

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

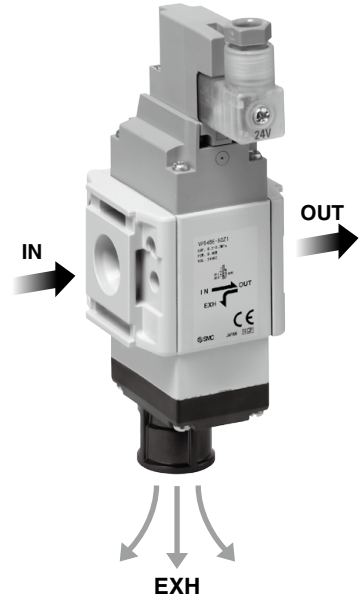
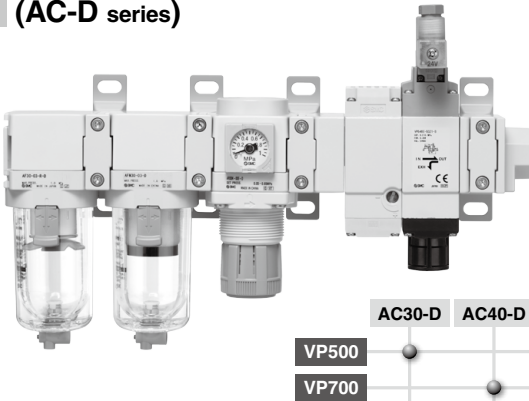


## Flow rate characteristics $c$ [dm<sup>3</sup>/(s·bar)]

VP546E: 7.5

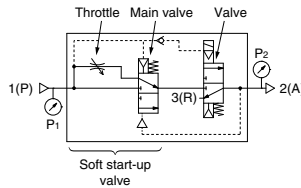
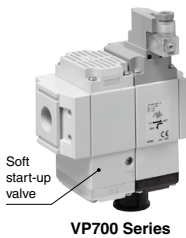
VP746E: 12.6

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

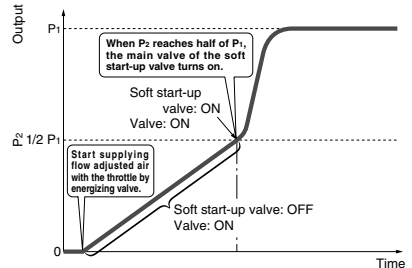


Allows for space saving and reduced piping labor.

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

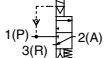
## How to Order



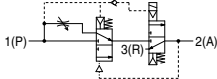
**Modular Type** VP **5** 46 E **□** - **5** DZ **□** 1 - R - **□**

### 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

Nil	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

\* Refer to the **Web Catalog** (VP300/500 Low wattage specification) for details of the DIN terminal.

### Soft start-up function

Nil	None
S	With soft start-up function

### Flow direction

Nil	Left to right
R	Right to left

### Manual override

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

### Caution

- When using the surge voltage suppressor type, residual voltage will remain. For details, refer to the **Web Catalog** (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

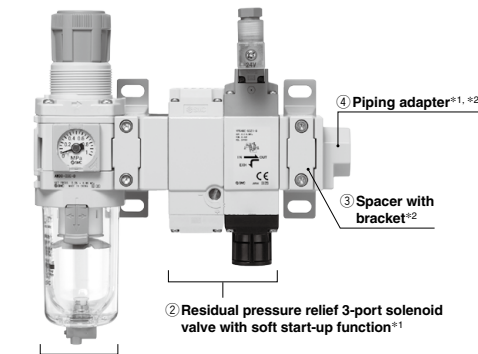
This system enables us to respond to your special needs (accessory assembly or the designing of a modular unit) as quickly as standard products.

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.

## Simple Specials Combination 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 1098.)

\*1 Connection threads are not available for the residual pressure relief 3-port solenoid valve. Select a piping adapter.  
\*2 Refer to page 1098 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	C [dm <sup>3</sup> /(s·bar)]	b	Cv
VP546E(K)	G3/8	8.8	0.14	2	7.5	0.13	1.7
VP546E(K)-S	G3/8	6.6	0.07	1.5	7.5	0.13	1.7
VP746E(K)	G1/2	13.8	0.11	2.9	12.6	0.18	2.9
VP746E(K)-S	G1/2	10.5	0.12	2.3	12.6	0.18	2.9

