# 3 Port Solenoid Valve
# Metal Seal
# *Series VZ200*

**Large flow capacity**

**Low power consumption: 1.8 W (75 mA, 24 VDC)**

**Plug connector**

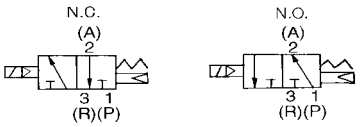
**One-touch wiring of plug connectors**

**Common pilot exhaust sub-plate mounted and manifold**

**Body ported**

**Base mounted**

**JIS Symbol**




## ⚠ Caution

**For Safety Instructions and Solenoid Valve Precautions, refer to pages 4-18-2 to 4-18-6.**

## Model

| Piping | Type of actuation | Choice of pilot valve exhaust | |
|---|---|---|---|
| | | Individual exhaust | Common exhaust |
| Body ported | N.C. | VZ212 | VZ212 * |
| | N.O. | VZ222 | VZ222 * |
| Base mounted | N.C. | — | VZ215 |
| | N.O. | — | VZ225 |

* Body ported type provides both individual exhaust and common exhaust.

## Specifications

| | |
|---|---|
| Fluid | Air/Inert gas |
| Maximum operating pressure | 1.0 MPa |
| Minimum operating pressure | 0.1 MPa |
| Proof pressure | 1.5 MPa |
| Ambient and fluid temperature | –10 to 50°C |
| Lubrication | Not required |
| Enclosure | Dusproof (5) |
| Manual override | Push type (Safety style), Locking type (Tool required), Locking type (Manual) |
| Shock/Vibration resistance (m/s²) | 150/50 (6) |

| Specifications \ Type | | | Body ported | | Base mounted (With sub-plate) | |
|---|---|---|---|---|---|---|
| | | | N.C. valve | N.O. valve | N.C. valve | N.O. valve |
| Port size | | | M5 | | Rc 1/8 | |
| Flow characteristics | 1 → 2 (P → A) | C[dm³/(s·bar)] | 0.60 | 0.60 | 1.0 | 0.90 |
| | | b | 0.43 | 0.43 | 0.30 | 0.25 |
| | | Cv | 0.15 | 0.15 | 0.25 | 0.21 |
| | 2 → 3 (A → R) | C[dm³/(s·bar)] | 0.52 | 0.52 | 0.85 | 0.85 |
| | | b | 0.35 | 0.35 | 0.35 | 0.35 |
| | | Cv | 0.13 | 0.13 | 0.22 | 0.22 |
| Max. operating frequency (c/s) (AC/DC) (1) | | | 20 | | 20 | |
| Response time (ms) (AC/DC) (2) | | | 17/17 or less | | 17/17 or less | |
| Weight (kg) (3) | | | 0.085 | | 0.155 | |

Note 1) Minimum operating frequency: as per JIS B 8373 (Once in 30 days)
Note 2) Based on JIS B 8375-1981 (Supply pressure; 0.5 MPa; without surge voltage suppressor)
Note 3) Value for grommet (Sub-plate weight: 0.03 kg)
Note 4) "Note 1)" and "Note 2)" are with controlled clean air.
Note 5) Based on JIS C 0920
Note 6) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

## Solenoid Specifications

* Option

| | | | |
|---|---|---|---|
| Electrical entry | | | Grommet (G), Plug connector (L), Plug connector (M), DIN terminal (D) |
| Coil rated voltage (V) | AC 50/60 Hz | | 100, 200, 24 *, 48 *, 110 *, 220 * |
| | DC | | 24, 6 *, 12 *, 48 * |
| Allowable voltage fluctuation (%) | | | –15 to +10% of rated voltage |
| Coil insulation type | | | Class E or equivalent (120°C) (2) |
| Temperature rise (°C) | | | 45 or less |
| Power consumption (W) | DC | | 1.8 (With indicator light: 2.1) |
| Apparent power (VA) | AC | Inrush | 4.5/50 Hz, 4.2/60 Hz |
| | | Holding | 3.5/50 Hz, 3/60 Hz |
| Surge voltage suppressor (1) | | | DC: Diode, AC: ZNR |
| Indicator light | | | DC: LED (Red), AC: Neon bulb |

Note 1) In the case of grommet type, it is equipped on the middle of lead wire.
Note 2) Based on JIS C 4003

## Option

| Description | | Part no. | Note |
|---|---|---|---|
| Foot bracket (With screw) (1) | | VZ2000-37A-2 | For VZ2□2 |
| Silencer | M5 | AN120-M5 | Noise reduction: 18 dB or more (ø8 x 17ℓ) |
| | R 1/8 (2) | AN110-01 | Noise reduction: 21 dB or more (ø13 x 38ℓ) |

Note 1) For body ported type Note 2) For sub-plate mounted type

# Series VZ200

## How to Order

**VZ2 1 2 – 1 G □ □ – M5 □**

**Series VZ200**

**Type of actuation**

| | |
|---|---|
| 1 | N.C. (Normally closed) |
| 2 | N.O. (Normally open) |

**Body type**

| | | |
|---|---|---|
| Body ported | 2 | Individual pilot exhaust<br>Common pilot exhaust |
| Base mounted | 5 | Common pilot exhaust |

**Rated voltage**

| | |
|---|---|
| 1 | 100 VAC, 50/60 Hz |
| 2 | 200 VAC, 50/60 Hz |
| 3* | 110 VAC, 50/60 Hz |
| 4* | 220 VAC, 50/60 Hz |
| 5 | 24 VDC |
| 6* | 12 VDC |
| 9* | Other |

* Option

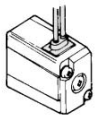
**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | None |
| Z | With light/surge voltage suppressor (Indicator light is not available for grommet type.) |
| S | With surge voltage suppressor (Grommet type) |

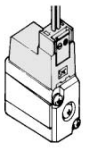
* "DOZ" is not available.

**Electrical entry**

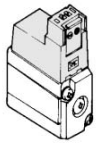
**G**: Grommet, Lead wire length 300 mm



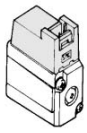
**L**: L plug connector, With lead wire



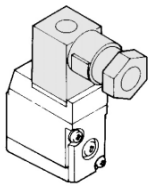
**LN**: L plug connector, Without lead wire



**LO**: L plug connector, Without connector

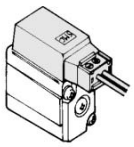


**D**: DIN terminal

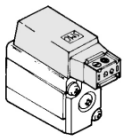


**H**: Grommet, Lead wire length 600 mm

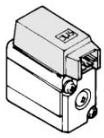
**M**: M plug connector, With lead wire



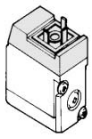
**MN**: M plug connector, Without lead wire



**MO**: M plug connector, Without connector



**DO**: DIN terminal, Without connector



Type "G", "L" and "M": Lead wire 300 mm

**Option**

| | |
|---|---|
| F* | Foot bracket |
| U | Silencer |
| K* | Foot bracket + Silencer |

* Only body ported type

**Port size**

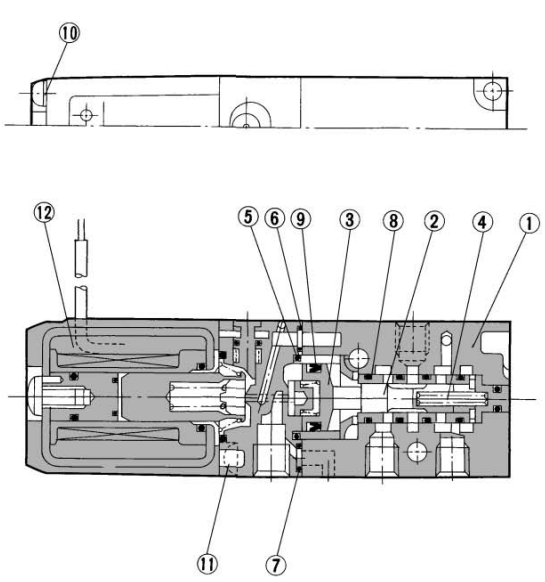
| | | |
|---|---|---|
| Body ported | M5 | M5 x 0.8 |
| Base mounted | Nil | Without sub-plate |
| | 01 | Rc 1/8 |

**Manual override**

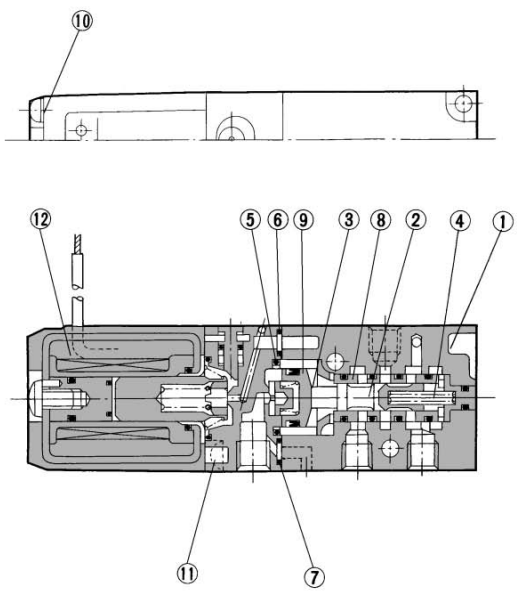
| | |
|---|---|
| Nil | Push type (Safety style) |
| B | Locking type (Tool required) |
| C | Locking type (Manual) |

## Construction (Body ported)

**N.C. (VZ212)**




**N.O. (VZ222)**




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ① | Body | Aluminum die-casted | Platinum silver |
| ② | Spool/Sleeve | Stainless steel | |
| ③ | Piston | Polyacetal | |

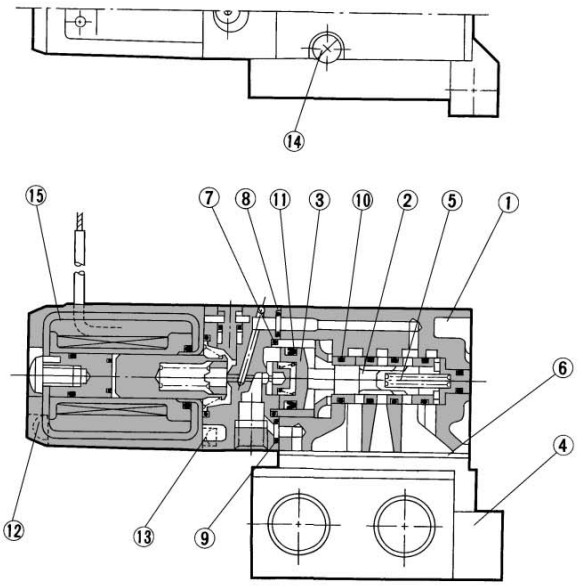
### Replacement Parts

| No. | Description | Material | Part no. |
|---|---|---|---|
| ④ | Return spring | Stainless steel | |
| ⑤ | O-ring | NBR | |
| ⑥ | Seal | NBR | |
| ⑦ | O-ring | NBR | |
| ⑧ | O-ring | NBR | |
| ⑨ | Mini Y seal | NBR | |
| ⑩ | Round head combination screw | Carbon steel | |
| ⑪ | Round head combination screw | Carbon steel | |
| ⑫ | Pilot valve assembly | — | SCZ2□□□-□-□ |

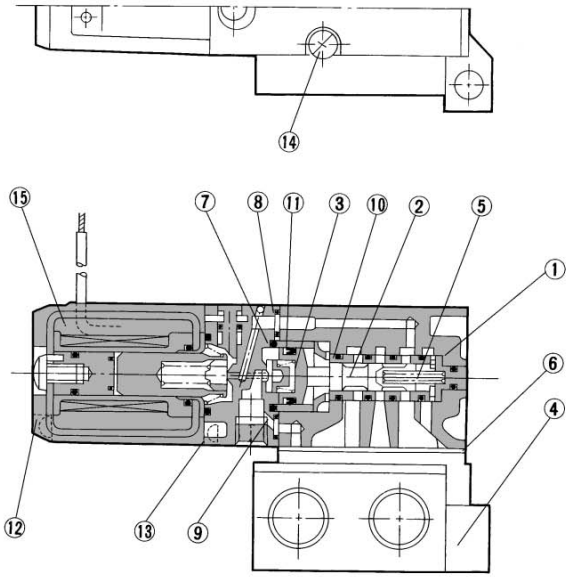
# Series VZ200

## Construction (Sub-plate mounted)

**N.C. (VZ215)**




**N.O. (VZ225)**




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ① | Body | Aluminum die-casted | Platinum silver |
| ② | Spool/Sleeve | Stainless steel | |
| ③ | Piston | Polyacetal | |
| ④ | Sub-plate | Aluminum die-casted | Platinum silver |

### Sub-plate Assembly Part No.: VZ200-S-01

∗ Mounting bolt and gasket are not attached.

