

SY3000/5000/7000 Body Ported Valve Single Unit

How to Order

SY **5** **1** 20 — **5** **L** — — — **01** —

Series

| | |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |

Configuration

| | |
|---|---|
| 1 | 2 position single (A)(B) (EA)(P)(EB) |
| 2 | 2 position double (A)(B) (EA)(P)(EB) |
| 3 | 3 position closed center (A)(B) (EA)(P)(EB) |
| 4 | 3 position exhaust center (A)(B) (EA)(P)(EB) |
| 5 | 3 position pressure center (A)(B) (EA)(P)(EB) |

Voltage

| | |
|----|--------|
| DC | |
| 5 | 24V DC |
| 6 | 12V DC |
| V | 6V DC |
| S | 5V DC |
| R | 3V DC |

AC (50/60Hz)

| | |
|---|-------------------|
| 1 | 100V AC |
| 2 | 200V AC |
| 3 | 110V AC [115V AC] |
| 4 | 220V AC [230V AC] |

- * "D" and "DO" only available for 12V and 24V in case of DC.
- * "D" and "DO" only available on SY5000 and SY7000.

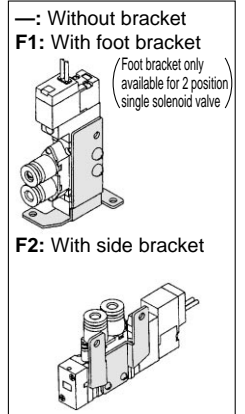
A/B port size

| Symbol | Port size | Applicable series |
|--------|----------------------------|-------------------|
| M5 | M5 X 0.8 | SY3000 |
| C4 | One-touch fittings for ø4 | |
| C6 | One-touch fittings for ø6 | SY5000 |
| O1 | Rc (PT) 1/8 | |
| C4 | One-touch fittings for ø4 | SY7000 |
| C6 | One-touch fittings for ø6 | |
| C8 | One-touch fittings for ø8 | SY7000 |
| O2 | Rc (PT) 1/4 | |
| C8 | One-touch fittings for ø8 | |
| C10 | One-touch fittings for ø10 | |

Manual override

| | |
|--------------------------------------|--|
| —: Non-locking push style | D: Push-turn locking slotted style |
| E: Push-turn locking lever style | |

Bracket



Indicator light and surge voltage suppressor

Electrical entry for G, H, L, M

| | |
|---|---|
| — | W/o indicator light and surge voltage suppressor |
| S | W/ surge voltage suppressor |
| Z | W/ indicator light and surge voltage suppressor |
| R | W/ surge voltage suppressor (Non-polar) |
| U | W/ indicator light and surge suppressor (Non-polar) |

Electrical entry for D

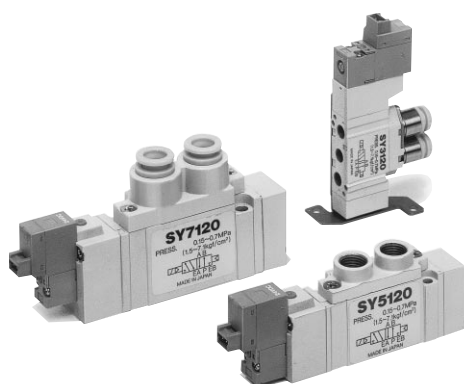
| | |
|---|---|
| — | W/o indicator light and surge suppressor |
| S | W/ surge voltage suppressor (Non-polar) |
| Z | W/ indicator light and surge suppressor (Non-polar) |

- * "DOZ" is unavailable.
- * For AC, there is no "S" specification since it is integrated with converter.
- * "R" and "U" types: DC only.
- * For AC, there is no "S" specification since it is integrated with converter.

Electrical entry

| 24V, 12V, 6V, 5V, 3V DC/100V, 110V, 200V, 220V AC | | | | 24V, 12V DC 100V, 110V, 200V, 220V AC |
|---|---------------------------|---------------------------|-----------------------------|---|
| Grommet | L plug connector | M plug connector | | DIN connector |
| G: 300mm lead wire | L: 300mm lead wire | M: 300mm lead wire | MN: W/without lead wire | (SY5000, 7000only) D: With connector |
| H: 600mm lead wire | LN: Without lead wire | LN: Without connector | MO: Without connector | DO: Without connector |

SY3000/5000/7000 Body Ported Valve



Specifications

| Series | | SY3000 | SY5000 | SY7000 |
|--|---------------------------|--|--------|--------|
| Fluid | | Air | | |
| Internal pilot | 2 position single | 0.15 to 0.7 | | |
| Operating pressure range (MPa) | 2 position double | 0.1 to 0.7 | | |
| | 3 position | 0.2 to 0.7 | | |
| Ambient and fluid temperature | | 50°C Max. | | |
| Max. operating frequency (Hz) | 2 position single, double | 10 | 5 | 5 |
| | 3 position | 3 | 3 | 3 |
| Manual override | | Non-locking push style, Push-turn locking slotted style, Push-turn locking lever style | | |
| Pilot exhaust | | Common exhaust for main and pilot valve | | |
| Lubrication | | Not required | | |
| Mounting position | | Free | | |
| Impact/Vibration resistance (m/s ²) ⁽¹⁾ | | 150/30 | | |
| Protection structure | | Dust proof (DIN connector IP65)* | | |



* Subject to IEC529

Note) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, for both energized and de-energized states. (Valve in the initial stage.)

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2,000 Hz. Test was performed at both energize and de-energized states to the axis and right angle directions of the main valve and armature. (Valve in the Initial stage.)



P.1.1-123 to 1.1-136

Solenoid Specifications

| | | | |
|-----------------------|-------------|---|---|
| Electrical entry | | Grommet (G)/(H), L plug connector (L), M plug connector (M), DIN connector (D)* | |
| Coil rated voltage(V) | DC | 24, 12, 6, 5, 3 | |
| | AC 50/60 Hz | 100, 110, 200, 220* | |
| Allowable voltage | | ±10% rated voltage | |
| Power consumption(W) | DC | 0.5(With light: 0.55 (DIN connector with lamp: 0.6) | |
| Apparent power(VA) | AC | 100V | 0.9 (With light: 1.0) |
| | | 110V [115V] | 1.0 (With light: 1.1) [1.1 (With light: 1.2)] |
| | | 200V | 1.8 (With light: 1.9) |
| | | 220V [230V] | 1.9 (With light: 2.0) [2.2 (With light: 2.3)] |
| | | Surge voltage suppressor | Diode (DIN connector is ZNR. G, L or M (Non-polar) is zener diode.) |
| Indicator light | | LED (AC of DIN connector is neon lamp.) | |



* DIN connector (D) is for SY5000 and 7000 only.

* Can be used for 110V, 115V, 220V, and 230V AC.

Response Time



Note) According to dynamic performance test JIS B8375-1981 (Coil temperature 20°C, at rated voltage, without surge voltage suppressor.)

SY3000

| Configuration | Response time (ms) (0.5MPa) | | |
|-------------------|--|---|------------|
| | Without indicator light and surge voltage suppressor | With indicator light and surge voltage suppressor | |
| | | S, Z | R, U |
| 2 position single | 12 or less | 15 or less | 12 or less |
| 2 position double | 10 or less | 13 or less | 10 or less |
| 3 position | 15 or less | 20 or less | 16 or less |

SY5000

| Configuration | Response time (ms) (0.5MPa) | | |
|-------------------|--|---|------------|
| | Without indicator light and surge voltage suppressor | With indicator light and surge voltage suppressor | |
| | | S, Z | R, U |
| 2 position single | 19 or less | 26 or less | 19 or less |
| 2 position double | 18 or less | 22 or less | 18 or less |
| 3 position | 32 or less | 38 or less | 32 or less |

SY7000

| Configuration | Response time (ms) (0.5MPa) | | |
|-------------------|--|---|------------|
| | Without indicator light and surge voltage suppressor | With indicator light and surge voltage suppressor | |
| | | S, Z | R, U |
| 2 position single | 31 or less | 38 or less | 33 or less |
| 2 position double | 27 or less | 30 or less | 28 or less |
| 3 position | 50 or less | 56 or less | 50 or less |

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Body Ported Valve

Model/Series SY3000

| Valve model | Configuration | | Port size | | Effective area (mm ²) (Cv) | | Weight (g) | | | | |
|-------------|---------------|-----------------|-----------|-----------------------------------|--|-----------------------------------|-------------|---------------------|--------------|----|---------------|
| | | | P, EA, EB | A, B | P→A/B | A/B→EA/EB | Grommet | L, M plug connector | | | |
| SY3□20-□-M5 | 2 position | Single | M5 X 0.8 | | 3.6 (0.2) | 3.78 (0.21) | 48 | 51 | | | |
| | | Double | | | | | 62 | 70 | | | |
| | 3 position | Closed center | | | 3.6 (0.2) | 3.78 (0.21) | 65 | 72 | | | |
| | | Exhaust center | | | | | | | [2.7 (0.15)] | | |
| | | Pressure center | | | | | | | 3.6 (0.2) | | |
| SY3□20-□-C4 | 2 position | Single | | | M5 X 0.8 | C4 (One-touch fittings for ø4) | 3.42 (0.19) | 3.6 (0.2) | 57 | 61 | |
| | | Double | | | | | | | 72 | 79 | |
| | 3 position | Closed center | | | | | 3.42 (0.19) | 3.42 (0.19) | 75 | 82 | |
| | | Exhaust center | | | | | | | | | 3.78 (0.21) |
| | | Pressure center | | | | | | | | | [2.7 (0.15)] |
| | | | 3.6 (0.2) | | | | | | | | |
| SY3□20-□-C6 | 2 position | Single | M5 X 0.8 | C6 (One-touch fittings for ø6) | | | 3.6 (0.2) | 4.14 (0.23) | 53 | 57 | |
| | | Double | | | | | | | 68 | 75 | |
| | 3 position | Closed center | | | | | 3.6 (0.2) | 3.96 (0.22) | 71 | 78 | |
| | | Exhaust center | | | | | | | | | 4.5 (0.25) |
| | | Pressure center | | | | | | | | | [3.06 (0.17)] |
| | | | | | | | | | | | 3.96 (0.22) |

