

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

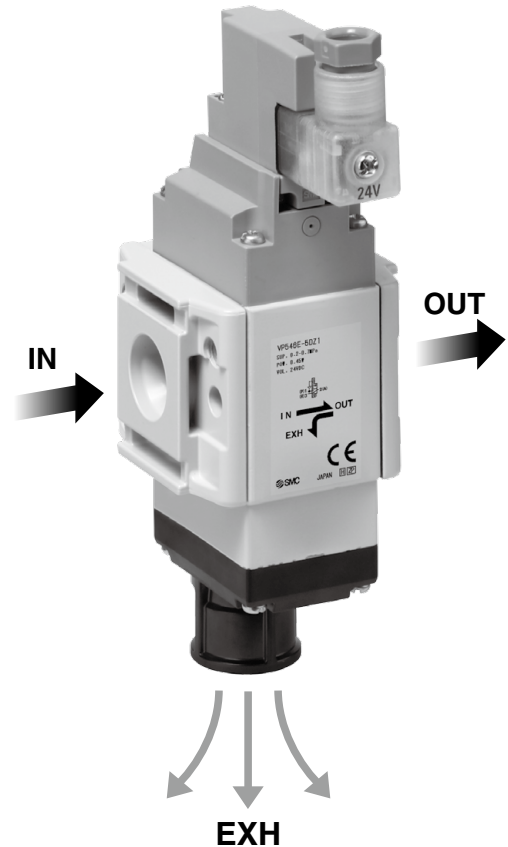
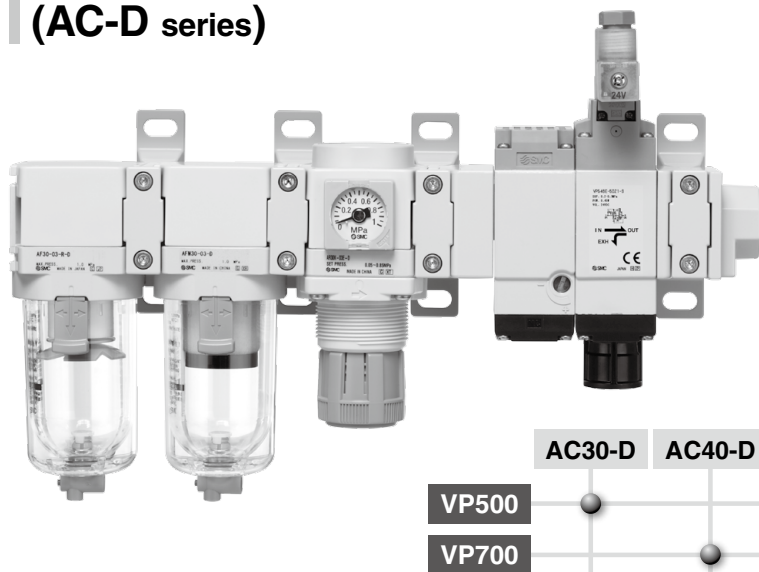


Flow rate characteristics C [dm³/(s·bar)]

VP546E: 7.5

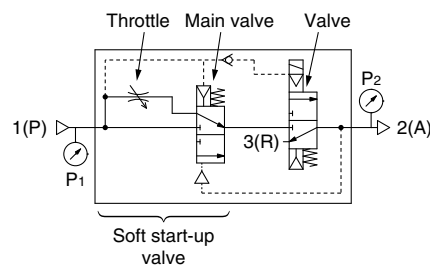
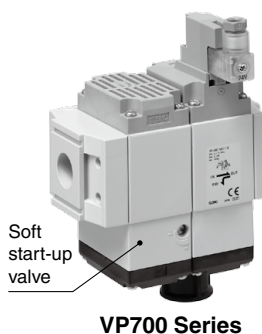
VP746E: 12.6

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

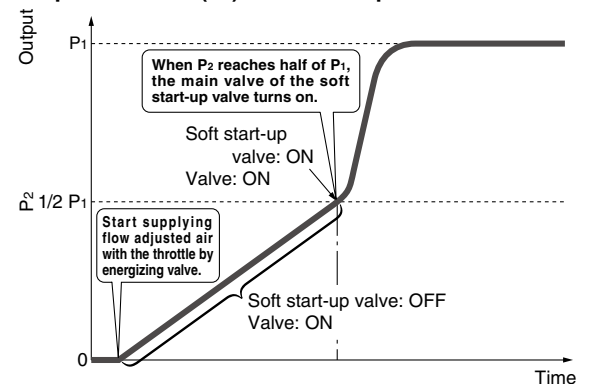


Allows for space saving and reduced piping labor.