### Replacement Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ⑤ | Return spring | Stainless steel | |
| ⑥ | Gasket | NBR | |
| ⑦ | O-ring | NBR | |
| ⑧ | Seal | NBR | |
| ⑨ | O-ring | NBR | |
| ⑩ | O-ring | NBR | |
| ⑪ | Mini Y seal | NBR | |
| ⑫ | Round head combination screw | Carbon steel | |
| ⑬ | Round head combination screw | Carbon steel | |
| ⑭ | Round head combination screw | Carbon steel | |
| ⑮ | Pilot valve assembly | — | SCZ2□□□-□-□ |

## How to Order Pilot Valve Assembly

**SCZ2 G □ □ – 1 – 1**

**Series VZ200**

**Electrical entry**

| | | |
|---|---|---|
| G | Grommet | 300 mm lead wire |
| H | | 600 mm lead wire |
| L | L plug connector | With lead wire |
| LN | | Without lead wire |
| LO | | Without connector |
| M | M plug connector | With lead wire |
| MN | | Without lead wire |
| MO | | Without connector |
| D | DIN terminal | With connector |
| DO | | Without connector |

**Manual override**

| | |
|---|---|
| Nil | Push type (Safety style) |
| B | Locking type (Tool required) |
| C | Locking type (Manual) |

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | None |
| Z ∗ | With light/surge voltage suppressor |
| S | With surge voltage suppressor |

∗ Indicator light is not available for grommet type.
∗ "DOZ" is not available.

**Pilot pressure exhaust**

| | |
|---|---|
| 1 | Spacer side exhaust (Type 20) |
| 2 | Body side exhaust (Type 30, 50) |

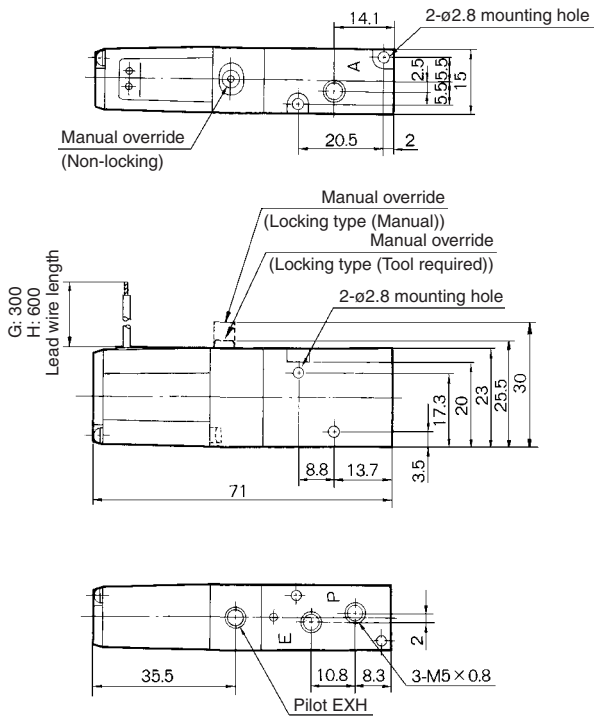
**Rated voltage**

| | |
|---|---|
| 1 | 100 VAC, 50/60 Hz |
| 2 | 200 VAC, 50/60 Hz |
| 3∗ | 110 VAC, 50/60 Hz |
| 4∗ | 220 VAC, 50/60 Hz |
| 5 | 24 VDC |
| 6∗ | 12 VDC |
| 9 | Other |

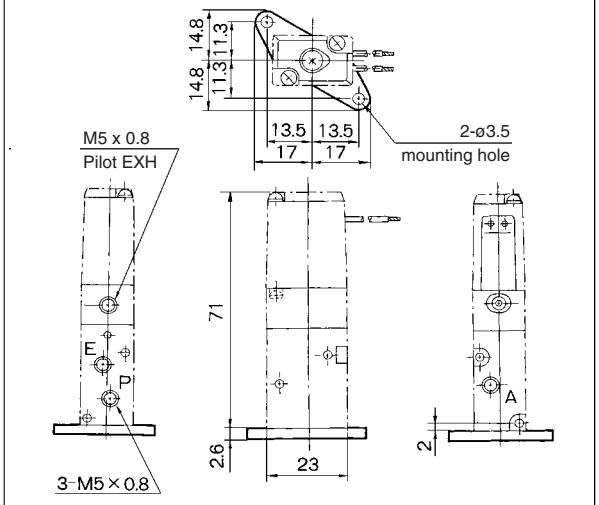
∗ Option

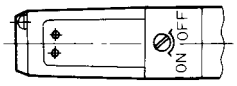
## Dimensions: Body Ported

### Grommet: VZ2$\frac{1}{2}$2-□GH(S)-M5



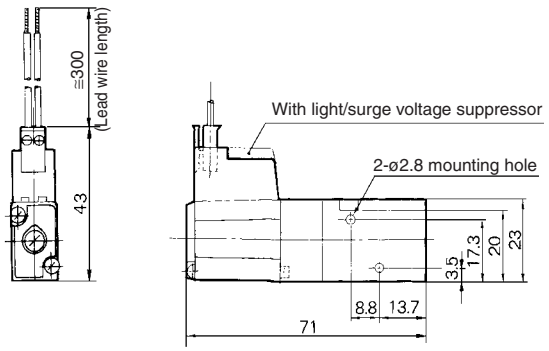

### With foot bracket: VZ2$\frac{1}{2}$2-□□-M5-F



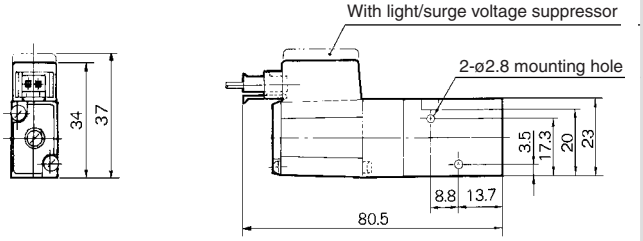




**Locking type manual override**

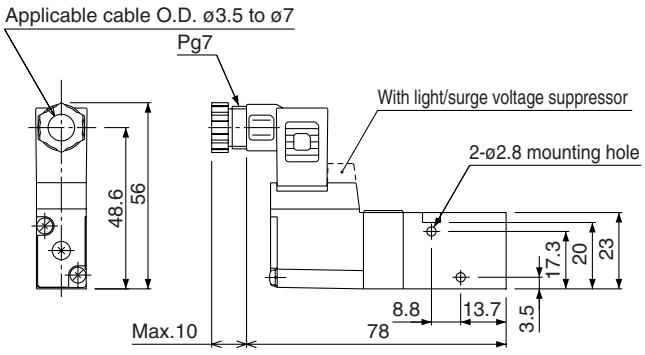
### L plug connector: VZ2$\frac{1}{2}$2-□L(Z)-M5




### M plug connector: VZ2$\frac{1}{2}$2-□M (Z)-M5



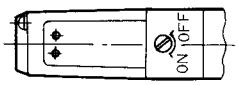

### DIN terminal: VZ2$\frac{1}{2}$2-□D(Z)-M5



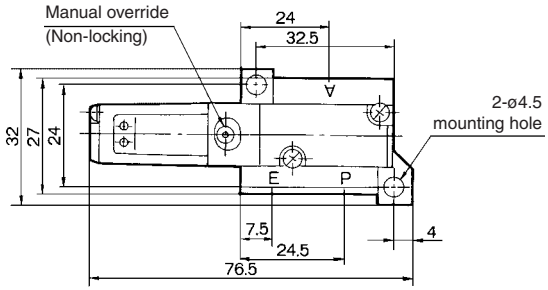
# Series VZ200

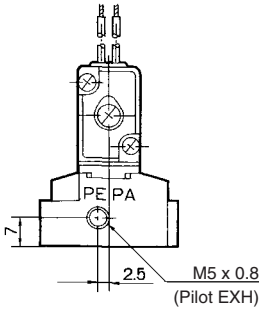
## Dimensions: Sub-plate Mounted

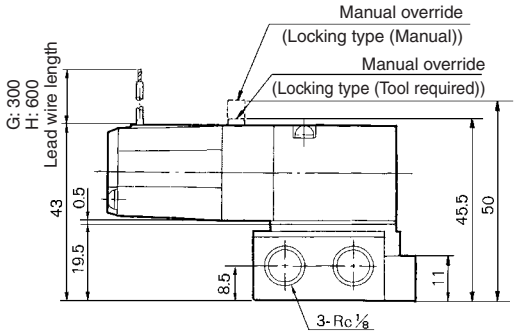
### Grommet: VZ2$^{1}_{2}$5-□$^{G}_{H}$(S)-01



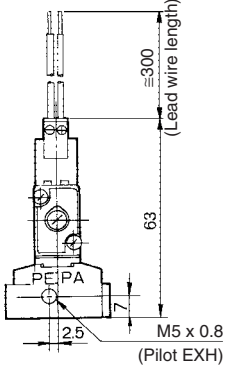

Locking type manual override

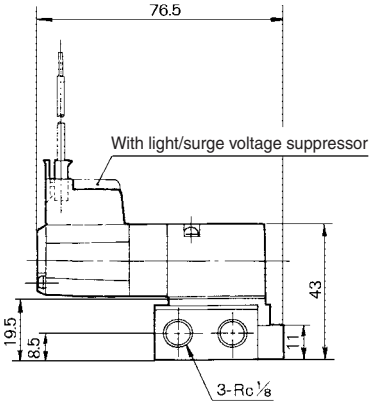


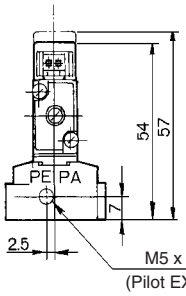



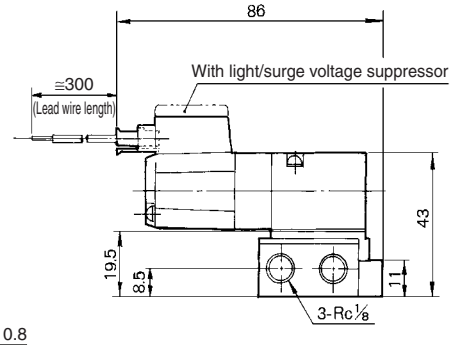

### L: VZ2$^{1}_{2}$5-□L(Z)-01



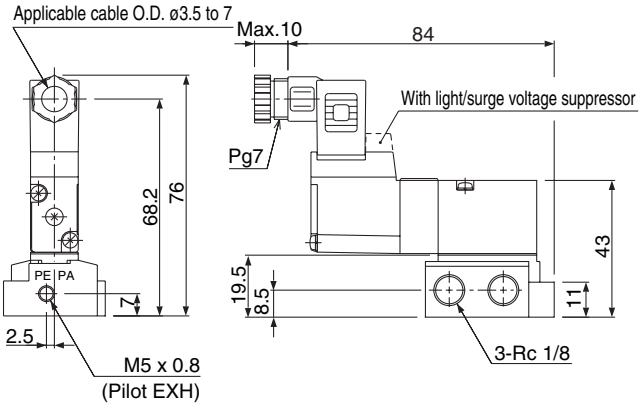




### M: VZ2$^{1}_{2}$5-□M(Z)-01



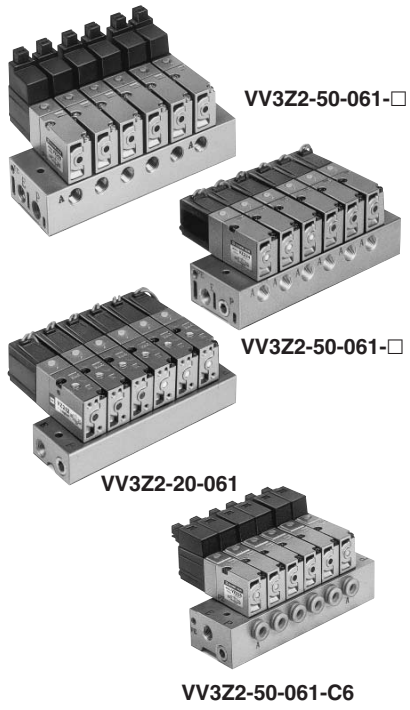




### DIN terminal: VZ2$^{1}_{2}$5-□D(Z)-01



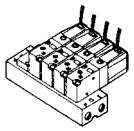
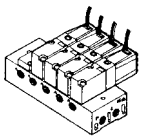
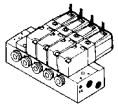
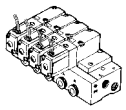
# Series VZ200
# Manifold Specifications

