

# Body Ported Valves

## Series **SY3/5/7/9000**

### Features

- Wide range of sizes
- Choice of electrical entries
- Body ported valves can be manifold mounted
- One touch fittings for direct connection
- Very low power consumption



### How to Order

SY **5** **1** 20 — **5** LO — **01F** — Q

#### Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |
| 9 | SY9000 |

#### Type of actuation

|   |                            |
|---|----------------------------|
| 1 | 2 position single          |
| 2 | 2 position double          |
| 3 | 3 position closed centre   |
| 4 | 3 position exhaust centre  |
| 5 | 3 position pressure centre |

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

| AC (50/60Hz) |                   |
|--------------|-------------------|
| 1            | 100 VAC           |
| 2            | 200 VAC           |
| 3            | 110 VAC [115 VAC] |
| 4            | 220 VAC [230 VAC] |

#### Rated voltage

#### Electrical entry

| 24, 12, 6, 5, 3 VDC        |                       |                       | 24, 12 VDC/<br>100, 110, 200, 220 VAC |
|----------------------------|-----------------------|-----------------------|---------------------------------------|
| Grommet                    | L plug connector      | M plug connector      | DIN terminal                          |
| G: Lead wire length 300 mm | LO: Without connector | MO: Without connector | Y: DIN plug *<br>D: DIN plug *        |
|                            |                       |                       |                                       |

24, 12, 6, 5, 3 VDC

M8 connector

WO: Without connector cable



Note: For connector cables see Cable appendix.

\* "D" denotes a DIN plug DIN43650 class with industry standard pin spacing.  
The "Y" plug is externally identical but has DIN 43650C pin spacing of 8 mm.

#### A, B port size

| Symbol | Description | SY3000 | SY5000 | SY7000 | SY9000 |
|--------|-------------|--------|--------|--------|--------|
| M5     | M5 thread   | ○      |        |        |        |
| 01F    | 1/8 thread  |        | ○      |        |        |
| 02F    | 1/4 thread  |        |        | ○      | ○      |
| 03F    | 3/8 thread  |        |        |        | ○      |
| C4     | 4mm tube    | ○      | ○      |        |        |
| C6     | 6mm tube    | ○      | ○      |        |        |
| C8     | 8mm tube    |        | ○      | ○      | ○      |
| C10    | 10mm tube   |        |        | ○      | ○      |
| C12    | 12mm tube   |        |        |        | ○      |

### Symbols

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

Note: AC voltages can only be specified in conjunction with a DIN plug (Y entry).

#### Manual override

|                                |                                       |                                     |
|--------------------------------|---------------------------------------|-------------------------------------|
| Nil: Non-locking push type<br> | D: Push-turn locking slotted type<br> | E: Push-turn locking lever type<br> |
|--------------------------------|---------------------------------------|-------------------------------------|

#### Light/Surge voltage suppressor

Electrical entry for G, L, M, W

|     |                                                      |
|-----|------------------------------------------------------|
| Nil | Without light/surge voltage suppressor               |
| Z   | With light/surge voltage suppressor                  |
| U   | With light/surge voltage suppressor (Non-polar type) |

Electrical entry for Y

|     |                                        |
|-----|----------------------------------------|
| Nil | Without light/surge voltage suppressor |
| Z   | With light/surge voltage suppressor    |

## Valve Specifications

| Series                                              |                           | SY3000                                                                                 | SY5000 | SY7000 | SY9000 |
|-----------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------|--------|--------|--------|
| Fluid                                               |                           | Air                                                                                    |        |        |        |
| Internal pilot<br>Operating pressure<br>range (MPa) | 2 position single         | 0.15 to 0.7                                                                            |        |        |        |
|                                                     | 2 position double         | 0.1 to 0.7                                                                             |        |        |        |
|                                                     | 3 position                | 0.2 to 0.7                                                                             |        |        |        |
| Ambient and fluid temperature (°C)                  |                           | -10 to 50 (No freezing)                                                                |        |        |        |
| Max. operating<br>frequency (Hz)                    | 2 position single, double | 10                                                                                     | 5      | 5      | 5      |
|                                                     | 3 position                | 3                                                                                      | 3      | 3      | 3      |
| Manual override (Manual operation)                  |                           | Non-locking push type,<br>Push-turn locking slotted type, Push-turn locking lever type |        |        |        |
| Pilot exhaust method                                |                           | Common exhaust type for main and pilot valve                                           |        |        |        |
| Lubrication                                         |                           | Not required                                                                           |        |        |        |
| Mounting orientation                                |                           | Unrestricted                                                                           |        |        |        |
| Enclosure                                           |                           | Dustproof (DIN terminal, M8 connector conform to IP65)                                 |        |        |        |

## Solenoid Specifications

| Electrical entry                  |             |          | Grommet (G)<br>L plug connector (L)<br>M plug connector (M)              | DIN terminal (Y)<br>M8 connector (W) |
|-----------------------------------|-------------|----------|--------------------------------------------------------------------------|--------------------------------------|
| Coil rated voltage (V)            | DC          |          | 24, 12, 6, 5, 3                                                          |                                      |
|                                   | AC 50/60 Hz |          | 100, 110, 200, 220*                                                      |                                      |
| Allowable voltage fluctuation (%) |             |          | ±10% of rated voltage                                                    |                                      |
| Power consumption (W)             | DC          | Standard | 0.35 (With indicator light: 0.4 DIN terminal with indicator light: 0.45) |                                      |
| Apparent power (VA)               | AC          | 100 V    | 1.4 (With indicator light: 1.5)                                          |                                      |
|                                   |             | 110 V    | 1.6 (With indicator light: 1.7)                                          |                                      |
|                                   |             | 200 V    | 2.3 (With indicator light: 2.4)                                          |                                      |
|                                   |             | 220 V    | 2.5 (With indicator light: 2.6)                                          |                                      |
|                                   |             | [230 V]  | [2.7 (With indicator light: 2.8)]                                        |                                      |
| Surge voltage suppressor          |             |          | Diode (DIN terminal is ZNR. G, L or M (Non-polar) is zener diode.)       |                                      |
| Indicator light                   |             |          | LED                                                                      |                                      |

\* DIN plug only.

## Response Time

### SY3000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|-------------------------------------------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |                                                 | Type Z                              | Type 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 |

### SY7000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|-------------------------------------------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |                                                 | Type Z                              | Type 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 |

### SY5000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|-------------------------------------------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |                                                 | Type Z                              | Type 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 |

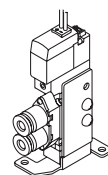
### SY9000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|-------------------------------------------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |                                                 | Type Z                              | Type U     |
| 2 position single | 35 or less                                      | 41 or less                          | 35 or less |
| 2 position double | 35 or less                                      | 41 or less                          | 35 or less |
| 3 position        | 62 or less                                      | 64 or less                          | 62 or less |

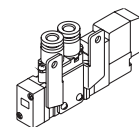
## SY Valve Accessories

### Mounting Bracket Assemblies for Body Ported Valve

| Description       | part no.                                                           |
|-------------------|--------------------------------------------------------------------|
| Bracket (Type F1) | SX3000-16-2A (with mounting screw) for single solenoid valves only |
| Bracket (Type F2) | SX3000-16-1A (with mounting screw)                                 |



Type F1



Type F2

## Flow Characteristics/Weight

| Type of actuation |            | Port size              |                | Flow characteristics       |      |      |                            |      |      | Weight (g) |                      |                |              |
|-------------------|------------|------------------------|----------------|----------------------------|------|------|----------------------------|------|------|------------|----------------------|----------------|--------------|
|                   |            | 1, 5, 3<br>(P, EA, EB) | 4, 2<br>(A, B) | 1→4/2 (P→A/B)              |      |      | 4/2→5/3 (A/B→EA/EB)        |      |      | Grommet    | Response times (m/s) | W M8 connector | DIN terminal |
|                   |            |                        |                | C (dm <sup>3</sup> /s-bar) | b    | Cv   | C (dm <sup>3</sup> /s-bar) | b    | Cv   |            |                      |                |              |
| Series SY3000     | 2 position | Single                 | M5             | 1/4                        | 0.61 | 0.44 | 0.16                       | 0.64 | 0.45 | 0.18       | 51                   | 15             | 57           |
|                   |            | Double                 |                |                            | 0.48 | 0.46 | 0.13                       | 0.47 | 0.43 | 0.13       | 68                   | 13             | 82           |
|                   |            | Closed centre          |                |                            | 0.47 | 0.42 | 0.13                       | 0.47 | 0.41 | 0.13       |                      |                |              |
|                   |            | Exhaust centre         |                |                            | 0.50 | 0.48 | 0.15                       | 0.47 | 0.43 | 0.13       | 71                   | 20             | 84           |
|                   | 2 position | Single                 | M5             | 1/4                        | 0.72 | 0.29 | 0.18                       | 0.64 | 0.34 | 0.17       | 60                   | 15             | 67           |
|                   |            | Double                 |                |                            | 0.59 | 0.28 | 0.15                       | 0.59 | 0.30 | 0.15       | 78                   | 13             | 101          |
|                   |            | Closed centre          |                |                            | 0.63 | 0.35 | 0.16                       | 0.42 | 0.34 | 0.11       |                      |                |              |
|                   |            | Exhaust centre         |                |                            | 0.76 | 0.42 | 0.21                       | 0.59 | 0.29 | 0.15       | 81                   | 20             | 94           |
|                   | 2 position | Single                 | M5             | 1/4                        | 0.76 | 0.30 | 0.19                       | 0.65 | 0.39 | 0.17       | 56                   | 15             | 63           |
|                   |            | Double                 |                |                            | 0.76 | 0.55 | 0.24                       | 0.60 | 0.33 | 0.16       | 74                   | 13             | 87           |
|                   |            | Closed centre          |                |                            | 0.65 | 0.32 | 0.16                       | 0.64 | 0.31 | 0.17       |                      |                |              |
|                   |            | Exhaust centre         |                |                            | 0.77 | 0.34 | 0.21                       | 0.61 | 0.34 | 0.16       | 77                   | 20             | 90           |

| Type of actuation |            | Port size              |                | Flow characteristics       |     |      |                            |     |      | Weight (g) |                      |              |                |
|-------------------|------------|------------------------|----------------|----------------------------|-----|------|----------------------------|-----|------|------------|----------------------|--------------|----------------|
|                   |            | 1, 5, 3<br>(P, EA, EB) | 4, 2<br>(A, B) | 1→4/2 (P→A/B)              |     |      | 4/2→5/3 (A/B→EA/EB)        |     |      | Grommet    | Response times (m/s) | DIN terminal | W M8 connector |
|                   |            |                        |                | C (dm <sup>3</sup> /s-bar) | b   | Cv   | C (dm <sup>3</sup> /s-bar) | b   | Cv   |            |                      |              |                |
| Series SY7000     | 2 position | Single                 | 1/4            | 1/4                        | 4.1 | 0.23 | 0.93                       | 3.3 | 0.33 | 0.81       | 101                  | 38           | 125            |
|                   |            | Double                 |                |                            | 2.9 | 0.31 | 0.70                       | 2.4 | 0.38 | 0.63       | 120                  | 30           | 167            |
|                   |            | Closed centre          |                |                            | 2.5 | 0.39 | 0.65                       | 3.4 | 0.35 | 0.82       |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 4.3 | 0.23 | 0.97                       | 2.2 | 0.39 | 0.58       | 128                  | 56           | 175            |
|                   | 2 position | Single                 | 1/4            | 1/4                        | 3.2 | 0.26 | 0.77                       | 3.2 | 0.37 | 0.82       | 107                  | 38           | 131            |
|                   |            | Double                 |                |                            | 2.6 | 0.24 | 0.63                       | 2.4 | 0.31 | 0.62       | 126                  | 30           | 174            |
|                   |            | Closed centre          |                |                            | 2.4 | 0.25 | 0.57                       | 2.6 | 0.42 | 0.70       |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 3.3 | 0.28 | 0.78                       | 2.2 | 0.34 | 0.60       | 134                  | 56           | 182            |
|                   | 2 position | Single                 | 1/4            | 1/4                        | 3.8 | 0.26 | 0.86                       | 3.2 | 0.34 | 0.82       | 103                  | 38           | 126            |
|                   |            | Double                 |                |                            | 2.8 | 0.27 | 0.67                       | 2.4 | 0.21 | 0.59       | 122                  | 30           | 169            |
|                   |            | Closed centre          |                |                            | 2.5 | 0.25 | 0.59                       | 2.7 | 0.38 | 0.70       |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 3.8 | 0.25 | 0.89                       | 2.3 | 0.38 | 0.61       | 130                  | 56           | 177            |

| Type of actuation |            | Port size              |                | Flow characteristics       |             |             |                            |             |             | Weight (g)  |                      |              |                |
|-------------------|------------|------------------------|----------------|----------------------------|-------------|-------------|----------------------------|-------------|-------------|-------------|----------------------|--------------|----------------|
|                   |            | 1, 5, 3<br>(P, EA, EB) | 4, 2<br>(A, B) | 1→4/2 (P→A/B)              |             |             | 4/2→5/3 (A/B→EA/EB)        |             |             | Grommet     | Response times (m/s) | DIN terminal | W M8 connector |
|                   |            |                        |                | C (dm <sup>3</sup> /s-bar) | b           | Cv          | C (dm <sup>3</sup> /s-bar) | b           | Cv          |             |                      |              |                |
| Series SY5000     | 2 position | Single                 | 1/8            | 1/8                        | 1.9         | 0.35        | 0.49                       | 2.4         | 0.39        | 0.61        | 70                   | 26           | 93             |
|                   |            | Double                 |                |                            | 1.7         | 0.43        | 0.45                       | 1.8         | 0.35        | 0.46        | 88                   | 22           | 135            |
|                   |            | Closed centre          |                |                            | 1.5         | 0.44        | 0.41                       | 2.5 (1.5)   | 0.32 (0.43) | 0.59 (0.40) |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 2.2 (0.91)  | 0.46 (0.58) | 0.61 (0.28)                | 1.8         | 0.38        | 0.46        | 93                   | 38           | 140            |
|                   | 2 position | Single                 | 1/8            | 1/8                        | 0.75        | 0.43        | 0.20                       | 0.85        | 0.64        | 0.30        | 94                   | 26           | 117            |
|                   |            | Double                 |                |                            | 0.74        | 0.40        | 0.19                       | 0.84        | 0.57        | 0.28        | 111                  | 22           | 159            |
|                   |            | Closed centre          |                |                            | 0.75        | 0.36        | 0.19                       | 0.84 (0.84) | 0.64 (0.53) | 0.30 (0.27) |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 0.78 (0.71) | 0.44 (0.37) | 0.21 (0.18)                | 0.84        | 0.57        | 0.27        | 117                  | 38           | 164            |
|                   | 2 position | Single                 | 1/8            | 1/8                        | 1.5         | 0.33        | 0.33                       | 2.0         | 0.37        | 0.52        | 88                   | 26           | 112            |
|                   |            | Double                 |                |                            | 1.3         | 0.31        | 0.33                       | 1.6         | 0.32        | 0.39        | 106                  | 22           | 153            |
|                   |            | Closed centre          |                |                            | 1.3         | 0.33        | 0.33                       | 1.8 (1.4)   | 0.35 (0.37) | 0.44 (0.35) |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 1.7 (0.80)  | 0.31 (0.47) | 0.42 (0.23)                | 1.7         | 0.33        | 0.44        | 111                  | 38           | 158            |

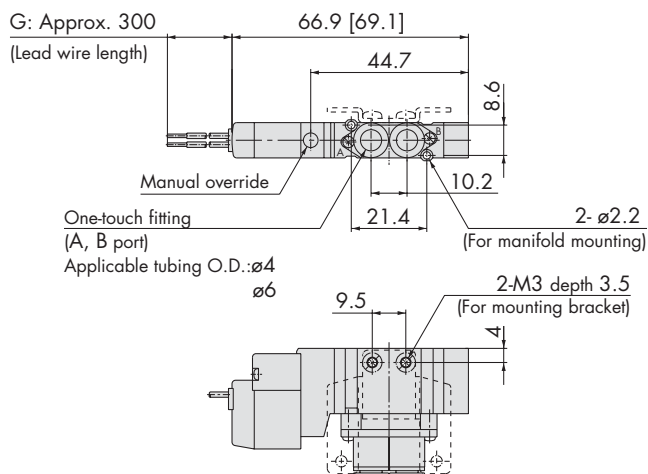
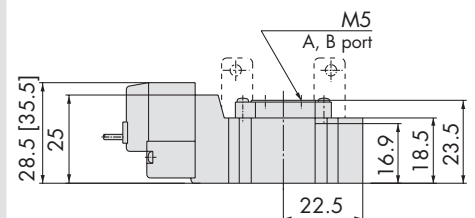
| Type of actuation |            | Port size              |                | Flow characteristics       |           |             |                            |           |             | Weight (g) |                      |              |                |
|-------------------|------------|------------------------|----------------|----------------------------|-----------|-------------|----------------------------|-----------|-------------|------------|----------------------|--------------|----------------|
|                   |            | 1, 5, 3<br>(P, EA, EB) | 4, 2<br>(A, B) | 1→4/2 (P→A/B)              |           |             | 4/2→5/3 (A/B→EA/EB)        |           |             | Grommet    | Response times (m/s) | DIN terminal | W M8 connector |
|                   |            |                        |                | C (dm <sup>3</sup> /s-bar) | b         | Cv          | C (dm <sup>3</sup> /s-bar) | b         | Cv          |            |                      |              |                |
| Series SY9000     | 2 position | Single                 | 1/4            | 1/4                        | 7.0       | 0.33        | 1.7                        | 7.6       | 0.35        | 2.0        | 241                  | 41           | 269            |
|                   |            | Double                 |                |                            | 6.7       | 0.37        | 1.7                        | 6.4       | 0.34        | 1.6        | 260                  | 41           | 308            |
|                   |            | Closed centre          |                |                            | 6.4       | 0.36        | 1.6                        | 8.3 (4.1) | 0.41 (0.27) | 2.2 (0.91) |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 8.0 (3.2) | 0.27 (0.34) | 1.8 (0.76)                 | 6.5       | 0.22        | 1.4        | 284                  | 64           | 332            |
|                   | 2 position | Single                 | 3/8            | 3/8                        | 8.0       | 0.29        | 1.9                        | 8.0       | 0.33        | 2.0        | 236                  | 41           | 260            |
|                   |            | Double                 |                |                            | 7.9       | 0.33        | 1.9                        | 6.6       | 0.27        | 1.6        | 255                  | 41           | 303            |
|                   |            | Closed centre          |                |                            | 8.0       | 0.33        | 1.9                        | 8.7 (8.3) | 0.34 (0.40) | 2.2 (2.3)  |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 8.9 (3.3) | 0.34 (0.40) | 2.2 (0.82)                 | 6.5       | 0.25        | 1.5        | 279                  | 64           | 327            |
|                   | 2 position | Single                 | 1/4            | 1/4                        | 4.3       | 0.28        | 0.96                       | 7.1       | 0.32        | 1.7        | 293                  | 41           | 317            |
|                   |            | Double                 |                |                            | 4.3       | 0.31        | 0.99                       | 6.1       | 0.28        | 1.4        | 312                  | 41           | 360            |
|                   |            | Closed centre          |                |                            | 4.3       | 0.3         | 0.99                       | 7.4 (3.8) | 0.36 (0.29) | 1.9 (0.86) |                      |              |                |
|                   |            | Exhaust centre         |                |                            | 4.4 (3.2) | 0.35 (0.26) | 1.0 (0.71)                 | 2.1       | 0.41        | 0.53       | 336                  | 64           | 384            |

Note 1: The weights given are for grommet entry and M8 plug. L/M connector and DIN plug weights fall between these options.