Note []: Normal position

Model/Series SY5000

| Valve model | Configuration | | Port size | | Effective area (mm ²) (Cv) | | Weight (g) | | | | | |
|-------------|---------------|-----------------|--------------|-----------------------------------|--|-----------------------------------|------------|-----------------------------------|---------------|---------------|-----|---------------|
| | | | P, EA, EB | A, B | P→A/B | A/B→EA/EB | Grommet | L, M plug connector | DIN connector | | | |
| SY5□20-□-01 | 2 position | Single | Rc(PT)½ | | 9.18 (0.51) | 10.6 (0.59) | 67 | 70 | 93 | | | |
| | | Double | | | | | 82 | 89 | 135 | | | |
| | 3 position | Closed center | | | 7.38 (0.41) | 7.92 (0.44) | 87 | 94 | 140 | | | |
| | | Exhaust center | | | | | | | | 12.06 (0.67) | | |
| | | Pressure center | | | | | | | | [8.28 (0.46)] | | |
| SY5□20-□-C4 | 2 position | Single | | | Rc(PT)½ | C4 (One-touch fittings for ø4) | 5.5 (0.31) | 3.9 (0.22) | 91 | 94 | 117 | |
| | | Double | | | | | | | 105 | 113 | 159 | |
| | 3 position | Closed center | | | | | 5.3 (0.29) | 3.9 (0.22) | 111 | 118 | 164 | |
| | | Exhaust center | | | | | | | | | | 5.7 (0.32) |
| | | Pressure center | | | | | | | | | | 3.9 (0.22) |
| | | | 5.3 (0.29) | | | | | | | | | |
| SY5□20-□-C6 | 2 position | Single | Rc(PT)½ | C6 (One-touch fittings for ø6) | | | 9 (0.5) | 9 (0.5) | 85 | 89 | 112 | |
| | | Double | | | | | | | 100 | 107 | 153 | |
| | 3 position | Closed center | | | | | 7.2 (0.4) | 7.38 (0.41) | 105 | 112 | 158 | |
| | | Exhaust center | | | | | | | | | | 9.72 (0.54) |
| | | Pressure center | | | | | | | | | | [7.2 (0.4)] |
| SY5□20-□-C8 | 2 position | Single | | | | | Rc(PT)½ | C8 (One-touch fittings for ø8) | 9.18 (0.51) | 9.9 (0.55) | 77 | 80 |
| | | Double | | | 92 | 99 | | | | | 145 | |
| | 3 position | Closed center | | | 7.38 (0.41) | 7.92 (0.44) | | | 97 | 104 | 150 | |
| | | Exhaust center | | | | | | | | | | 11.88 (0.66) |
| | | Pressure center | | | | | | | | | | [7.74 (0.43)] |
| | | | 10.62 (0.59) | | | | | | | | | |

Note [] Normal position

Model/Series SY7000

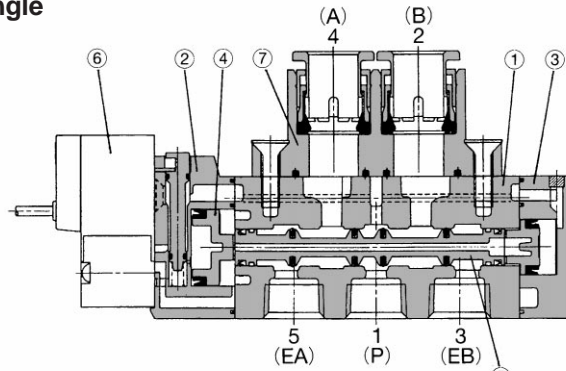
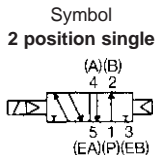
| Valve model | Configuration | | Port size | | Effective area (mm ²) (Cv) | | Weight (g) | | | | | |
|--------------|---------------|-----------------|-------------------|-------------------------------------|--|-------------------------------------|--------------|---------------------|---------------|---------------|-----|----------------|
| | | | P, EA, EB | A, B | P→A/B | A/B→EA/EB | Grommet | L, M plug connector | DIN connector | | | |
| SY7□20-□-02 | 2 position | Single | P port Rc(PT)¼ | C8 (One-touch fittings for ø8) | 16.2 (0.9) | 15.66 (0.87) | 98 | 102 | 125 | | | |
| | | Double | | | | | 114 | 121 | 167 | | | |
| | 3 position | Closed center | | | 11.88 (0.66) | 11.34 (0.63) | 122 | 129 | 175 | | | |
| | | Exhaust center | | | | | | | | 16.74 (0.93) | | |
| | | Pressure center | | | | | | | | [11.7 (0.65)] | | |
| SY7□20-□-C8 | 2 position | Single | | | EA, EB port : Rc(PT)½ | C10 (One-touch fittings for ø10) | 13.86 (0.77) | 13.68 (0.76) | 104 | 108 | 131 | |
| | | Double | | | | | | | 120 | 128 | 174 | |
| | 3 position | Closed center | | | | | 11.16 (0.62) | 10.44 (0.58) | 128 | 136 | 182 | |
| | | Exhaust center | | | | | | | | | | 14.58 (0.81) |
| | | Pressure center | | | | | | | | | | [10.62 (0.59)] |
| | | | 10.44 (0.58) | | | | | | | | | |
| SY7□20-□-C10 | 2 position | Single | P port Rc(PT)¼ | C10 (One-touch fittings for ø10) | | | 15.84 (0.88) | 14.94 (0.83) | 100 | 103 | 126 | |
| | | Double | | | | | | | 116 | 123 | 169 | |
| | 3 position | Closed center | | | | | 11.88 (0.66) | 11.34 (0.63) | 124 | 131 | 177 | |
| | | Exhaust center | | | | | | | | | | 16.74 (0.93) |
| | | Pressure center | | | | | | | | | | [11.16 (0.62)] |

Note [] Normal position

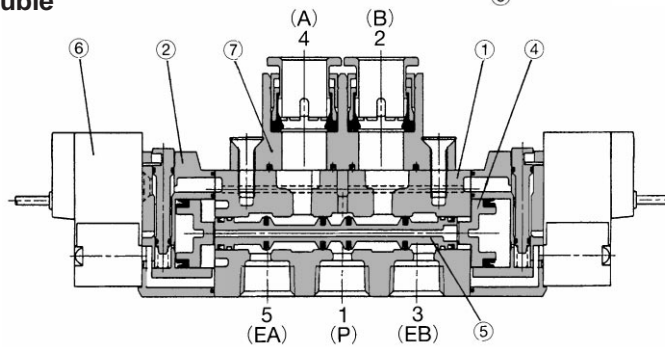
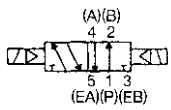
SY3000/5000/7000 Body Ported Valve

Construction

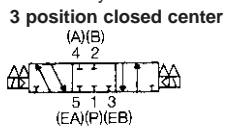
Series SY 2 position single



Symbol 2 position double



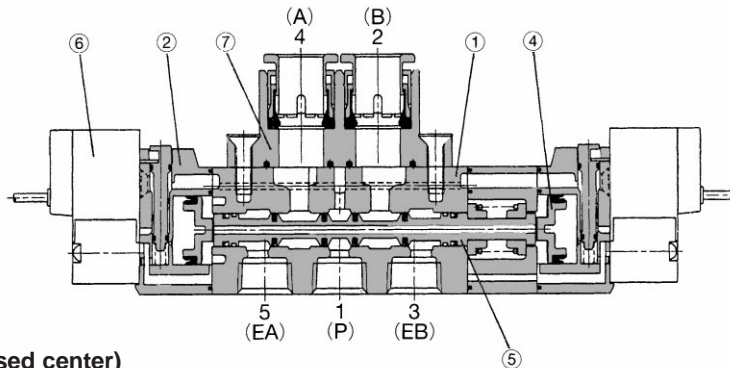
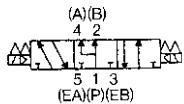
Symbol 3 position closed center/exhaust center/pressure center



3 position exhaust center



3 position pressure center



(In case of closed center)

Component Parts

| No. | Description | Material | Note |
|-----|----------------|-------------------|-------|
| ① | Body | Aluminum die cast | White |
| ② | Adaptor plate | Resin | White |
| ③ | End plate | Resin | White |
| ④ | Piston | Resin | — |
| ⑤ | Spool assembly | Aluminum/NBR | — |

Replacement Parts

| No. | Description | Part No. |
|-----|-------------------------|--|
| ⑥ | Pilot operator assembly | See "How to Order Pilot Valve Assembly" on p.1.1-14. |
| ⑦ | Port block assembly | See "How to Order Port Block Assembly" on p.1.1-14. |

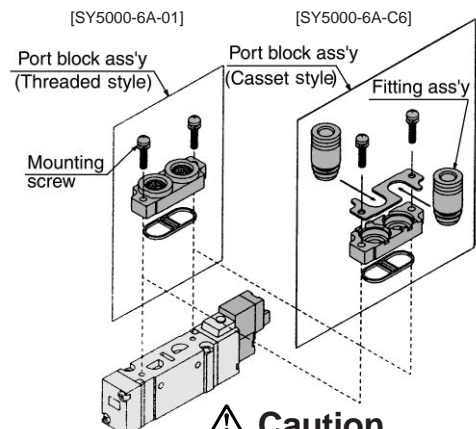
Bracket Assembly No.

| Description | Part No. |
|------------------|---|
| Bracket (For F1) | SX ³ 000-16-2A (With mounting screw) |
| Bracket (For F2) | SX ³ 000-16-1A (With mounting screw) |

How to Change Port Block Assembly

The cylinder port block assembly can be easily changed to exchange the A/B port size. When changing block assembly, correct screw torque must be achieved.

● SY5000



⚠ Caution

Torque for mounting screws

SY3000 (M2): 0.09Nm

SY⁵000 (M3): 0.6Nm



*See "How to Order Port Block Assembly" on p.1.1-14 for part No.