## Manifold Variations: VV3Z2




### Model

| | |
|---|---|
| Manifold type | Single base, B mount |
| Passage | Common SUP/EXH type |
| Valve stations | Max. 20 stations |

| Manifold base model | | VV3Z2-20 | VV3Z2-30 | VV3Z2-50 | | VV3Z2-S50 |
|---|---|---|---|---|---|---|
| Pilot valve exhaust | | Individual exhaust | Common exhaust | Common exhaust | | Common exhaust |
| | |  | |  |  |  |
| | | | | | Built-in One-touch fittings | Built-in One-touch fittings |
| 2(A) port | Piping direction/ Location | Top/Valve | | Side/Base (Opposite side of solenoid) | | Side/Base (Same side of solenoid) |
| | Port size | M5 x 0.8 | | M5 x 0.8, Rc 1/8 | C4, C6 | C4, C6 |
| P, E port | Port size | Rc 1/8 | | Rc 1/8 | | |
| Applicable valve model | | VZ212-□□□-M5<br>VZ222-□□□-M5 | | VZ215-□□□<br>VZ225-□□□ | | |
| | | Body ported | | Base mounted (Without sub-plate) | | |
| Blanking plate | | VVZ200-32A-1 | VVZ200-31A-1 | VVZ200-31A-2 | VVZ200-32A-2 | |

### Screws and Gasket Assembly Part No.

| Model | Part no. |
|---|---|
| VV3Z2-20 | BG-VZ202 |
| VV3Z2-30 | BG-VZ203 |
| VV3Z2-50<br>-S50 | BG-VZ205 |

## How to Order Manifold Base

**VV3Z2 – 30 – 08 – 1 –** ☐

**Series VZ200 Manifold**

**Manifold specifications/Single base type B mount (P/E port size)**

| Symbol | Piping | P, E port Port size | Applicable valve model |
|---|---|---|---|
| **20** | Body ported (Individual pilot exhaust) | Rc 1/8 | VZ2□2 |
| **30** | Body ported (Common pilot exhaust) | Rc 1/8 | VZ2□2 |
| **50** | Base mounted (Common pilot exhaust) A port direction: Opposite side of solenoid valve | Rc 1/8 | VZ2□5 |
| **S50*** | Base mounted (Common pilot exhaust) A port direction: Same side of solenoid valve | Rc 1/8 | VZ2□5 |

* Type S50 is available only with built-in One-touch fittings.

**Stations**

| | |
|---|---|
| **02** | 2 stations |
| ⋮ | ⋮ |
| **20** | 20 stations |

**Symbol**

| Symbol \ Specifications | Passage 1(P) | Passage 3(R) | Porting specifications 2(A) | Applicable base |
|---|---|---|---|---|
| **1** | Common | Common | Top, Side | Type 20, 30 and 50 |

**2(A) port size on base side**

| Symbol \ Model | VV3Z2-50<br>VV3Z2-S50 * |
|---|---|
| **Nil** | Without 2(A) port (Body ported type 20, 30) |
| **M5** | M5 x 0.8 |
| **01** | Rc 1/8 |
| **C4** | Built-in One-touch fittings Applicable tubing O.D. ø4 |
| **C6** | Built-in One-touch fittings Applicable tubing O.D. ø6 |

* VV3Z2-S50: Only C4 and C6

Instruct by specifying the valves, blanking plate option to be mounted on the manifold along with the manifold base model no. And for the order of valves installation or option's position, instruct separately by the manifold specification sheet.

(Example)

<Top ported, individual pilot exhaust>
VV3Z2-20-081 (8 stations)
VZ212-1G-M5····· 5 pcs.
VZ212-1G-M5····· 2 pcs.
VVZ200-32A-1····· 1 pc. (Blanking plate)

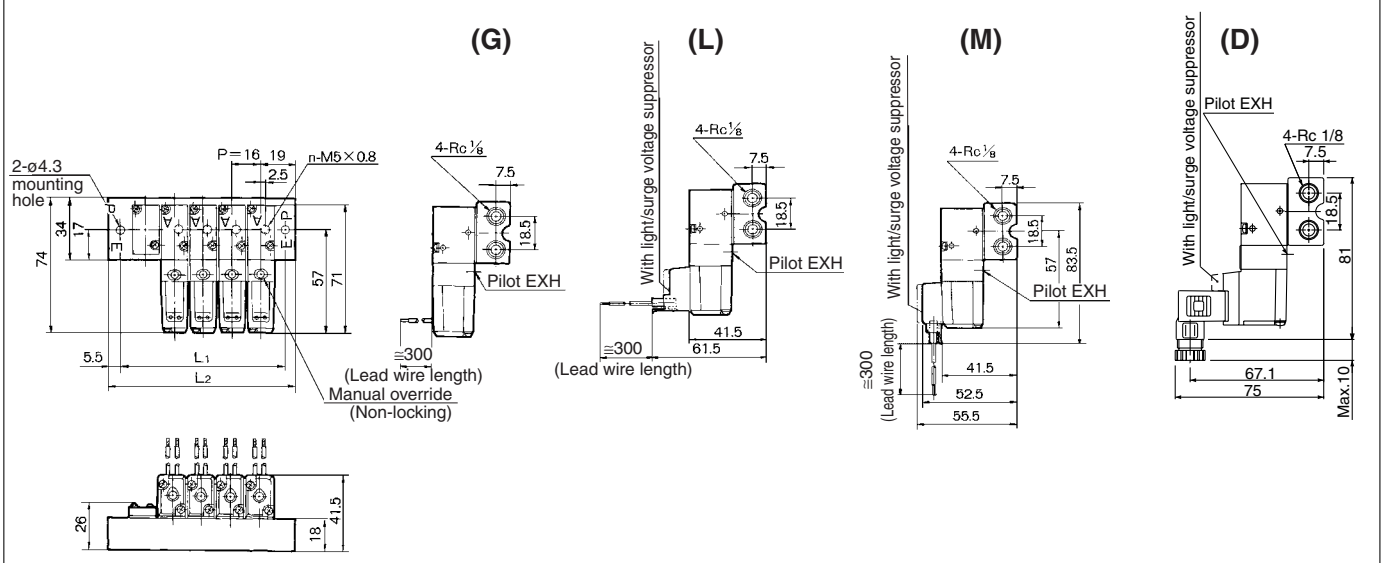
<Side ported, common pilot exhaust>
VV3Z2-50-081-01 (8 stations)
VZ215-1G····· 5 pcs.
VZ225-1G····· 2 pcs.
VVZ200-32A-2····· 1 pc. (Blanking plate)

<Side ported, common pilot exhaust>
VV3Z2-50081-C6 (8 stations)
VZ215-5M·····5 pcs.
VZ215-5M·····3 pcs.

# Series VZ200

## Dimensions: Individual Exhaust/Common Exhaust

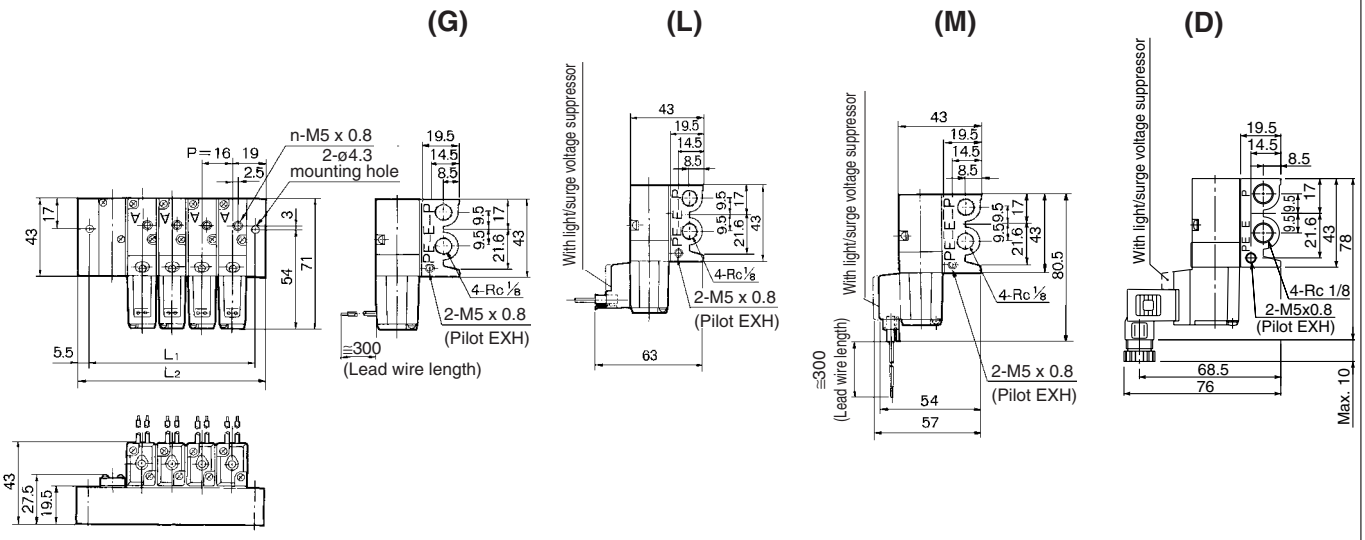
### Individual exhaust: VV3Z2-20




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 43 | 59 | 75 | 91 | 107 | 123 | 139 | 155 | 171 | $L_1 = 16n + 11$ |
| $L_2$ | 54 | 70 | 86 | 102 | 118 | 134 | 150 | 166 | 182 | $L_2 = 16n + 22$ |

### Common exhaust: VV3Z2-30

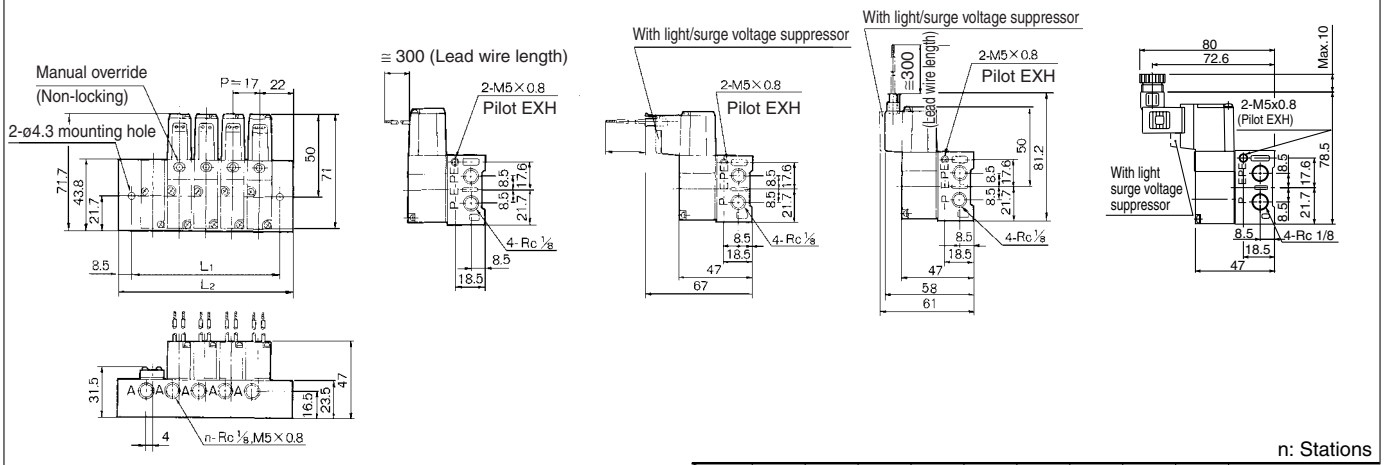



n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 43 | 59 | 75 | 91 | 107 | 123 | 139 | 155 | 171 | $L_1 = 16n + 11$ |
| $L_2$ | 54 | 70 | 86 | 102 | 118 | 134 | 150 | 166 | 182 | $L_2 = 16n + 22$ |

