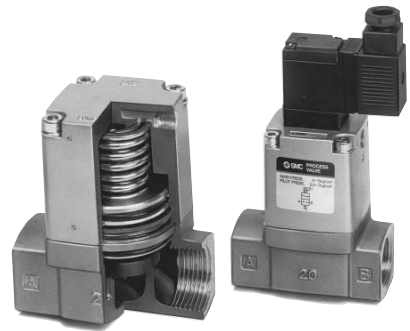


Process Valve: 2 Port Valve For Flow Control Series **VNB**



Air operated

External pilot solenoid

A wide variety of applicable fluids

Proper selection with body and sealing materials permits application with a wide variety of fluids such as air, water, oil, gas and vacuum.

Cylinder actuation by external pilot air

Wide variations

N.C., N.O., C.O., types are available. Screw-in type (6A to 50A) and the flange (32F to 50F) are standardized.

Selection Procedure

1 Applicable fluids

- Refer to "Table (1)" to check that the desired fluid is applicable.
- Select the body and sealing materials, depending on the fluid.

2 Flow characteristics (Air, Water)

- To find the flow rate of air or water, refer to the table of flow rate characteristics on page 17-1-15. Use the flow rate calculation equation to find the exact answer. Although the flow rate is the same, the operating pressure differs according to the valve size. Therefore, select the proper valve size from applicable valves.
- Refer to "Table (2)" to select the port size of the threaded type (6A to 50A) and flanges (32F to 50F).

3 Construction

- Select the air operated or external pilot solenoid styles. Valves come in N.C. (normally closed), N.O. (normally open), C.O. (double acting), and N.C. 1 MPa (normally closed) types. Select the proper one according to the operating conditions.

4 Power voltage and electrical entry (External pilot solenoid)

- Select the AC/DC power source and choose the electrical entry according to "Table (3)".

Table (1) Applicable Fluids Check List

| Fluid | BC6: Standard | | | Aluminum: L | | | Stainless steel: S | | |
|--|---------------|---------|---------|-------------|---------|---------|--------------------|---------|---------|
| | NBR : A | FKM : B | EPR : C | NBR : A | FKM : B | EPR : C | NBR : A | FKM : B | EPR : C |
| Air (Standard, Dry) | ● | ● | | ● | ● | | ● | ● | |
| Low vacuum (Up to -101kPa torr) | ● | ● | | ● | ● | | ● | ● | |
| Carbon dioxide (CO ₂ , 0.7 MPa or less) | ● | | | ● | | | ● | | |
| Carbon dioxide (CO ₂ , 0.7 to 1 MPa) | | | ● | | | ● | | | ● |
| Nitrogen gas (N ₂) | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Argon | ● | ● | | ● | ● | | ● | ● | |
| Helium | | ● | | | ● | | | ● | |
| Water (standard, up to 60°C) | ● | | | | | | ● | | |
| Water (up to 99°C air operated type only) | | ● | ● | | | | | ● | ● |
| Turbine oil | ● | ● | | ● | ● | | ● | ● | |
| Spindle oil | | ● | | | ● | | | ● | |
| Fuel oil Class 3 (C fuel oil) | | ● | | | ● | | | ● | |
| Brake oil <small>(Note)</small> | | | ● | | | ● | | | ● |
| Silicon oil | | ● | | | | | | ● | |
| Naphtha | | ● | | | | | | ● | |
| Ethylene glycol (up to 80°C) | | | ● | | | | | | ● |
| Boiler water | | | | | | | ● | | ● |

⚠ Caution

When fluid permits application of multiple body and sealing materials, select the most suitable one according to the ambient environment (FKM or EPR seal material for high temperature) and other conditions (corrosion resistance and viscosity), etc. Please contact SMC if using for other fluids, operating conditions, etc.

Note) Some brake oils are not allowed.