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Body Ported Valve

How to Order Pilot Valve Assembly

SY114—**5** **G** □

Voltage

| | |
|---|--|
| 5 | 24V DC |
| 6 | 12V DC |
| V | 6V DC |
| S | 5V DC |
| R | 3V DC |
| 1 | 100V AC ^{50/60} Hz |
| 2 | 200V AC ^{50/60} Hz |
| 3 | 110V AC ^{50/60} Hz [115V AC ^{50/60} Hz] |
| 4 | 220V AC ^{50/60} Hz [230V AC ^{50/60} Hz] |

Electrical entry

| | | |
|----|---------------------------|-------------------|
| G | Grommet (300mm lead wire) | |
| H | Grommet (600mm lead wire) | |
| L | L plug | With lead wire |
| LN | connector | Without lead wire |
| LO | | Without connector |
| M | M plug | With lead wire |
| MN | connector | Without lead wire |
| MO | | Without connector |

Indicator light and surge voltage suppressor

| | |
|---|---|
| — | Without indicator light and voltage suppressor |
| S | With surge voltage suppressor |
| Z | With indicator light and surge voltage suppressor |
| R | With surge voltage suppressor (Non-polar) |
| U | With indicator light and surge voltage suppressor (Non-polar) |

- "R" and "U" types: DC only.
- For AC, there is No "S" specifications since it is integrated with converter.

How to Order Connector Assembly

DC : SY100-30-4A □
 100V AC : SY100-30-1A □
 200V AC : SY100-30-2A □
 Other AC : SY100-30-3A □
 Without lead wire : SY100-30-A

(Only connector and sockets (2 pcs.))

Lead wire length

| | |
|----|--------|
| — | 300mm |
| 6 | 600mm |
| 10 | 1000mm |
| 15 | 1500mm |
| 20 | 2000mm |
| 25 | 2500mm |
| 30 | 3000mm |
| 50 | 5000mm |

SY115—**5** **D** □

Voltage

| | |
|---|--|
| 5 | 24V DC |
| 6 | 12V DC |
| 1 | 100V AC ^{50/60} Hz |
| 2 | 200V AC ^{50/60} Hz |
| 3 | 110V AC ^{50/60} Hz [115V AC ^{50/60} Hz] |
| 4 | 220V AC ^{50/60} Hz [230V AC ^{50/60} Hz] |

Electrical entry

| | | |
|----|-----------|-------------------|
| D | DIN | With connector |
| DO | Connector | Without connector |

Indicator light and surge voltage suppressor

| | |
|---|---|
| — | Without indicator light and surge voltage suppressor |
| S | With surge voltage suppressor (Non-polar) |
| Z | With indicator light and surge voltage suppressor (Non-polar) |

- * "DOZ" is unavailable.
- * For AC, there is No "S" specification since it is integrated with converter

Note) In case of exchanging pilot valve ass'y only, SY114 (G, H, L, M) and SY115 (DIN) are unexchangeable each other.

How to Order Port Block Assembly

SY □ 000—6A—□

Series

| | |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |

A, B port size

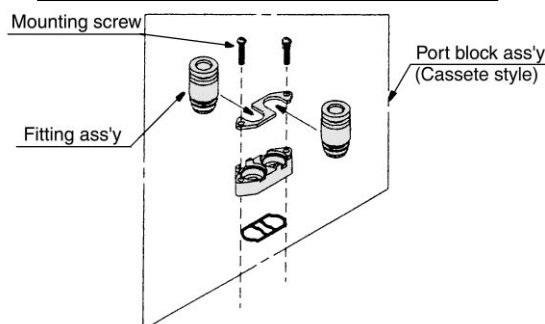
| Symbol | Port size | Applicable series |
|--------|----------------------------|-------------------|
| M5 | M5 X 0.8 | SY3000 |
| C4 | One-touch fittings for ø4 | |
| C6 | One-touch fittings for ø6 | |
| 01 | Rc(PT)1/8 | SY5000 |
| C4 | One-touch fittings for ø4 | |
| C6 | One-touch fittings for ø6 | |
| C8 | One-touch fittings for ø8 | SY7000 |
| 02 | Rc(PT)1/4 | |
| C8 | One-touch fittings for ø8 | |
| C10 | One-touch fittings for ø10 | |

SY3000/5000

* In case of SY3000/5000 port block assembly, replacement of the fitting assembly only is possible.

Refer to the following.

| | | |
|--------|---------------------------|----------------|
| SY3000 | For One-touch fittings ø4 | VVQ1000-50A-C4 |
| | For One-touch fittings ø6 | VVQ1000-50A-C6 |
| SY5000 | For One-touch fittings ø4 | VVQ1000-51A-C4 |
| | For One-touch fittings ø6 | VVQ1000-51A-C6 |
| | For One-touch fittings ø8 | VVQ1000-51A-C8 |



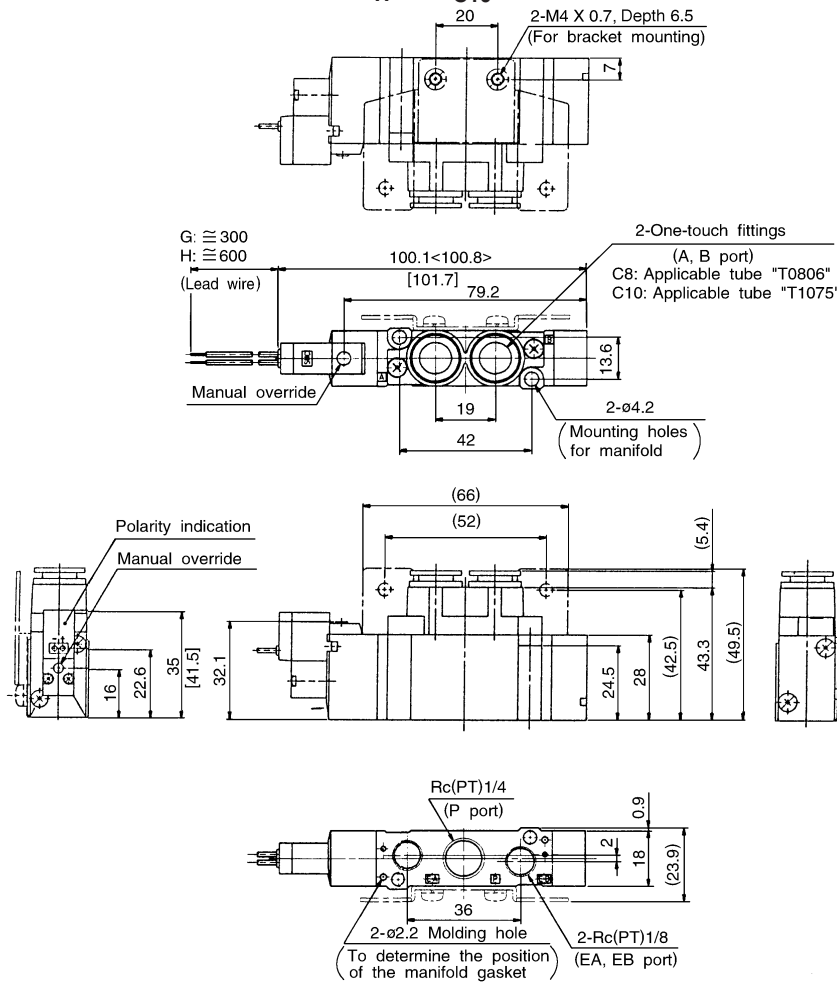
SY3000/5000/7000 Body Ported Valve

Dimensions/Series SY7000

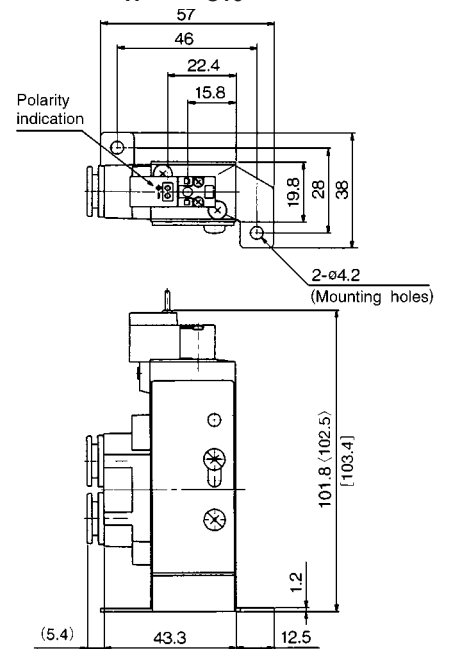
Note) []: Values for AC
< >: Values with surge voltage suppressor.

2 position single

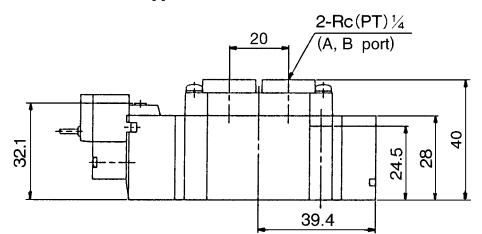
Grommet (G), (H): SY7120-□_G□□-C₈
C₁₀ (-F2)



SY7120-□_G□□-C₈
C₁₀ -F1

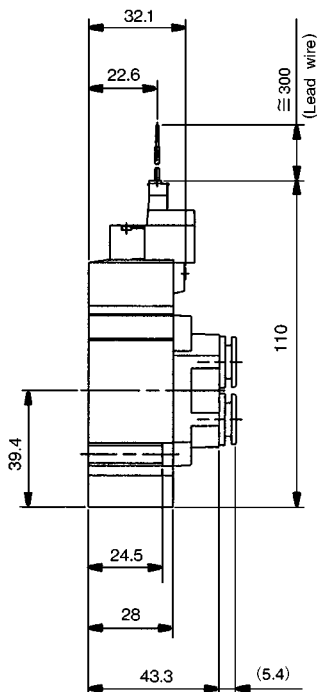


SY7120-□_G□□-02



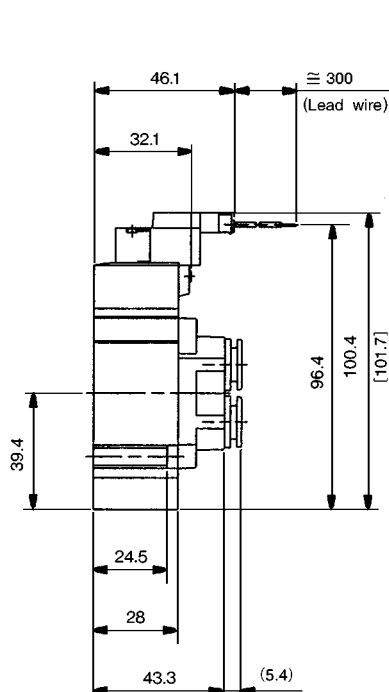
L plug connector (L):