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



VP546E/746E Series



How to Order

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

Series

| | |
|---|-------|
| 5 | VP500 |
| 7 | VP700 |

Solenoid valve type

| | |
|---|--|
| E | Residual pressure relief 3-port solenoid valve |
|---|--|

Rated voltage

| | | |
|----|---|--------|
| DC | 5 | 24 VDC |
|----|---|--------|

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) |
| | | |

Symbol

Residual pressure relief 3-port solenoid valve

1(P) 2(A) 3(R)

With soft start-up function

1(P) 2(A) 3(R)

Electrical entry

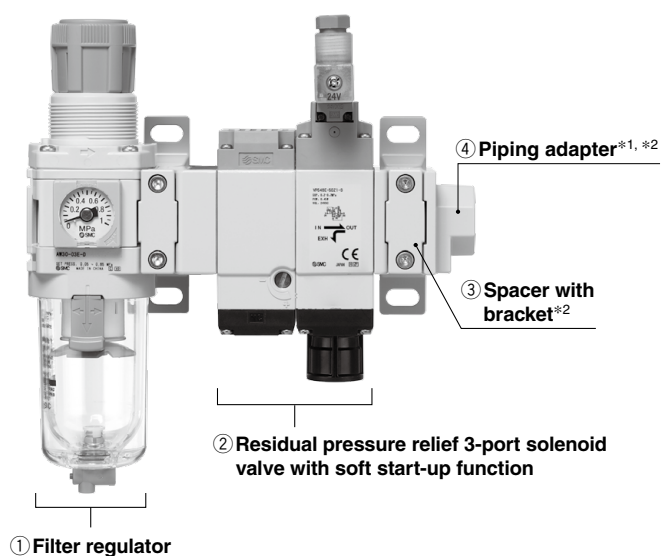
| DIN terminal | | DIN (EN 175301-803C) terminal | |
|---|------------------------------|---|------------------------------|
| | | | |
| D: With connector | DO: Without connector | Y: With connector | YO: Without connector |
| DZ: With connector/With light/surge voltage suppressor | | YZ: With connector/With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

* Refer to the **Web Catalog** (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 **Web Catalog** (VP300/500 Low wattage specification).

Assembly Example



*1 Connection threads are not available for the residual pressure relief 3-port solenoid valve. Order a piping adapter separately.

*2 Refer to page 3 for details on the spacer with bracket and piping adapter.

Products do not come assembled. They should be ordered separately and assembled by the customer.

Please contact your local sales representative for more details.

Ordering 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 Part Nos. (Refer to page 3)

| 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**

Specifications

| | |
|---|--|
| Fluid | Air |
| Type of actuation | N.C. |
| Internal pilot operating pressure range [MPa] | 0.2 to 0.7 |
| Operating and ambient temperatures [°C] | −10 to 50 (No freezing) |
| Max. operating frequency [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*1 [m/s ²] | 150/30 |
| Enclosure | IP65 |

*1 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 | Response time [ms] (at 0.5 MPa) | Weight [g] |
|--------|------------------------------------|--|
| VP546E | 38 | 331 (With soft start-up function: 588) |
| VP746E | 56 | 676 (With soft start-up function: 1194) |

Flow Rate Characteristics

| Model | Port size EXH. | Flow rate characteristics | | | | | |
|----------|-------------------|------------------------------|------|-----|------------------------------|------|-----|
| | | 1 → 2 (P → A) | | | 2 → 3 (A → R) | | |
| | | C [dm ³ /(s·bar)] | b | Cv | C [dm ³ /(s·bar)] | b | Cv |
| VP546E | G3/8 | 8.8 | 0.14 | 2 | 7.5 | 0.13 | 1.7 |
| VP546E-S | G3/8 | 6.6 | 0.07 | 1.5 | 7.5 | 0.13 | 1.7 |
| VP746E | G1/2 | 13.8 | 0.11 | 2.9 | 12.6 | 0.18 | 2.9 |
| VP746E-S | G1/2 | 10.5 | 0.12 | 2.3 | 12.6 | 0.18 | 2.9 |