Table (2) Combinations between Valve Size and Port Size

| Valve size | Port size | | | | | | | | | | | |
|------------|-----------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 6A | 8A | 10A | 15A | 20A | 25A | 32A | 32F | 40A | 40F | 50A | 50F |
| 1 | ● | ● | ● | | | | | | | | | |
| 2 | | | ● | ● | | | | | | | | |
| 3 | | | | | ● | | | | | | | |
| 4 | | | | | | ● | | | | | | |
| 5 | | | | | | | ● | | | | | |
| 6 | | | | | | | | ● | | | | |
| 7 | | | | | | | | | | | | ● |

Table (3) Combinations between Electrical Entry and Light/Surge Voltage Suppressor

| Valve size | Electrical entry | | | | | | Light/Surge voltage suppressor | | | Manual override |
|------------|------------------|---|---|---|---|----|--------------------------------|--------------|------------|-----------------|
| | G | E | C | T | D | DL | S | Z | L | |
| 1, 2, 3, 4 | ● | ● | | ● | ● | | ● | ● | | ● |
| 5, 6, 7 | ● | | ● | ● | ● | ● | (Only "G") | (Except "G") | ● | |
| | | | | | | | (Except "DL") | (Only "T") | (Only "T") | |

VC □

VDW

VQ

VX2

VX □

VX3

VXA

VN □

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

T/ TIL

PA

PAX

PB

Series VNB

How to Order

Seal material

| | |
|----------|-----------|
| A | NBR seals |
| B | FKM seals |
| C | EPR seals |

Refer to "Table (1)" on page 17-2-13 for availability.

Body option

| | |
|------------|----------------------|
| Nil | Standard |
| V* | Vacuum pilot |
| S** | Stainless steel body |
| L** | Aluminum body |

*Valve size: 2 to 7
**Threaded port only

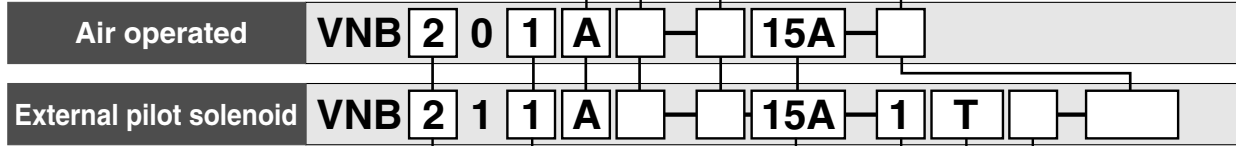
Thread type

| | |
|------------|------|
| Nil | Rc |
| F | G |
| N | NPT |
| T | NPTF |

Bracket (valve size: 1/2/3/4.)

| | |
|------------|---|
| Nil | None |
| B | With bracket (VN□-16) * □ is valve size |

Note 1) Valve size 1 comes with VN1-A16 (with thread).
Note 2) Shipped after assembled at our factory.



Valve size Valve type Port size

| Symbol | Orifice size (mm) | Symbol | | | | Symbol | Port size Rc |
|--------|-------------------|--------------|------|----------|------------|------------|----------------|
| | | 1 | 2 | 3 (Note) | 4 | | |
| | | N.C. 0.5 MPa | N.O. | C.O. | N.C. 1 MPa | | |
| 1 | ø7 | — | ● | ● | ● | 6A | 1/8 |
| | | — | ● | ● | ● | 8A | 1/4 |
| | | — | ● | ● | ● | 10A | 3/8 |
| 2 | ø11 | — | ● | ● | ● | 10A | 3/8 |
| | | — | ● | ● | — | 15A | 1/2 |
| | | — | ● | ● | — | | |
| 3 | ø14 | — | — | — | ● | 20A | 3/4 |
| | | ● | ● | — | — | | |
| 4 | ø16 | — | — | — | ● | 25A | 1 |
| | | ● | — | — | — | | |
| 5 | ø22 | — | — | — | ● | 32A | 1 1/4 |
| | | ● | ● | — | — | | |
| | | ● | — | — | ● | 32F | 1 1/4 B Flange |
| 6 | ø28 | — | — | — | ● | 40A | 1 1/2 |
| | | ● | ● | — | — | | |
| | | ● | — | — | ● | 40F | 1 1/2 B Flange |
| 7 | ø33 | — | — | — | ● | 50A | 2 |
| | | ● | ● | — | — | | |
| | | ● | — | — | ● | 50F | 2B Flange |