Note 2: Response time is 0.5MPa with Z type surge suppression.

# Valves

Grommet (G): SY3120-□ G□□- $\frac{C4}{C6}$  - Q

SY3120-□G□□- $\frac{C_4}{C_6}$ -Q

Technical drawing of the C6 connector showing dimensions in mm and inches:

- Overall length: 28.5 [35.5]
- Lead wire length: Approx. 300 (Lead wire length)
- Lead wire diameter: 13.1
- Connector body length: 76.8 [79]
- Connector body diameter: 22.5
- Connector body width: 16.9
- Connector body height: 18.5
- Connector body diameter (C6): 33.6 (3.2)

(Lead wire length)  
Approx. 300

39.6 [46.6]

62 [69.2]

67 [69.2]

22.5

16.9

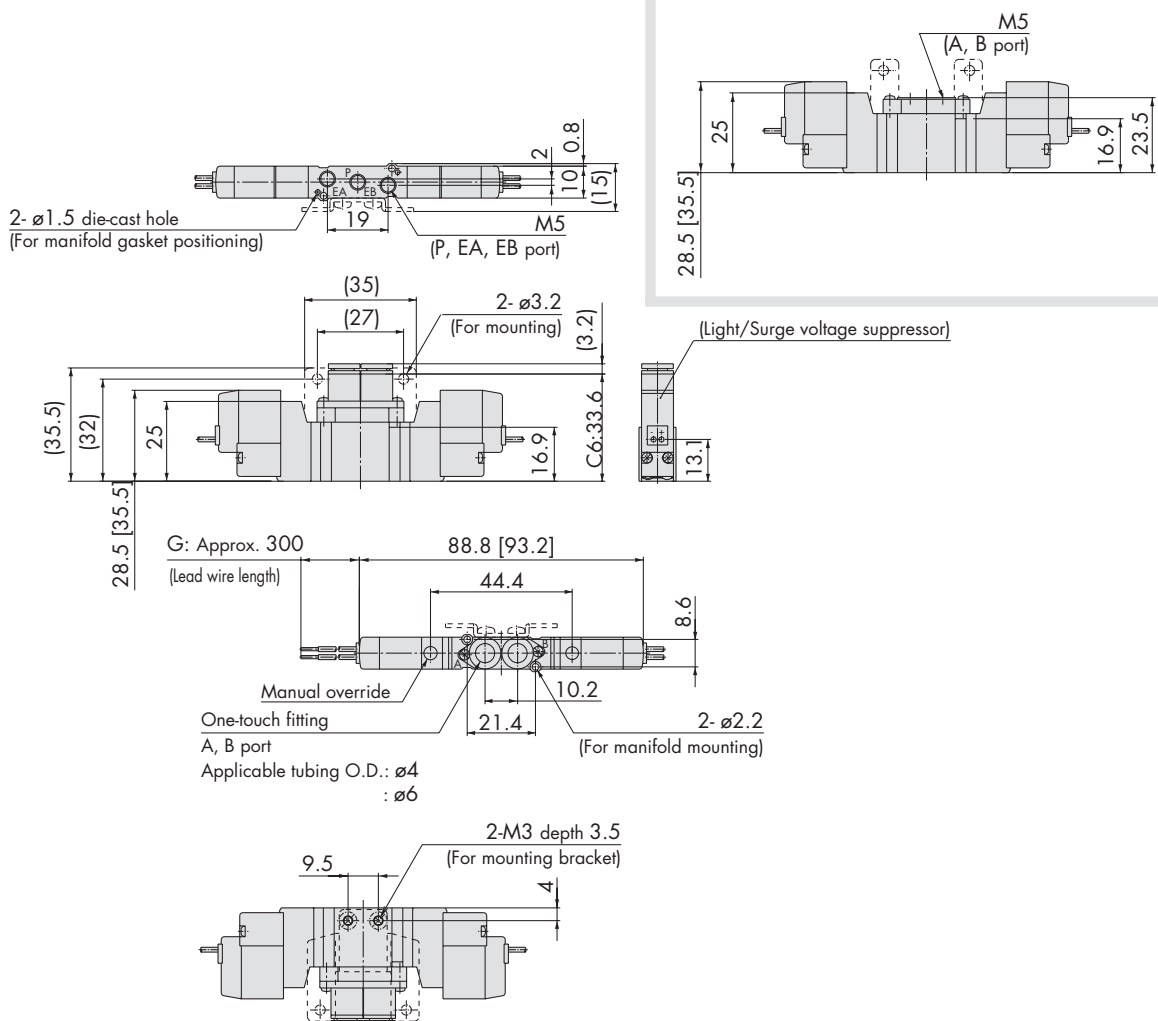
18.5

C6: 33.6 (3.2)

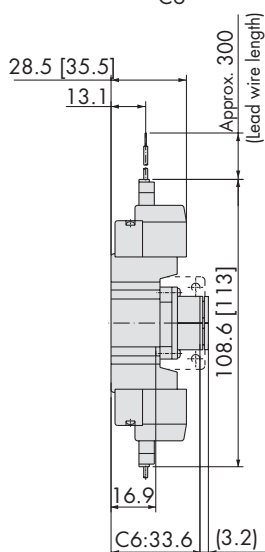
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## Dimensions: Series SY3000

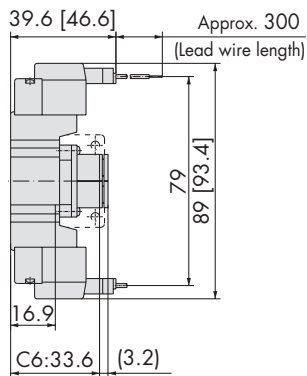
2 position double  
Grommet (G): SY3220-□G□□-C<sub>6</sub><sup>4</sup>-Q



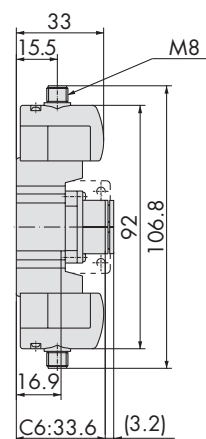
L plug connector (L):  
SY3220-□L□□-C<sub>6</sub><sup>4</sup>-Q



M plug connector (M):  
SY3220-□M□□-C<sub>6</sub><sup>4</sup>-Q



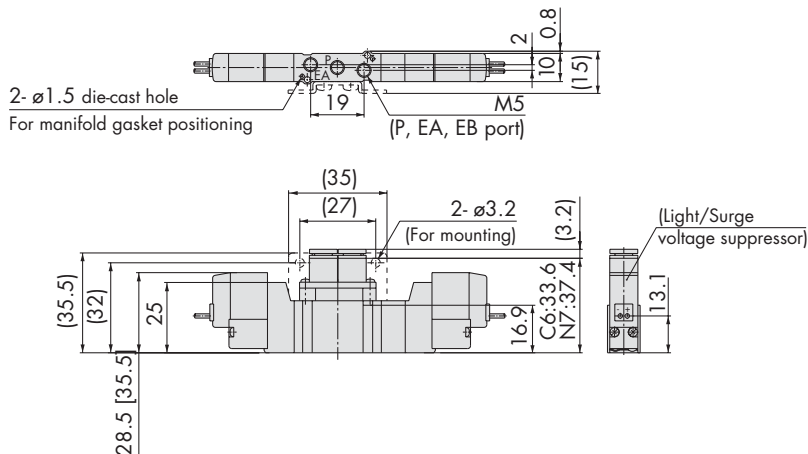
M8 connector (WO):  
SY3220-WO□□-C<sub>6</sub><sup>4</sup>-Q



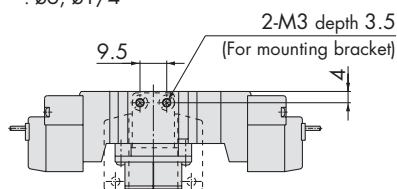
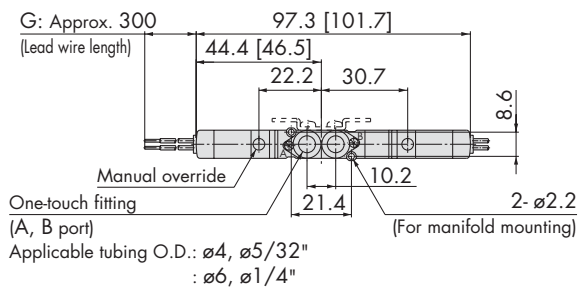
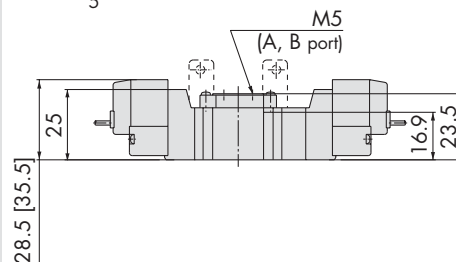
Dimensions: Series SY3000

3 position closed centre/exhaust centre/pressure centre

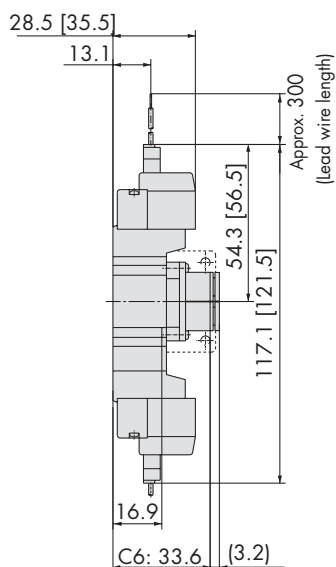
Grommet (G): SY3 $\frac{3}{5}$ 20-□G□□-C $\frac{4}{6}$ -Q



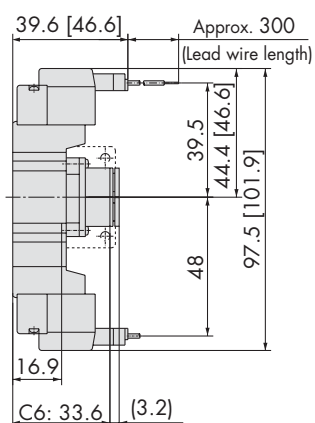
SY3 $\frac{3}{5}$ 20-□G□□-M5-Q



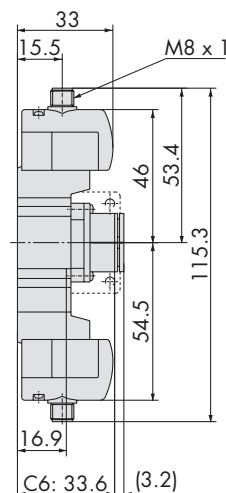
L plug connector (L):  
SY3 $\frac{3}{5}$ 20-□L□□-C $\frac{4}{6}$ -Q



M plug connector (M):  
SY3 $\frac{3}{5}$ 20-□M□□-C $\frac{4}{6}$ -Q



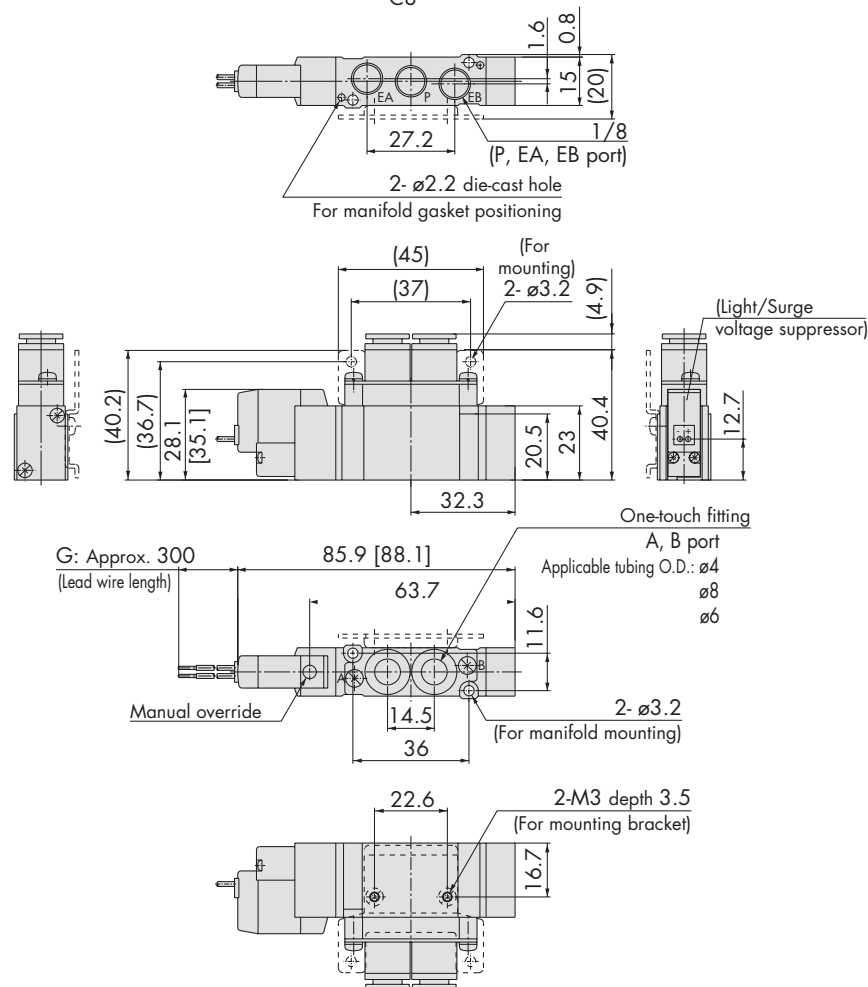
M8 connector (WO):  
SY3 $\frac{3}{5}$ 20-□WO□□-C $\frac{4}{6}$ -Q



## Dimensions: Series SY5000

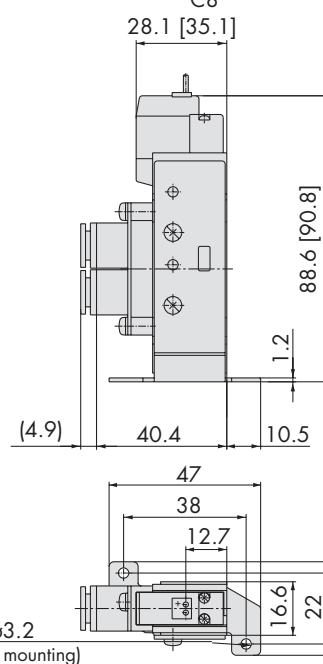
2 position single

Grommet (G): SY5120-□G□□-□  
C4  
C6  
C8 -Q

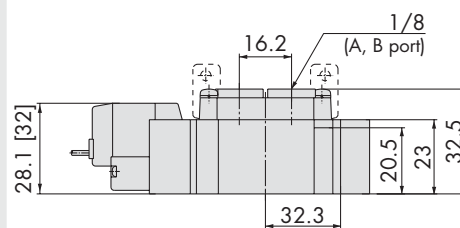


Foot bracket

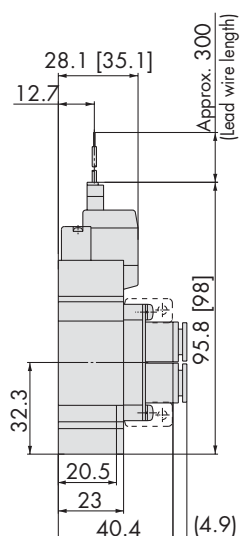
SY5120-□G□□-□  
C4  
C6  
C8 -Q



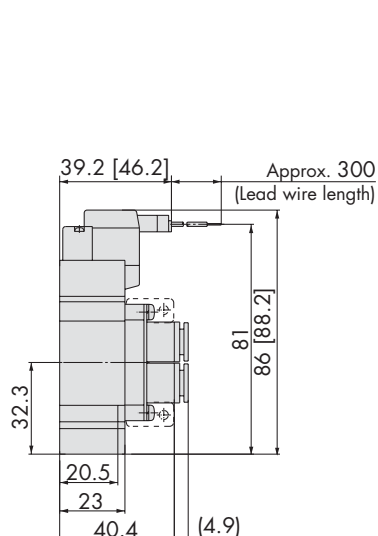
SY5120-□G□□-01□-Q



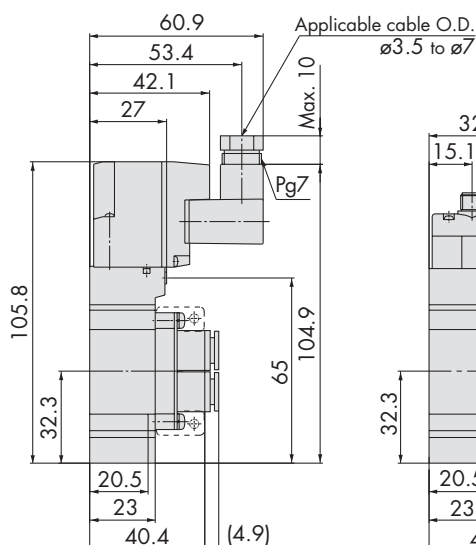
L plug connector: L  
SY5120-□□□-□  
C4  
C6  
C8 -Q