VP546E/746E Series

Spacer with Bracket

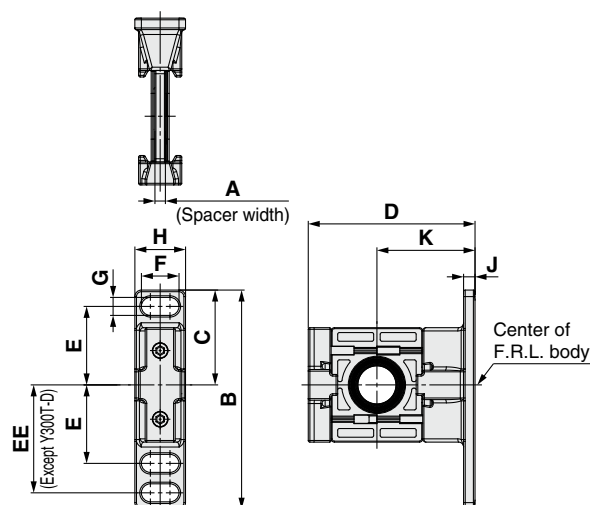
Y **300** T-D

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 | ● | ● |

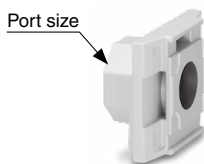


| Model | A | B | C | D | E | EE | F | G | H | J | K | Applicable size |
|---------|-----|-----|------|------|----|----|----|---|----|---|----|-----------------|
| Y300T-D | 4.2 | 85 | 42.5 | 67.5 | 35 | — | 14 | 7 | 20 | 6 | 41 | AC30-D |
| Y400T-D | 5.2 | 115 | 50 | 85.5 | 40 | 55 | 18 | 9 | 26 | 7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

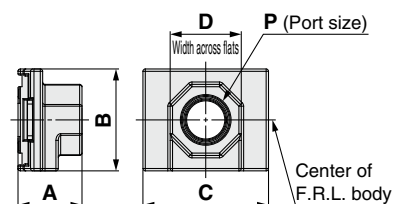
Piping Adapter: 3/8, 1/2

E **300** - **03** - D

1 2 3



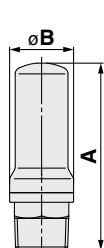
| | Symbol | Description | 1 | |
|---|------------------|-------------|-----------------------------------|---------------|
| | | | Body size [Applicable AC size] | |
| | | | 300 [AC30] | 400 [AC40] |
| 2 | Pipe thread type | Nil | Rc | ● |
| | | N | NPT | ● |
| | | F | G | ● |
| 3 | Port size | + | | |
| | | 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 |

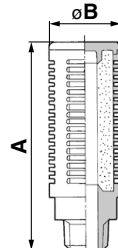
Silencer

Compact resin type



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

High noise reduction type



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

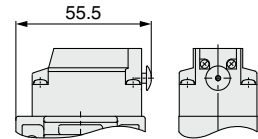
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve **VP546E/746E Series**