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 |
| 7* | 240 VAC 50/60 Hz |
| 9* | Other |

* Option

Manual override

| | |
|---|-------------------|
| <p>Nil: Non-locking push type</p> <p>A: Non-locking extended type</p> <p>B: Locking slotted type</p> | Valve size 1 to 4 |
| <p>Nil: Non-locking push type</p> | Valve size 5 to 7 |

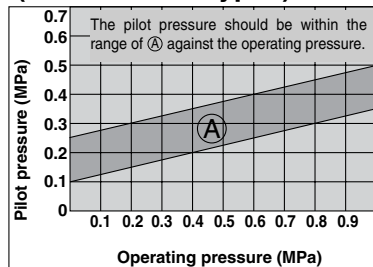
Electrical entry/ With light/surge voltage suppressor

| | | |
|------------|--|---------------------|
| G | Grommet | Valve size 1 to 4 |
| GS | Grommet with surge voltage suppressor | |
| E | Grommet terminal | |
| EZ | Grommet terminal with light/surge voltage suppressor | |
| T | Conduit terminal | Valve** size 5 to 7 |
| TZ* | Conduit terminal with light/surge voltage suppressor | |
| D | DIN terminal | |
| DZ | DIN terminal with light/surge voltage suppressor | |
| G | Grommet | Valve** size 5 to 7 |
| GS | Grommet with surge voltage suppressor | |
| C | Conduit | |
| T | Conduit terminal | |
| TS | Conduit terminal with surge voltage suppressor | |
| TZ* | Conduit terminal with light/surge voltage suppressor | |
| TL* | Conduit terminal with indicator light | |
| D | DIN terminal | |
| DL | DIN terminal with indicator light | |

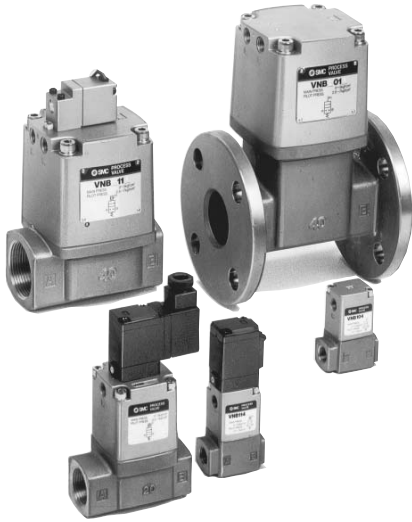
* Except rated voltage 6, 7, 9.
** DZ: For DIN terminal with light/surge protector protection circuit, be sure to suffix -X200 at the end of the part number. In this case, pilot solenoid valve is VO307-□DZ.

Note) Air operated only

Graph (1)
VNB□□□□□ Pilot Pressure (N.O. and C.O. types)



Process Valve: 2 Port Valve For Flow Control Series VNB



Model

| Model | Port size Rc | Orifice size ϕ (mm) | Flow characteristics | | | | Weight (kg) | |
|-------------|--------------|--------------------------|--------------------------------|------|-------------------|--------------------------------------|--------------|-------------------------|
| | | | Measured by air | | Measured by water | | Air operated | External pilot solenoid |
| | | | C [dm ³ /(bar·sec)] | b | Cv | Av x 10 ⁻⁶ m ² | | |
| VNB1□□□-6A | 1/8 | 7 | 3.3 | 0.29 | 0.80 | 25 | 0.3 | 0.4 |
| VNB1□□□-8A | 1/4 | | 4.6 | 0.17 | 1.0 | 29 | | |
| VNB1□□□-10A | 3/8 | | 4.7 | 0.18 | 1.1 | 31 | | |
| VNB2□4□-10A | 1/2 | 11 | 9.6 | 0.40 | 2.6 | 71 | 0.6 | 0.7 |
| VNB2□□□-10A | | 15 | 17 | 0.32 | 4.0 | 110 | | |
| VNB2□4□-15A | | 11 | 9.6 | 0.40 | 2.6 | 76 | | |
| VNB2□□□-15A | 3/4 | 15 | 19 | 0.24 | 4.8 | 140 | 0.9 | 1.0 |
| VNB3□4□-20A | | 14 | 18 | 0.42 | 5.4 | 140 | | |
| VNB3□□□-20A | | 20 | 35 | 0.13 | 7.4 | 270 | | |