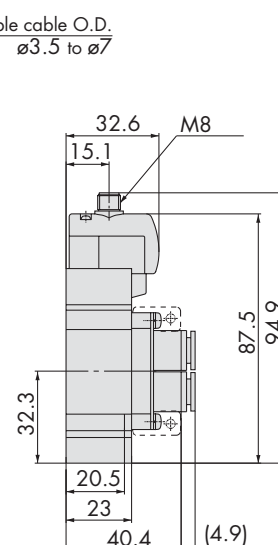
M plug connector: M  
SY5120-□□□-□  
C4  
C6  
C8 -Q



DIN terminal (D):  
SY5120-□□□-□  
C4  
C6  
C8 -Q



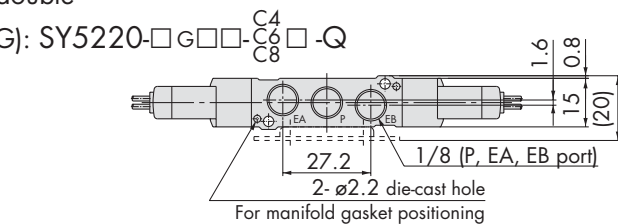
M8 connector (WO):  
SY5120-□WO□□-□  
C4  
C6  
C8 -Q



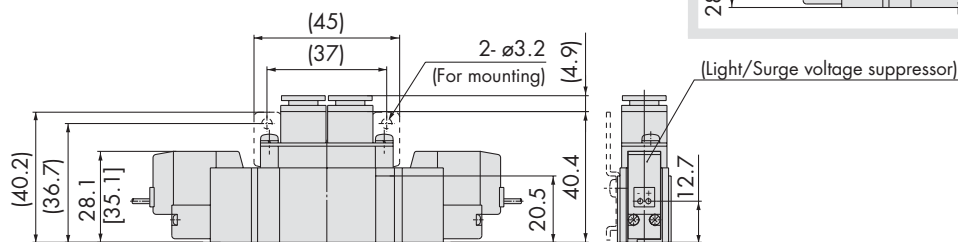
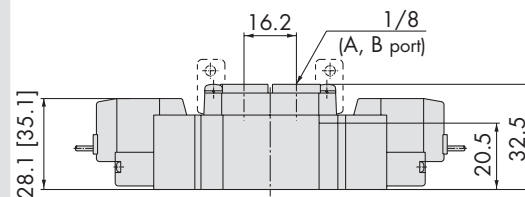
Dimensions: Series SY5000

2 position double

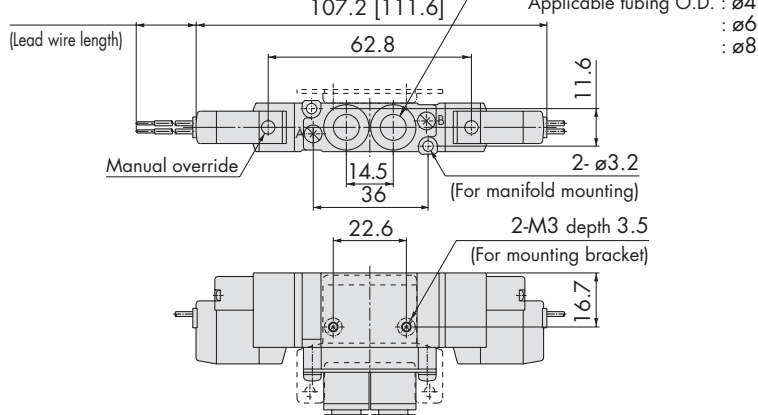
Grommet (G): SY5220-□G□□-C4-C6□-Q



SY5220-□G□□-01□-Q



G: Approx. 300

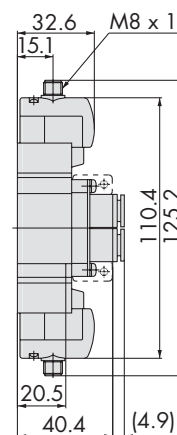
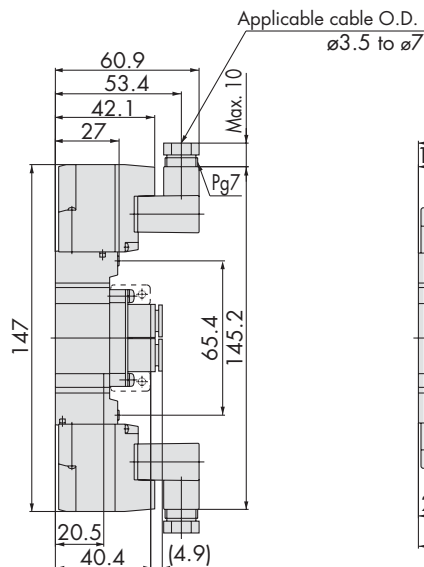
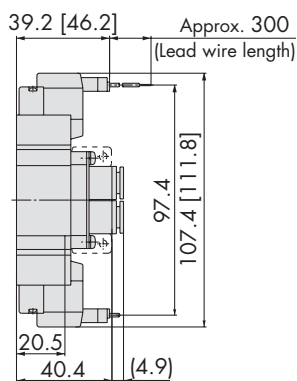
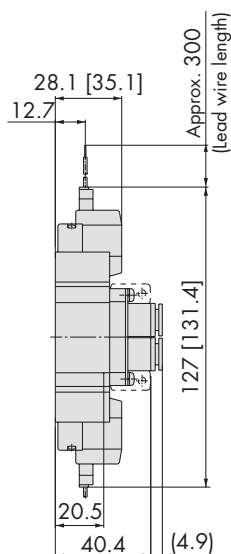


L plug connector: L  
SY5220-□L□□-C4-C6□-Q

M plug connector: M  
SY5220-□M□□-C4-C6□-Q

DIN terminal (D):  
SY5220-□D□□-C4-C6□-Q

M8 connector (WO):  
SY5220-□WO□□-C4-C6□-Q

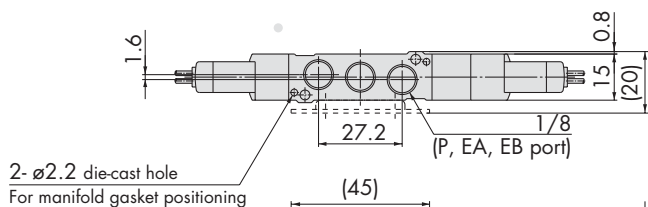


## Dimensions: Series SY5000

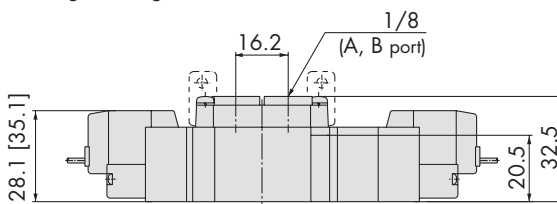
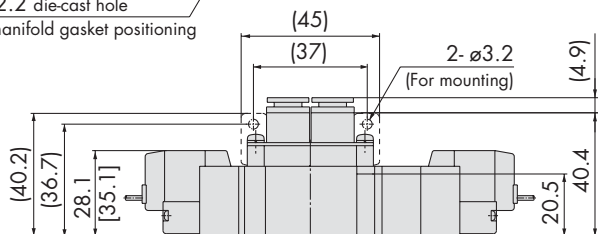
3 position closed centre/exhaust centre/pressure centre

Grommet (G): SY5  $\frac{3}{5}$  420-□□□-C $\frac{4}{8}$ □-Q

SY5  $\frac{3}{5}$  420-□ $\frac{3}{5}$ □□-01□-Q



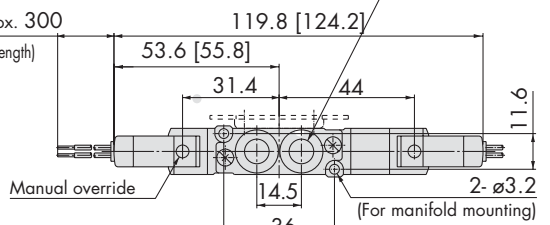
2- $\phi$ 2.2 die-cast hole  
For manifold gasket positioning



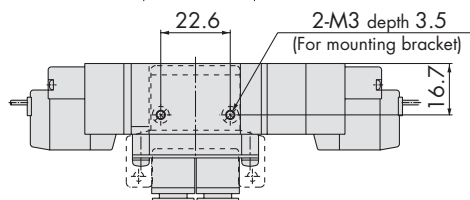
(Light/Surge voltage suppressor)



G: Approx. 300  
(Lead wire length)



Manual override



L plug connector: L

SY5  $\frac{3}{5}$  420-□□□-C $\frac{4}{8}$ □-Q

M plug connector: M

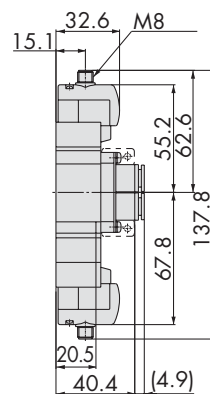
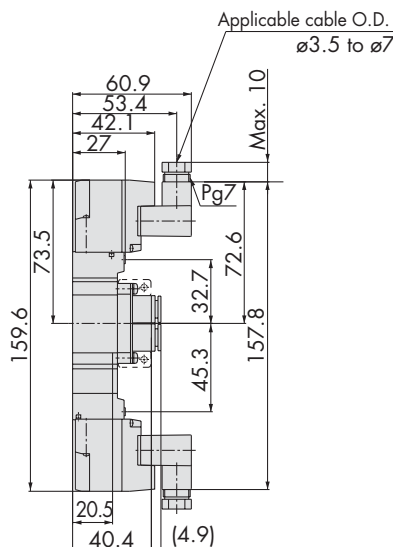
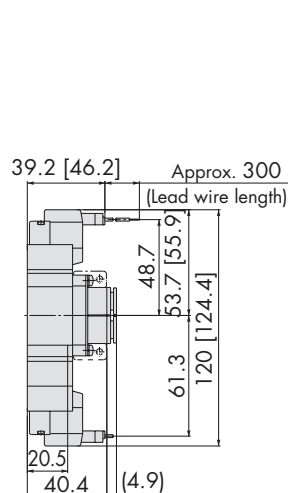
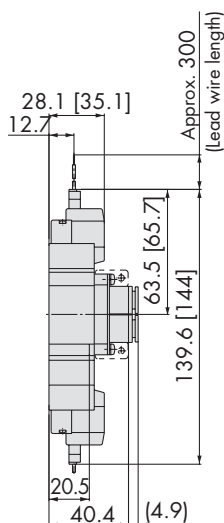
SY5  $\frac{3}{5}$  420-□M□□-C $\frac{4}{8}$ □-Q

DIN terminal (D):

SY5  $\frac{3}{5}$  420-□D□□-C $\frac{4}{8}$ , N $\frac{3}{9}$ □(F2)

M8 connector (WO):

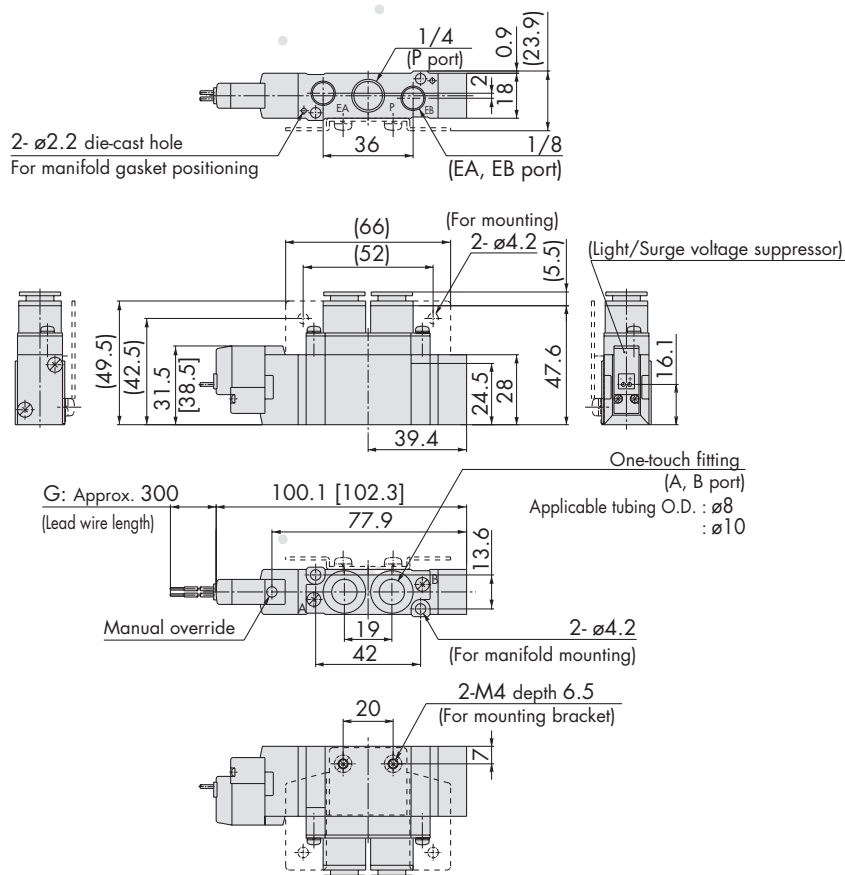
SY5  $\frac{3}{5}$  420-□WO□□-C $\frac{4}{8}$ □-Q



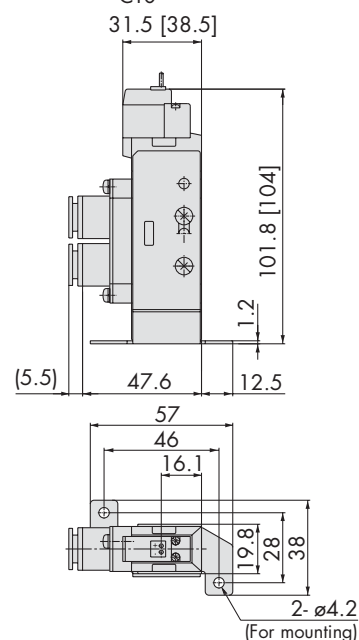
Dimensions: Series SY7000

2 position single

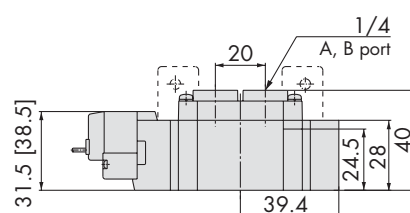
Grommet (G): SY7120-□G□□-C<sub>8</sub>-Q



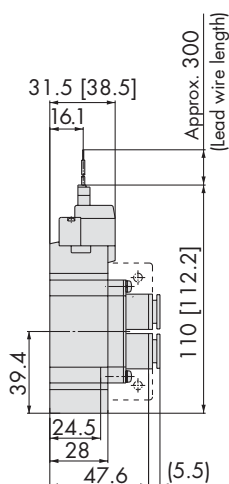
SY7120-□G□□-C<sub>8</sub>-Q



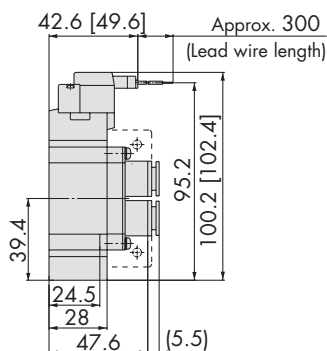
SY7120-□G□□-02□-Q



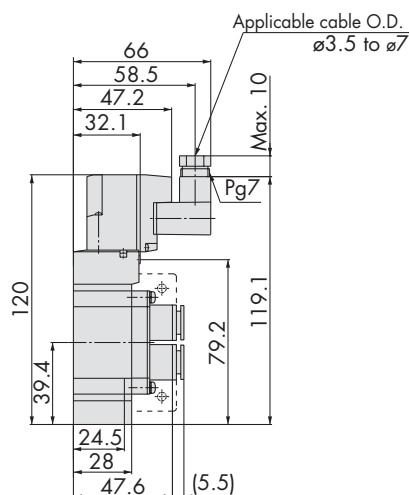
L plug connector (L) :  
SY7120-□L□□-C<sub>8</sub>-Q



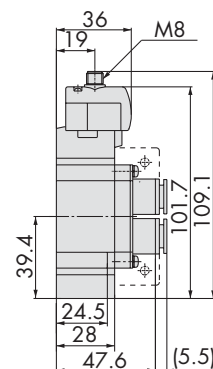
M plug connector (M):  
SY7120-□M□□-C<sub>8</sub>-Q



