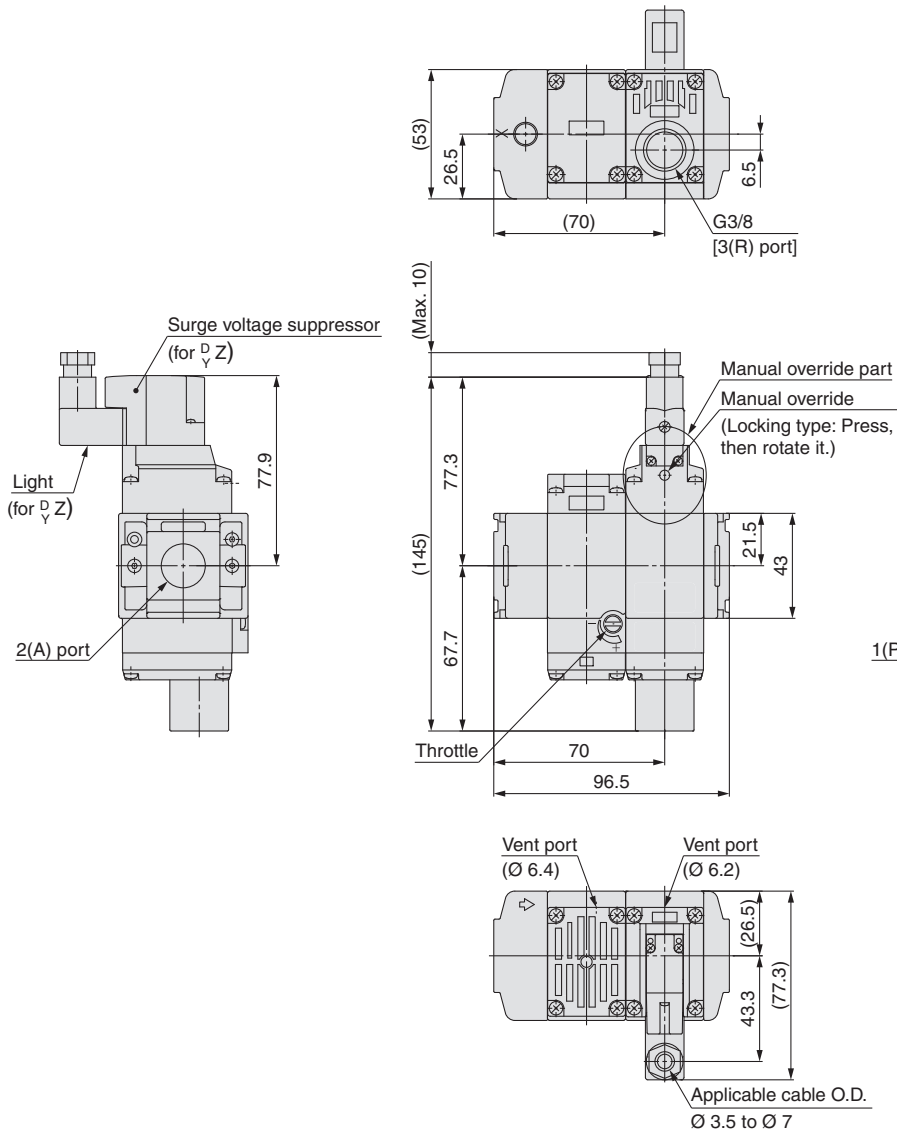
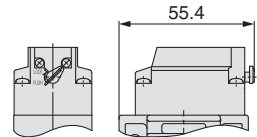
VP546E□-5□□□1-□-S

Details of manual override part  
(for manual operation)