## Dimensions: Common Exhaust

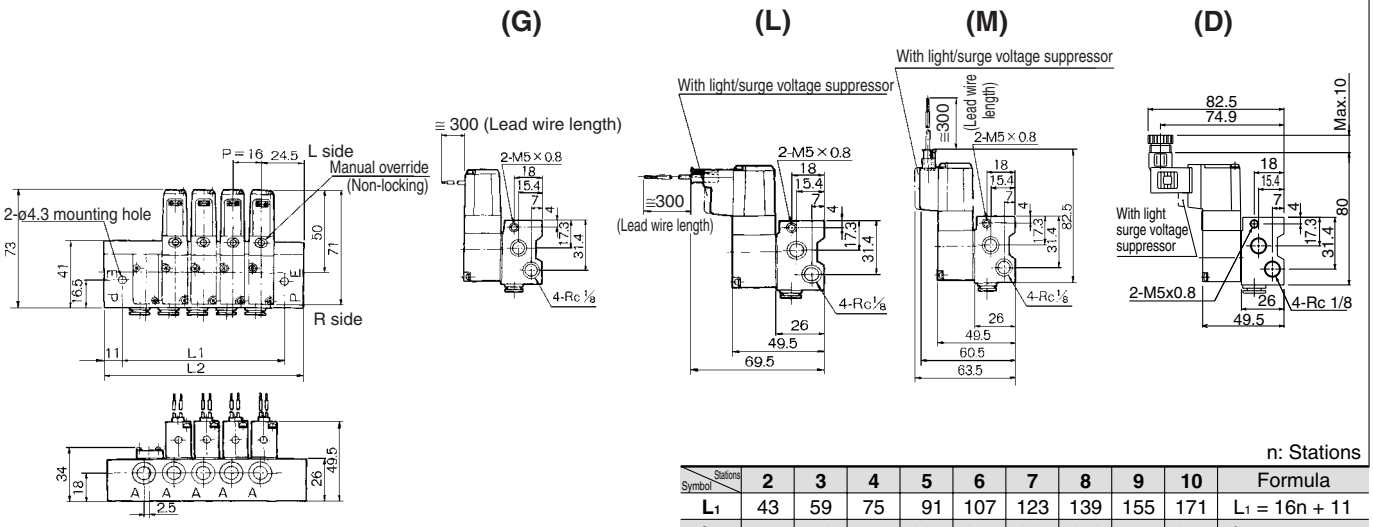
### Individual: VV3Z2-50




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 44 | 61 | 78 | 95 | 112 | 129 | 146 | 163 | 180 | $L_1 = 17n + 10$ |
| $L_2$ | 61 | 78 | 95 | 112 | 129 | 146 | 163 | 180 | 197 | $L_2 = 17n + 27$ |

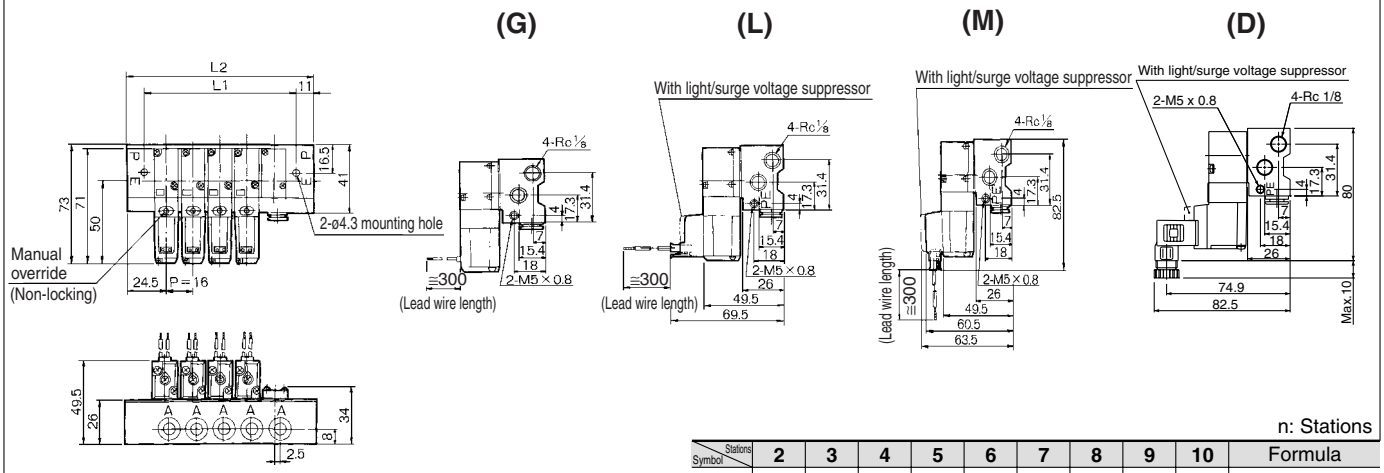
### Common exhaust: VV3Z2-50 (Built-in One-touch fittings manifold)




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 43 | 59 | 75 | 91 | 107 | 123 | 139 | 155 | 171 | $L_1 = 16n + 11$ |
| $L_2$ | 65 | 81 | 97 | 113 | 129 | 145 | 161 | 177 | 193 | $L_2 = 16n + 33$ |

### Common exhaust: VV3Z2-S50 (Built-in One-touch fittings manifold)




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 43 | 59 | 75 | 91 | 107 | 123 | 139 | 155 | 171 | $L_1 = 16n + 11$ |
| $L_2$ | 65 | 81 | 97 | 113 | 129 | 145 | 161 | 177 | 193 | $L_2 = 16n + 33$ |

# 3 Port Solenoid Valve
# Metal Seal
# *Series VZ400*

**Large flow capacity**

**Low power consumption: 1.8 W (75 mA, 24 VDC)**

**Plug connector**

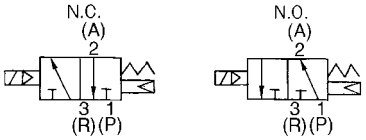
**One-touch wiring of plug connectors**

**Common pilot exhaust sub-plate mounted and manifold**

**Body ported**

**Base mounted**

**JIS Symbol**




## Model

| Piping | Type of actuation | Choice of pilot valve exhaust | |
|---|---|---|---|
| | | Individual exhaust | Common exhaust |
| Body ported | N.C. | VZ412 | VZ412* |
| | N.O. | VZ422 | VZ422* |
| Base mounted | N.C. | — | VZ415 |
| | N.O. | — | VZ425 |

* Body ported type provides both individual exhaust and common exhaust.

## Specifications

| | |
|---|---|
| Fluid | Air/Inert gas |
| Maximum operating pressure | 1.0 MPa |
| Minimum operating pressure | 0.15 MPa |
| Proof pressure | 1.5 MPa |
| Ambient and fluid temperature | –10 to 50°C |
| Lubrication | Not required |
| Enclosure | Dustproof (5) |
| Manual override | Push type (Safety style), Locking type (Tool required), Locking type (Manual) |
| Shock/Vibration resistance (m/s$^2$) | 150/50 (6) |

| Specifications \ Type | | | Body ported | | Base mounted (With sub-plate) | |
|---|---|---|---|---|---|---|
| | | | N.C. valve | N.O. valve | N.C. valve | N.O. valve |
| Port size | | | Rc 1/8 | | Rc 1/8, 1/4 | |
| Flow characteristics | 1 → 2 (P → A) | C[dm$^3$/(s·bar)] | 2.0 | 2.0 | 2.4 | 2.4 |
| | | b | 0.14 | 0.17 | 0.19 | 0.19 |
| | | Cv | 0.49 | 0.49 | 0.57 | 0.57 |
| | 2 → 3 (A → R) | C[dm$^3$/(s·bar)] | 2.2 | 2.2 | 2.2 | 1.9 |
| | | b | 0.17 | 0.17 | 0.11 | 0.32 |
| | | Cv | 0.53 | 0.53 | 0.49 | 0.45 |
| Max. operating frequency (c/s) (AC/DC) (1) | | | 15 | | 15 | |
| Response time (ms) (AC/DC) (2) | | | 21/21 or less | | 21/21 or less | |
| Weight (kg) (3) | | | 0.125 | | 0.250 | |

Note 1) Minimum operating frequency: As per JIS B 8373 (Once in 30 days)
Note 2) Based on JIS B 8375-1981 (Supply pressure; 0.5 MPa; without surge voltage suppressor)
Note 3) Value for grommet (Sub-plate weight: 0.055 kg)
Note 4) "Note 1)" and "Note 2)" are with controlled clean air.
Note 5) Based on JIS C 0920
Note 6) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

## Solenoid Specifications

* Option

| | | | |
|---|---|---|---|
| Electrical entry | | | Grommet (G), Plug connector (L), Plug connector (M), DIN terminal (D) |
| Coil rated voltage (V) | AC 50/60 Hz | | 100, 200, 24*, 48*, 110*, 220* |
| | DC | | 24, 6*, 12*, 48* |
| Allowable voltage fluctuation (%) | | | –15 to +10% of rated voltage |
| Coil insulation type | | | Class E or equivalent (120°C) (2) |
| Temperature rise (°C) | | | 45 or less |
| Power consumption (W) | DC | | 1.8 (With indicator light: 2.1) |
| Apparent power (VA) | AC | Inrush | 4.5/50 Hz, 4.2/60 Hz |
| | | Holding | 3.5/50 Hz, 3/60 Hz |
| Surge voltage suppressor (1) | | | DC: Diode, AC: ZNR |
| Indicator light | | | DC: LED (Red), AC: Neon bulb |

Note 1) In the case of grommet type, it is equipped on the middle of lead wire.
Note 2) Based on JIS C 4003

## Option

| Description | | Part no. | Note |
|---|---|---|---|
| Foot bracket (With screw) (1) | | VZ4000-22A | For VZ4□2 |
| Silencer | R 1/8 | AN110-01 | Noise reduction: 21 dB (ø13 x 38ℓ) |
| | R 1/4 (2) | AN203-02 | Noise reduction: 25 dB (ø16 x 36ℓ) |

Note 1) For body ported type Note 2) For sub-base mounted type

## How to Order

**VZ4 1 2 1 G □ □ 01 □**

**Series VZ400**

**Type of actuation**

| | |
|---|---|
| 1 | N.C. (Normally closed) |
| 2 | N.O. (Normally open) |

**Body type**

| | | |
|---|---|---|
| Body ported | 2 | Individual pilot exhaust<br>Common pilot exhaust |
| Base mounted | 5 | Common pilot exhaust |

**Rated voltage**

| | |
|---|---|
| 1 | 100 VAC, 50/60 Hz |
| 2 | 200 VAC, 50/60 Hz |
| 3* | 110 VAC, 50/60 Hz |
| 4* | 220 VAC, 50/60 Hz |
| 5 | 24 VDC |
| 6* | 12 VDC |
| 9* | Other |

* Option

**Light/Surge voltage suppressor**

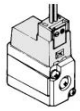
| | |
|---|---|
| Nil | None |
| Z | With light/surge voltage suppressor (Indicator light is not available for grommet type.) |
| S | With surge voltage suppressor |

* "DOZ" is not available.