DIN terminal (D):  
SY7120-□D□□-C<sub>8</sub>-Q



M8 connector (WO):  
SY7120-□WO□□-C<sub>8</sub>-Q

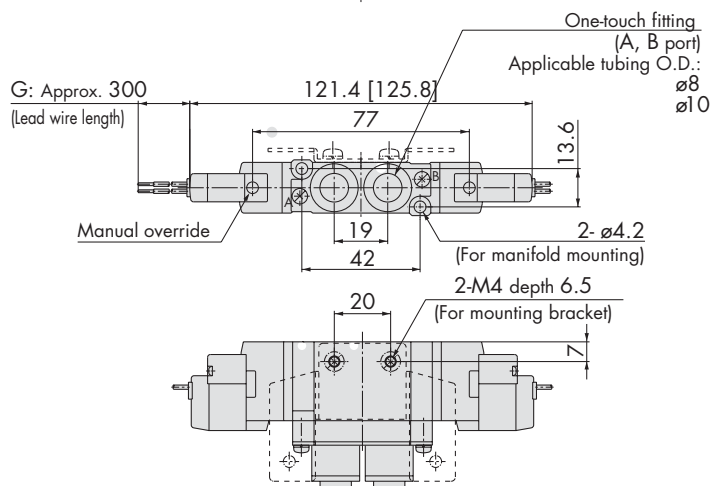
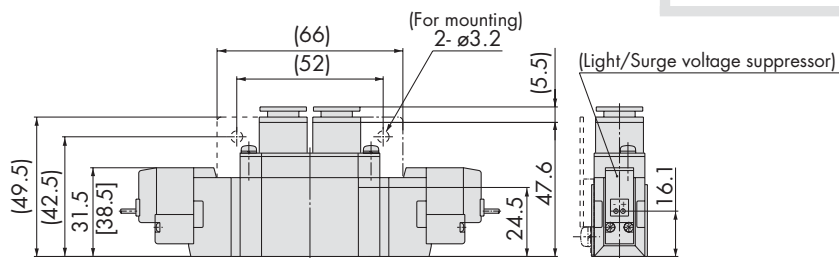
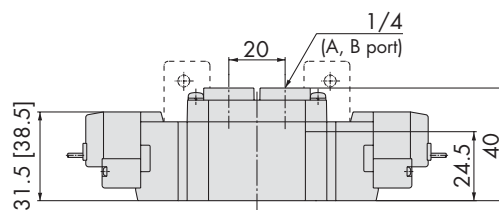
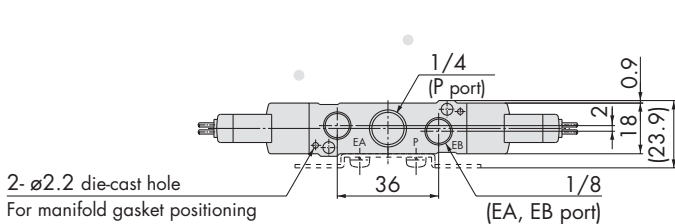


## Dimensions: Series SY7000

2 position double

Grommet (G): SY7220-□G□□-C8-C10-Q

SY7220-□G□□-02□-Q

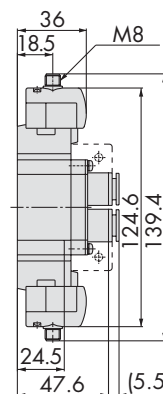
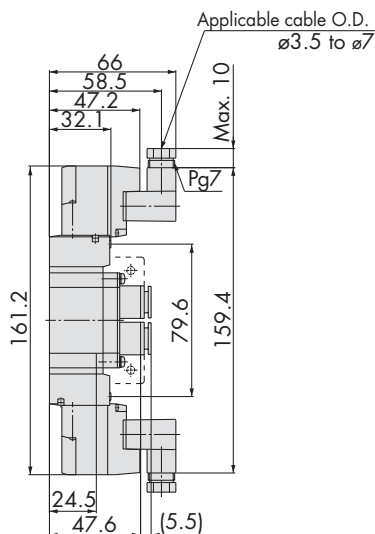
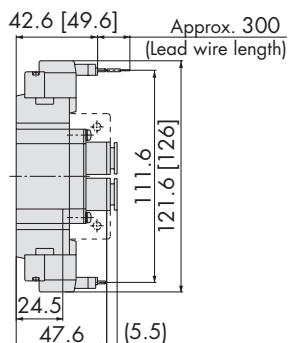
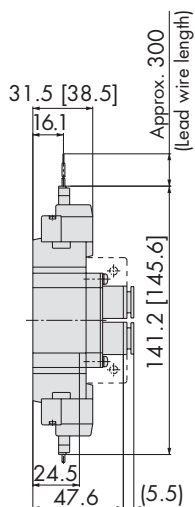


L plug connector (L):  
SY7220-□L□□-C8-C10-Q

M plug connector (M):  
SY7220-□M□□-C8-C10-Q

DIN terminal (D):  
SY7220-□D□□-C8-C10-Q

M8 connector (WO):  
SY7220-□WO□□-C8-C10-Q

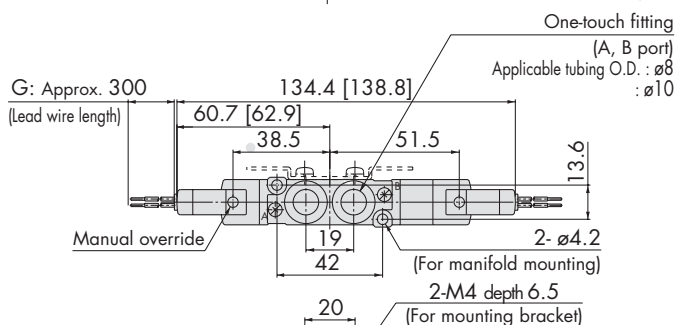
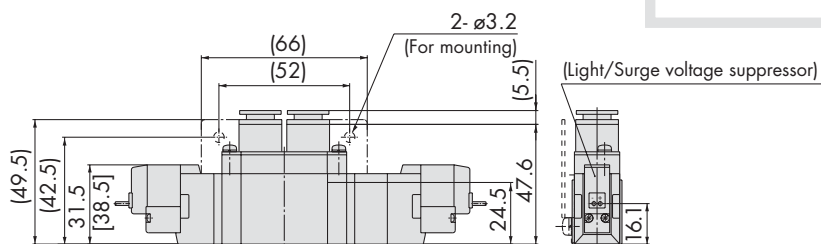
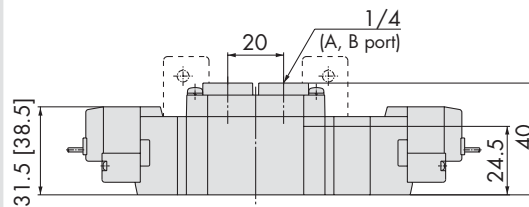
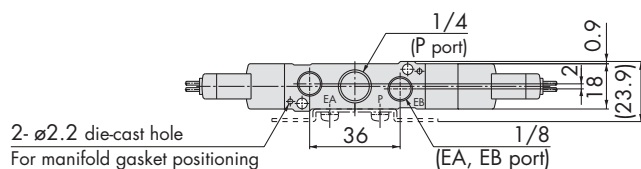


Dimensions: Series SY7000

3 position closed centre/exhaust centre/pressure centre

Grommet (G): SY7 $\frac{3}{5}$ 20-□G□□-C $\frac{8}{10}$ -Q

SY7 $\frac{3}{5}$ 20-□G□□-02□-Q

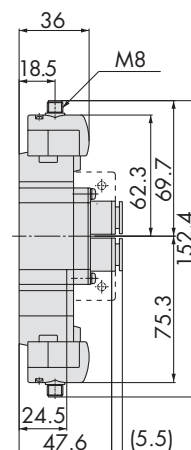
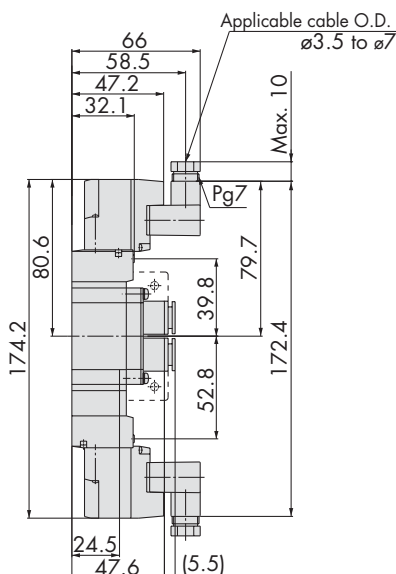
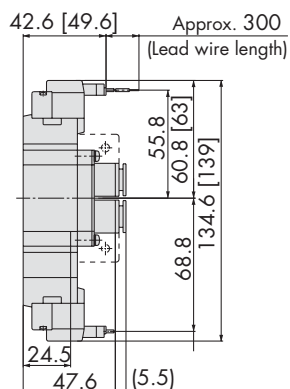
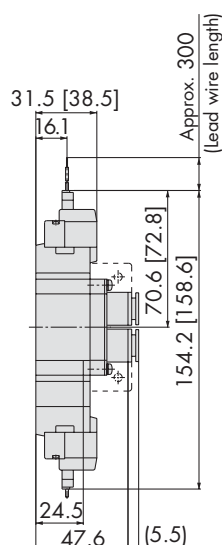


L plug connector (L):  
SY7 $\frac{3}{5}$ 20-□L□□-C $\frac{8}{10}$ -Q

M plug connector (M):  
SY7 $\frac{3}{5}$ 20-□M□□-C $\frac{8}{10}$ -Q

DIN terminal (D):  
SY7 $\frac{3}{5}$ 20-□D□□-C $\frac{8}{10}$ -Q

M8 connector (WO):  
SY7 $\frac{3}{5}$ 20-□WO□□-C $\frac{8}{10}$ -Q



# Base Mounted Valve Single Unit

## Series SY3/5/7/9000



### Features

- Four available sizes
- Internal pilot designs
- Wide range of electrical connector options
- Locking manual overrides are possible
- Huge range of sub-bases and manifolds can be ordered



### How to Order

SY **5** **2** 40 — **5** **L** — **Q**

#### Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |
| 9 | SY9000 |

#### Type of actuation

|   |                            |
|---|----------------------------|
| 1 | 2 position single          |
| 2 | 2 position double          |
| 3 | 3 position closed centre   |
| 4 | 3 position exhaust centre  |
| 5 | 3 position pressure centre |

#### Pilot type

|     |                |
|-----|----------------|
| Nil | Internal pilot |
| R   | External pilot |

#### Rated voltage

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

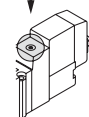
#### AC (50/60 Hz)

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

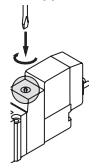
Note: AC voltages can only be specified in conjunction with a DIN plug (Y) entry

#### Manual override

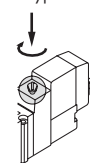
Nil: Non-locking push type



D: Push-turn locking slotted type



E: Push-turn locking lever type



### Symbols

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

#### (Light/Surge voltage suppressor)

Electrical entry for G, H, L, M, W

|     |                                                      |
|-----|------------------------------------------------------|
| Nil | Without light/surge voltage suppressor               |
| Z   | With light/surge voltage suppressor                  |
| U   | With light/surge voltage suppressor (Non-polar type) |

Electrical entry for D

|     |                                                      |
|-----|------------------------------------------------------|
| Nil | Without light/surge voltage suppressor               |
| Z   | With light/surge voltage suppressor (Non-polar type) |

#### Electrical entry

| 24, 12, 6, 5, 3 VDC / 100, 110, 200, 220 VAC |                       | 24, 12 VDC / 100, 110, 200, 220 VAC |                                      | 24, 12, 6, 5, 3 VDC         |
|----------------------------------------------|-----------------------|-------------------------------------|--------------------------------------|-----------------------------|
| Grommet                                      | L plug connector      | M plug connector                    | DIN terminal                         | M8 connector                |
| G: Lead wire length 300 mm                   | LO: Without connector | MO: Without connector               | (Except SY3000)<br>D: With connector | WO: Without connector cable |
|                                              |                       |                                     |                                      |                             |

### Accessories for Base Mounted SY Valves

| Valve type    | Single Subbase part no. | Subbase part size |
|---------------|-------------------------|-------------------|
| SY3*40 valves | SY3000-27-1F-Q          | G 1/8             |
| SY5*40 valves | SY5000-27-1F-Q          | G 1/4             |
| SY7*40 valves | SY7000-27-1F-Q          | G 1/4             |
| SY7*40 valves | SY7000-27-2F-Q          | G 3/8             |
| SY9*40 valves | SY9000-27-1F-Q          | G 3/8             |
| SY9*40 valves | SY9000-27-2F-Q          | G 1/2             |

Electrical connectors are common to SY body ported valves.

### Specifications

| Series                                              |                            |                   | SY3000                                                                                 | SY5000 | SY7000 | SY9000 |
|-----------------------------------------------------|----------------------------|-------------------|----------------------------------------------------------------------------------------|--------|--------|--------|
| Fluid                                               |                            |                   | Air                                                                                    |        |        |        |
| Internal pilot<br>Operating pressure<br>range (MPa) | 2 position single          |                   | 0.15 to 0.7                                                                            |        |        |        |
|                                                     | 2 position double          |                   | 0.1 to 0.7                                                                             |        |        |        |
|                                                     | 3 position                 |                   | 0.2 to 0.7                                                                             |        |        |        |
| External pilot<br>Operating pressure<br>range (MPa) | Operating pressure range   |                   | -100 kPa to 0.7                                                                        |        |        |        |
|                                                     | Pilot<br>pressure<br>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 (°C)                  |                            |                   | -10 to 50 (No freezing)                                                                |        |        |        |
| Max. operating<br>frequency (Hz)                    | 2 position single, double  |                   | 10                                                                                     | 5      | 5      | 5      |
|                                                     | 3 position                 |                   | 3                                                                                      | 3      | 3      | 3      |
| Manual override<br>(Manual operation)               |                            |                   | Non-locking push type,<br>Push-turn locking slotted type, Push-turn locking lever type |        |        |        |
| Pilot exhaust method                                | Internal pilot             |                   | Common exhaust type for main and pilot valve                                           |        |        |        |
|                                                     | External pilot             |                   | Pilot valve individual exhaust                                                         |        |        |        |
| Lubrication                                         |                            |                   | Not required                                                                           |        |        |        |
| Mounting orientation                                |                            |                   | Unrestricted                                                                           |        |        |        |
| Enclosure                                           |                            |                   | Dustproof (* DIN terminal, M8 connector conforms to IP65)                              |        |        |        |

### Response Time

#### SY3000

| Type of<br>actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|----------------------|----------------------------------------------------|------------|-------------------------------------|------------|
|                      | Without light/surge<br>voltage suppressor          |            | With light/surge voltage suppressor |            |
|                      | Type Z                                             | Type U     | Type Z                              | Type U     |
| 2 position single    | 12 or less                                         | 15 or less | 12 or less                          | 15 or less |
| 2 position double    | 10 or less                                         | 13 or less | 10 or less                          | 13 or less |
| 3 position           | 15 or less                                         | 20 or less | 16 or less                          | 20 or less |

#### SY5000

| Type of<br>actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|----------------------|----------------------------------------------------|------------|-------------------------------------|------------|
|                      | Without light/surge<br>voltage suppressor          |            | With light/surge voltage suppressor |            |
|                      | Type Z                                             | Type U     | Type Z                              | Type U     |
| 2 position single    | 19 or less                                         | 26 or less | 19 or less                          | 26 or less |
| 2 position double    | 18 or less                                         | 22 or less | 18 or less                          | 22 or less |
| 3 position           | 32 or less                                         | 38 or less | 32 or less                          | 38 or less |

#### SY7000

| Type of<br>actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|----------------------|----------------------------------------------------|------------|-------------------------------------|------------|
|                      | Without light/surge<br>voltage suppressor          |            | With light/surge voltage suppressor |            |
|                      | Type Z                                             | Type U     | Type Z                              | Type U     |
| 2 position single    | 31 or less                                         | 38 or less | 33 or less                          | 41 or less |
| 2 position double    | 27 or less                                         | 30 or less | 28 or less                          | 35 or less |
| 3 position           | 50 or less                                         | 56 or less | 50 or less                          | 62 or less |

#### SY9000

| Type of<br>actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|----------------------|----------------------------------------------------|------------|-------------------------------------|------------|
|                      | Without light/surge<br>voltage suppressor          |            | With light/surge voltage suppressor |            |
|                      | Type Z                                             | Type U     | Type Z                              | Type U     |
| 2 position single    | 35 or less                                         | 41 or less | 35 or less                          | 41 or less |
| 2 position double    | 35 or less                                         | 41 or less | 35 or less                          | 41 or less |
| 3 position           | 62 or less                                         | 64 or less | 62 or less                          | 64 or less |

### Solenoid Specifications

|                                   |             |                                                                                                                                                                                                             |
|-----------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical entry                  |             | Grommet (G), (H)<br>L plug connector: L<br>M plug connector: M<br>DIN terminal (D) (Y)<br>M8 connector (W)                                                                                                  |
| Coil rated voltage (V)            | DC          | 24, 12, 6, 5, 3                                                                                                                                                                                             |
|                                   | AC 50/60 Hz | 100, 110, 200, 220 *                                                                                                                                                                                        |
| Allowable voltage fluctuation (%) |             | ±10% of rated voltage                                                                                                                                                                                       |
| Power consumption (W)             | DC          | Standard 0.35 (with indicator light: 0.4 DIN terminal with indicator light: 0.45)<br>With power saving circuit 0.1 (With indicator light only)                                                              |
|                                   | AC          | 100 V 1.4 (With indicator light: 1.5)<br>110 V 1.6 (With indicator light: 1.7)<br>200 V 2.3 (With indicator light: 2.4)<br>220 V 2.5 (With indicator light: 2.6)<br>[230 V] 2.7 (With indicator light: 2.8) |
| Surge voltage suppressor          |             | Diode (Varistor is for DIN terminal and Non-polar type.)                                                                                                                                                    |
| Indicator light                   |             | LED (AC of DIN terminal is neon bulb.)                                                                                                                                                                      |