Type A



Type E



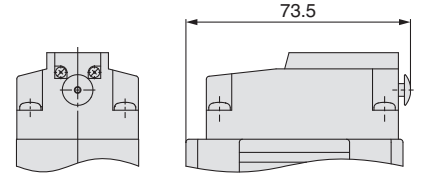
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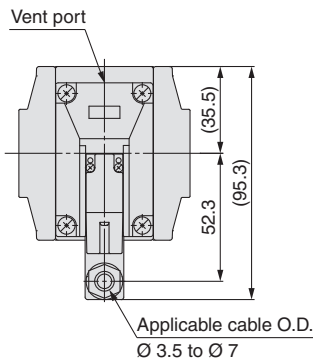
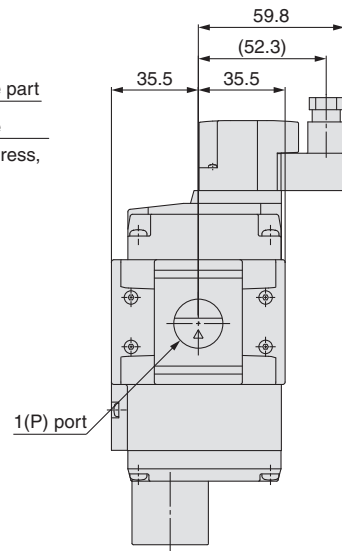
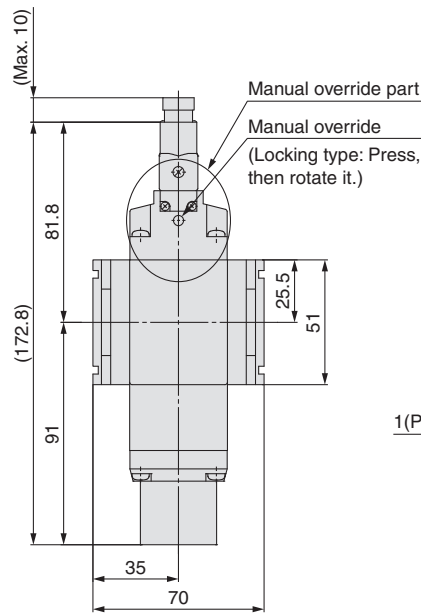
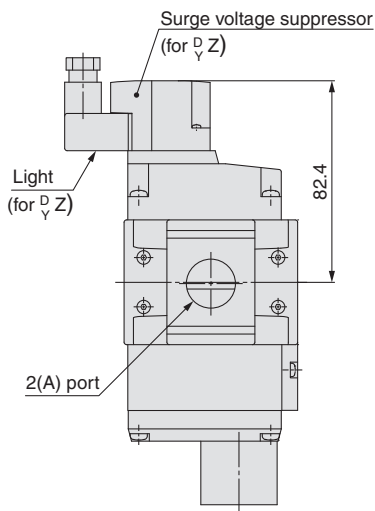
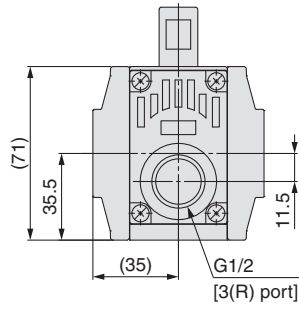
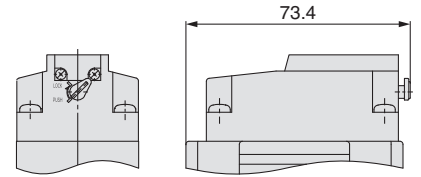
VP746E□-5□□□1-□

Details of manual override part  
(for manual operation)