SY7120-□_L□□-C₈
C₁₀



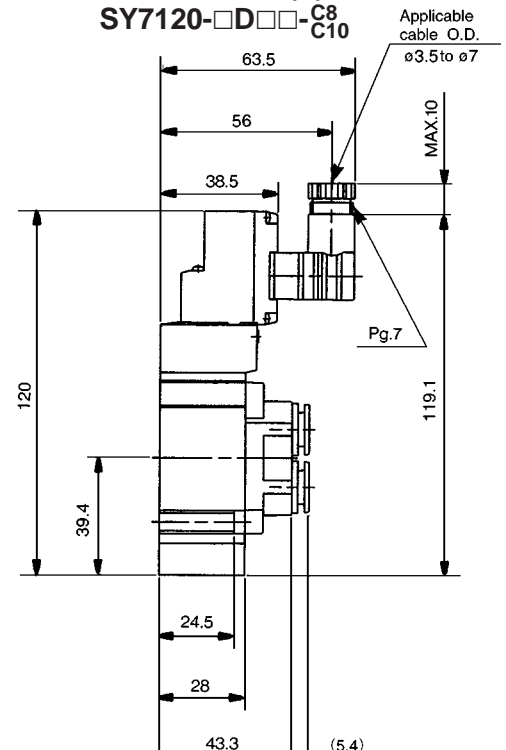
M plug connector (M):

SY7120-□_M□□-C₈
C₁₀



DIN connector (D):

SY7120-□_D□□-C₈
C₁₀



SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Body Ported Valve

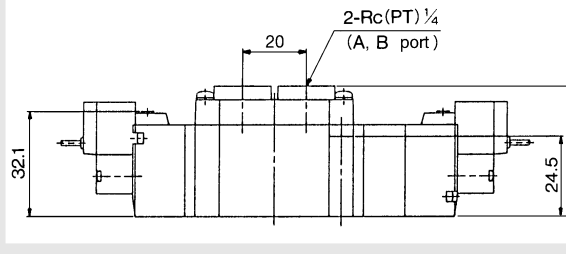
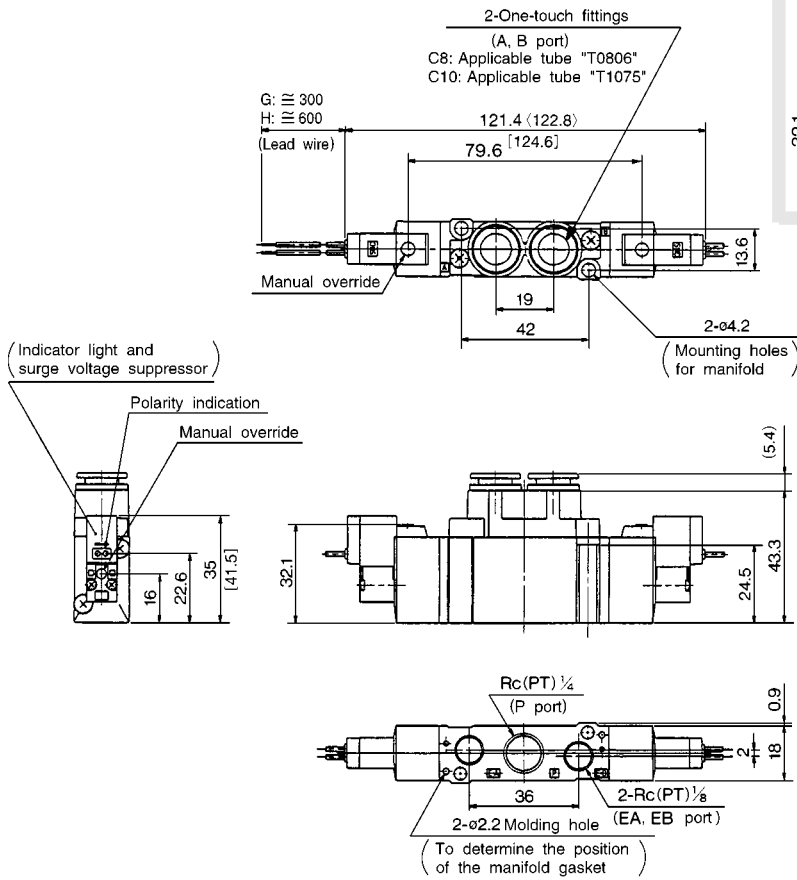
Dimensions/Series SY7000

Note) [] : Values for AC
< > : Values with surge voltage suppressor.

2 position double

Grommet (G), (H): SY7220-□^G□□□-C⁸
C¹⁰

SY7220-□^G□□□-02



L plug connector (L):

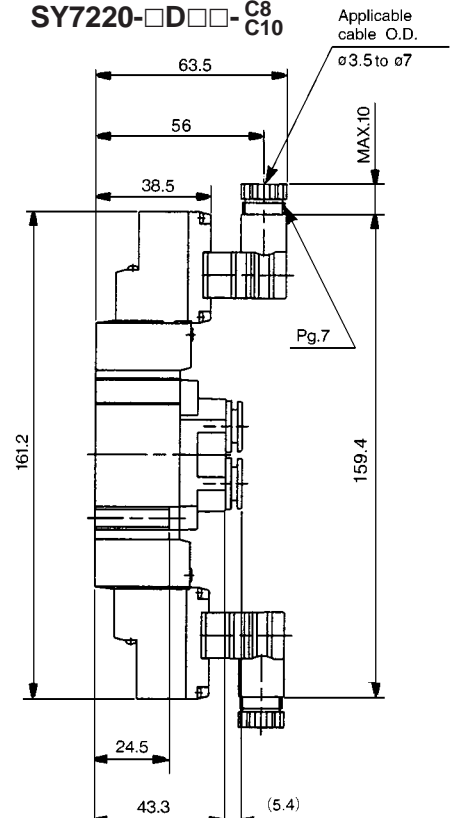
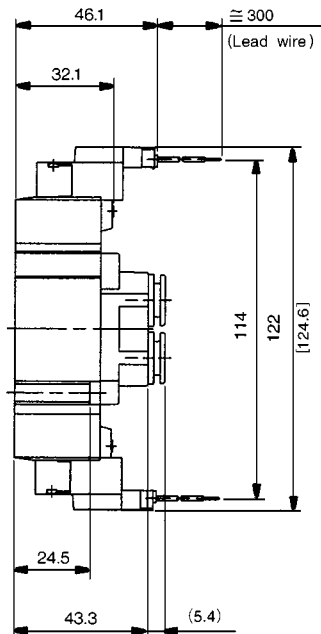
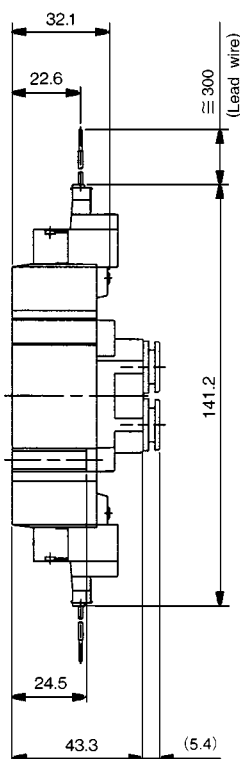
SY7220-□L□□-C⁸
C¹⁰

M plug connector (M):

SY7220-□M□□-C⁸
C¹⁰

DIN connector (D):

SY7220-□D□□-C⁸
C¹⁰



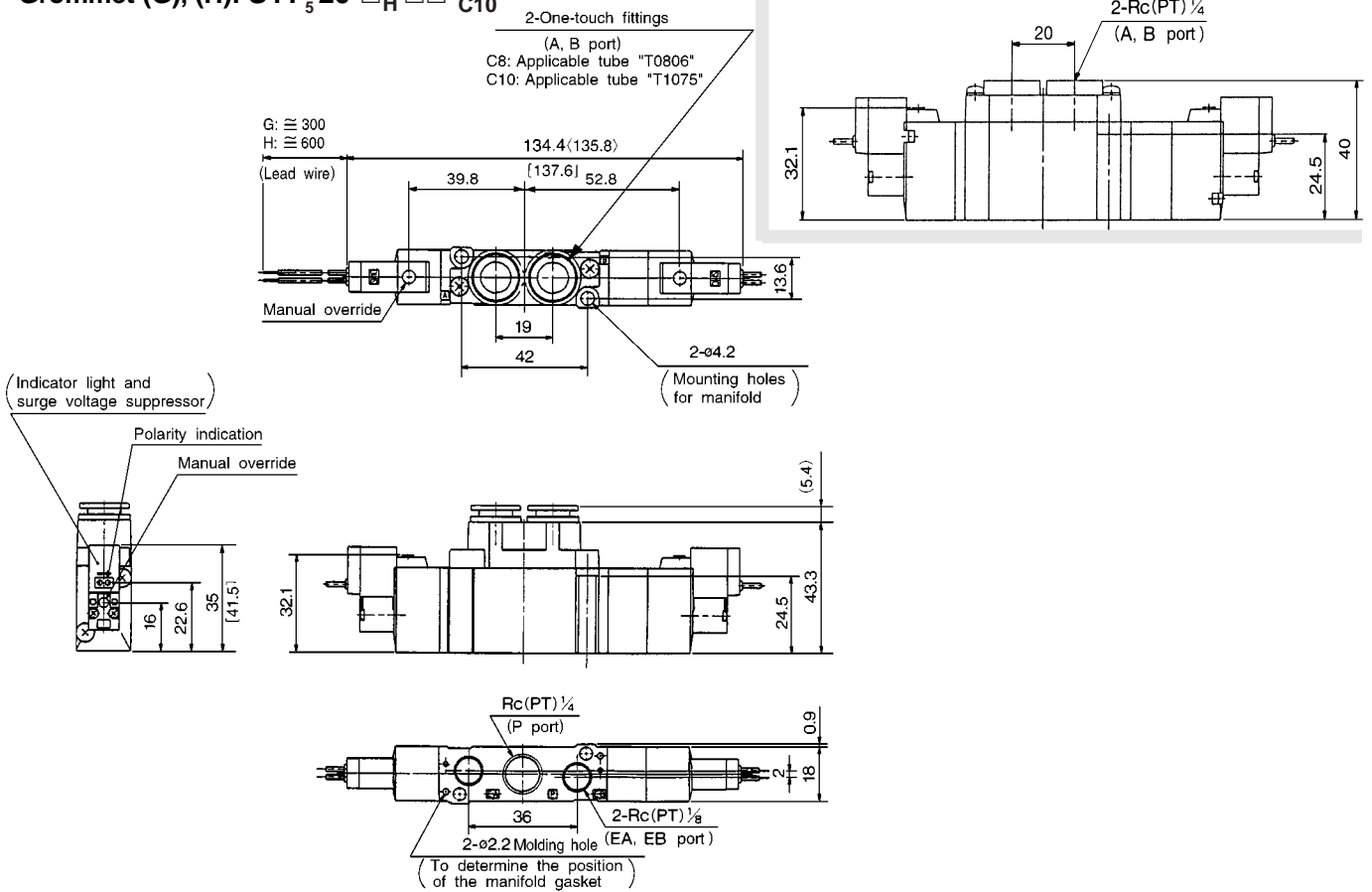
SY3000/5000/7000 Body Ported Valve

Note) []: Values for AC
< >: Values with surge voltage suppressor.