VC□

VDW

VQ

VX2

VX□

VX3

VXA

VN□

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

T/
TIL

PA

PAX

PB

JIS Symbol

| Type | Valve type | N.C. | N.O. | C.O. |
|-------------------------|------------|-----------------|---------------|---------------|
| | | Normally closed | Normally open | Double acting |
| Air operated | VNB□□□□ | VNB□□0□ | VNB□□02 | VNB□□03 |
| | | | | |
| | | VNB□□1□ | VNB□□12 | |
| | | | | |
| External pilot solenoid | VNB□□□□ | VNB□□1□ | VNB□□12 | |
| | | | | |

Option Specifications

Vacuum pilot valve VNB□□□□□

(Valve size 2 to 7)

It is used when the valve is to be operated by the main vacuum in the absence of pressurized air.

Valve Specifications

| | |
|--------------------------|----------------------------------|
| Fluid | Vacuum |
| Operating pressure range | -101 kPa to Atmospheric pressure |
| Pilot pressure range | -101 to -47.9 kPa |

| Model | Port size | | Orifice size ϕ (mm) | Flow characteristics | | Weight (kg) | |
|-------------|-----------|-------------------------|--------------------------|----------------------|-----------------------------------|--------------|-------------------------|
| | Rc | Flange ^{Note)} | | Cv | Effective area (mm ²) | Air operated | External pilot solenoid |
| VNB4□4□-25A | 1 | - | 16 | 7 | 130 | 1.4 | 1.5 |
| VNB4□□□-25A | | | 25 | 12 | 220 | | |
| VNB5□4□-32A | 1 1/4 | - | 22 | 11 | 210 | 2.5 | 2.6 |
| VNB5□□□-32A | | | 32 | 18 | 320 | | |
| VNB5□4□-32F | - | 32 | 22 | 11 | 210 | 5.7 | 5.8 |
| VNB5□□□-32F | | | 32 | 18 | 320 | | |
| VNB6□4□-40A | 1 1/2 | - | 28 | 19 | 330 | 4.1 | 4.2 |
| VNB6□□□-40A | | | 40 | 28 | 500 | | |
| VNB6□4□-40F | - | 40 | 28 | 19 | 330 | 7.7 | 7.8 |
| VNB6□□□-40F | | | 40 | 28 | 500 | | |
| VNB7□4□-50A | 2 | - | 33 | 29 | 520 | 6.3 | 6.4 |
| VNB7□□□-50A | | | 50 | 43 | 770 | | |
| VNB7□4□-50F | - | 50 | 33 | 29 | 520 | 11.4 | 11.5 |
| VNB7□□□-50F | | | 50 | 43 | 770 | | |



Note) The flange should be JIS B 2210 10K (ordinary style) or its equivalent.

Valve Specifications

| | | |
|---------------------------|-------------|---|
| Fluid | | Water/Oil/Air/Vacuum, etc. |
| Fluid temperature | VNB□□□□A | -5 to 60°C ⁽¹⁾ |
| | VNB□□□□E | -5 to 99°C ⁽¹⁾ (Water, Oil etc. Air Operated only) |
| Ambient temperature | | -5 to 50°C ⁽¹⁾ (Air operated type: 60°C) |
| Proof pressure | | 1.5 MPa |
| Applicable pressure range | VNB□□□□□ | Low vacuum to 0.5 MPa |
| | VNB□□□□□ | Low vacuum to 1 MPa |
| External pilot air | Pressure | VNB□□□□□ 0.25 to 0.7 MPa |
| | Lubrication | 0.1 + 0.25 x (Operating pressure) to 0.25 + 0.25 x (Operating pressure) MPa ⁽³⁾ Refer to "Graph (1)". |
| | Temperature | Not required (Use turbine oil Class 1 ISO VG32, if lubricated. ⁽²⁾) -5 to 50°C (Air operated type: 60°C) |



Note 1) No freezing

Note 2) Lubrication is not allowed in the case of seal material EPR.