Dimensions

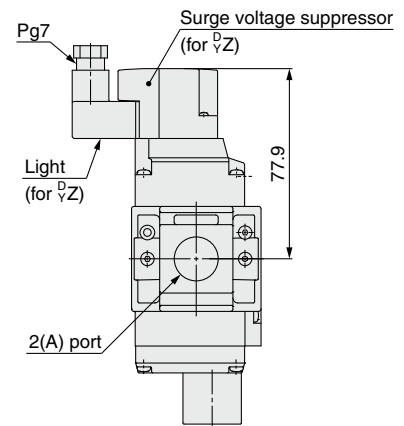
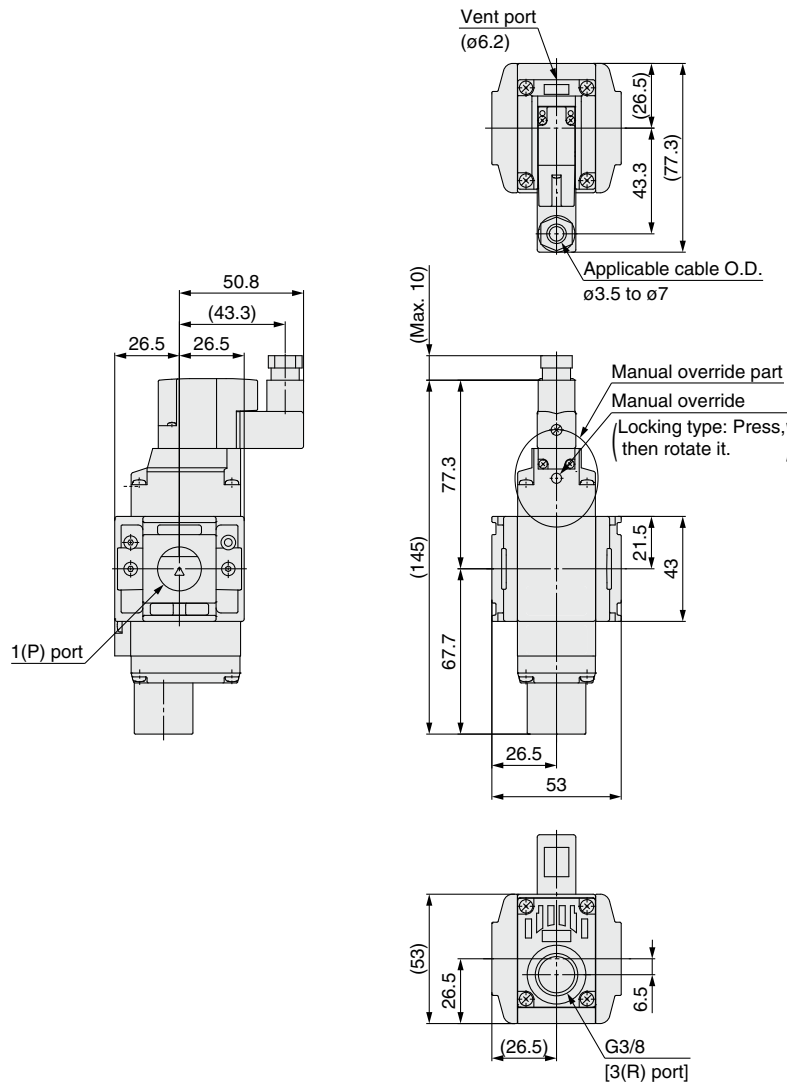
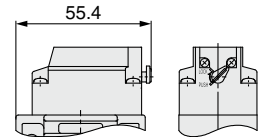
VP546E-5□□□1-□

Details of manual override part
(for manual operation)