3 position closed center/exhaust center/pressure center

Grommet (G), (H): SY7³₄20-□^G□□-C⁸_{C10}

SY7³₄20-□^G□□-02



- SY
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7
- VP4

- VQ
- VQ4
- VQZ
- VQD
- VZS
- VFS
- VS
- VS7

L plug connector (L):

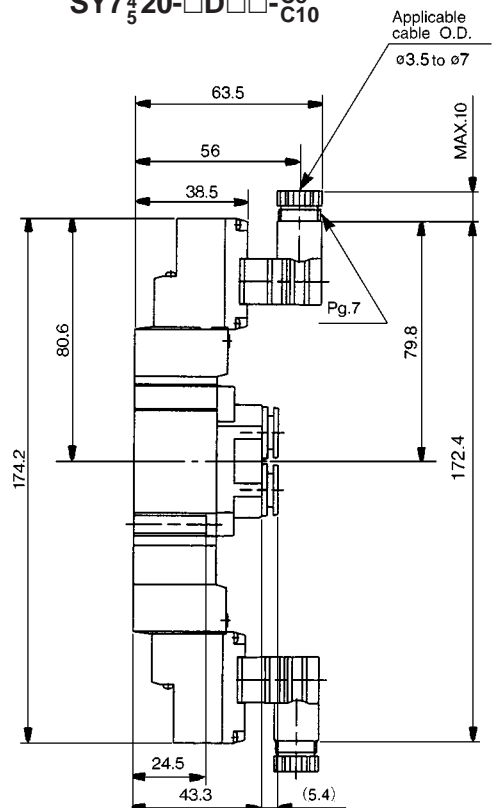
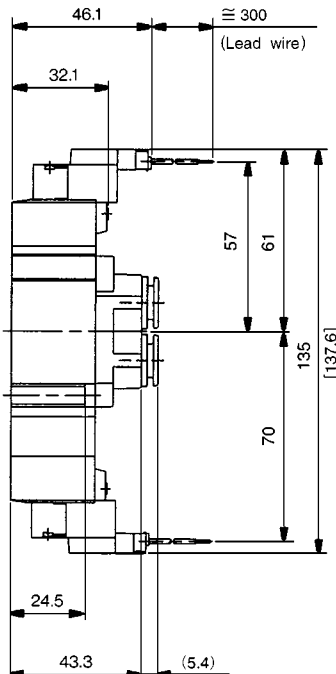
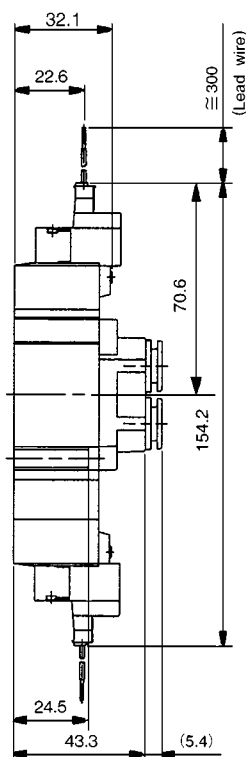
SY7³₄20-□L□□-C⁸_{C10}

M plug connector (M):

SY7³₄20-□M□□-C⁸_{C10}

DIN connector (D):

SY7³₄20-□D□□-C⁸_{C10}



SY3000/5000/7000 Base Mounted Valve Single Unit

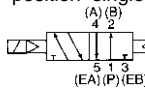
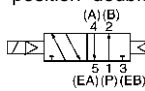
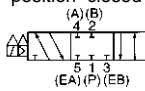
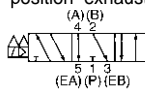
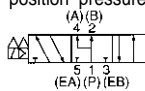
How to Order

SY 5 2 40 [] 5 L [] [] []

Series

| | |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |

Configuration

| | |
|---|--|
| 1 | 2 position single  (A)(B) 4 2 5 1 3 (EA)(P)(EB) |
| 2 | 2 position double  (A)(B) 4 2 5 1 3 (EA)(P)(EB) |
| 3 | 3 position closed center  (A)(B) 4 2 5 1 3 (EA)(P)(EB) |
| 4 | 3 position exhaust center  (A)(B) 4 2 5 1 3 (EA)(P)(EB) |
| 5 | 3 position pressure center  (A)(B) 4 2 5 1 3 (EA)(P)(EB) |

Pilot

| | |
|---|----------------|
| — | Internal pilot |
| R | External pilot |

AC (50/60Hz)

| | |
|---|------------------|
| 1 | 100V AC |
| 2 | 200V AC |
| 3 | 110V AC[115V AC] |
| 4 | 220V AC[230V AC] |

*D and DO only available for 12V in case of DC.
*D and DO only available for SY5000 and SY7000.

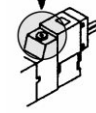
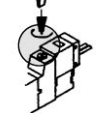

Voltage

| | |
|----|--------|
| DC | |
| 5 | 24V DC |
| 6 | 12V DC |
| V | 6V DC |
| S | 5V DC |
| R | 3V DC |

A/B port size

| Symbol | Port size | Applicable series |
|--------|-----------------------------|-------------------|
| — | Without subplate | |
| 01 | Rc(PT) 1/8 With subplate | SY3000 |
| 02 | Rc(PT) 1/4 With subplate | SY5000 SY7000 |
| 03 | Rc(PT) 3/8 With subplate | SY7000 |

Manual override

| | |
|---|---|
| —: Non-locking push style  | D: Push-turn locking slotted style  |
| E: Push-turn locking lever style  | |

Indicator light and surge voltage suppressor

Electrical entry for G, H, L, M

| | |
|---|---|
| — | W/o indicator light and surge suppressor |
| S | W/ surge voltage suppressor |
| Z | W/ indicator light and surge suppressor |
| R | W/ surge suppressor (Non-polar) |
| U | W/ indicator light and surge suppressor (Non-polar) |

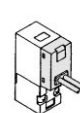
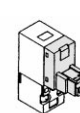
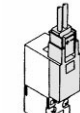
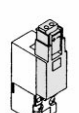
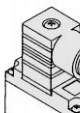
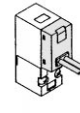
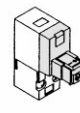
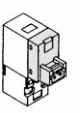
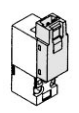

Electrical entry for D

| | |
|---|---|
| — | W/o indicator light and surge suppressor |
| S | W/ surge suppressor (Non-polar) |
| Z | W/ indicator light and surge suppressor (Non-polar) |

*"R" and "U" types: DC only.
*For AC, there is No "S" specification since it is integrated with converter.

*"DOZ" is unavailable.
*For AC, there is No "S" specification since it is integrated with converter.

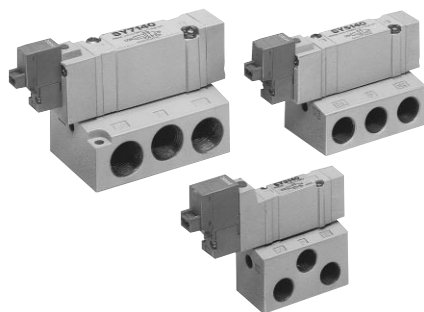
Electrical entry

| 24V, 12V, 6V, 5V, 3V DC/100V, 110V, 200V, 220V AC | | | | 24V, 12V DC 100V, 110V, 200V, 220V AC |
|---|--|--|--|--|
| Grommet | L plug connector | M plug connector | | DIN connector |
| G: 300mm lead wire  | L: 300mm lead wire  | M: 300mm lead wire  | MN: Without Lead wire  | (SY5000/7000 only) D: With connector  |
| H: 600mm lead wire  | LN: Without Lead wire  | LO: Without connector  | MO: Without connector  | DO: Without connector  |

*"LN" and "MN" include 2 sockets.

*"D", "DO": SY5000/7000 only.

SY3000/5000/7000 Base Mounted Valve



P.1.1-123 to 1.1-136

Specifications

| Series | | SY3000 | SY5000 | SY7000 |
|--|---------------------------|--|-------------|--------|
| Fluid | | Air | | |
| Internal pilot | 2 position single | 0.15 to 0.7 | | |
| Operating pressure range (MPa) | 2 position double | 0.1 to 0.7 | | |
| | 3 position | 0.2 to 0.7 | | |
| External pilot Operating pressure range (MPa) | Operating pressure range | -100kPa to 0.7 | | |
| | Pilot pressure range | 2 position single | 0.25 to 0.7 | |
| | | 2 position double | 0.25 to 0.7 | |
| 3 position | 0.25 to 0.7 | | | |
| Ambient and fluid temperature | | 50°C Max. | | |
| Max. operating frequency (Hz) | 2 position single, double | 10 | 5 | 5 |
| | 3 position | 3 | 3 | 3 |
| Manual override | | Non-locking push style, Push-turn locking slotted style, Push-turn locking lever style | | |
| Pilot exhaust | Internal pilot | Common exhaust for main and pilot valve | | |
| | External pilot | Individual exhaust for pilot valve | | |
| Lubrication | | Not required | | |
| Mounting position | | Free | | |
| Impact/Vibration resistance (m/s ²) ⁽¹⁾ | | 150/30 (8.3 to 2000Hz) | | |
| Protection structure | | Dust proof (DIN connector IP65)* | | |



*Equivalent to IEC 529

Note 1) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, for both energized and de-energized states. (Value in the initial stage.)