Note 3) Adjust the operating pressure to 0.1 MPa for low vacuum.

JIS Symbol (Vacuum pilot type)

| Type | Valve type | N.C. | N.O. |
|-------------------------|------------|-----------------|---------------|
| | | Normally closed | Normally open |
| Air operated | VNB□□□□□ | VNB□□01□□ | VNB□□02□□ |
| | | | |
| External pilot solenoid | VNB□□□□□ | VNB□□11□□ | VNB□□12□□ |
| | | | |

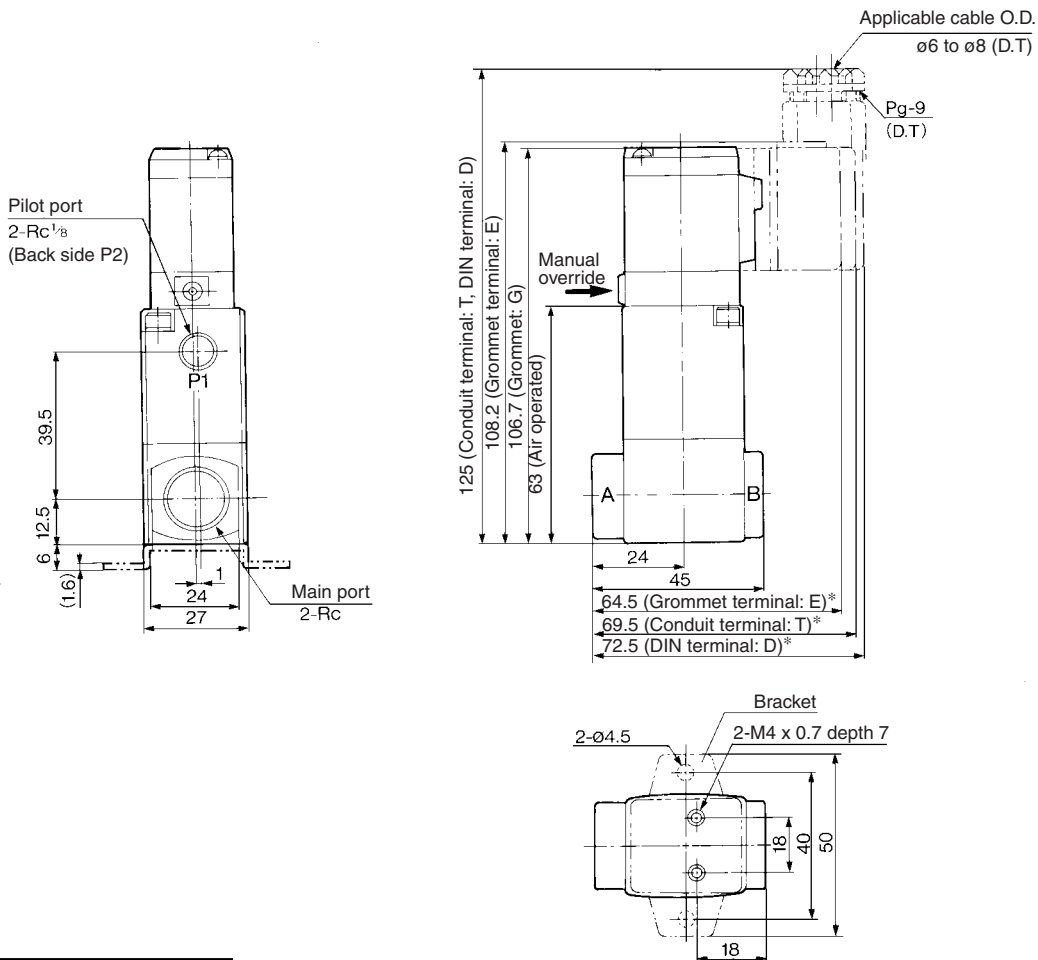
Pilot Solenoid Valve Specifications

| | | | |
|-------------------------------|---------------|---|--|
| Port size | | 6A to 25A | 32A to 50A, 32F to 50F |
| Pilot solenoid valve | | SF4-□□□-23 | V0301□-00 □□□ |
| Electrical entry | | Grommet, Grommet terminal, Conduit terminal, DIN terminal | Grommet, Conduit, DIN terminal, Other (Option) |
| Coil rated voltage (V) | AC (50/60 Hz) | 100 V, 200 V, other voltage (Option) | |
| | DC | 24 V, other voltage (Option) | |