Type A



Type E



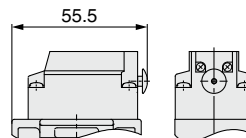
VP546E/746E Series

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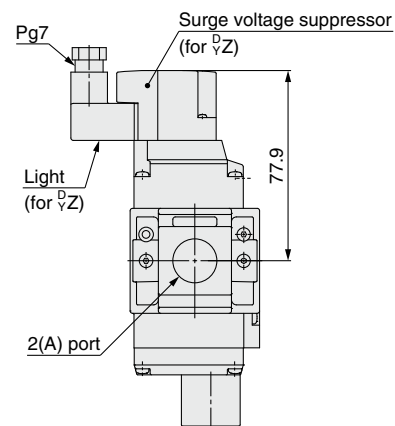
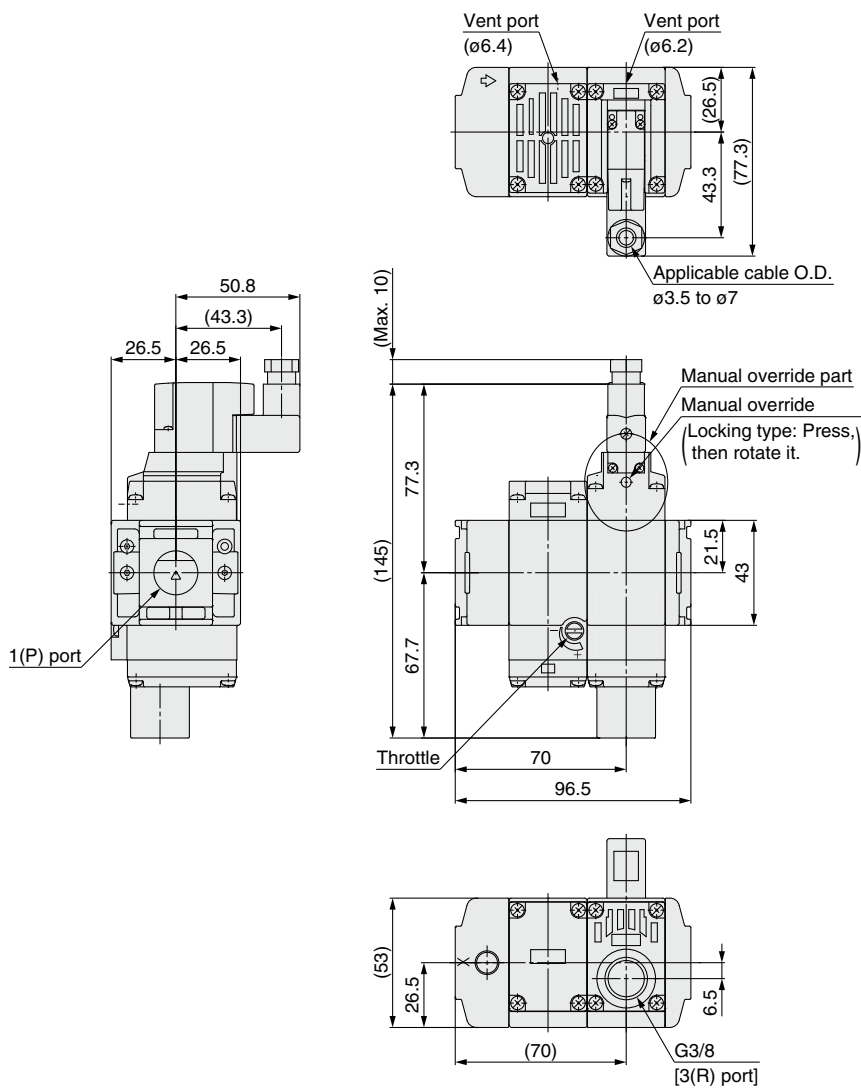
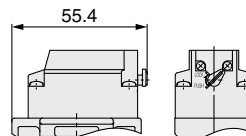
VP546E-5□□□1-□-S

Details of manual override part
(for manual operation)