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2,000 Hz. Test was performed at both energize and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

Solenoid Specification

| | | | |
|--------------------------|-------------|---|---|
| Electrical entry | | Grommet(G)/(H), L plug connector(L), M plug connector(M), DIN connector(D)* | |
| Coil rated voltage (V) | DC | 24, 12, 6, 5, 3 | |
| | AC 50/60 Hz | 100, 110, 200, 220* | |
| Allowable voltage | | ±10% rated voltage | |
| Power consumption | DC | 0.5(With light: 0.55 (DIN connector with lamp: 0.6)) | |
| Apparent power (VA) | AC | 100V | 0.9 (With light: 1.0) |
| | | 110V | 1.0 (With light: 1.1) |
| | | [115V] | [1.1 (With light: 1.2)] |
| | | 200V | 1.8 (With light: 1.9) |
| | | 220V [230V] | 1.9 (With light: 2.0) [2.2 (With light: 2.3)] |
| Surge voltage suppressor | | Diode (DIN connector is ZNR. G, L or M (Non-polar) is zener diode.) | |
| Indicator light | | LED (AC of DIN connector is neon lamp.) | |



*DIN connector (D) is SY5000, 7000 only.

*Can be used for 110V, 115V, 220V and 230V AC.

Response Time



Note) According to dynamic performance test JIS B8375-1981

(Coil temperature 20°C, at rated voltage, without surge voltage suppressor.)

SY3000

| Configuration | Response time (ms) (0.5MPa) | | |
|-------------------|--|---|------------|
| | Without indicator light and surge voltage suppressor | With indicator light and surge voltage suppressor | |
| | | S, Z type | R, U type |
| 2 position single | 12 or less | 15 or less | 12 or less |
| 2 position double | 10 or less | 13 or less | 10 or less |
| 3 position | 15 or less | 20 or less | 16 or less |

SY5000

| Configuration | Response time (ms) (0.5MPa) | | |
|-------------------|--|---|------------|
| | Without indicator light and surge voltage suppressor | With indicator light and surge voltage suppressor | |
| | | S, Z type | R, U type |
| 2 position single | 19 or less | 26 or less | 19 or less |
| 2 position double | 18 or less | 22 or less | 18 or less |
| 3 position | 32 or less | 38 or less | 32 or less |

SY7000

| Configuration | Response time (ms) (0.5MPa) | | |
|-------------------|--|---|------------|
| | Without indicator light and surge voltage suppressor | With indicator light and surge voltage suppressor | |
| | | S, Z type | R, U type |
| 2 position single | 31 or less | 38 or less | 33 or less |
| 2 position double | 27 or less | 30 or less | 28 or less |
| 3 position | 50 or less | 56 or less | 50 or less |

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Base Mounted Valve

Model/Series SY3000

| Valve model | Configuration | | Port size | Effective area (mm ²) _(Cv) ⁽¹⁾ | | Weight (g) ⁽²⁾ | |
|-------------|---------------|-----------------|-----------|--|------------------------------|---------------------------|----------------------|
| | | | | P→A/B | A/B→EA/EB | Grommet | L, M, plug connector |
| SY3□40-□-01 | 2 position | Single | Rc(PT)1/8 | 4.86 (0.27) | 5.4 (0.3) | 81 (47) | 85 (51) |
| | | Double | | 4.86 (0.27) | 5.4 (0.3) | 96 (62) | 103 (69) |
| | 3 position | Closed center | | 4.68 (0.26) | 4.86 (0.27) | 98 (63) | 105 (70) |
| | | Exhaust center | | 4.86 (0.27) | 5.94 (0.33) [3.24 (0.18)] | | |
| | | Pressure center | | 6.66 (0.37) [3.24 (0.18)] | 5.22 (0.29) | | |



Note 1) []: In case of normal position Note 2) (): Without sub-plate

Model/Series SY5000

| Valve model | Configuration | | Port size | Effective area (mm ²) _(Cv) ⁽¹⁾ | | Weight (g) ⁽²⁾ | | |
|-------------|---------------|-----------------|-----------|--|---------------------------|---------------------------|----------------------|---------------|
| | | | | P→A/B | A/B→EA/EB | Grommet | L, M, plug connector | DIN connector |
| SY5□40-□-02 | 2 position | Single | Rc(PT)1/4 | 12.78 (0.71) | 12.6 (0.7) | 118 (55) | 121 (59) | 154 (82) |
| | | Double | | 12.78 (0.71) | 12.6 (0.7) | 133 (70) | 140 (77) | 186 (123) |
| | 3 position | Closed center | | 7.56 (0.42) | 8.1 (0.45) | 138 (76) | 146 (83) | 192 (129) |
| | | Exhaust center | | 7.92 (0.44) | 14.4 (0.8) [9.0 (0.5)] | | | |
| | | Pressure center | | 15.84 (0.88) [4.5 (0.25)] | 8.64 (0.48) | | | |



Note 1) []: In case of normal position Note 2) (): Without sub-plate

Model/Series SY7000

| Valve model | Configuration | | Port size | Effective area (mm ²) _(Cv) ⁽¹⁾ | | Weight (g) ⁽²⁾ | | |
|-------------|---------------|-----------------|-----------|--|--------------------------------|---------------------------|----------------------|---------------|
| | | | | P→A/B | A/B→EA/EB | Grommet | L, M, plug connector | DIN connector |
| SY7□40-□-03 | 2 position | Single | Rc(PT)1/4 | 23.22 (1.29) | 21.6 (1.2) | 215 (86) | 219 (90) | 242 (113) |
| | | Double | | 23.22 (1.29) | 21.6 (1.2) | 231 (102) | 238 (109) | 284 (155) |
| | 3 position | Closed center | | 14.04 (0.78) | 12.24 (0.68) | 233 (104) | 241 (112) | 287 (158) |
| | | Exhaust center | | 14.04 (0.78) | 20.88 (1.16) [12.96 (0.72)] | | | |
| | | Pressure center | | 24.48 (1.36) [13.5 (0.75)] | 12.42 (0.69) | | | |

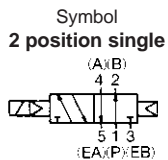


Note 1) []: In case of normal position Note 2) (): Without sub-plate

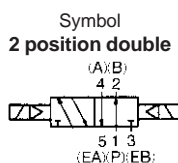
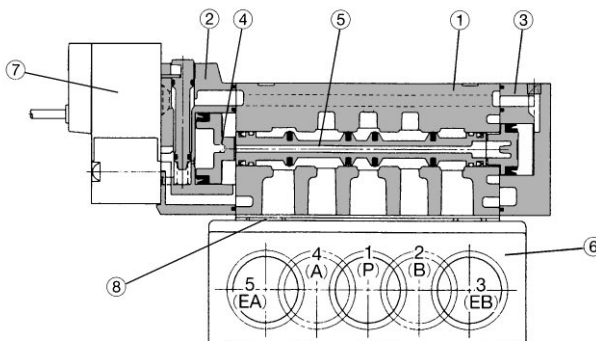
SY3000/5000/7000 Base Mounted Valve

Construction

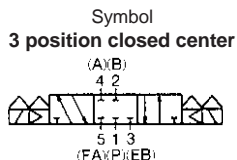
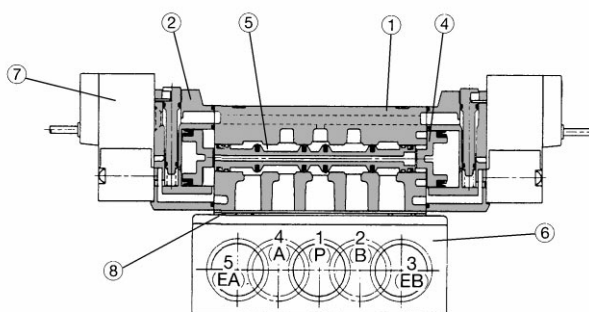
Series SY



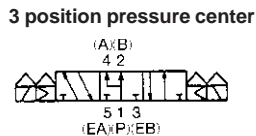
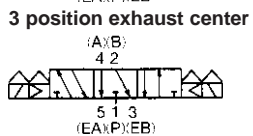
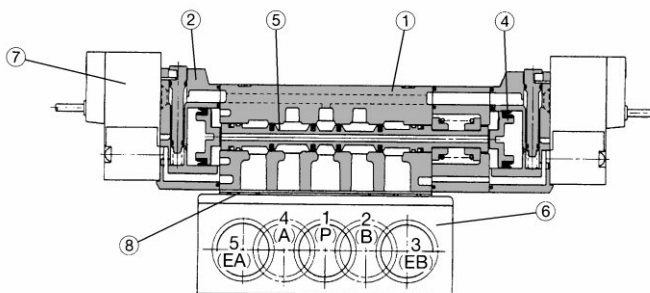
2 position single



2 position double



3 position closed center/exhaust center/pressure center



(In case of closed center)

Component Parts

| No. | Description | Material | Note |
|-----|---------------|-------------------|-------|
| ① | Body | Aluminum die cast | White |
| ② | Adaptor plate | Resin | White |
| ③ | End plate | Resin | White |
| ④ | Piston | Resin | - |
| ⑤ | Spool ass'y | Aluminum/NBR | - |

Replacement Parts

| No. | Description | Part No. | | | Note |
|-----|-------------------|--|-------------|--|---|
| | | SY3□40 | SY5□40 | SY7□40 | |
| ⑥ | Sub-plate | SY3000-27-1 | SY5000-27-1 | Rc(PT)1/4: SY7000-27-1 Rc(PT)3/8: SY7000-27-2 | Aluminum die cast |
| ⑦ | Pilot valve ass'y | See "How to Order Pilot Valve Assembly" on p.1.1-28. | | | |
| ⑧ | Gasket | SY3000-11-8 | SY5000-11-2 | SY7000-11-2 | NBR |
| - | Mounting bolt | SY3000-23-4 (M2 X 21) | M3 X 26 | M4 X 31 | For valve mounting (Mat nickel plated) |

⚠ Caution

Torque for mounting screws
M2: 0.15 Nm
M3: 0.6 Nm
M4: 1.4 Nm

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

Base Mounted Valve

How to Order Pilot Valve Assembly

SY114—5 G

Voltage

| | |
|---|--|
| 5 | 24V DC |
| 6 | 12V DC |
| V | 6V DC |
| S | 5V DC |
| R | 3V DC |
| 1 | 100V AC ^{50/60} Hz |
| 2 | 200V AC ^{50/60} Hz |
| 3 | 110V AC ^{50/60} Hz [115V AC ^{50/60} Hz] |
| 4 | 220V AC ^{50/60} Hz [230V AC ^{50/60} Hz] |

Electrical entry

| | | |
|----|---------------------------|-------------------|
| G | Grommet (300mm lead wire) | |
| H | Grommet (600mm lead wire) | |
| L | L plug connector | With lead wire |
| LN | | Without lead wire |
| LO | | Without connector |
| M | M plug connector | With lead wire |
| MN | | Without lead wire |
| MO | | Without connector |

Indicator light and surge voltage suppressor

| | |
|---|---|
| — | Without indicator light and surge voltage suppressor |
| S | With surge voltage suppressor |
| Z | With indicator light and surge voltage suppressor |
| R | With surge voltage suppressor (Non-polar) |
| U | With indicator light and surge voltage suppressor (Non-polar) |

“R” and “U” types DC only.
 For AC, there is No “S” specification since it is integrated with converter.