| Allowable voltage fluctuation | | -15% to +10% of rated voltage | |
| Coil insulation type | | Class B or equivalent (130°C) | |
| Temperature rise | | 35°C or less (when rated voltage is applied.) | 70°C or less (when rated voltage is applied.) |
| Apparent power | AC | Inrush | 5.6 VA (50 Hz), 5.0 VA (60 Hz) |
| | DC | 5.6 VA (50 Hz), 5.0 VA (60 Hz) | 12 VA (50 Hz), 10.5 VA (60 Hz) |
| Power consumption | AC | 3.4 VA (50 Hz), 2.3 VA (60 Hz) | 7.5 VA (50 Hz), 6 VA (60 Hz) |
| | DC | 1.8 W | |
| Manual override | | Non-locking push type Other (Option) | Non-locking push type |

Series VNB

Port size 6A, 8A, 10A

Standard



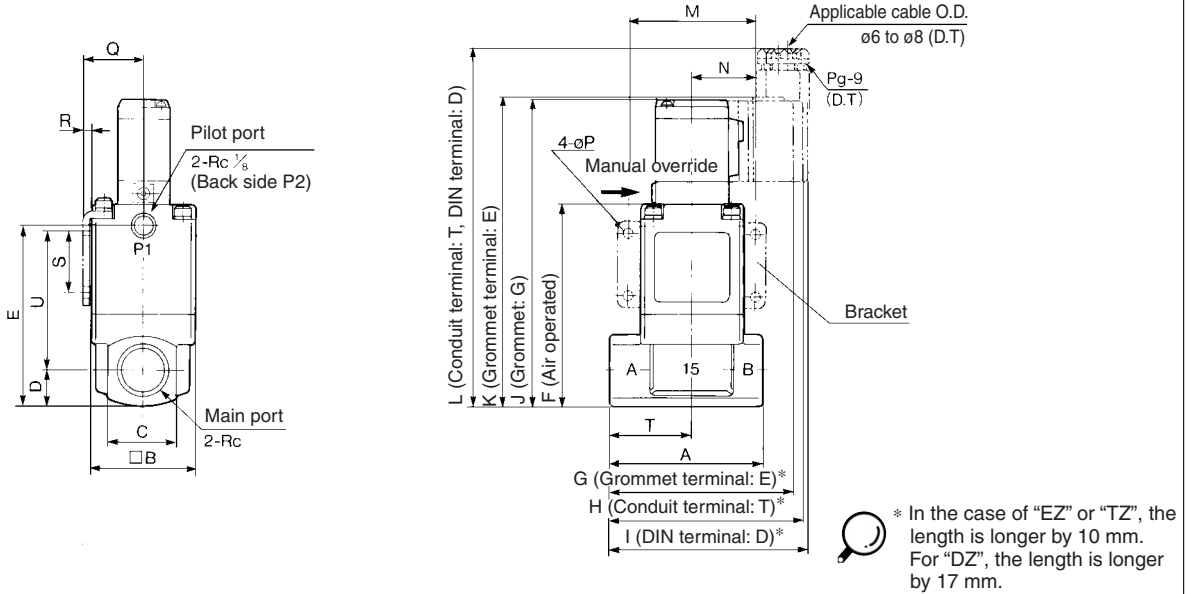
| Model | Main port Rc |
|-------------|--------------|
| VNB1□□□-6A | 1/8 |
| VNB1□□□-8A | 1/4 |
| VNB1□□□-10A | 3/8 |

* In the case of "EZ" or "TZ", the length is longer by 10 mm. For "DZ", the length is longer by 17 mm.