## Flow Characteristics/Weight

| Series SY3000 | Type of actuation |                 | Port size | Flow characteristics       |      |      |                            |      |      | Weight (g) |                      |                |
|---------------|-------------------|-----------------|-----------|----------------------------|------|------|----------------------------|------|------|------------|----------------------|----------------|
|               |                   |                 |           | 1 → 4/2 (P → A/B)          |      |      | 4/2 → 5/3 (A/B → EA/EB)    |      |      | Grommet    | Response times (m/s) | W M8 connector |
|               |                   |                 |           | C (dm <sup>3</sup> /s-bar) | b    | Cv   | C (dm <sup>3</sup> /s-bar) | b    | Cv   |            |                      |                |
|               | 2 position        | Single          |           |                            |      |      |                            |      |      |            |                      |                |
|               |                   | Double          |           | 1.0                        | 0.30 | 0.24 | 1.1                        | 0.30 | 0.26 | 84 (50)    | 15                   | 89 (57)        |
|               |                   | Closed centre   |           | 0.77                       | 0.28 | 0.18 | 0.85                       | 0.30 | 0.19 | 102 (68)   | 13                   | 115 (81)       |
|               | 3 position        | Exhaust centre  | 1/8       | 0.73                       | 0.31 | 0.18 | 1.1                        | 0.26 | 0.24 | 104 (69)   | 20                   | 117 (82)       |
|               |                   | Pressure centre |           | 1.2                        | 0.24 | 0.29 | 0.89                       | 0.47 | 0.24 |            |                      |                |

| Series SY5000 | Type of actuation |                 | Port size | Flow characteristics       |      |      |                            |      |      | Weight (g) |                      |                |
|---------------|-------------------|-----------------|-----------|----------------------------|------|------|----------------------------|------|------|------------|----------------------|----------------|
|               |                   |                 |           | 1 → 4/2 (P → A/B)          |      |      | 4/2 → 5/3 (A/B → EA/EB)    |      |      | Grommet    | Response times (m/s) | W M8 connector |
|               |                   |                 |           | C (dm <sup>3</sup> /s-bar) | b    | Cv   | C (dm <sup>3</sup> /s-bar) | b    | Cv   |            |                      |                |
|               | 2 position        | Single          |           |                            |      |      |                            |      |      |            |                      |                |
|               |                   | Double          |           | 2.4                        | 0.41 | 0.64 | 2.8                        | 0.29 | 0.66 | 121 (58)   | 26                   | 127 (65)       |
|               |                   | Closed centre   |           | 1.8                        | 0.47 | 0.50 | 1.8                        | 0.40 | 0.47 | 139 (76)   | 22                   | 152 (89)       |
|               | 3 position        | Exhaust centre  | 1/4       | 1.4                        | 0.55 | 0.44 | 3.0                        | 0.33 | 0.72 | 144 (82)   | 38                   | 158 (95)       |
|               |                   | Pressure centre |           | 3.3                        | 0.36 | 0.85 | 1.8                        | 0.40 | 0.48 |            |                      |                |

| Series SY7000 | Type of actuation |                 | Port size | Flow characteristics       |      |      |                            |      |      | Weight (g) |                      |                |
|---------------|-------------------|-----------------|-----------|----------------------------|------|------|----------------------------|------|------|------------|----------------------|----------------|
|               |                   |                 |           | 1 → 4/2 (P → A/B)          |      |      | 4/2 → 5/3 (A/B → EA/EB)    |      |      | Grommet    | Response times (m/s) | W M8 connector |
|               |                   |                 |           | C (dm <sup>3</sup> /s-bar) | b    | Cv   | C (dm <sup>3</sup> /s-bar) | b    | Cv   |            |                      |                |
|               | 2 position        | Single          |           |                            |      |      |                            |      |      |            |                      |                |
|               |                   | Double          |           | 4.1                        | 0.41 | 1.1  | 4.1                        | 0.29 | 1.0  | 218 (89)   | 38                   | 225 (96)       |
|               |                   | Closed centre   |           | 3.0                        | 0.43 | 0.80 | 2.6                        | 0.41 | 0.72 | 237 (108)  | 30                   | 250 (121)      |
|               | 3 position        | Exhaust centre  | 1/4       | 2.6                        | 0.42 | 0.71 | 4.7                        | 0.35 | 1.1  | 239 (110)  | 56                   | 253 (124)      |
|               |                   | Pressure centre |           | 5.3                        | 0.39 | 1.3  | 2.2                        | 0.49 | 0.63 |            |                      |                |
|               | 2 position        | Single          |           | 4.9                        | 0.29 | 1.2  | 4.5                        | 0.27 | 1.1  | 218 (89)   | 38                   | 225 (96)       |
|               |                   | Double          |           | 3.0                        | 0.40 | 0.80 | 2.6                        | 0.45 | 0.73 | 237 (108)  | 30                   | 250 (121)      |
|               | 3 position        | Exhaust centre  | 3/8       | 2.6                        | 0.42 | 0.71 | 4.8                        | 0.35 | 1.1  | 239 (110)  | 56                   | 253 (124)      |
|               |                   | Pressure centre |           | 5.3                        | 0.31 | 1.3  | 2.3                        | 0.45 | 0.66 |            |                      |                |

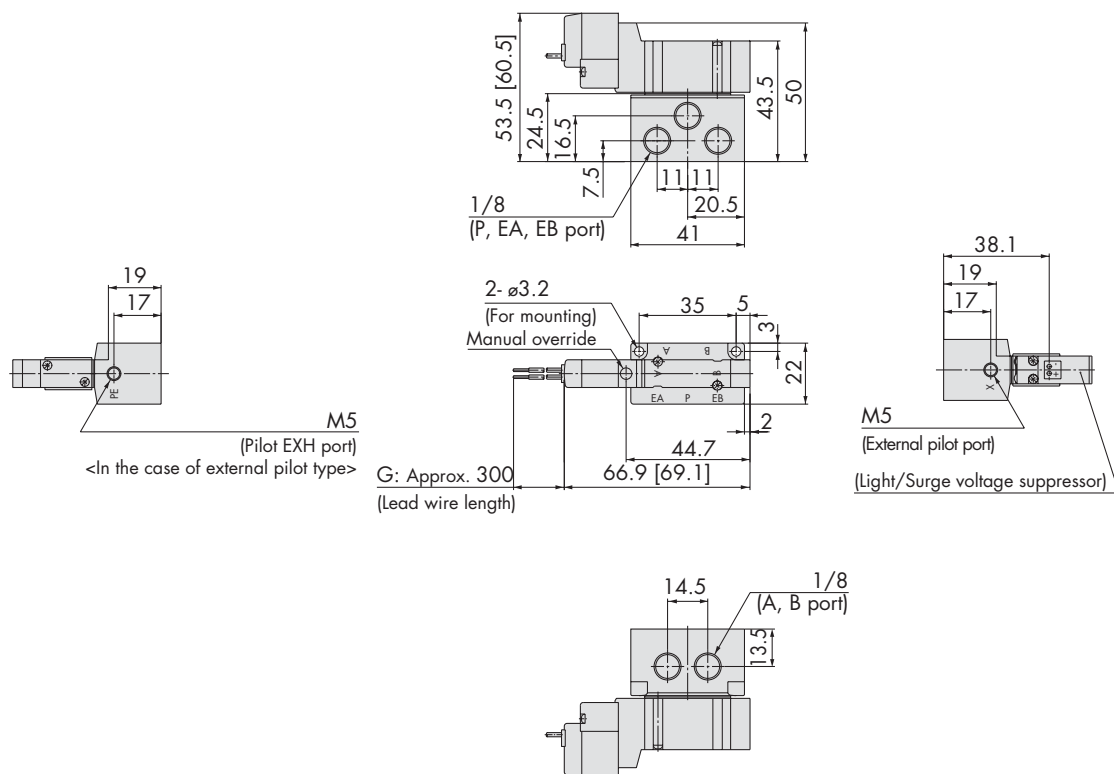
| Series SY9000 | Type of actuation |                 | Port size | Flow characteristics       |      |     |                            |      |     | Weight (g) |                      |                |
|---------------|-------------------|-----------------|-----------|----------------------------|------|-----|----------------------------|------|-----|------------|----------------------|----------------|
|               |                   |                 |           | 1 → 4/2 (P → A/B)          |      |     | 4/2 → 5/3 (A/B → EA/EB)    |      |     | Grommet    | Response times (m/s) | W M8 connector |
|               |                   |                 |           | C (dm <sup>3</sup> /s-bar) | b    | Cv  | C (dm <sup>3</sup> /s-bar) | b    | Cv  |            |                      |                |
|               | 2 position        | Single          |           |                            |      |     |                            |      |     |            |                      |                |
|               |                   | Double          |           | 7.9                        | 0.34 | 2.0 | 9.6                        | 0.43 | 2.6 | 469(172)   | 41                   | 476(179)       |
|               |                   | Closed centre   |           | 7.5                        | 0.33 | 1.8 | 7.3                        | 0.30 | 1.7 | 488(191)   | 41                   | 502(205)       |
|               | 3 position        | Exhaust centre  | 3/8       | 7.2                        | 0.34 | 1.7 | 13                         | 0.23 | 2.8 | 512(215)   | 64                   | 526(229)       |
|               |                   | Pressure centre |           | 12                         | 0.26 | 2.8 | 6.7                        | 0.40 | 1.9 |            |                      |                |
|               | 2 position        | Single          |           | 8.0                        | 0.48 | 2.2 | 10                         | 0.29 | 2.5 | 448 (151)  | 41                   | 457(160)       |
|               |                   | Double          |           | 7.6                        | 0.32 | 1.8 | 7.3                        | 0.32 | 1.8 | 467 (170)  | 41                   | 481(184)       |
|               | 3 position        | Exhaust centre  | 1/2       | 7.3                        | 0.42 | 2.0 | 13                         | 0.32 | 3.6 | 491 (194)  | 64                   | 505(208)       |
|               |                   | Pressure centre |           | 12                         | 0.33 | 3.3 | 7.4                        | 0.33 | 1.9 |            |                      |                |

Note: Weights given for grommet and M8 connector. L/M connector and DIN version weights fall between these values.  
Response time is 0.5 MPa with Z lamp and surge option fitted.

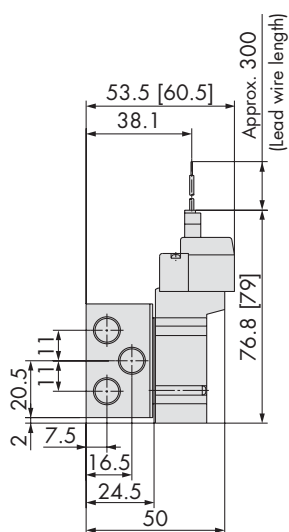
Dimensions: Series SY3000

2 position single

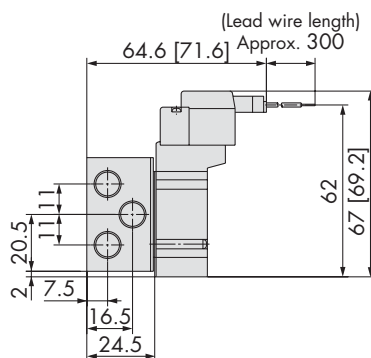
Grommet (G): SY3140(R)-□G□□-01□-Q



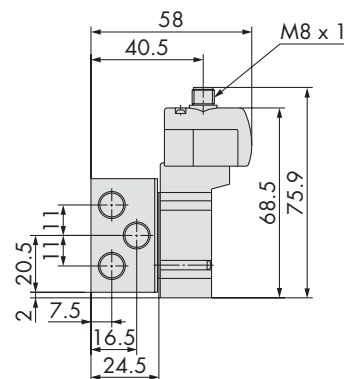
L plug connector (L):  
SY3140(R)-□L□□-01□-Q



M plug connector (M):  
SY3140(R)-□M□□-01□-Q



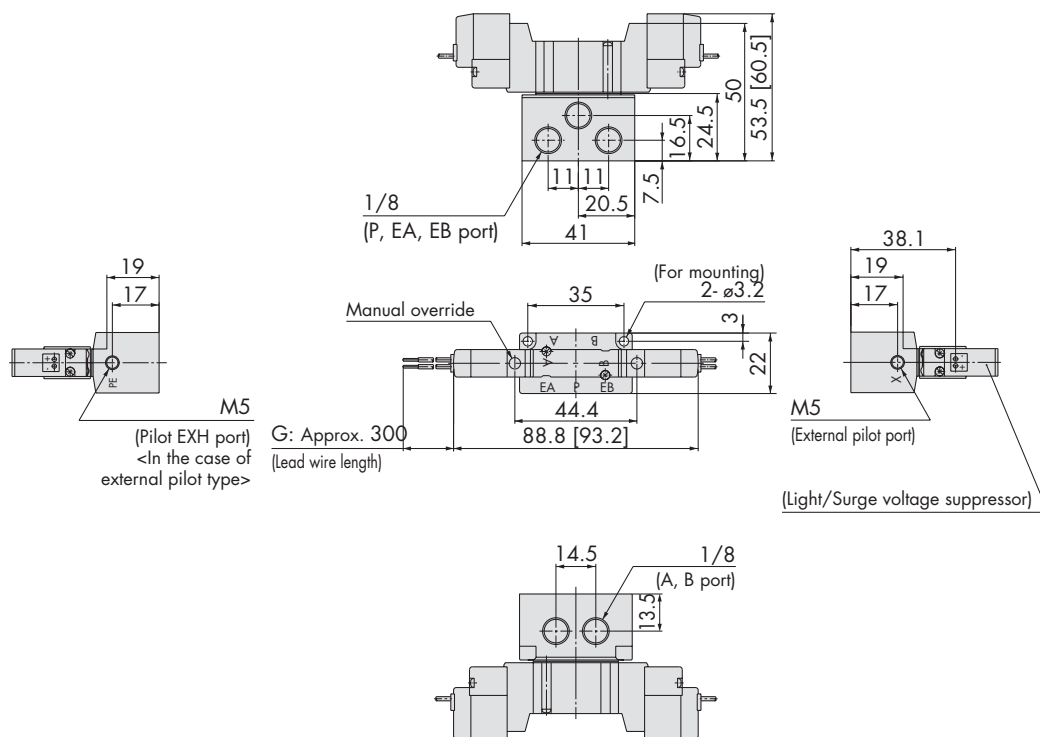
M8 connector (WO):  
SY3140(R)-□WO□□-01□-Q



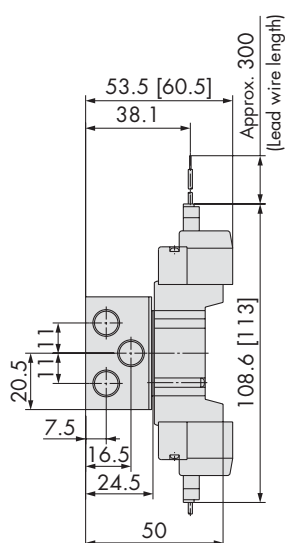
## Dimensions: Series SY3000

2 position double

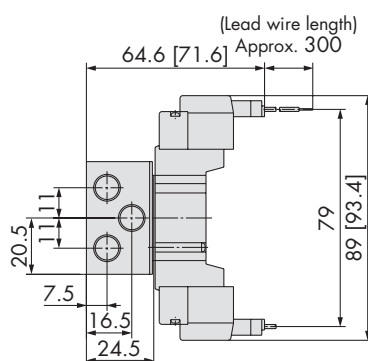
Grommet (G): SY3240(R)-□<sup>G</sup>□□-01□-Q



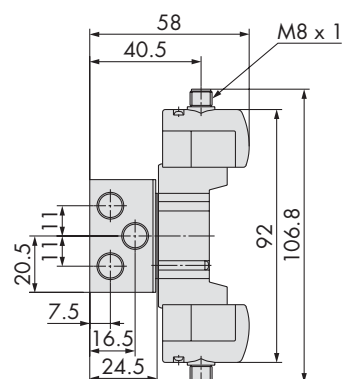
L plug connector (L):  
SY3240(R)-□L□□-01□-Q



M plug connector (M):  
SY3240(R)-□M□□-01□-Q

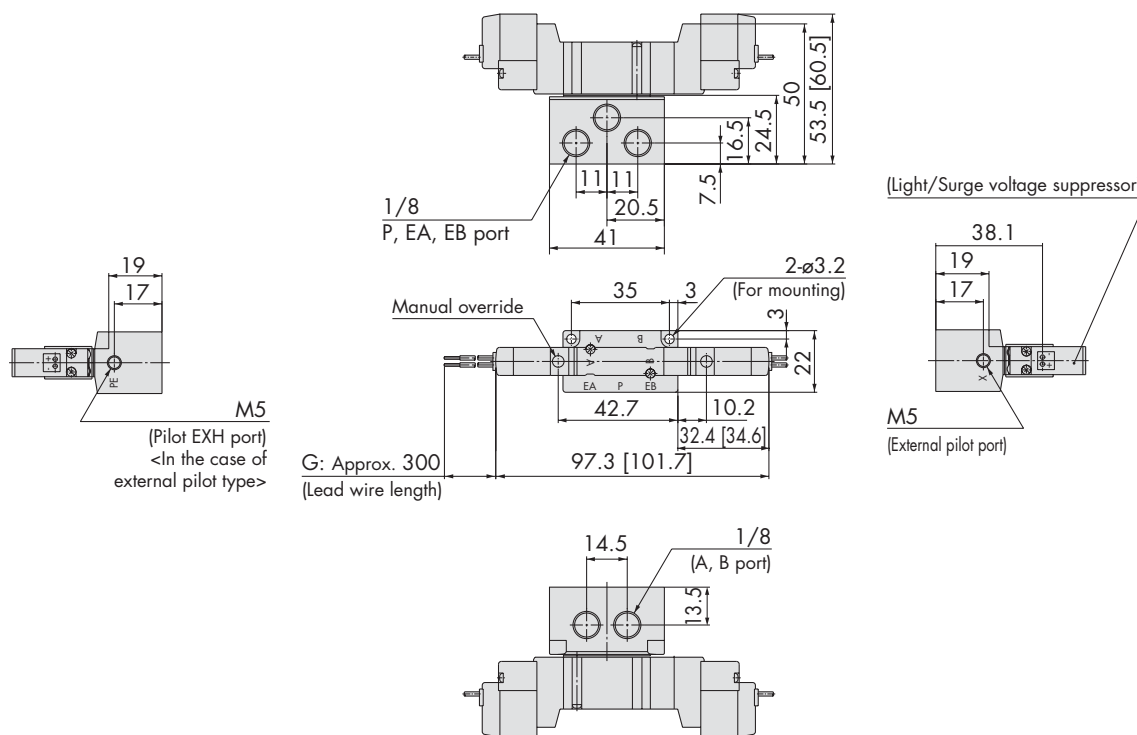


M8 connector (WO):  
SY3240(R)-□WO□□-01□-Q

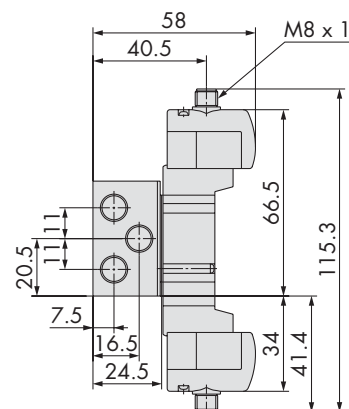
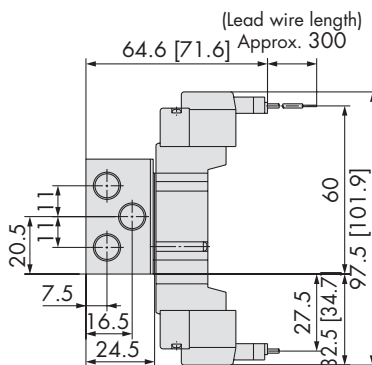
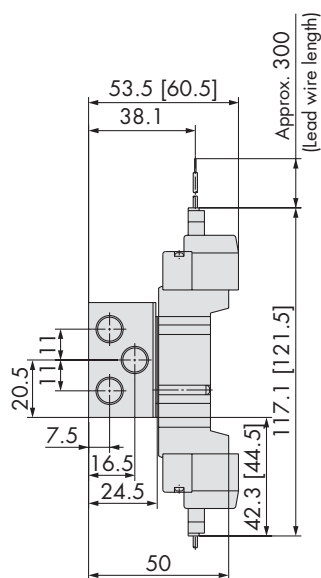