How to Order Connector Assembly

DC : SY100-30-4A
 100V AC : SY100-30-1A
 200V AC : SY100-30-2A
 Other AC : SY100-30-3A
 Without lead wire: SY100-30-A

(Only connector and sockets (2 pcs.))

Lead wire length

| | |
|----|--------|
| — | 300mm |
| 6 | 600mm |
| 10 | 1000mm |
| 15 | 1500mm |
| 20 | 2000mm |
| 25 | 2500mm |
| 30 | 3000mm |
| 50 | 5000mm |

SY115—5 D

Voltage

| | |
|---|--|
| 5 | 24V DC |
| 6 | 12V DC |
| 1 | 100V AC ^{50/60} Hz |
| 2 | 200V AC ^{50/60} Hz |
| 3 | 110V AC ^{50/60} Hz [115V AC ^{50/60} Hz] |
| 4 | 220V AC ^{50/60} Hz [230V AC ^{50/60} Hz] |

Electrical entry

| | | |
|----|-----------|-------------------|
| D | DIN | With connector |
| DO | connector | Without connector |

Indicator light and surge voltage suppressor

| | |
|---|---|
| — | Without indicator light and surge voltage suppressor |
| S | With surge voltage suppressor (Non-polar) |
| Z | With indicator light and surge voltage suppressor (Non-polar) |

* “DOZ” is unavailable.
 * For AC, there is No “S” specification since it is integrated with converter.

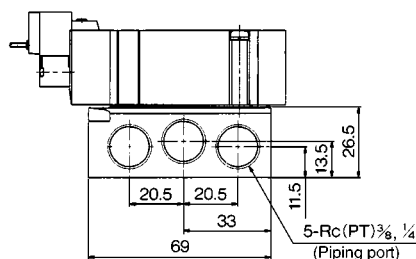
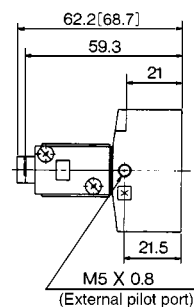
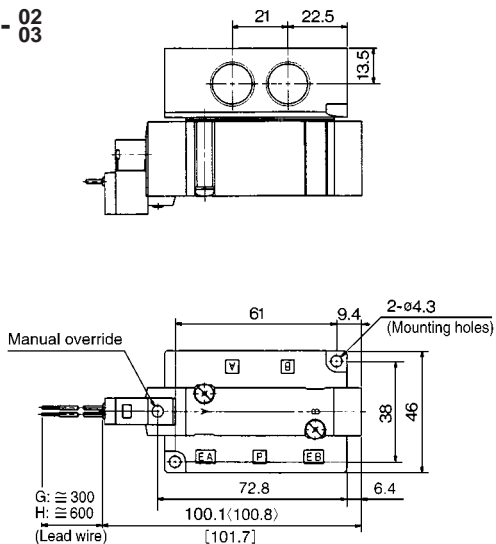
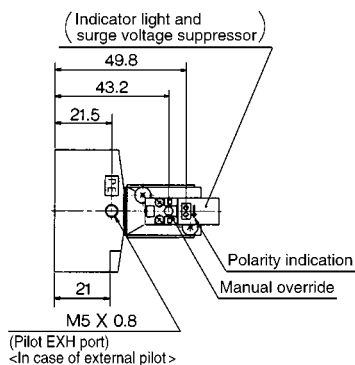
SY3000/5000/7000 Base Mounted Valve

Dimensions/Series SY7000

Note) []: Values for AC
< >: Values with surge voltage suppressor.

2 position single

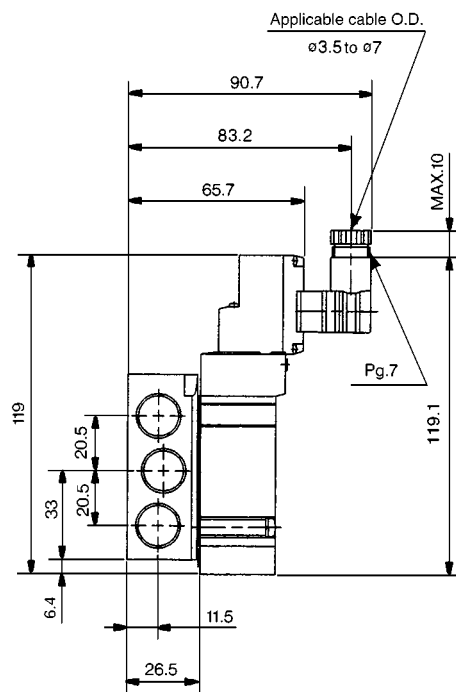
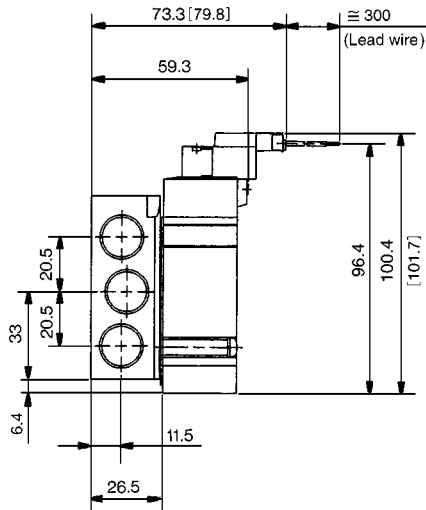
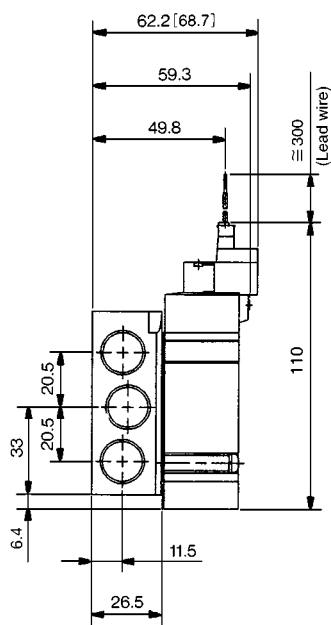
Grommet (G), (H): SY7140(R)-□G□□-02
□H□□-03



L plug connector (L):
SY7140(R)-□L□□-02
□□-03

M plug connector (M):
SY7140(R)-□M□□-02
□□-03

DIN connector (D):
SY7140(R)-□D□□-02
□□-03



SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

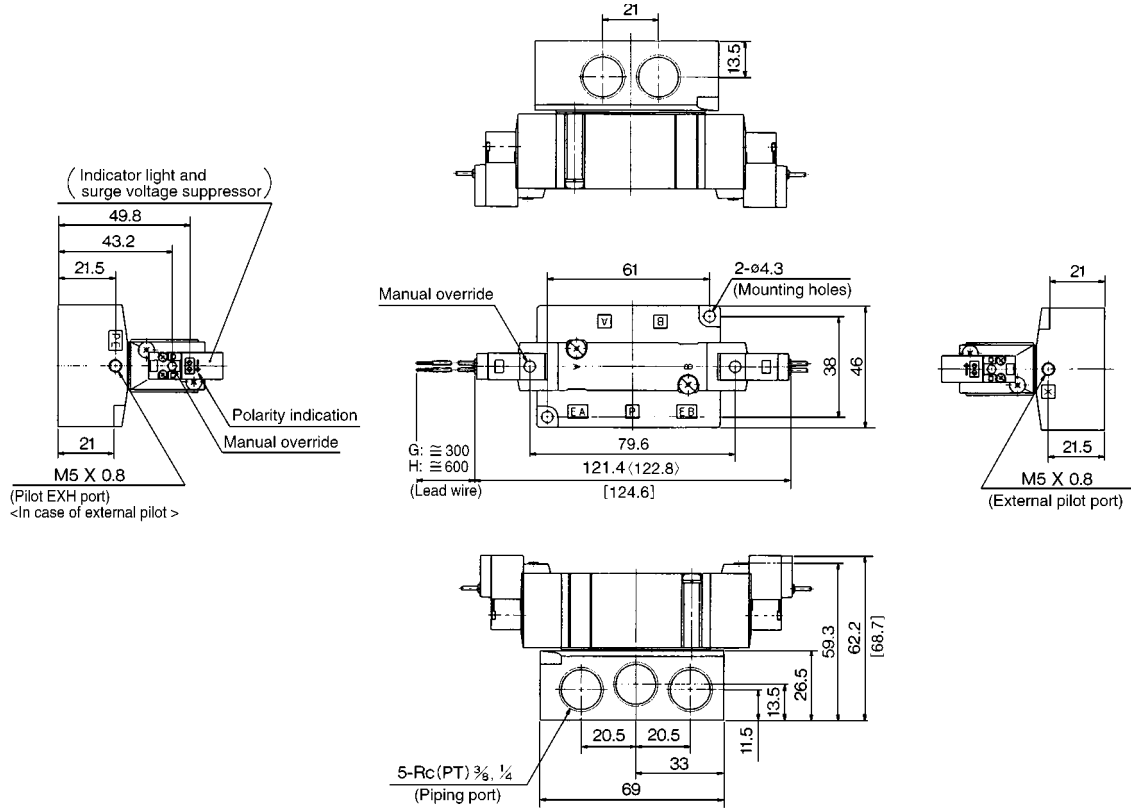
Base Mounted Valve

Dimensions/Series SY7000

Note) []: Values for AC
< >: Values with surge voltage suppressor.