Process Valve: 2 Port Valve For Flow Control Series VNB

Port size 10A, 15A, 20A, 25A

Standard

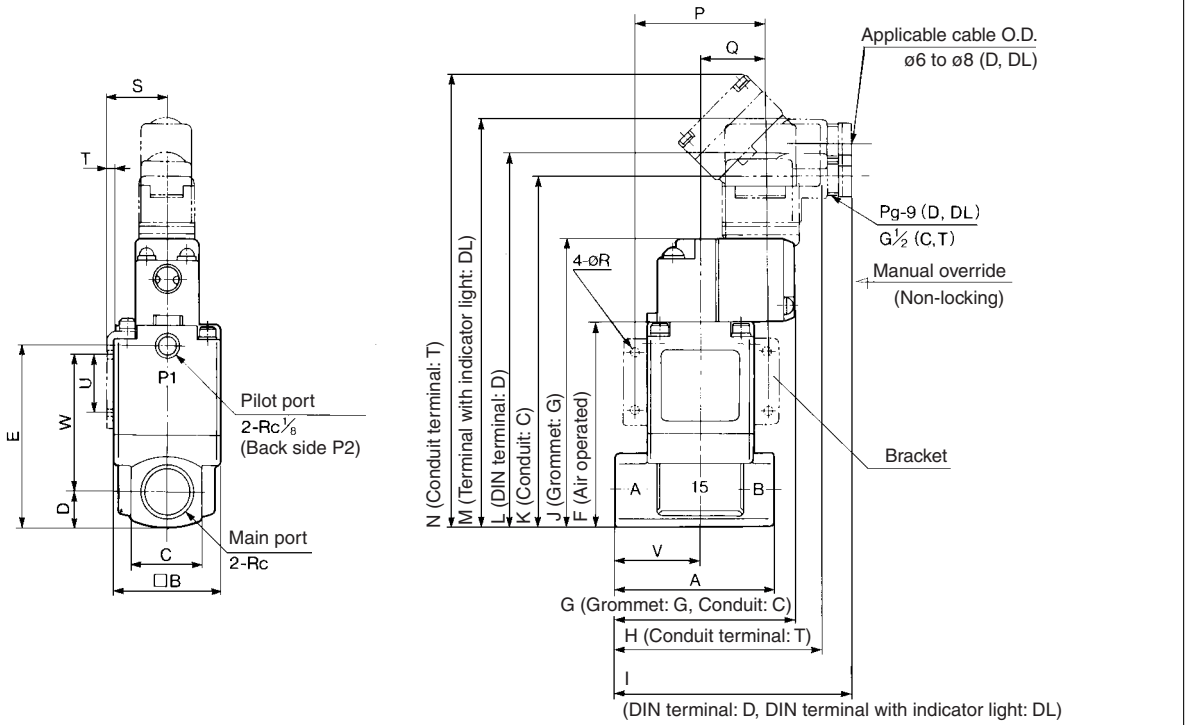


| Model | Main port Rc | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | T | U |
|-------------|--------------|----|----|----|------|------|------|------|------|------|-------|-------|-------|----|----|-----|------|-----|----|----|------|
| VNB2□□□-10A | 3/8 | 63 | 42 | 28 | 14 | 72.5 | 80.5 | 74.5 | 79.5 | 82.5 | 124 | 125.5 | 142.5 | 52 | 26 | 4.5 | 24.3 | 2.3 | 25 | 34 | 55 |
| VNB2□□□-15A | 1/2 | | | | | | | | | | | | | | | | | | | | |
| VNB3□□□-20A | 3/4 | 80 | 50 | 35 | 17.5 | 84 | 92 | 83.5 | 88.5 | 91.5 | 135.5 | 137 | 154 | 62 | 31 | 5.5 | 28.3 | 2.3 | 30 | 43 | 60.5 |
| VNB4□□□-25A | 1 | 90 | 60 | 40 | 20 | 100 | 108 | 89.5 | 94.5 | 97.5 | 151.5 | 153 | 170 | 72 | 36 | 6.5 | 33.3 | 2.3 | 35 | 49 | 73 |