# Valves

Grommet (G): SY3<sup>3</sup><sub>4</sub>40(R)-□G□□-01□-Q



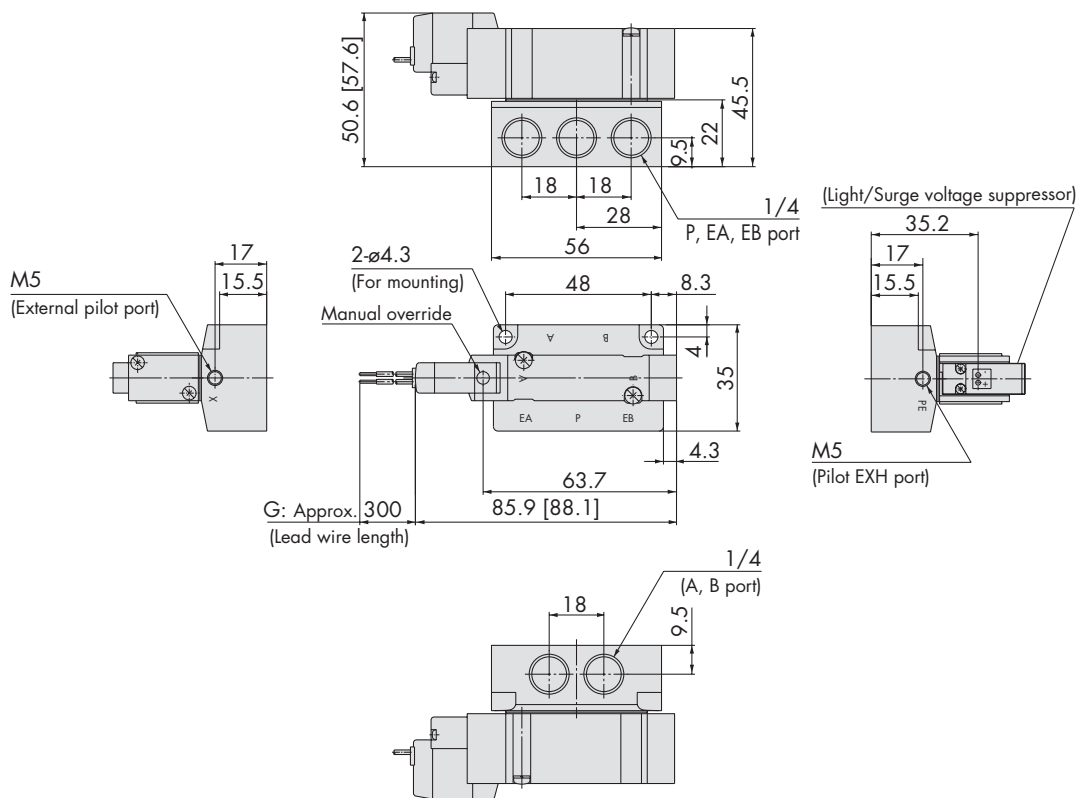
M8 connector (WO):  
SY3<sup>3</sup>/<sub>5</sub>40(R)-□WO□□-01□-Q



### Dimensions: Series SY5000

2 position single

Grommet (G): SY5140(R)-□G□□-02□-Q

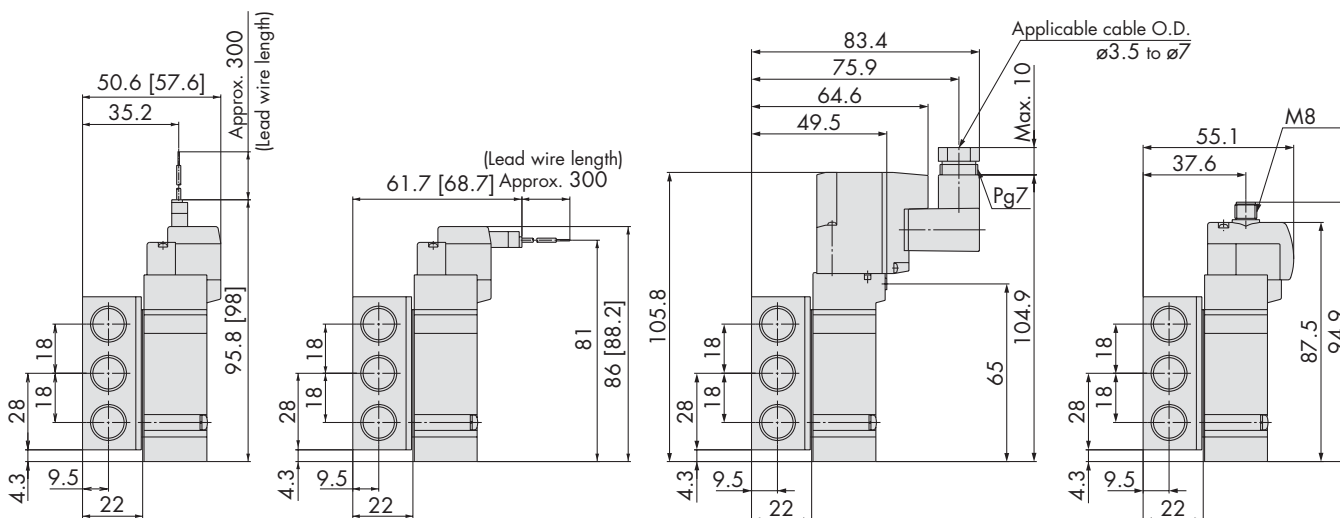


L plug connector (L):  
SY5140(R)-□L□□-02□-Q

M plug connector (M):  
SY5140(R)-□M□□-02□-Q

DIN terminal (D):  
SY5140(R)-□D□□-02□-Q

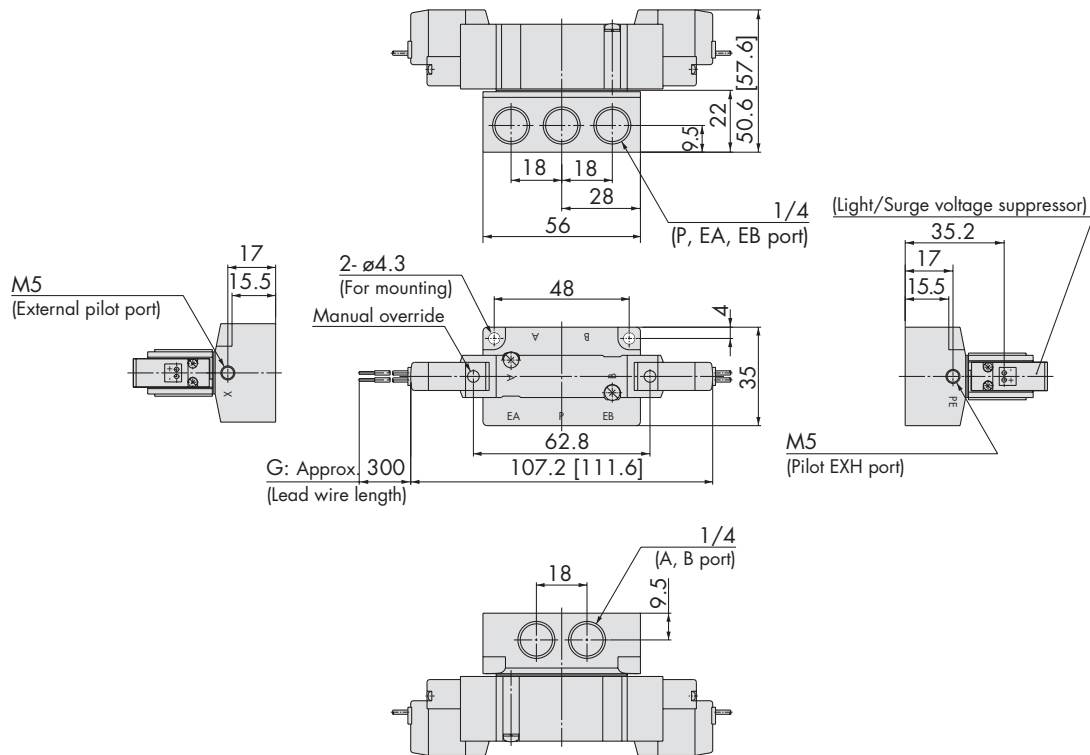
M8 connector (WO):  
SY5140(R)-□WO□□-02□-Q



Dimensions: Series SY5000

2 position double

Grommet (G): SY5240(R)-□G□□-02□-Q

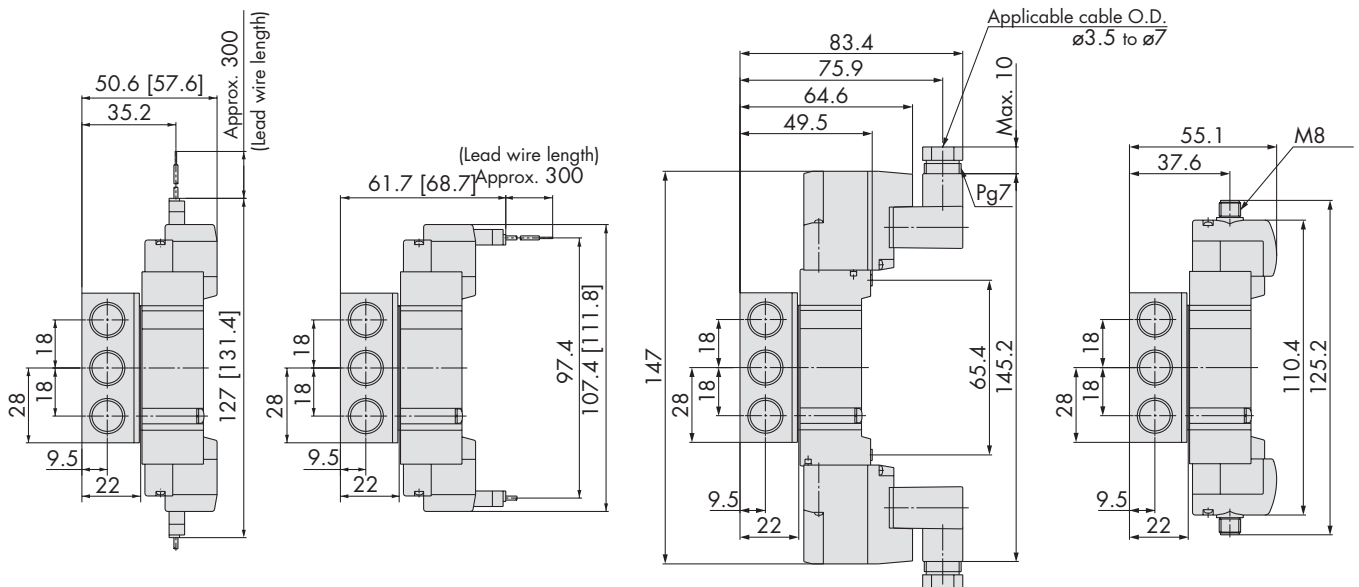


L plug connector (L):  
SY5240(R)-□L□□-02□-Q

M plug connector (M):  
SY5240(R)-□M□□-02□-Q

DIN terminal (D):  
SY5240(R)-□D□□-02□-Q

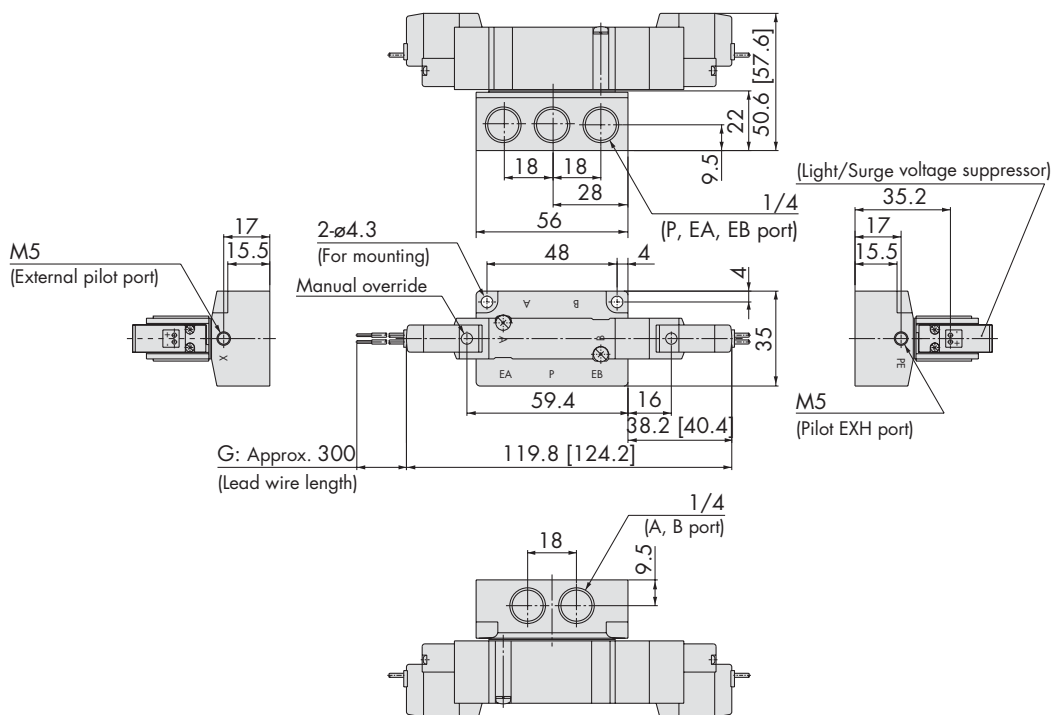
M8 connector (WO):  
SY5240(R)-□WO□□-02□-Q



### Dimensions: Series SY5000

3 position closed centre/exhaust centre/pressure centre

Grommet (G): SY5 $\frac{3}{5}$ 40(R)-□G□□-02□-Q

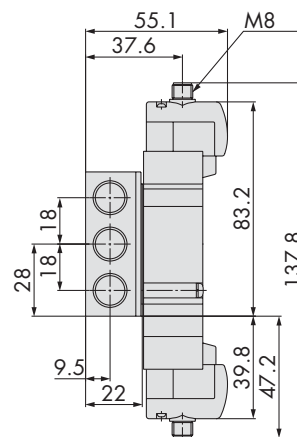
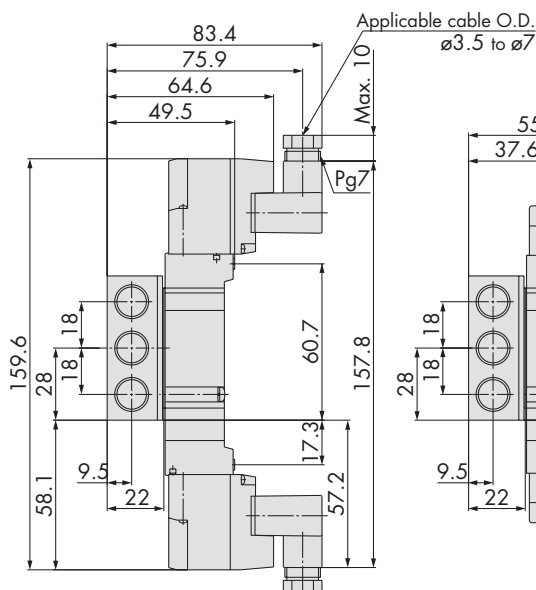
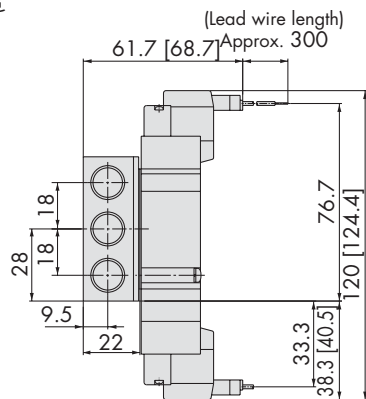
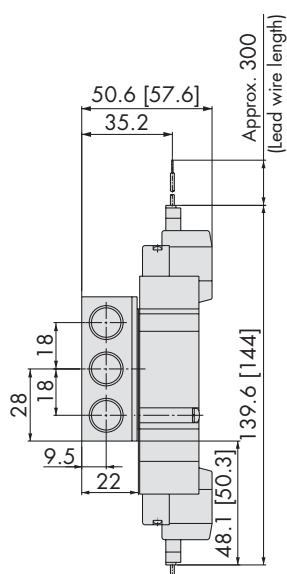


L plug connector (L):  
SY5 $\frac{3}{5}$ 40(R)-□□□-02□-Q

M plug connector (M):  
SY5 $\frac{3}{5}$ 40(R)-□M□□-02□-Q

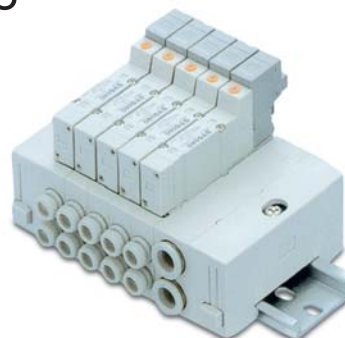
DIN terminal (D):  
SY5 $\frac{3}{5}$ 40(R)-□D□□-02□-Q

M8 connector (WO):  
SY5 $\frac{3}{5}$ 40(R)-□WO□□-02□-Q



# Base Mounted Manifold Slice Type/DIN Rail Mounted Individual Wiring

## Series **SY3/5000**



### How to Order Manifold

SS5Y **3** - **45** - **05** **U** - **C6** - **Q**

| Series   | Valve stations |
|----------|----------------|
| 3 SY3000 | 02 2 stations  |
| 5 SY5000 | 20 20 stations |

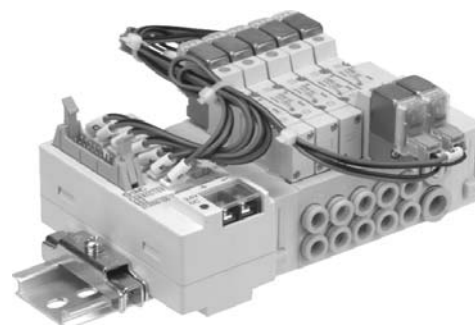
SUP/EXH block assembly  
mounting position

| Symbol | Mounting position | Applicable no. of stations |
|--------|-------------------|----------------------------|
| U      | U side            | 2 to 10 stations           |
| D      | D side            |                            |
| B      | (Both sides)      | 2 to 20 stations           |

A, B port size  
One-touch fitting (Metric size)

| Symbol | Port size                | Applicable series |
|--------|--------------------------|-------------------|
| C4     | One-touch fitting for ø4 | SY3000            |
| C6     | One-touch fitting for ø6 |                   |
| C4     | One-touch fitting for ø4 | SY5000            |
| C6     | One-touch fitting for ø6 |                   |
| C8     | One-touch fitting for ø8 |                   |

### Also Available



Slice type manifold with individual wiring and connector box.