2 position double

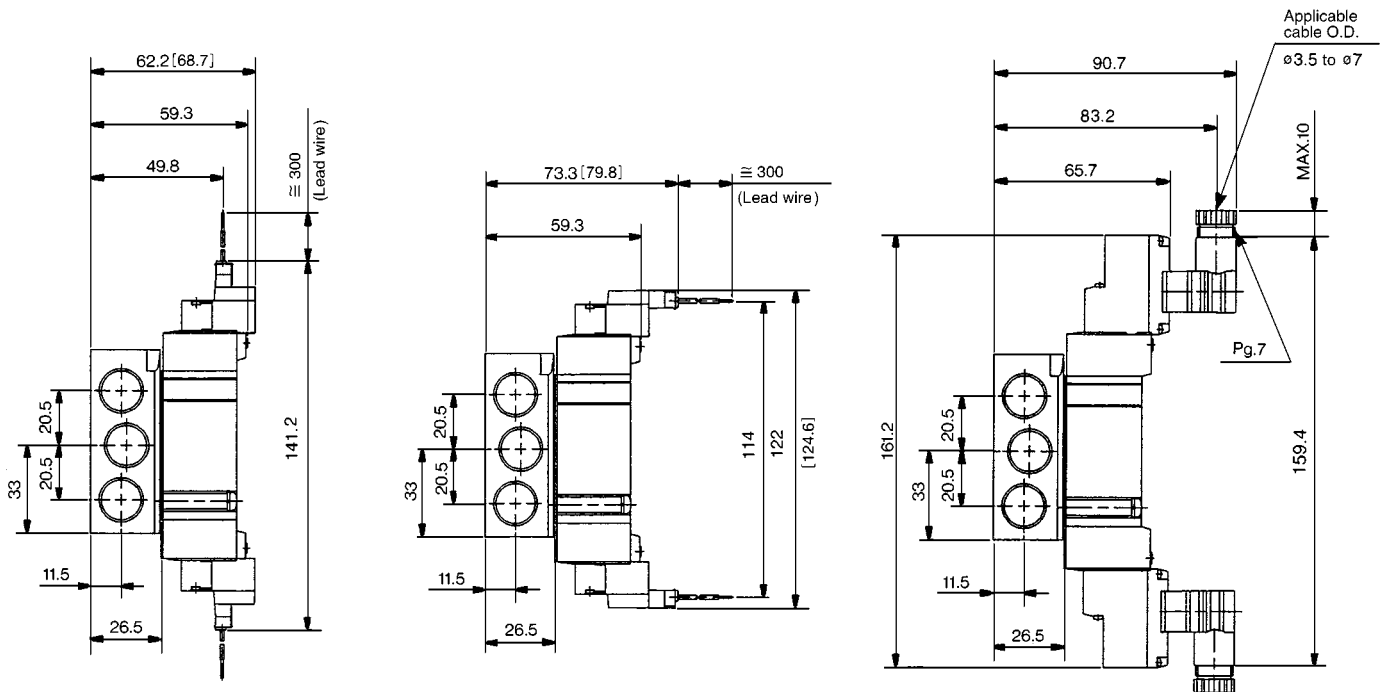
Grommet (G), (H): SY7240(R)-□^G□□-⁰²/₀₃



L plug connector (L):
SY7240(R)-□L□□-⁰²/₀₃

M plug connector (M):
SY7240(R)-□M□□-⁰²/₀₃

DIN connector (D):
SY7240(R)-□D□□-⁰²/₀₃

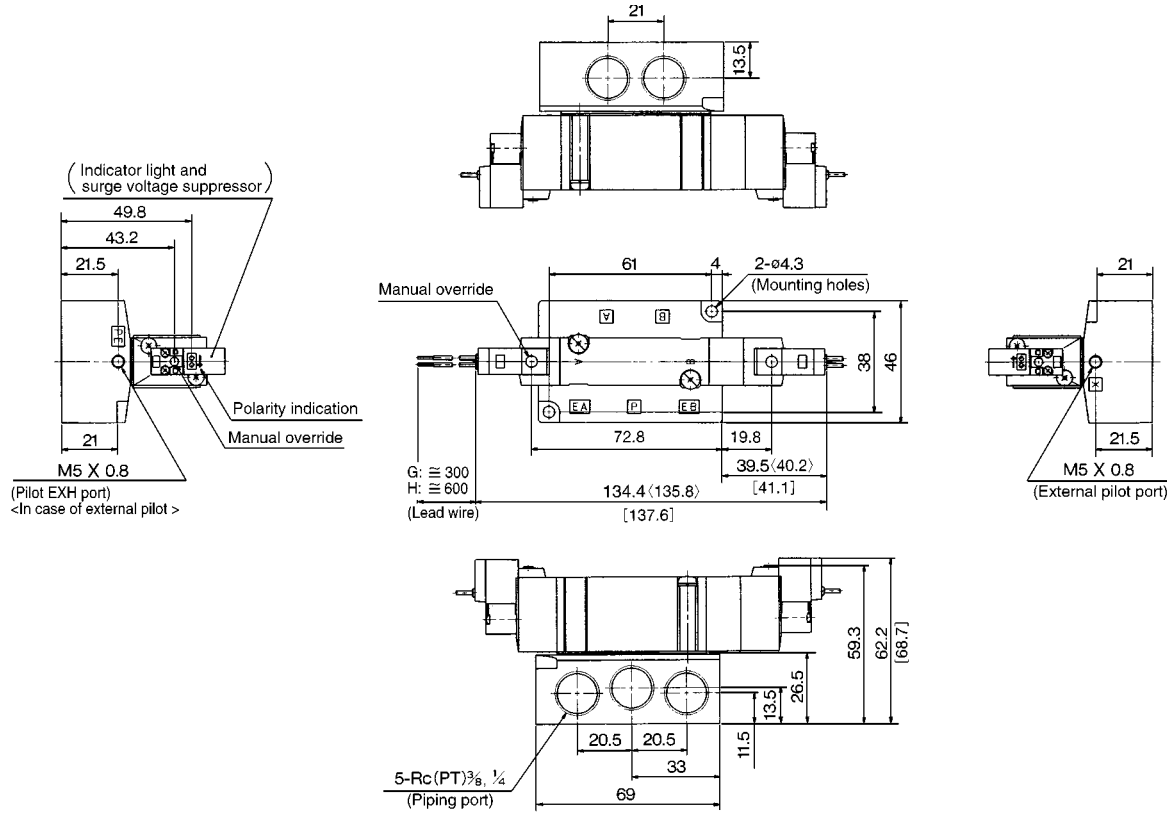


SY3000/5000/7000 Base Mounted Valve

Note []: Values for AC
< >: Values with surge voltage suppressor.

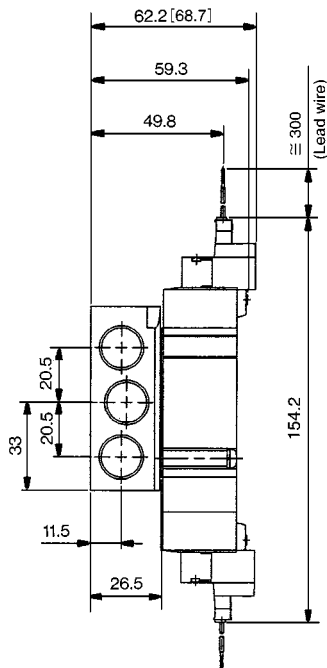
3 position closed center/exhaust center/pressure center

Grommet (G), (H): SY7³/₄40(R)-□G□□-02/03



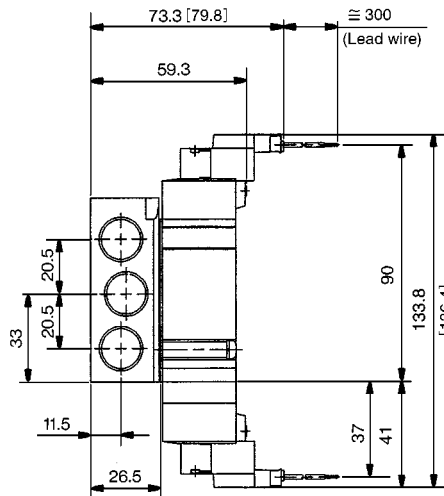
L plug connector (L):

SY7³/₄40(R)-□L□□-02/03



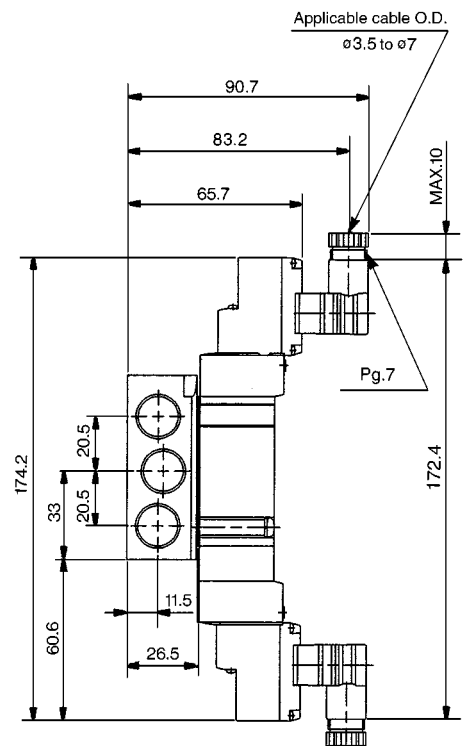
M plug connector (M):

SY7³/₄40(R)-□M□□-02/03



DIN connector (D):

SY7³/₄40(R)-□D□□-02/03



- SY
- SYJ
- SX
- VK
- VZ
- VF
- VFR
- VP7
- VP4
- VQ
- VQ4
- VQZ
- VQD
- VZS
- VFS
- VS
- VS7