Type A



Type E



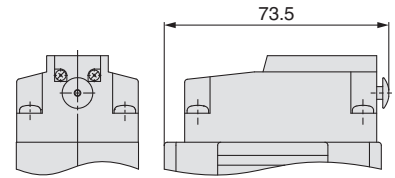
# VP546E/746E Series

## Dimensions

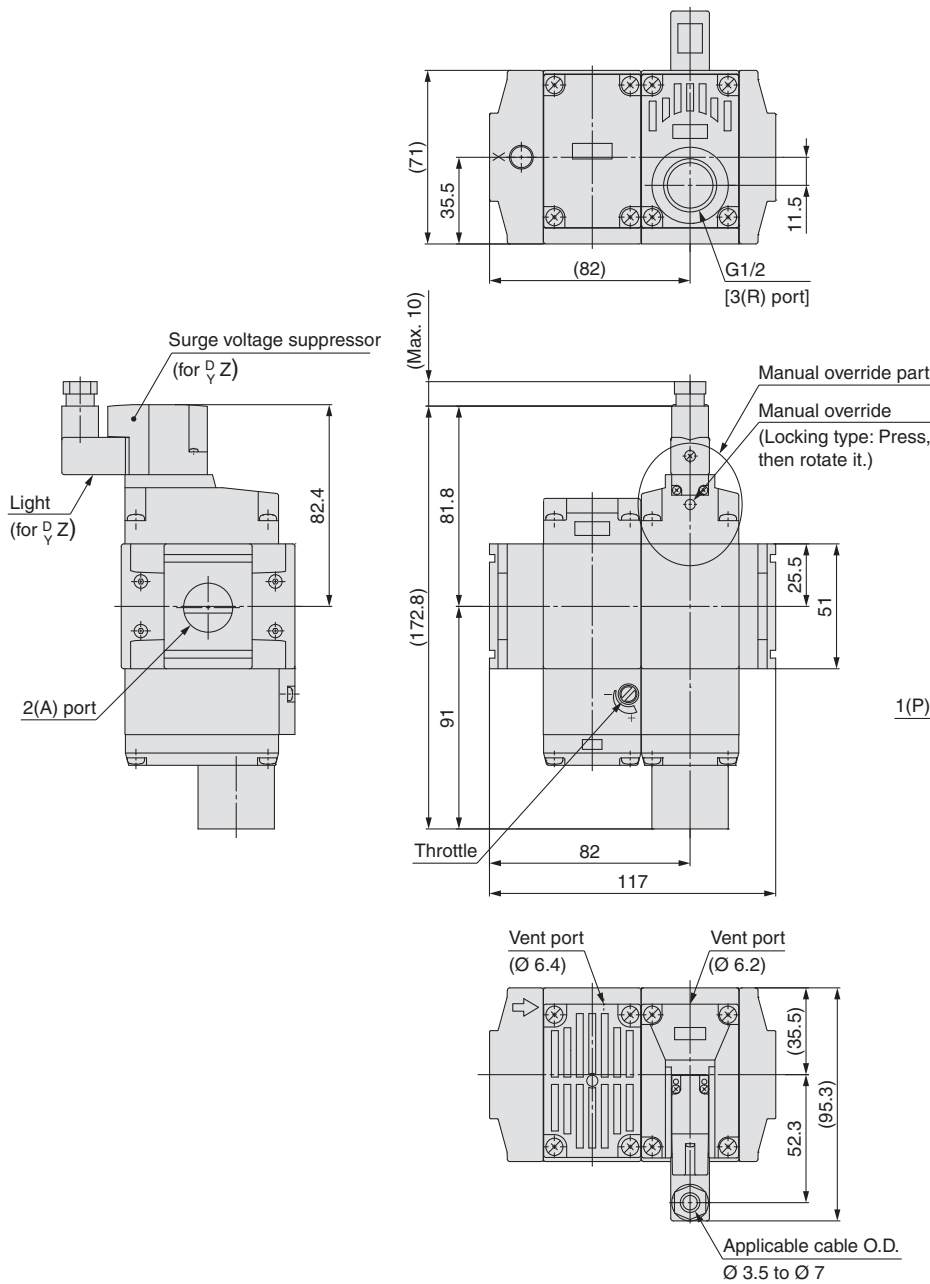
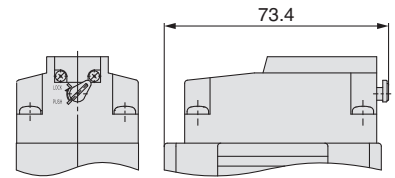
VP746E□-5□□□1-□-S

Details of manual override part  
(for manual operation)

Type A



Type E









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