### Manifold Specifications

| Model                  | SS5Y3-45                            | SS5Y5-45                                                                                  |
|------------------------|-------------------------------------|-------------------------------------------------------------------------------------------|
| Applicable valve       | SY3□40                              | SY5□40                                                                                    |
| Manifold type          | Stacking type/DIN rail mounted      |                                                                                           |
| P (SUP)/R (EXH)        | Common SUP, Common EXH              |                                                                                           |
| Valve stations         | 2 to 20 stations <sup>Note 1)</sup> |                                                                                           |
| A, B port              | Location                            | Base                                                                                      |
| Porting specifications | Direction                           | Side                                                                                      |
| Port size              | P, R port                           | C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10)                             |
|                        | A, B port                           | C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8) |

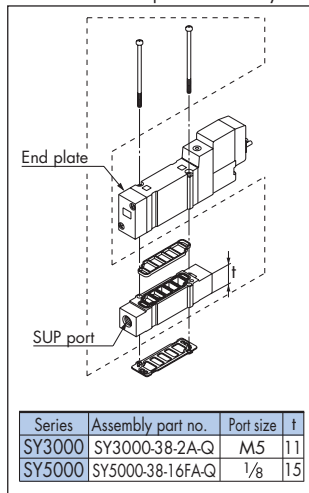
### Flow Characteristics

| Model    | Port size              |                | Flow characteristics         |      |      |                              |      |      |
|----------|------------------------|----------------|------------------------------|------|------|------------------------------|------|------|
|          | 1, 5, 3<br>(P, EA, EB) | 4, 2<br>(A, B) | 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   |
| SS5Y3-45 | C8                     | C6             | 0.88                         | 0.21 | 0.22 | 0.95                         | 0.18 | 0.22 |
| SS5Y5-45 | C10                    | C8             | 2.2                          | 0.24 | 0.53 | 2.5                          | 0.18 | 0.58 |

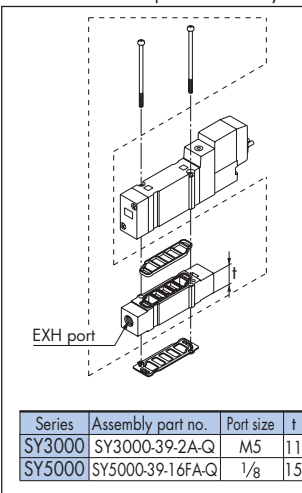


## Type 45 Manifold Accessories (non-plug-in type)

### Individual SUP spacer assembly

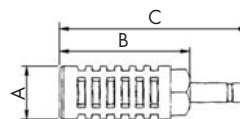


### Individual EXH spacer assembly



### Silencer with One-touch fitting

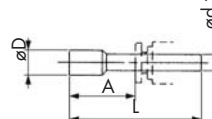
The silencer plugs directly into the One-touch fittings of the manifold.



| Series           | Model      | Effective area     | A   | B    | C    |
|------------------|------------|--------------------|-----|------|------|
| For SY3000 (ø8)  | AN203-KM8  | 14 mm <sup>2</sup> | ø16 | 26   | 51   |
| For SY5000 (ø10) | AN200-KM10 | 26 mm <sup>2</sup> | ø22 | 53.8 | 80.8 |
|                  | AN300-KM10 | 30 mm <sup>2</sup> | ø25 | 70   | 97   |

### L Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.

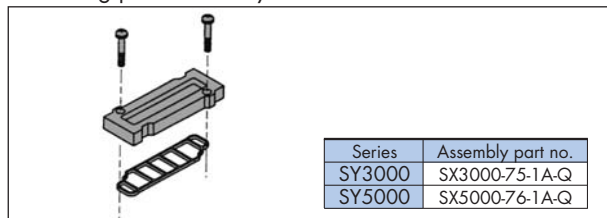


### Dimensions

| Applicable fittings size ød | Model   | A    | L  | D  |
|-----------------------------|---------|------|----|----|
| 4                           | KQ2P-04 | 16   | 32 | 6  |
| 6                           | KQ2P-06 | 18   | 35 | 8  |
| 8                           | KQ2P-08 | 20.5 | 39 | 10 |
| 10                          | KQ2P-10 | 22   | 43 | 12 |

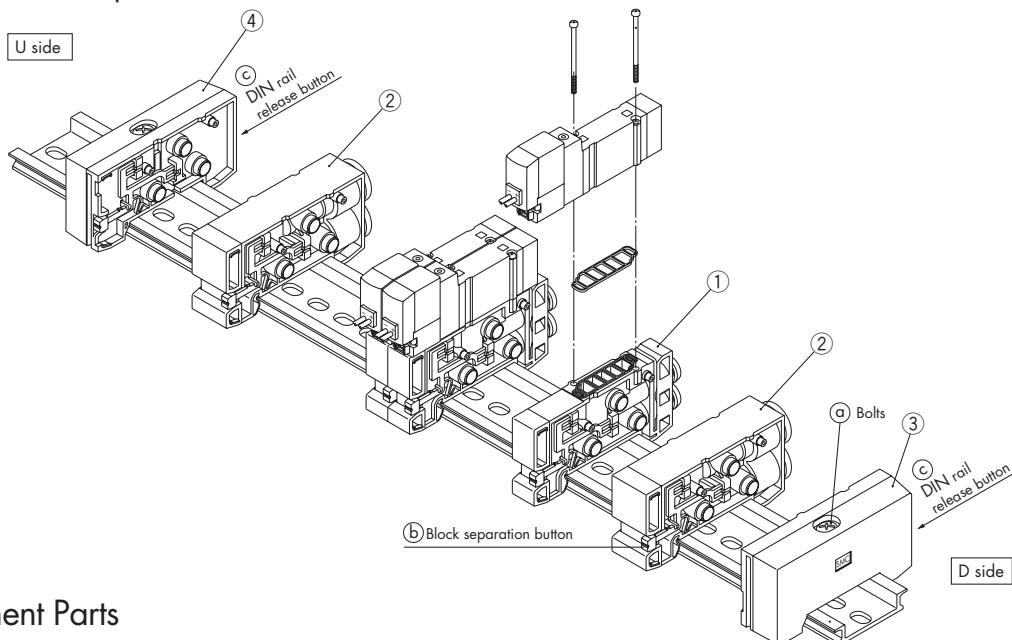
Note: Interface regulators are common to type 41 and 42 manifolds.

### Blanking plate assembly



## DIN Rail Manifold Exploded View

Type 45

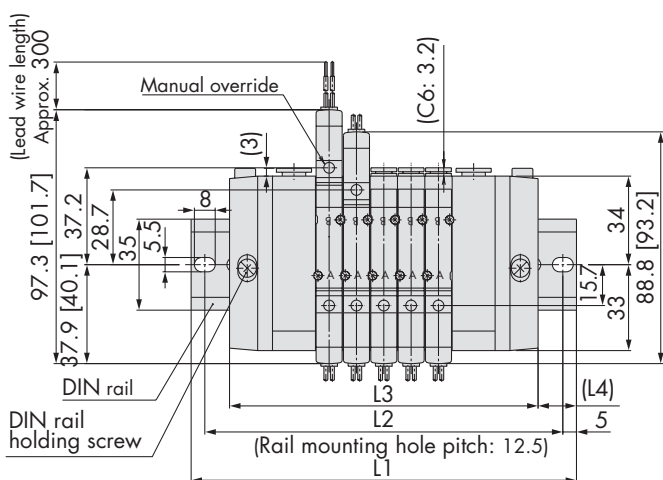
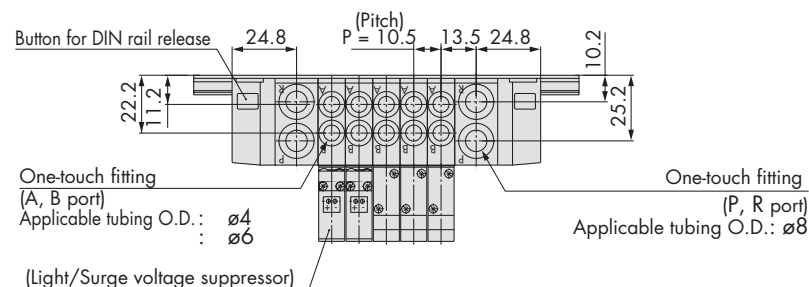


## Replacement Parts

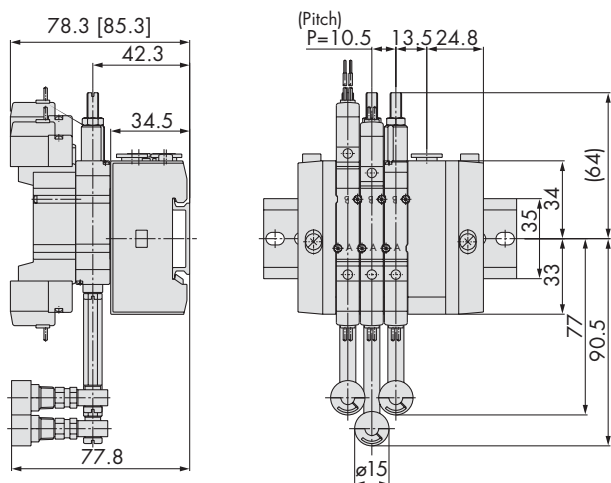
| No. | Description             | Part no.          |                   | Note                                                                                                                                                        |
|-----|-------------------------|-------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                         | SY3000            | SY5000            |                                                                                                                                                             |
| ①   | Manifold block assembly | SX3000-50-1A-□□-Q | SX5000-50-1A-□□-Q | SY3000 (Metric size)<br>SY5000 (Metric size)<br>C4: With One-touch fitting for ø4<br>C6: With One-touch fitting for ø6<br>C8: With One-touch fitting for ø8 |
| ②   | SUP/EXH block assembly  | SX3000-51-1A      | SX3000-51-1A      | P, R port SY3000 (Metric size) With One-touch fitting for ø8<br>P, R port SY5000 (Metric size) With One-touch fitting for ø10                               |
| ③   | End block assembly R    | SX3000-52-1A-Q    | SX5000-52-1A-Q    | For D side                                                                                                                                                  |
| ④   | End block assembly L    | SX3000-53-1A-Q    | SX5000-53-1A-Q    | For U side                                                                                                                                                  |

## Dimensions: Series SY3000

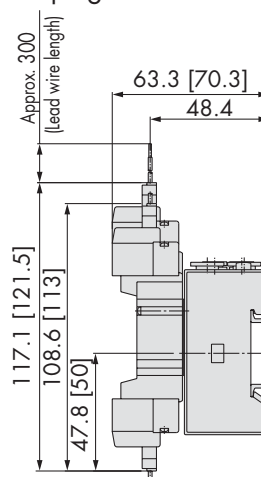
### SS5Y3-45- Stations B-C<sub>6</sub>-Q (Both end supplies)



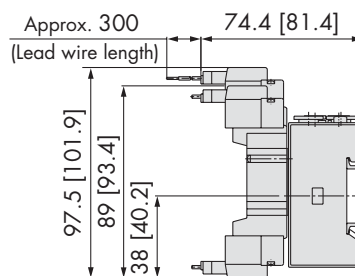
### With interface regulator (with gauge)



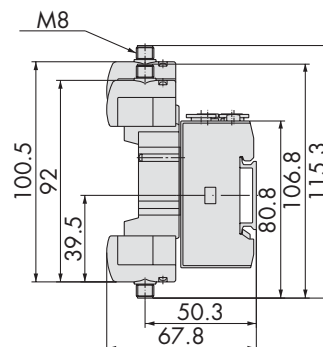
### L plug connector



### M plug connector



### M8 connector (WO)



| Stations n | 2 stations | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10 stations |
|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------------|
| L1         | 110.5      | 123   | 135.5 | 148   | 160.5 | 173   | 185.5 | 185.5 | 198         |
| L2         | 100        | 112.5 | 125   | 137.5 | 150   | 162.5 | 175   | 175   | 187.5       |
| L3         | 87         | 97.5  | 108   | 118.5 | 129   | 139.5 | 150   | 160.5 | 171         |
| L4         | 11.5       | 12.5  | 13.5  | 14.5  | 15.5  | 16.5  | 17.5  | 12.5  | 13.5        |

| Stations n | 11 stations | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20 stations |
|------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|
| L1         | 210.5       | 223   | 235.5 | 248   | 248   | 260.5 | 273   | 285.5 | 298   | 310.5       |
| L2         | 200         | 212.5 | 225   | 237.5 | 237.5 | 250   | 262.5 | 275   | 287.5 | 300         |
| L3         | 181.5       | 192   | 202.5 | 213   | 223.5 | 234   | 244.5 | 255   | 265.5 | 276         |
| L4         | 14.5        | 15.5  | 16.5  | 17.5  | 12    | 13    | 14    | 15    | 16    | 17          |

|    |         |
|----|---------|
| L1 | -12.5mm |
| L2 | -12.5mm |
| L3 | -16.5mm |
| L4 | +2mm    |

Note: This page shows the double supply type manifold. The U and D supply type is shorter. Apply the following corrections to the L1 and L4 dimensions.

## How to Order Valve bodies

SY 3 1 60—5 LO — C6F—Q

### Series

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

### Type of actuation

|   |                            |
|---|----------------------------|
| 1 | 2 position single solenoid |
| 2 | 2 position double solenoid |
| 3 | 3 position closed centre   |
| 4 | 3 position exhaust centre  |
| 5 | 3 position pressure centre |

### Rated voltage

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

### AC (50/60Hz)

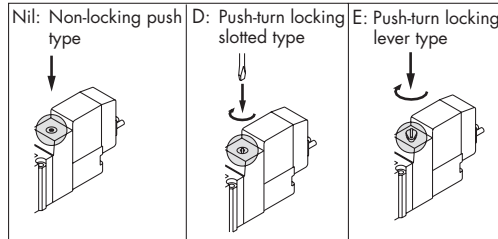
|   |                   |
|---|-------------------|
| 1 | 100 VAC           |
| 2 | 200 VAC           |
| 3 | 110 VAC [115 VAC] |
| 4 | 220 VAC [230 VAC] |

Note: AC voltages can only be ordered in conjunction with DIN plug (Y) electrical entry.

A, B port size  
Thread piping

| Symbol | Description | SY3000 | SY5000 | SY7000 |
|--------|-------------|--------|--------|--------|
| M5     | M5 thread   | ○      | ○      |        |
| O1F    | 1/8 thread  |        | ○      |        |
| O2F    | 1/4 thread  |        |        | ○      |
| O3F    | 3/8 thread  |        |        |        |
| C4F    | 4mm tube    | ○      | ○      |        |
| C6F    | 6mm tube    | ○      | ○      |        |
| C8F    | 8mm tube    |        | ○      | ○      |
| C10    | 10mm tube   |        |        | ○      |

### Manual override



### Light/Surge voltage suppressor

Electrical entry for G, H, L, M, W

|     |                                                      |
|-----|------------------------------------------------------|
| Nil | Without light/surge voltage suppressor               |
| Z   | With light/surge voltage suppressor                  |
| U   | With light/surge voltage suppressor (Non-polar type) |

Electrical entry for D (SY5000/7000 only)

|     |                                                      |
|-----|------------------------------------------------------|
| Nil | Without light/surge voltage suppressor               |
| Z   | With light/surge voltage suppressor (Non-polar type) |

### Electrical entry

| 24, 12, 6, 5, 3 VDC        |                       |                       | 24, 12 VDC/<br>100, 110, 200, 220 VAC                    | 24, 12, 6, 5, 3 VDC         |
|----------------------------|-----------------------|-----------------------|----------------------------------------------------------|-----------------------------|
| Grommet                    | L plug connector      | M plug connector      | DIN terminal                                             | M8 connector                |
| G: Lead wire length 300 mm | LO: Without connector | MO: Without connector | (SY5000, 7000)<br>Y: With connector<br>D: With connector | WO: Without connector cable |
|                            |                       |                       |                                                          |                             |

Note: A manifold assembly is required to use SY cassette valves. See separate how-to-order section.