# VP546E/746E Series

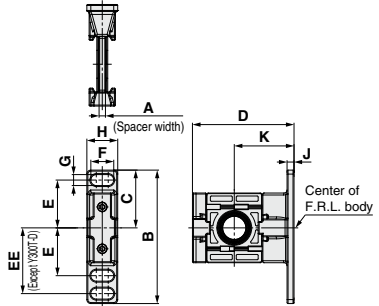
## Spacer with Bracket

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

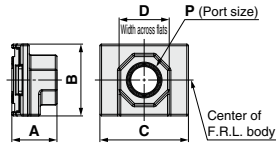
## Piping Adapter

E **300** - □ **03** - D  
 ① ② ③

Port size



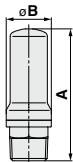
	Symbol	Description	①		
			Body size [Applicable AC size]		
			300 [AC30]	400 [AC40]	
②	Pipe thread type	Nil	Rc	●	●
		N	NPT	●	●
		F	G	●	●
		+			
③	Port size	02	1/4	●	●
		03	3/8	●	●
		04	1/2	●	●
		06	3/4	—	●



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

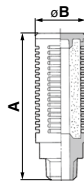
Compact resin type



[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

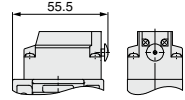
# 3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve **VP546E/746E Series**

## Dimensions

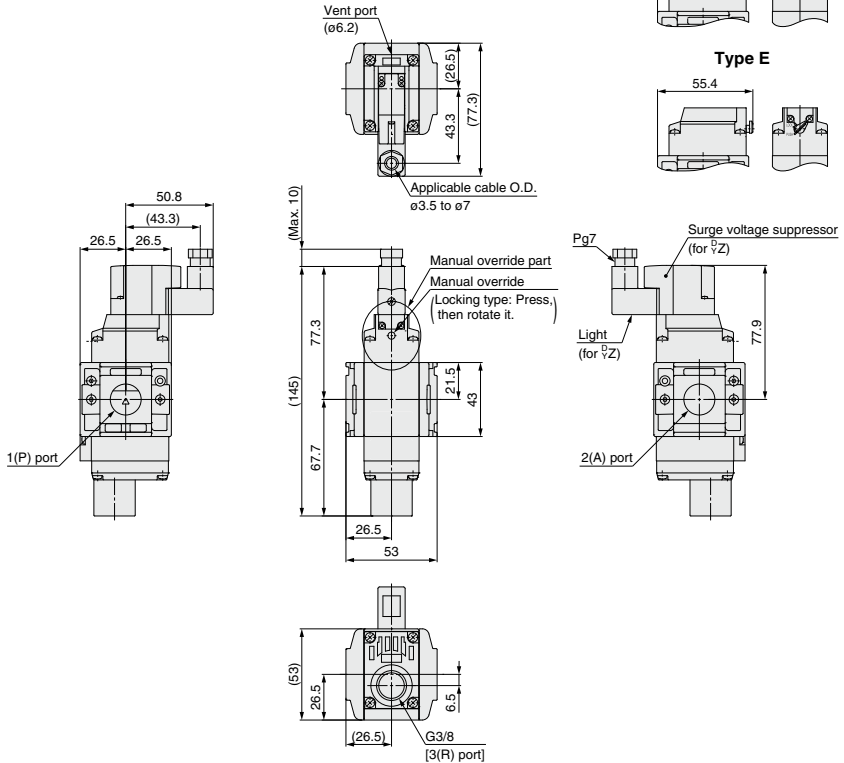
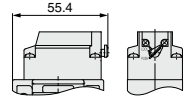
VP546E□-5□□□1-□

Details of manual override part  
(for manual operation)