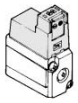
**Electrical entry**

**G**: Grommet, Lead wire length 300 mm

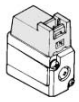
**L**: L plug connector, With lead wire



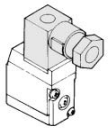
**LN**: L plug connector, Without lead wire



**LO**: L plug connector, Without connector

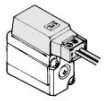


**D**: DIN terminal



**H**: Grommet, Lead wire length 600 mm

**M**: M plug connector, With lead wire



**MN**: M plug connector, Without lead wire

**MO**: M plug connector, Without connector

**DO**: DIN terminal, Without connector

Type "G", "L", and "M": Lead wire 300 mm

**Option**

| | |
|---|---|
| F* | Foot bracket |
| U | Silencer |
| K* | Foot bracket + Silencer |

* Only body ported type

**Port size**

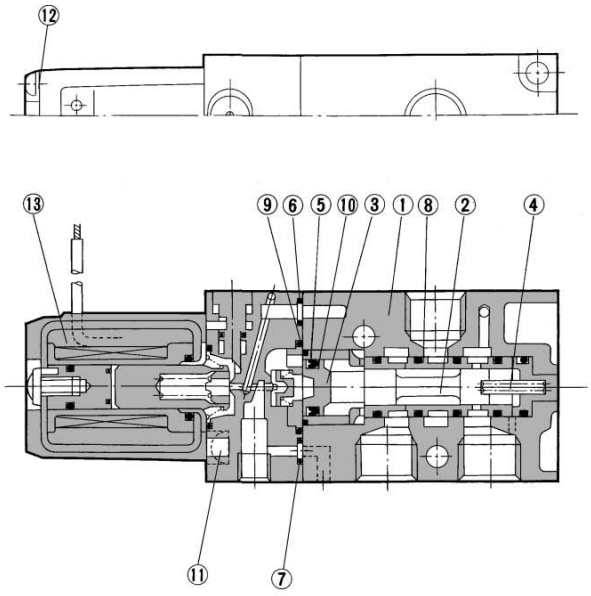
| | | |
|---|---|---|
| Body ported | 01 | Rc 1/8 |
| Base mounted | Nil | Without sub-plate |
| | 01 | Rc 1/8 |
| | 02 | Rc 1/4 |

**Manual override**

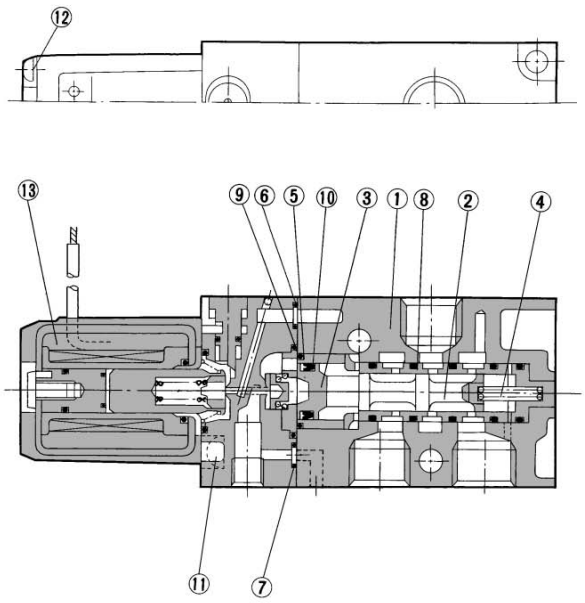
| | |
|---|---|
| Nil | Push type (Safety style) |
| B | Locking type (Tool required) |
| C | Locking type (Manual) |

## Construction (Body ported)

**N.C. (VZ412)**




**N.O. (VZ422)**




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ① | Body | Aluminum die-casted | Platinum silver |
| ② | Spool/Sleeve | Stainless steel | |
| ③ | Piston | Polyacetal | |

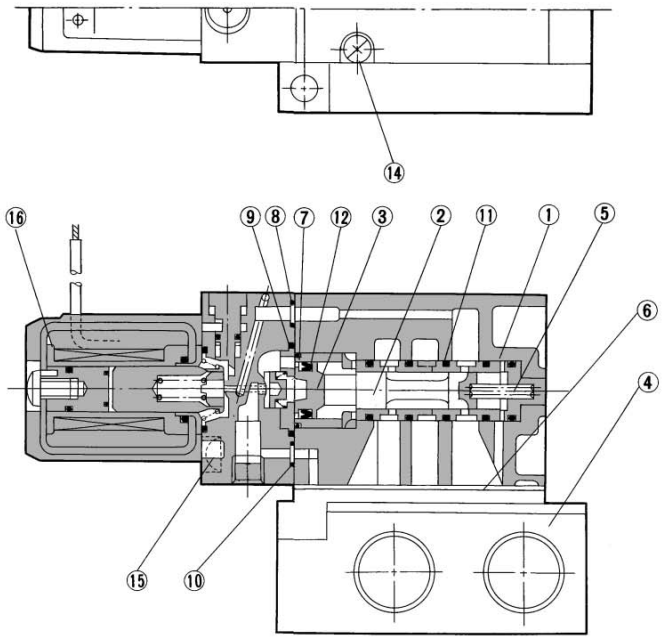
### Replacement Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ④ | Return spring | Stainless steel | |
| ⑤ | O-ring | NBR | |
| ⑥ | Seal | NBR | |
| ⑦ | O-ring | NBR | |
| ⑧ | O-ring | NBR | |
| ⑨ | O-ring | NBR | |
| ⑩ | Mini Y seal | NBR | |
| ⑪ | Round head combination screw | Carbon steel | |
| ⑫ | Round head combination screw | Carbon steel | |
| ⑬ | Pilot valve assembly | — | SCZ4□□□-□-□ |

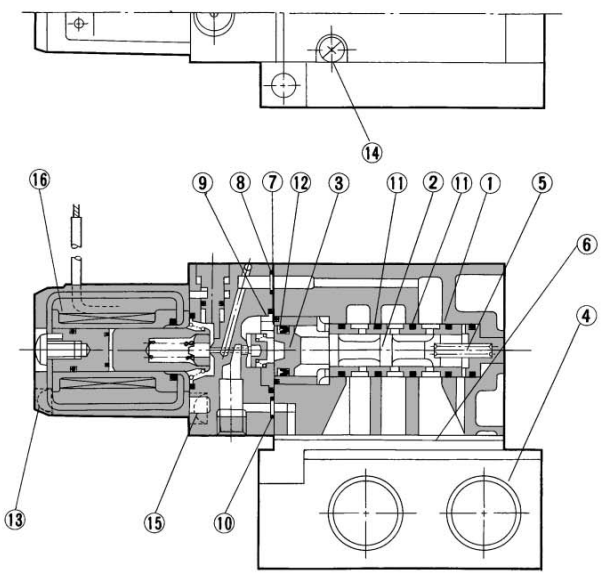
# Series VZ400

## Construction: Sub-plate Mounted

**N.C. (VZ415)**




**N.O. (VZ425)**




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ① | Body | Aluminum die-casted | Platinum silver |
| ② | Spool/Sleeve | Stainless steel | |
| ③ | Piston | Polyacetal | |
| ④ | Sub-plate | Aluminum die-casted | Platinum silver |

**Sub-plate Assembly Part No.: VZ400-S-$^{01}_{02}$**

∗ Mounting bolt and gasket are not attached.

### Replacement Parts

| No. | Description | Material | Part no. |
|---|---|---|---|
| ⑤ | Return spring | Stainless steel | |
| ⑥ | Gasket | NBR | |
| ⑦ | O-ring | NBR | |
| ⑧ | Seal | NBR | |
| ⑨ | O-ring | NBR | |
| ⑩ | O-ring | NBR | |
| ⑪ | O-ring | NBR | |
| ⑫ | Mini Y seal | NBR | |
| ⑬ | Round head combination screw | Carbon steel | |
| ⑭ | Round head combination screw | Carbon steel | |
| ⑮ | Round head combination screw | Carbon steel | |
| ⑯ | Pilot valve assembly | — | SCZ4□□□-□-□ |

## How to Order Pilot Valve Assembly

**SCZ4 G □ □ – 1 – 1**

**Series VZ400**

**Electrical entry**

| | | |
|---|---|---|
| G | Grommet | 300 mm lead wire |
| H | | 600 mm lead wire |
| L | L plug connector | With lead wire |
| LN | | Without lead wire |
| LO | | Without connector |
| M | M plug connector | With lead wire |
| MN | | Without lead wire |
| MO | | Without connector |
| D | DIN terminal | With connector |
| DO | | Without connector |

**Manual override**

| | |
|---|---|
| Nil | Push type (Safety style) |
| B | Locking type (Tool required) |
| C | Locking type (Manual) |

**Light/Surge voltage suppressor**

| | |
|---|---|
| Nil | None |
| Z∗ | With light/surge voltage suppressor |
| S | With surge voltage suppressor |

∗ Indicator light is not available for grommet type.
∗ "DOZ" is not available.

**Pilot pressure exhaust**

| | |
|---|---|
| 1 | Spacer side exhaust (Type 20) |
| 2 | Body side exhaust (Type 30, 50) |

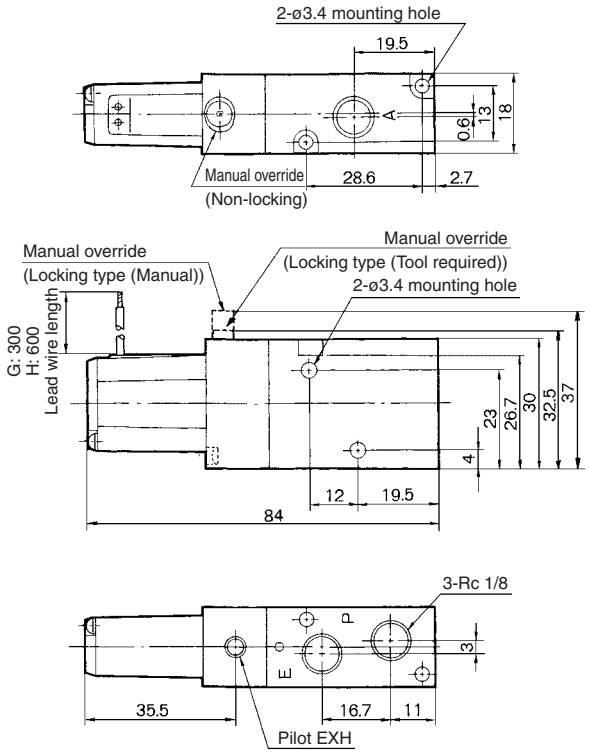
**Rated voltage**

| | |
|---|---|
| 1 | 100 VAC, 50/60 Hz |
| 2 | 200 VAC, 50/60 Hz |
| 3∗ | 110 VAC, 50/60 Hz |
| 4∗ | 220 VAC, 50/60 Hz |
| 5 | 24 VDC |
| 6∗ | 12 VDC |
| 9 | Other |