Type A



Type E



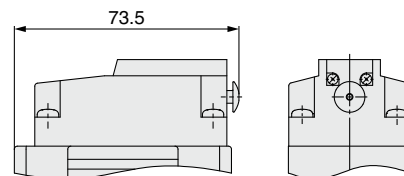
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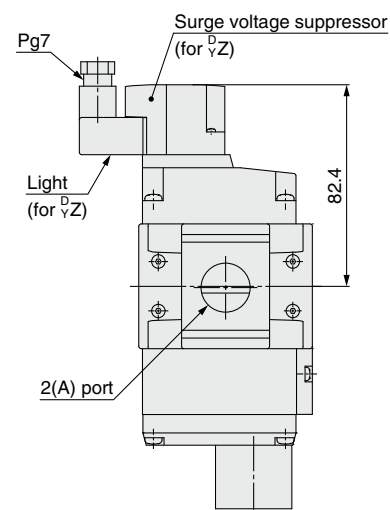
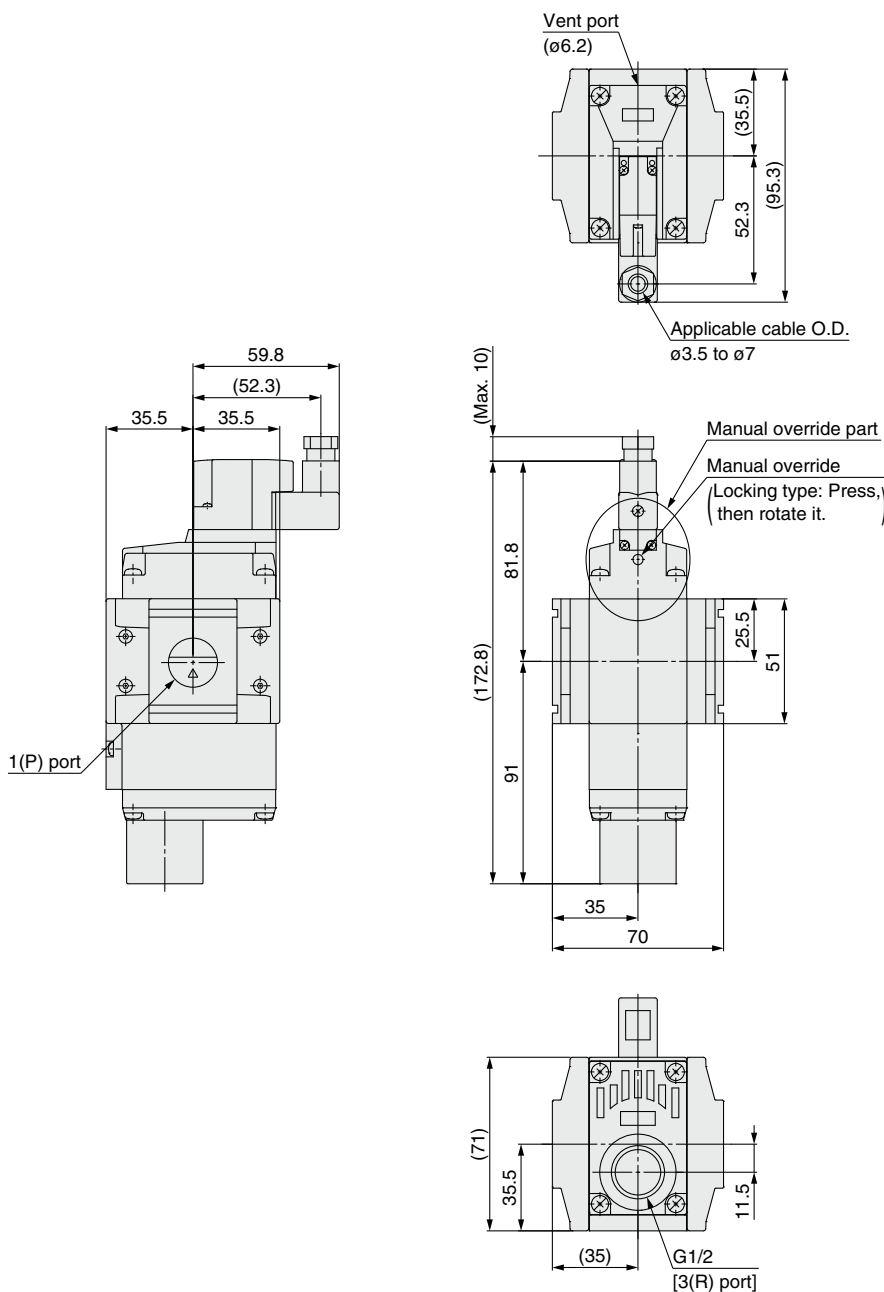
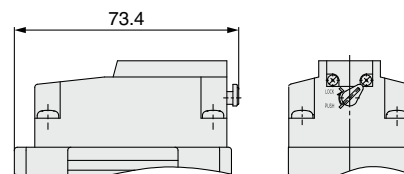
VP746E-5□□□1-□

Details of manual override part
(for manual operation)