Type A



Type E



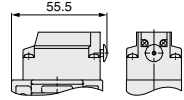
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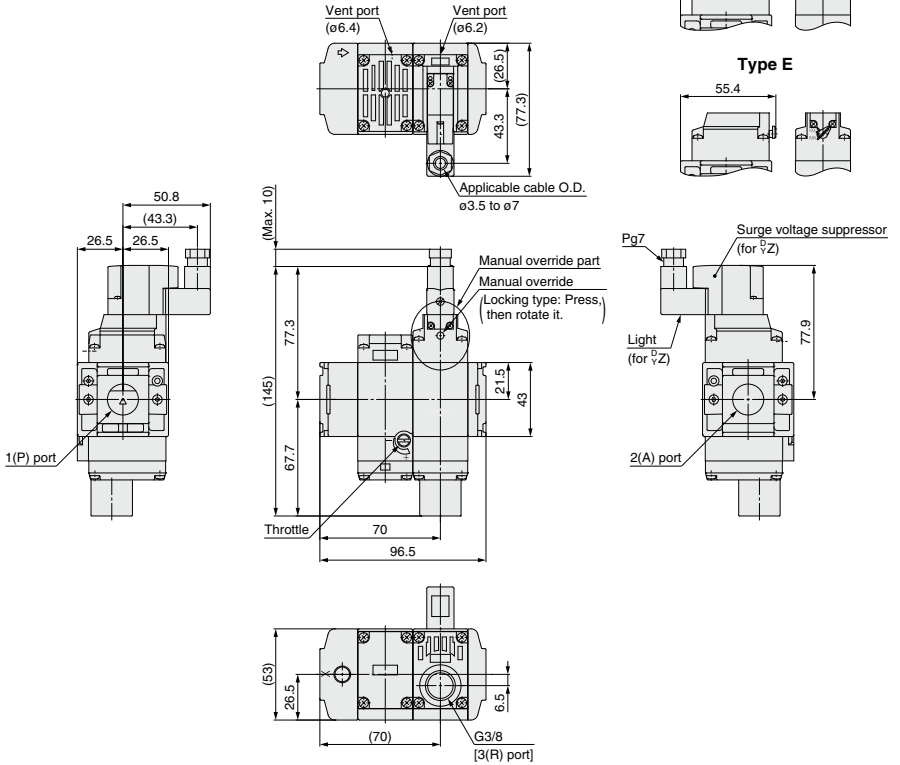
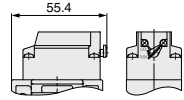
VP546E□-5□□□1-□-S

### Details of manual override part (for manual operation)

Type A



Type E



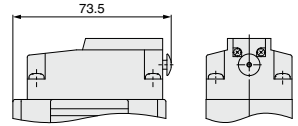
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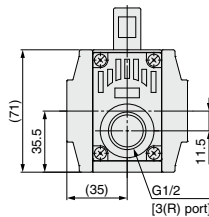
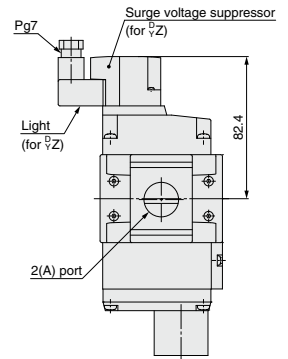
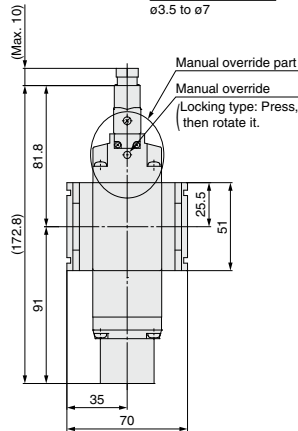
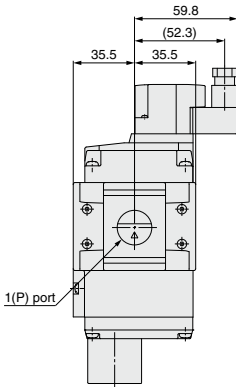
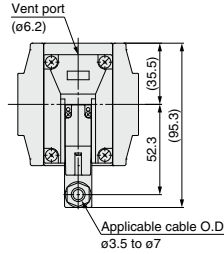
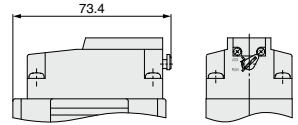
VP746E□-5□□□1-□

Details of manual override part  
(for manual operation)

Type A



Type E



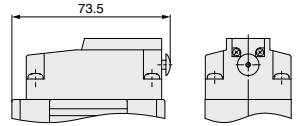
# VP546E/746E Series

## Dimensions

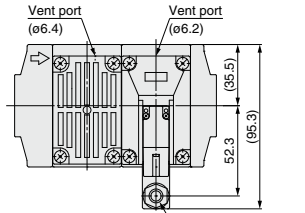
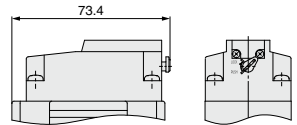
VP746E□-5□□□1-□-S

### Details of manual override part (for manual operation)

**Type A**



**Type E**



Applicable cable O.D.  
 $\phi 3.5$  to  $\phi 7$