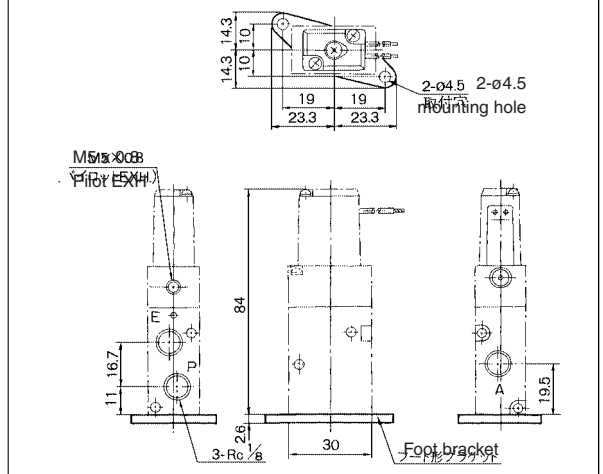
∗ Option

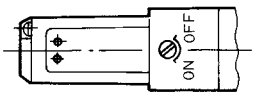
## Dimensions: Body Ported

### Grommet: VZ4$^{1}_{2}$2-□$^{G}_{H}$(S)-01



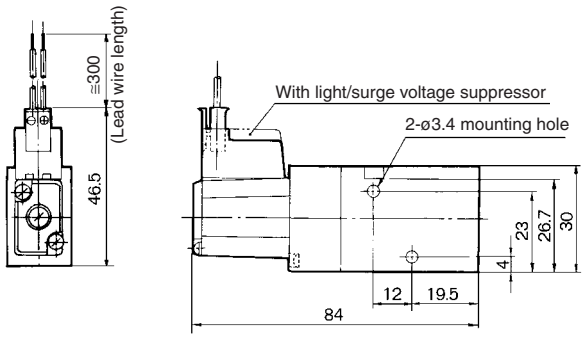

### With foot bracket: VZ4$^{1}_{2}$2-□□-01-F



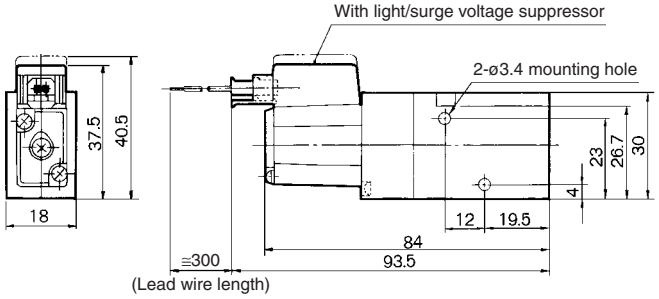




**Locking type manual override**

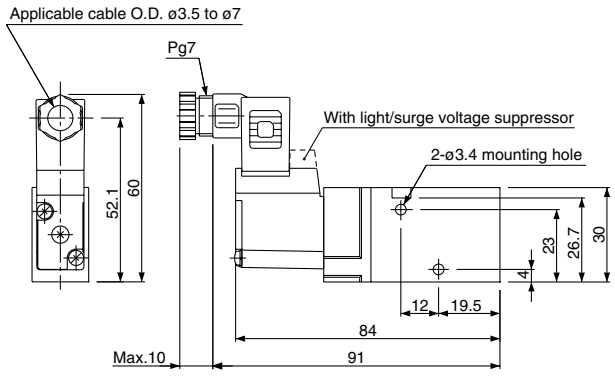
### L VZ4$^{1}_{2}$2-□L(Z)-01




### M plug connector: VZ4$^{1}_{2}$2-□M(Z)-01



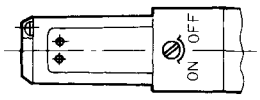

### DIN terminal: VZ4$^{1}_{2}$2-□D(Z)-01



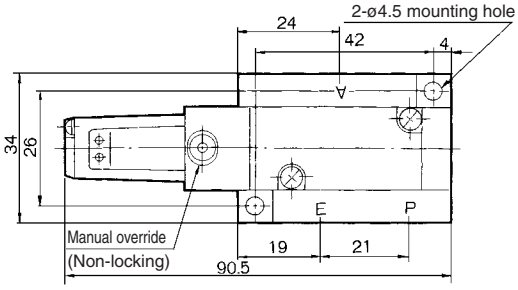
# Series VZ400

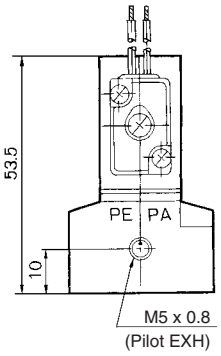
## Dimensions: Sub-plate Mounted

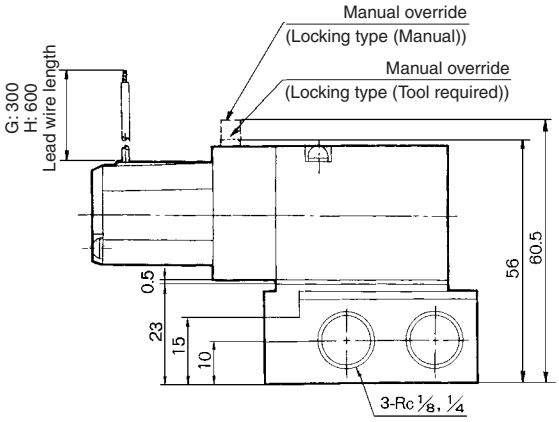
### Grommet: VZ4$^{1}_{2}$5-□$^{G}_{H}$(S)-$^{01}_{02}$



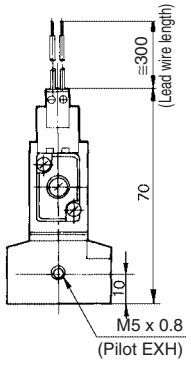

Locking type manual override

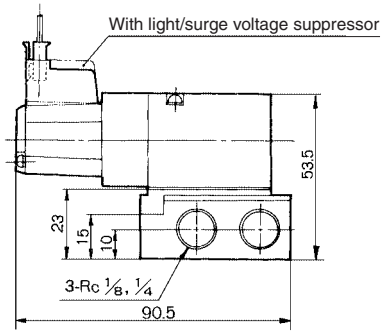


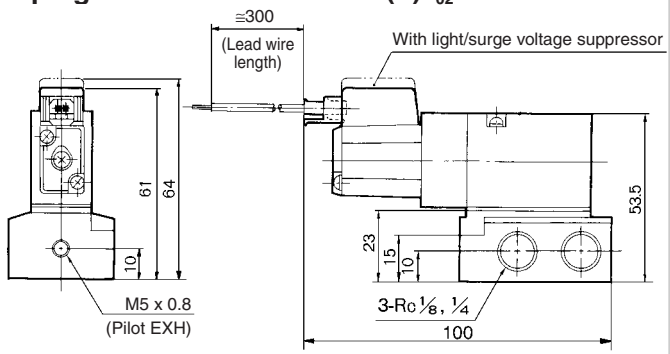




### L plug connector: VZ4$^{1}_{2}$5-□L(Z)-$^{01}_{02}$

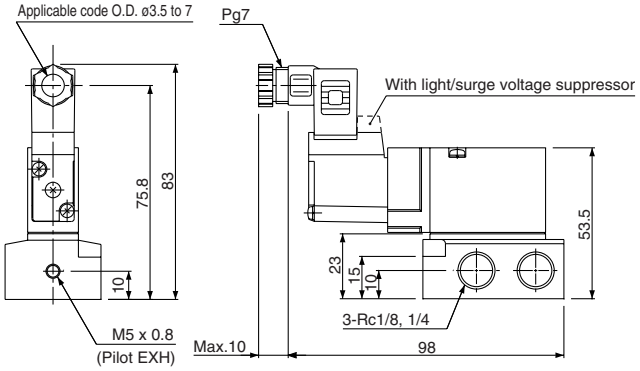



### M plug connector: VZ4$^{1}_{2}$5-□M(Z)-$^{01}_{02}$



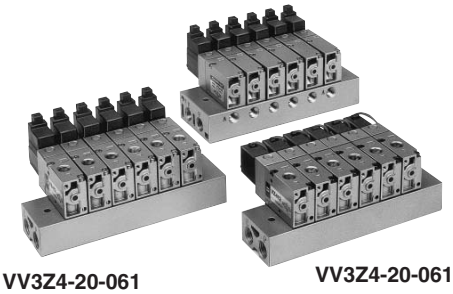

### DIN terminal: VZ4$^{1}_{2}$5-□D(Z)-$^{01}_{02}$



# Series VZ400
# Manifold Specifications

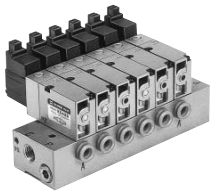
## Manifold Variations: VV3Z4

VV3Z4-50-061-□



VV3Z4-20-061

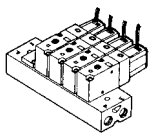
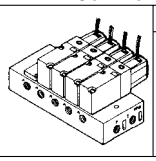
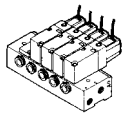
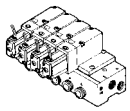
VV3Z4-20-061



VV3Z4-50-061-C8

### Model

| | |
|---|---|
| Manifold type | Single base, B mount |
| Passage | Common SUP/EXH type |
| Valve stations | Max. 20 stations |

| Manifold base model | | VV3Z4-20 | VV3Z4-30 | VV3Z4-50 | | VV3Z4-S50 |
|---|---|---|---|---|---|---|
| | | Individual exhaust | Common exhaust | Common exhaust | | Common exhaust |
| Pilot valve exhaust | |  | |  | Built-in One-touch fittings  | Built-in One-touch fittings  |
| 2(A) port | Piping direction/ Location | Top/Valve | | Side/Base (Opposite side of solenoid) | | Side/Base (Same side of solenoid) |
| | Port size | Rc 1/8 | | Rc1/8, 1/4 | C6, C8 | C6, C8 |
| P, E port | Port size | Rc 1/4 | | Rc 1/4 | | |
| Applicable valve model | | VZ412□□□-01<br>VZ422□□□-01 | | VZ415-□□□<br>VZ425-□□□ | | |
| | | Body ported | | Base mounted (Without sub-plate) | | |
| Blanking plate | | VVZ400-31A-1 | VVZ400-32A-1 | VVZ400-32A-2 | VVZ400-31A-2 | |

### Screws and Gasket Assembly Part No.

| Model | Part no. |
|---|---|
| VV3Z4-20 | BG-VZ402 |
| VV3Z4-30 | BG-VZ403 |
| VV3Z4-50<br>-S50 | BG-VZ405 |

## How to Order Manifold Base

**VV3Z4 – 30 – 06 1 □**

**Series VZ400 Manifold**

**Manifold specifications/Single base type**
**B mount (P/E port size)**

| Symbol | Piping | P, E port Port size | Applicable valve model |
|---|---|---|---|
| **20** | Body ported<br>(Individual pilot exhaust) | Rc 1/4 | VZ4□2 |
| **30** | Body ported<br>(Common pilot exhaust) | Rc 1/4 | VZ4□2 |
| **50** | Base mounted<br>(Common pilot exhaust)<br>2(A) port direction: opposite side of solenoid valve | Rc 1/4 | VZ4□5 |
| **S50*** | Base mounted<br>(Common pilot exhaust)<br>2(A) port direction: same side of solenoid valve | Rc 1/4 | VZ4□5 |

* Type S50 is available only with built-in One-touch fittings.

**Stations**

| | |
|---|---|
| **02** | 2 stations |
| ⋮ | ⋮ |
| **20** | 20 stations |

**Symbol**

| Symbol / Specifications | Passage 1(P) | Passage 3(R) | Porting specifications 2(A) | Applicable base |
|---|---|---|---|---|
| **1** | Common | Common | Top, Side | Type 20, 30 and 50 |

**A port size on base side**

| Model / Symbol | VV3Z4-50<br>VV3Z4-S50 * |
|---|---|
| **Nil** | Without 2(A) port<br>(Body ported type 20, 30) |
| **01** | Rc 1/8 |
| **02** | Rc 1/4 |
| **C6** | Built-in One-touch fittings<br>Applicable tubing O.D. ø6 |
| **C8** | Built-in One-touch fittings<br>Applicable tubing O.D. ø8 |

* VV3Z4-S50: only C6 & C8.

Instruct by specifying the valves, blanking plate option to be mounted on the manifold along with the manifold base model no. And for the order of valves installation or option's position, instruct separately by the manifold specification sheet.