Type A



Type E



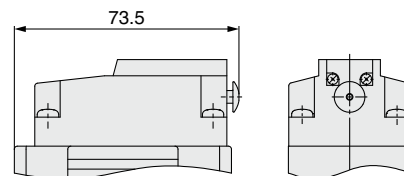
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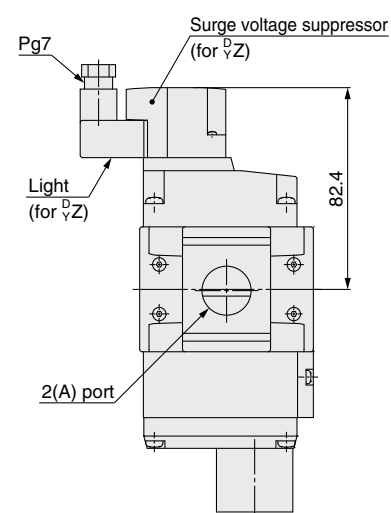
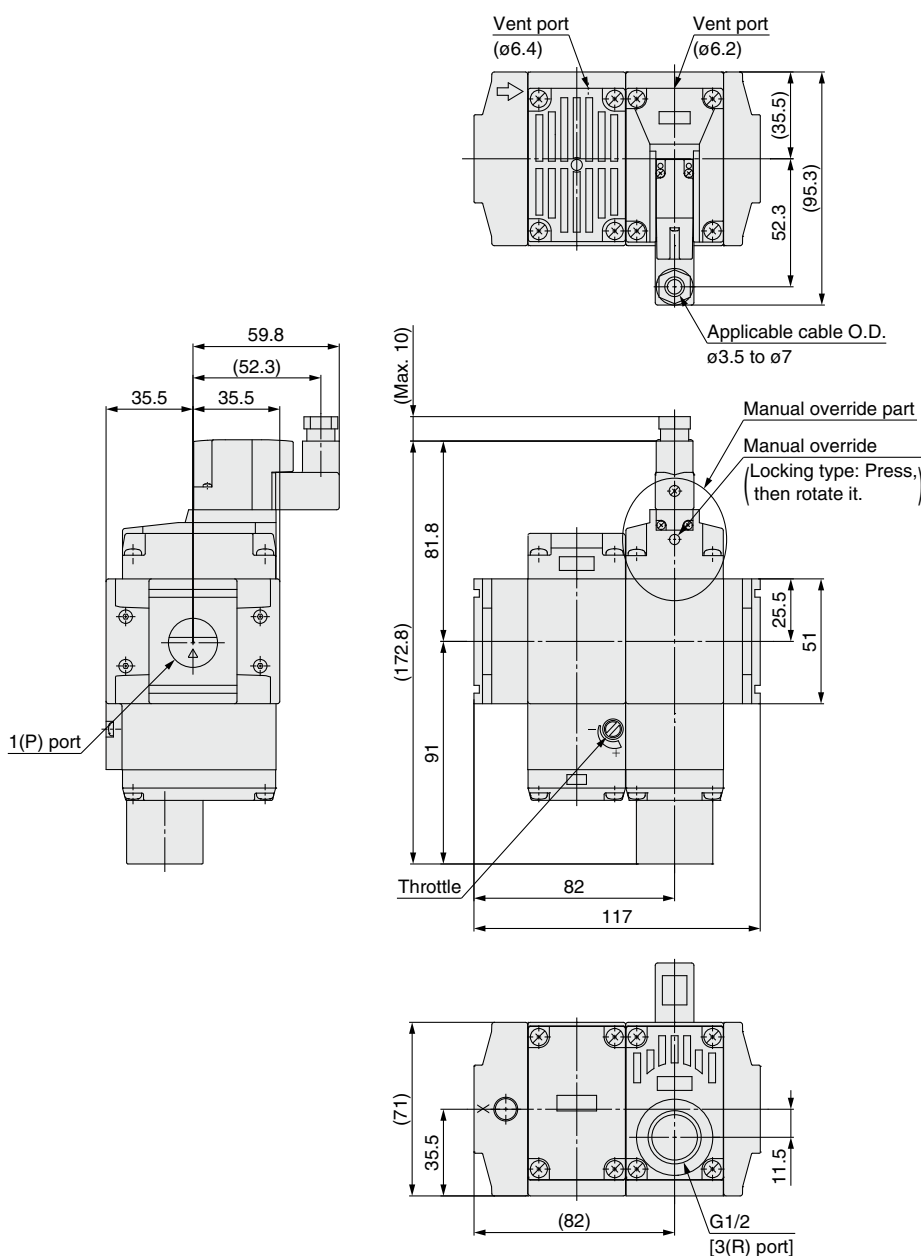
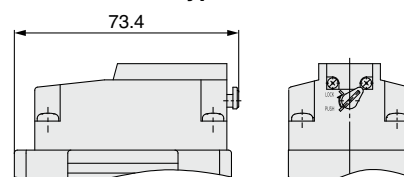
VP746E-5□□□1-□-S

Details of manual override part
(for manual operation)

Type A



Type E



⚠ Safety Instructions Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.