## Symbols

|   |                                                                 |
|---|-----------------------------------------------------------------|
| 1 | 2 position single solenoid<br>(A) (B)<br>5 1 3<br>(EA) (P) (EB) |
| 2 | 2 position double solenoid<br>(A) (B)<br>5 1 3<br>(EA) (P) (EB) |
| 3 | 3 position closed centre<br>(A) (B)<br>5 1 3<br>(EA) (P) (EB)   |
| 4 | 3 position exhaust centre<br>(A) (B)<br>5 1 3<br>(EA) (P) (EB)  |
| 5 | 3 position pressure centre<br>(A) (B)<br>5 1 3<br>(EA) (P) (EB) |

## 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 (°C) |                   | Max. 50                                                                                   |        |        |
| Max. operating frequency (Hz)      | 2 position double | 10                                                                                        | 5      | 5      |
|                                    | 3 position        | 3                                                                                         | 3      | 3      |
| Manual override (Manual operation) |                   | Non-locking push type,<br>Push-turn locking slotted type,<br>Push-turn locking lever type |        |        |
| Pilot exhaust method               |                   | Common exhaust type for main and pilot valve                                              |        |        |
| Lubrication                        |                   | Not required                                                                              |        |        |
| Mounting position                  |                   | Unrestricted                                                                              |        |        |
| Enclosure                          |                   | Dustproof (* DIN terminal, M8 connector conforms to IP65)                                 |        |        |

## Solenoid Specifications

|                                   |            |                        |                                                                                                          |
|-----------------------------------|------------|------------------------|----------------------------------------------------------------------------------------------------------|
| Electrical entry                  |            |                        | Grommet (G)<br>L plug connector (L)<br>M plug connector (M)<br>DIN terminal (D), (Y)<br>M8 connector (W) |
| Coil rated voltage (V)            | DC         | 24 , 12 , 6 , 5 , 3    |                                                                                                          |
|                                   | AC 50/60Hz | 100 , 110 , 200 , 220* |                                                                                                          |
| Allowable voltage fluctuation (%) |            |                        | ±10% of rated voltage                                                                                    |
| Power consumption (W)             | DC         | Standard               | 0.35 [With indicator light: 0.4 (DIN terminal with indicator light: 0.45)]                               |
| Apparent power* VA                | AC         | 100V                   | 1.4 (With indicator light: 1.5)                                                                          |
|                                   |            | 110V                   | 1.6 (With indicator light: 1.7)                                                                          |
|                                   |            | 200V                   | 2.3 (With indicator light: 2.4)                                                                          |
|                                   |            | 220V [230V]            | 2.5 (With indicator light: 2.6) [2.7 (With indicator light: 2.8)]                                        |
| Surge voltage suppressor          |            |                        | Diode (Varistor is for DIN terminal and non-polar)                                                       |
| Indicator light                   |            |                        | LED (AC of DIN connector is neon bulb.)                                                                  |



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## Response Time

### SY3000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                               |            |
|-------------------|-------------------------------------------------|-------------------------------|------------|
|                   | Without surge voltage suppressor                | With surge voltage suppressor |            |
|                   |                                                 | Z type                        | 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

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                               |            |
|-------------------|-------------------------------------------------|-------------------------------|------------|
|                   | Without surge voltage suppressor                | With surge voltage suppressor |            |
|                   |                                                 | Z type                        | 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 |

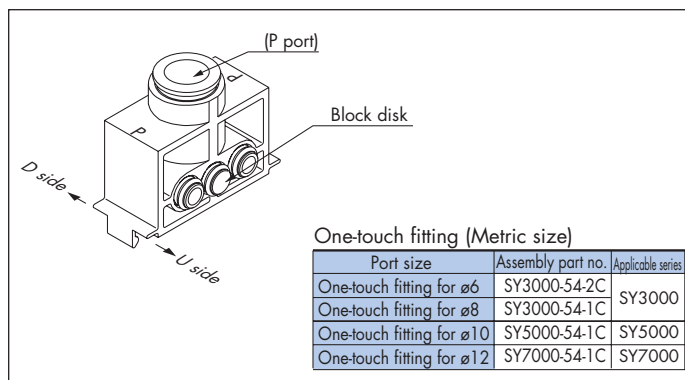
### SY7000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|-------------------------------------------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |                                                 | Z type                              | 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 |

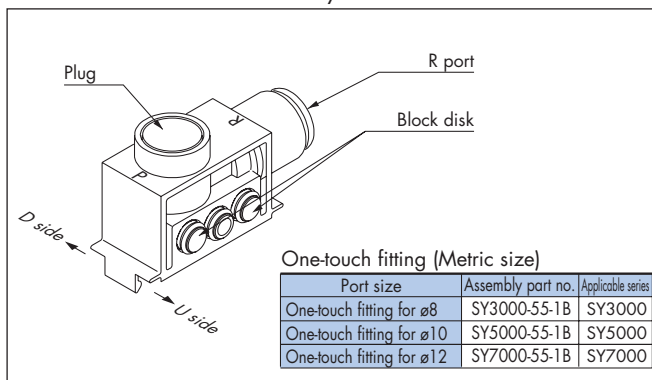
Note: response times as per SY base mounted valves.

## SY Cassette Valve Accessories

### Individual SUP block assembly

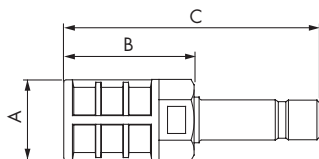


### Individual EXH block assembly



### Silencer with One-touch fitting

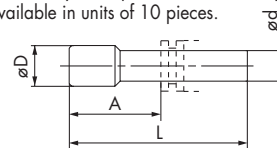
The silencer plugs directly into the One-touch fittings of the manifold.



| Series           | Model      | Effective area     | A   | B  | C    |
|------------------|------------|--------------------|-----|----|------|
| SY3000 (for ø8)  | AN203-KM8  | 14 mm <sup>2</sup> | ø16 | 26 | 51   |
| SY5000 (for ø10) | AN200-KM10 | 26 mm <sup>2</sup> | ø22 | 54 | 80.8 |
|                  | AN300-KM10 | 30 mm <sup>2</sup> | ø25 | 70 | 97   |
| SY7000 (for ø12) | AN300-KM12 | 41 mm <sup>2</sup> | ø25 | 70 | 98   |

### Plug (white)

These are inserted in unused cylinder ports and SUP, EXH ports. Purchasing order is available in units of 10 pieces.



#### Dimensions

| Applicable fittings size ød | Model   | A    | L    | D  |
|-----------------------------|---------|------|------|----|
| 4                           | KQ2P-04 | 16   | 32   | 6  |
| 6                           | KQ2P-06 | 18   | 35   | 8  |
| 8                           | KQ2P-08 | 20.5 | 39   | 10 |
| 10                          | KQ2P-10 | 22   | 43   | 12 |
| 12                          | KQ2P-12 | 24   | 45.5 | 14 |

### EXH block disk

By inserting a block disk between adjacent valves, the pressure or exhaust gallery between the valves can be split into separate zones.



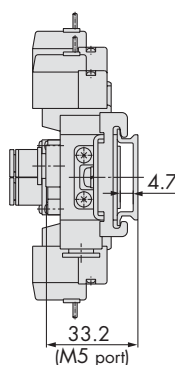
| Series | Part no.     |
|--------|--------------|
| SY3000 | SY3000-52-2A |
| SY5000 | SY5000-52-4A |
| SY7000 | SY7000-70-2A |

## Dimensions

SS5Y3-60- Stations B -Q (Both ends supplies)

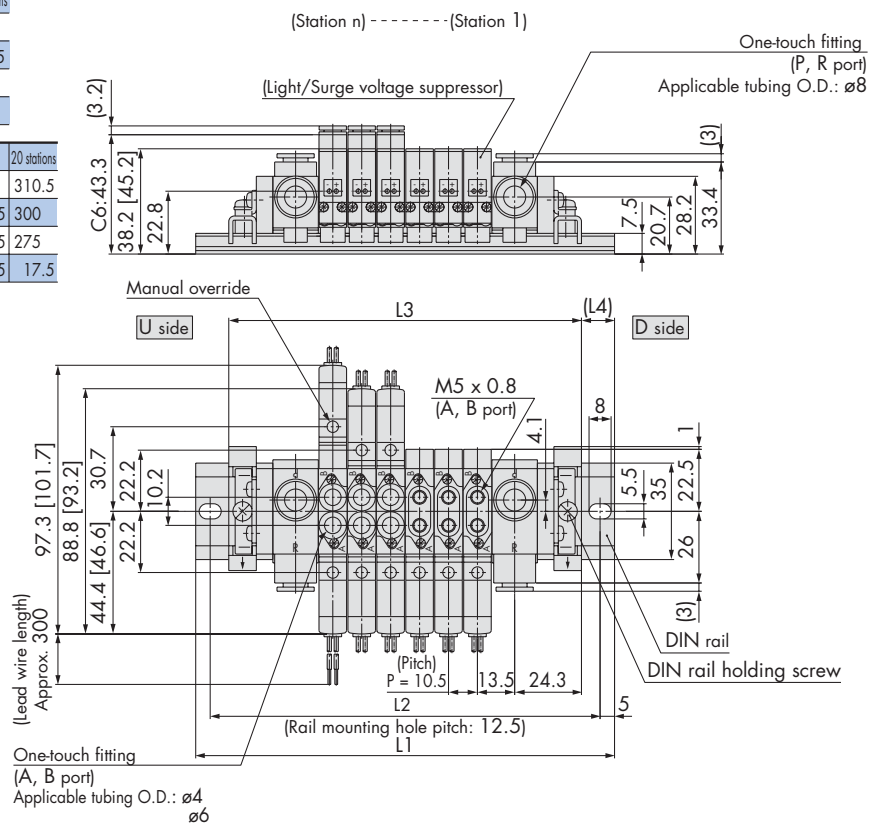
| Stations | 2 stations | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10 stations |
|----------|------------|-------|-------|-------|-------|-------|-------|-------|-------------|
| L1       | 110.5      | 123   | 135.5 | 148   | 160.5 | 173   | 173   | 185.5 | 198         |
| L2       | 100        | 112.5 | 125   | 137.5 | 150   | 162.5 | 162.5 | 175   | 187.5       |
| L3       | 86         | 96.5  | 107   | 117.5 | 128   | 138.5 | 149   | 159.5 | 170         |
| L4       | 12         | 13    | 14    | 15    | 16    | 17    | 12    | 13    | 14          |

| Stations | 11 stations | 12    | 13    | 14    | 15    | 16    | 17    | 18    | 19    | 20 stations |
|----------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|
| L1       | 210.5       | 223   | 235.5 | 235.5 | 248   | 260.5 | 273   | 285.5 | 298   | 310.5       |
| L2       | 200         | 212.5 | 225   | 225   | 237.5 | 250   | 262.5 | 275   | 287.5 | 300         |
| L3       | 180.5       | 191   | 201.5 | 212   | 222.5 | 233   | 243.5 | 254   | 264.5 | 275         |
| L4       | 15          | 16    | 17    | 11.5  | 12.5  | 13.5  | 14.5  | 15.5  | 16.5  | 17.5        |

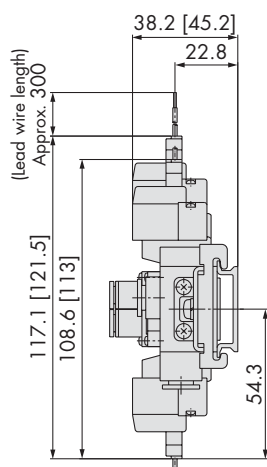


The above dimensions apply to the 'B' supply type (both ends).  
If the U or D type (one end) is used, please use the table below.

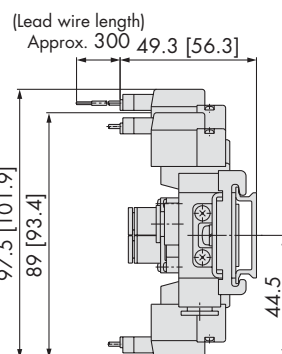
| Stations | 2 stations | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10 stations |
|----------|------------|-------|-------|-------|-------|-------|-------|-------|-------------|
| L1       | 98         | 110.5 | 123   | 135.5 | 135.5 | 148   | 160.5 | 173   | 185.5       |
| L2       | 87.5       | 100   | 112.5 | 125   | 125   | 137.5 | 150   | 162.5 | 175         |
| L3       | 69.5       | 80    | 90.5  | 101   | 111.5 | 122   | 132.5 | 143   | 153.5       |
| L4       | 14         | 15    | 16    | 17    | 12    | 13    | 14    | 15    | 16          |



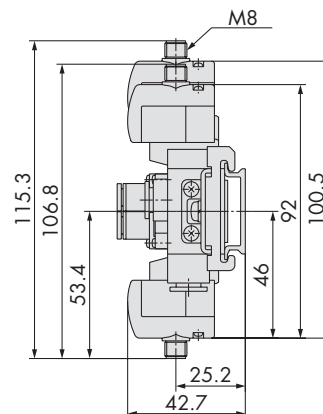
L plug connector (L)



M plug connector (M)



M8 connector (WO)



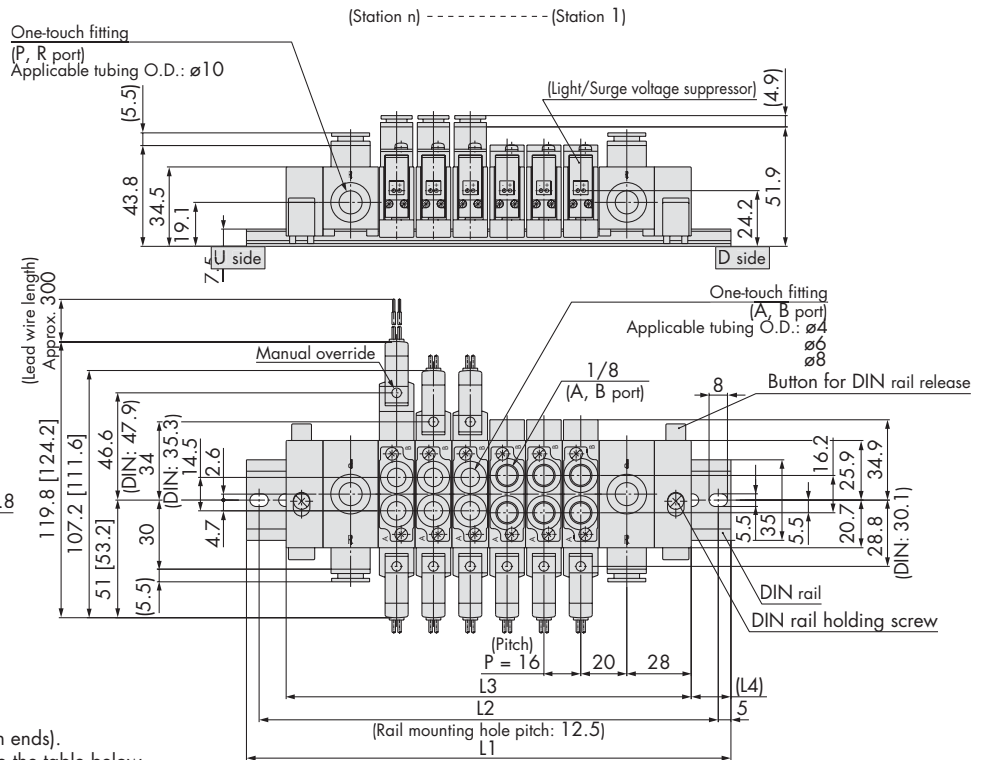
## Dimensions

### SS5Y5-60- [Stations B]-Q (Both ends supplies)

| Stations | 2 stations | 3     | 4     | 5     | 6     | 7     | 8 stations |
|----------|------------|-------|-------|-------|-------|-------|------------|
| L1       | 135.5      | 160.5 | 173   | 185.5 | 210.5 | 223   | 235.5      |
| L2       | 125        | 150   | 162.5 | 175   | 200   | 212.5 | 225        |
| L3       | 112        | 128   | 144   | 160   | 176   | 192   | 208        |
| L4       | 11.5       | 16    | 14.5  | 12.5  | 17.5  | 15.5  | 13.5       |

| Stations | 9 stations | 10    | 11    | 12    | 13    | 14    | 15 stations |
|----------|------------|-------|-------|-------|-------|-------|-------------|
| L1       | 248        | 273   | 285.5 | 298   | 323   | 335.5 | 348         |
| L2       | 237.5      | 262.5 | 275   | 287.5 | 312.5 | 325   | 337.5       |
| L3       | 224        | 240   | 256   | 272   | 288   | 304   | 320         |
| L4       | 12         | 16.5  | 14.5  | 13    | 17.5  | 15.5  | 14          |

| Stations | 16 stations | 17    | 18    | 19    | 20 stations |
|----------|-------------|-------|-------|-------|-------------|
| L1       | 360.5       | 385.5 | 398   | 410.5 | 435.5       |
| L2       | 350         | 375   | 387.5 | 400   | 425         |
| L3       | 336         | 352   | 368   | 384   | 400         |
| L4       | 12          | 16.5  | 15    | 13    | 17.5        |



The above table is for the 'B' supply type (both ends).  
If the U or D type (one end) is used, please use the table below.

| Stations | 2 stations | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10 stations |
|----------|------------|-------|-------|-------|-------|-------|-------|-------|-------------|
| L1       | 123        | 135.5 | 148   | 160.5 | 185.5 | 198   | 210.5 | 235.5 | 248         |
| L2       | 112.5      | 125   | 137.5 | 150   | 175   | 187.5 | 200   | 225   | 237.5       |
| L3       | 88         | 104   | 120   | 136   | 152   | 168   | 184   | 200   | 216         |
| L4       | 17.5       | 15.5  | 14    | 12    | 16.5  | 15    | 13    | 17.5  | 16          |