(Example)

<Top ported, common pilot exhaust>
VV3Z4-30-061 (6 stations)
VZ412-1G-01····· 3 pcs.
VZ412-1G-01····· 2 pcs.
VVZ400-32A-1·····1 pc. (Blanking plate)

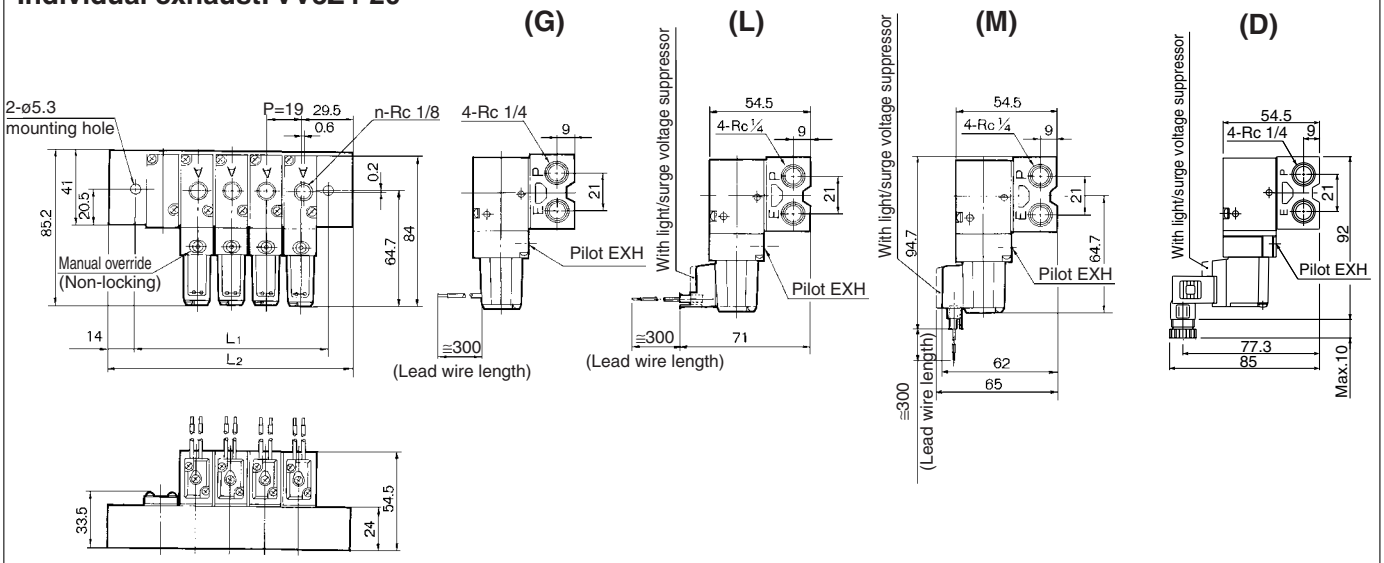
<Side ported, common pilot exhaust>
VV3Z4-50-061-01 (6 stations)
VZ415-1G·····3 pcs.
VZ425-1G·····2 pcs.
VVZ400-32A-2·····1 pc. (Blanking plate)

<Side ported, common pilot exhaust>
VV3Z4-S50-061-C8 (6 stations)
VZ415-5L·····3 pcs.
VZ415-5L·····3 pcs.

# Series VZ400

## Dimensions: Individual Exhaust/Common Exhaust

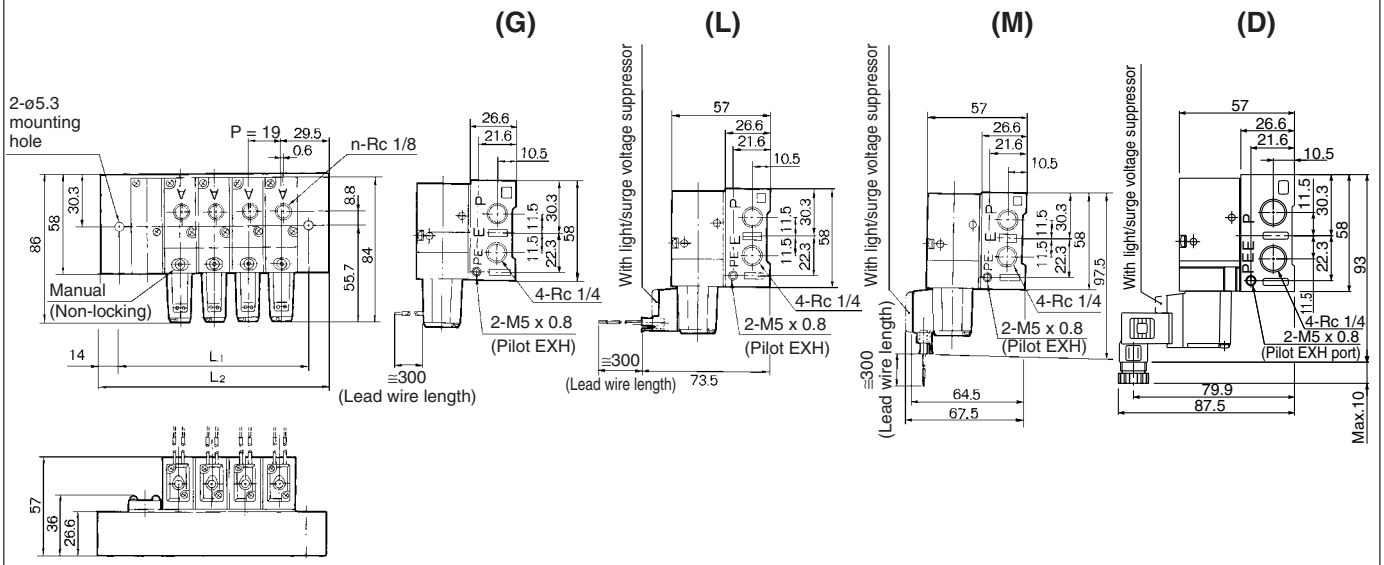
### Individual exhaust: VV3Z4-20




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 50 | 69 | 88 | 107 | 126 | 145 | 164 | 183 | 202 | $L_1 = 19n + 12$ |
| $L_2$ | 78 | 97 | 116 | 135 | 154 | 173 | 192 | 211 | 230 | $L_2 = 19n + 40$ |

### Common exhaust: VV3Z4-30

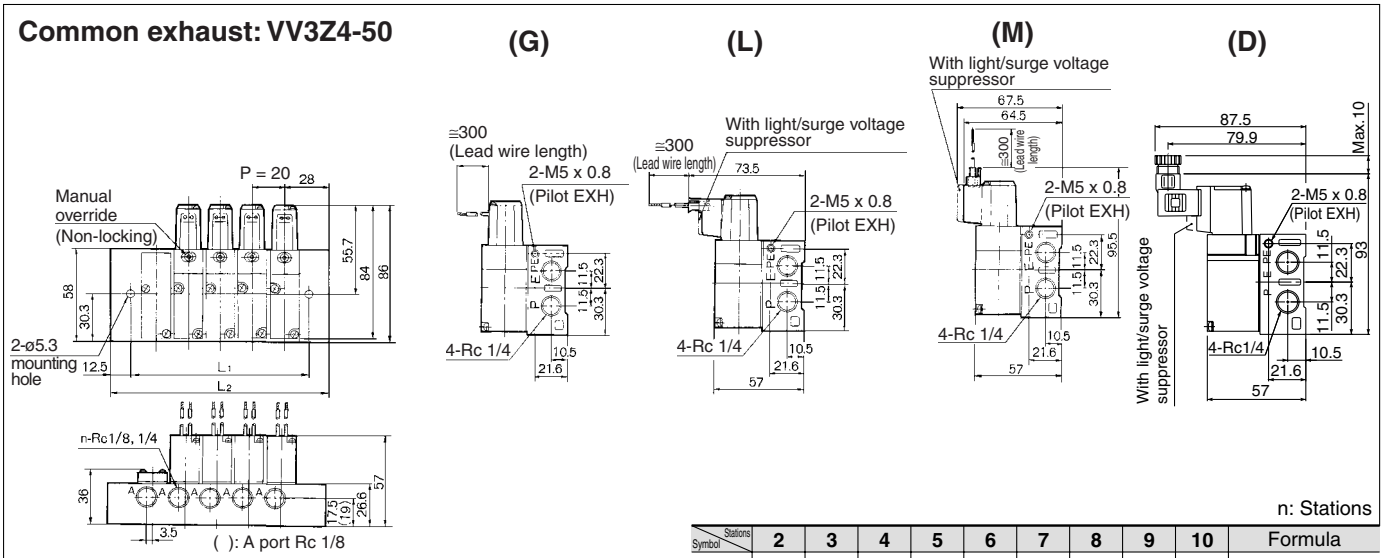



n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 50 | 69 | 88 | 107 | 126 | 145 | 164 | 183 | 202 | $L_1 = 19n + 12$ |
| $L_2$ | 78 | 97 | 116 | 135 | 154 | 173 | 192 | 211 | 230 | $L_2 = 19n + 40$ |

## Dimensions: Common Exhaust

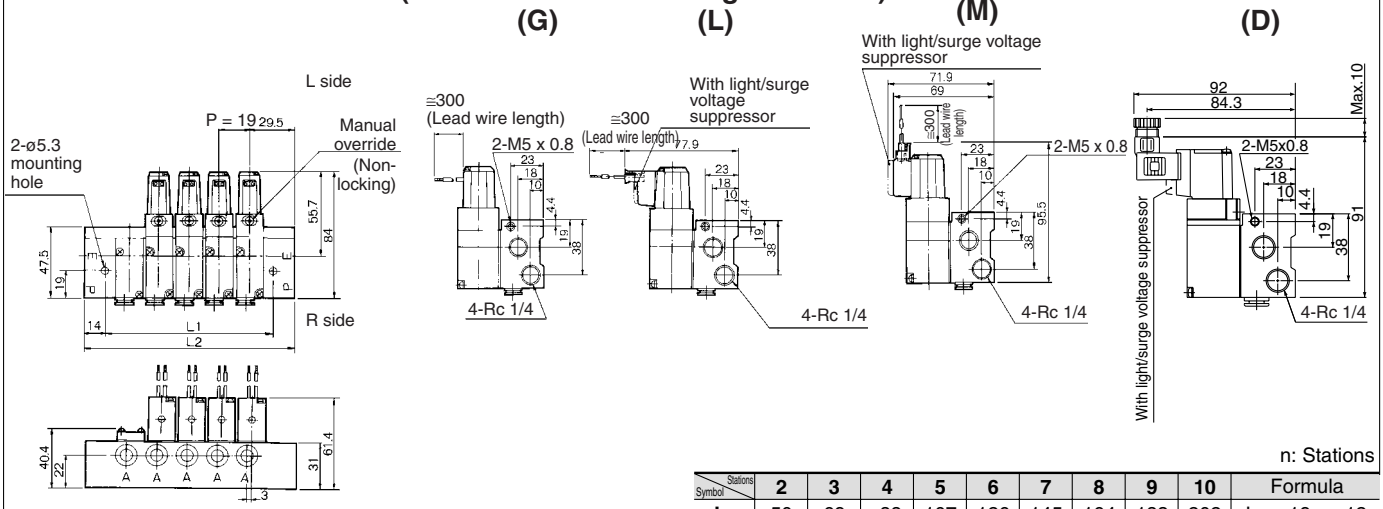
### Common exhaust: VV3Z4-50




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 51 | 71 | 91 | 111 | 131 | 151 | 171 | 191 | 211 | $L_1 = 20n + 11$ |
| $L_2$ | 76 | 96 | 116 | 136 | 156 | 176 | 196 | 216 | 236 | $L_2 = 20n + 36$ |

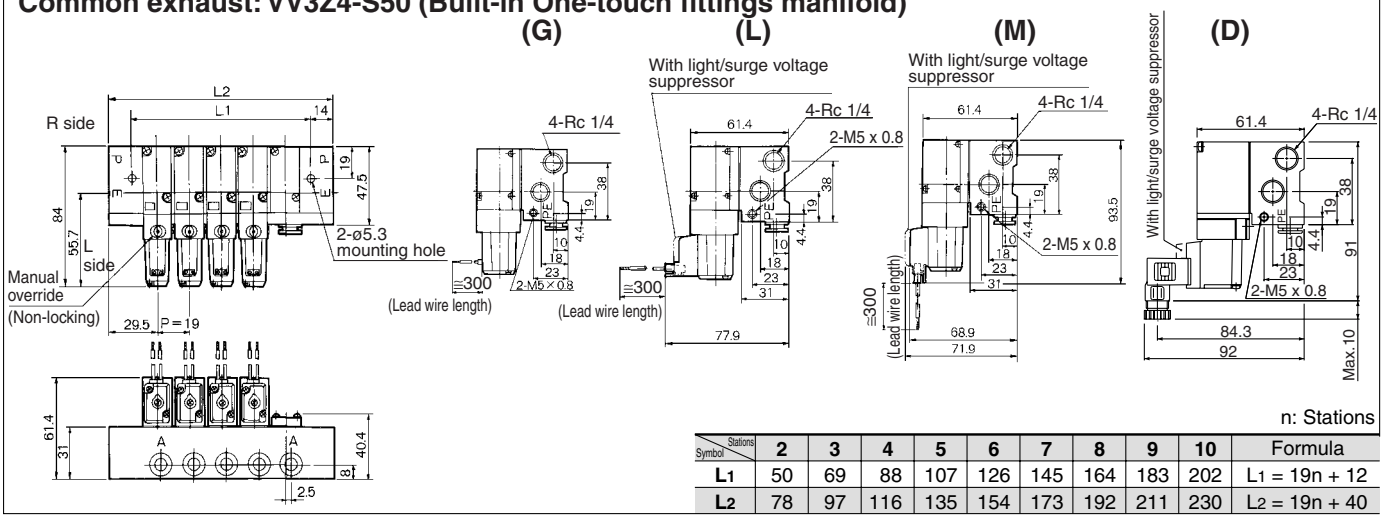
### Common exhaust: VV3Z4-50 (Built-in One-touch fittings manifold)




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 50 | 69 | 88 | 107 | 126 | 145 | 164 | 183 | 202 | $L_1 = 19n + 12$ |
| $L_2$ | 78 | 97 | 116 | 135 | 154 | 173 | 192 | 211 | 230 | $L_2 = 19n + 40$ |

### Common exhaust: VV3Z4-S50 (Built-in One-touch fittings manifold)




n: Stations

| Symbol \ Stations | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Formula |
|---|---|---|---|---|---|---|---|---|---|---|
| $L_1$ | 50 | 69 | 88 | 107 | 126 | 145 | 164 | 183 | 202 | $L_1 = 19n + 12$ |
| $L_2$ | 78 | 97 | 116 | 135 | 154 | 173 | 192 | 211 | 230 | $L_2 = 19n + 40$ |

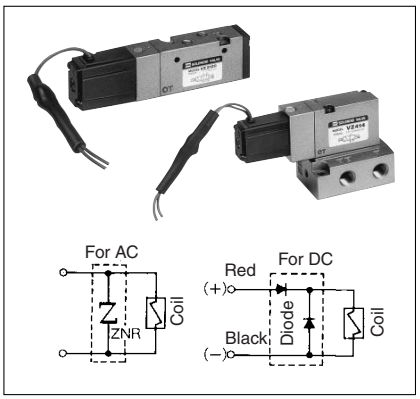
# ⚠ Precaution 1

**Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 4-18-2.**

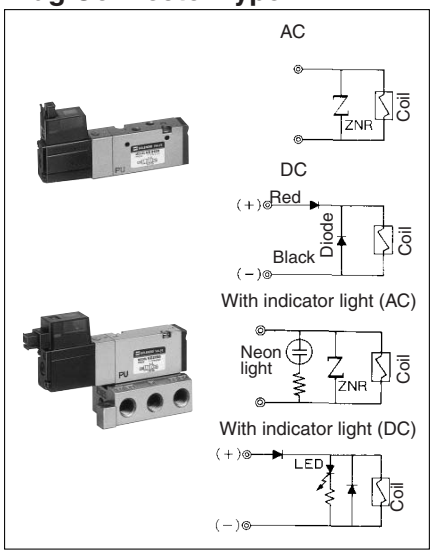
## Surge Voltage Suppressor

### ⚠Caution

#### Grommet Type

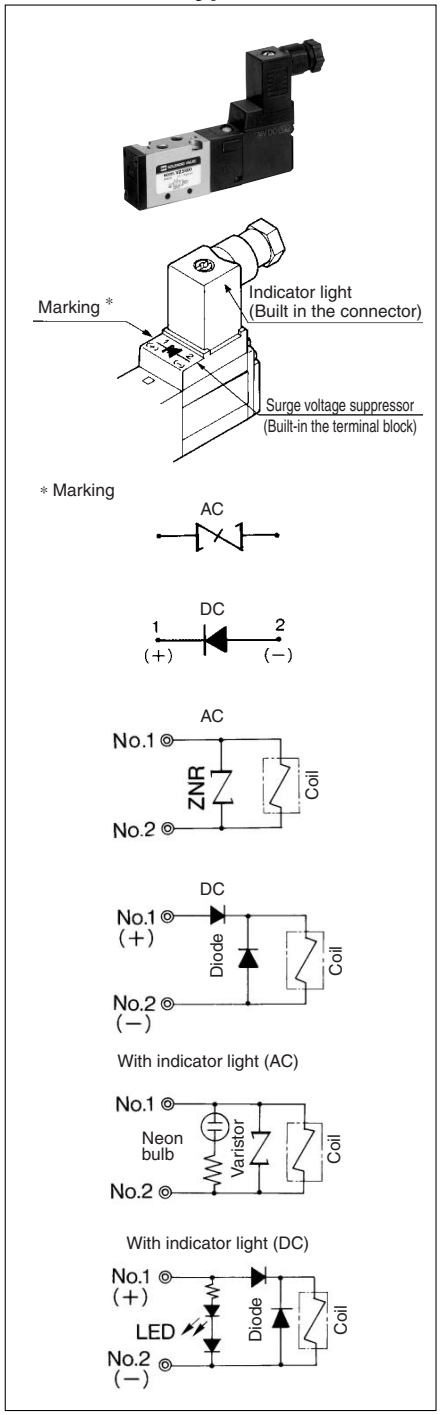



#### Plug Connector Type




In applications where the supply voltage is DC, correctly connect the lead wires to + (positive) and – (negative) indications on the connector or to the markings.
For those on which the lead wires have been pre-wired, the positive side is red and negative side is black.

#### DIN Terminal Type

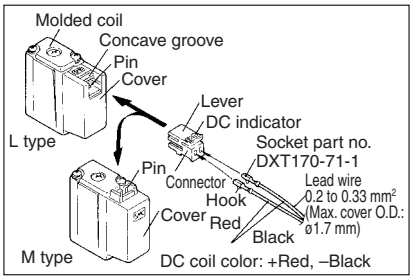



In the case of DC wiring, connect terminal no. 1 of the connector to the positive [+] side, and terminal no. 2 to the negative [–] side. (Refer to the marks on the terminal board.)

## How to Use Plug Connector

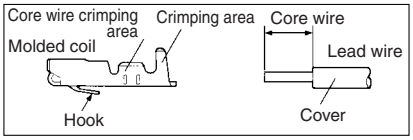
#### Attaching and detaching connectors

1. To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
2. To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.




#### Crimping the Lead Wire and Socket

Peel 3.2 to 3.7 mm of the tip of lead wire, enter the core wires neatly into a socket and crimp it with a special crimp tool. Be careful so that the cover of lead wire does not enter into the crimping part. (Crimping tool part no.: DXT 170-75-1)




#### Connector assembly part no.

**DXT170 – 80 □ A □**

**Lead wire color** ● **Lead wire length**

| Symbol | With socket Lead wire | Note |
|---|---|---|
| Nil | Socket only (2 pcs.) | Without lead wire |
| 1 | Blue (2) | For 100 VAC |
| 2 | Red (2) | For 200 VAC |
| 3 | Gray (2) | Another VAC |
| 4 | Red: +, Black: – | For DC |

| Symbol | Lead wire length (mm) |
|---|---|
| Nil | 300 |
| 6 | 600 |
| 10 | 1000 |
| 15 | 1500 |
| 20 | 2000 |
| 25 | 2500 |
| 30 | 3000 |

Note) When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Ex.)
For lead wire length (1000 mm)
Solenoid valve:
VZ2150-5M0-01·····5 pcs.
Connector assembly:
DXT170-80-4A-10·····5 pcs.

# ⚠ Precaution 2

**Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 4-18-2.**

## How to Use Plug Connector

## ⚠ Caution

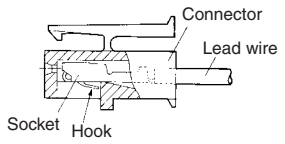
### Attaching and detaching lead wires with sockets

**1. Attaching**

Insert the sockets into the square holes of the connector (with + and – indication) and continue to push the sockets all the way in until the lock by hooking into the seats in the connector. (When they are pushed in, their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

**2. Detaching**

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm). If the socket will be used again, first spread the hook outward.




### How to Calculate the Flow Rate

For obtaining the flow rate, refer to page 4-1-6.

### Connector assembly with protective cover

Connector assembly with protective cover enhances dust protection.

- Effective to prevent short circuit accidents due to penetration of foreign matter into the connector section.
- The material of cover is chloroprene rubber for electricity which is excellent in weathering and electrical insulating properties. But don't splash with cutting oil.
- Simple and unencumbered appearance by adopting round-shaped cord.

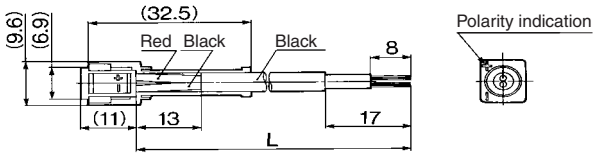
### How to Order

**DXT170 −123− A −** ☐

**• Lead wire length**

| Symbol | Lead wire length L (mm) |
|---|---|
| **Nil** | 300 |
| **6** | 600 |
| **10** | 1000 |
| **15** | 1500 |
| **20** | 2000 |
| **25** | 2500 |
| **30** | 3000 |

### Dimensions: Connector Assembly with Cover



# ⚠ Precaution 3

**Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 4-18-2.**

## How to Wire DIN Terminal

## ⚠Caution

### Connection

1. Loosen the set screw and pull out the connector from the terminal block of the solenoid.
2. Pull out screw and insert a screwdriver to the slit area near the bottom of terminal block to separate block and housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the core of the lead wire into the terminal in accordance with the prescribed connection method, and attach securely with the terminal screws.
4. Tighten the ground nut to secure the wire.

### Change of electrical entry (Orientation)

After separating terminal block and housing, the cord entry direction can be changed by attaching the housing in the desired direction (4 directions in 90 increments).

∗ In the case of w/indicator light, avoid damaging the indicator light with lead wire.

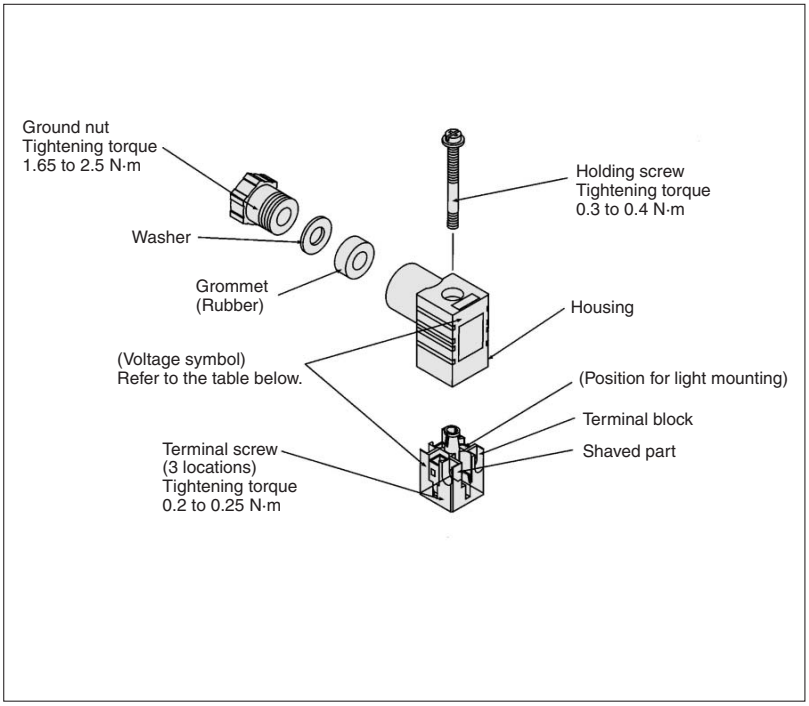
### Precautions

Plug a connector in or out vertically, never at an angle.

### Applicable cable

O.D.: ø3.5 to ø7

(Reference) 0.5 mm² 2 core and 3 core wires equivalent to JIS C 3306.




### DIN Terminal Part No.

| | |
|---|---|
| Without indicator light | DXT170-176-1 |

### With Indicator Light

| Rated voltage | Voltage symbol | Part no. |
|---|---|---|
| 100 VAC | 100V | DXT170-176-2-01 |
| 200 VAC | 200V | DXT170-176-2-02 |
| 110 VAC | 110V | DXT170-176-2-03 |
| 220 VAC | 220V | DXT170-176-2-04 |
| 240 VAC | 240V | DXT170-176-2-07 |
| 6 VDC | 6VD | DXT170-176-3-51 |
| 12 VDC | 12VD | DXT170-176-3-06 |
| 24 VDC | 24VD | DXT170-176-3-05 |
| 48 VDC | 48VD | DXT170-176-3-53 |

### Circuit with Indicator Light