- VC□
- VDW
- VQ
- VX2
- VX□
- VX3
- VXA
- VN□
- LVC
- LVA
- L VH
- LVD
- LVQ
- LQ
- LVN
- TI/TIL
- PA
- PAX
- PB

Port size 10A, 15A, 20A, 25A

Vacuum pilot

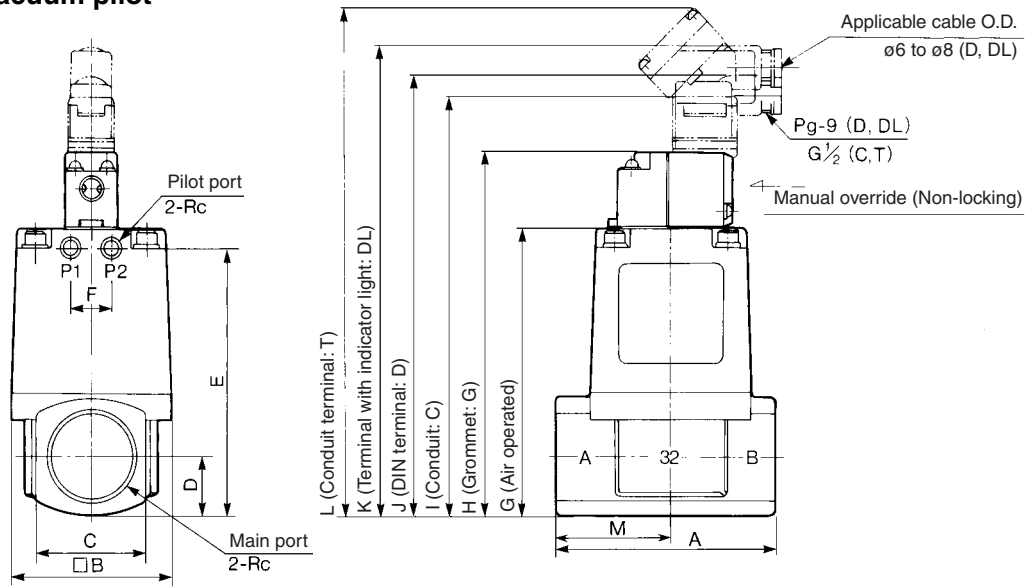


| Model | Main port Rc | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S | T | U | V | W |
|--------------|--------------|----|----|----|------|------|------|----|----|-----|-------|-------|-------|-------|-------|----|----|-----|------|-----|----|----|------|
| VNB2□□□V-10A | 3/8 | 63 | 42 | 28 | 14 | 72.5 | 80.5 | 75 | 87 | 97 | 114 | 126.5 | 170.5 | 173.5 | 180.5 | 52 | 26 | 4.5 | 24.3 | 2.3 | 25 | 34 | 55 |
| VNB2□□□V-15A | 1/2 | | | | | | | | | | | | | | | | | | | | | | |
| VNB3□□□V-20A | 3/4 | 80 | 50 | 35 | 17.5 | 84 | 92 | 80 | 92 | 102 | 125.5 | 138 | 182 | 185 | 192 | 62 | 31 | 5.5 | 28.3 | 2.3 | 30 | 43 | 60.5 |
| VNB4□□□V-25A | 1 | 90 | 60 | 40 | 20 | 100 | 108 | 81 | 93 | 103 | 141.5 | 154 | 198 | 201 | 208 | 72 | 36 | 6.5 | 33.3 | 2.3 | 35 | 49 | 73 |

Series VNB

Port size 32A, 40A, 50A

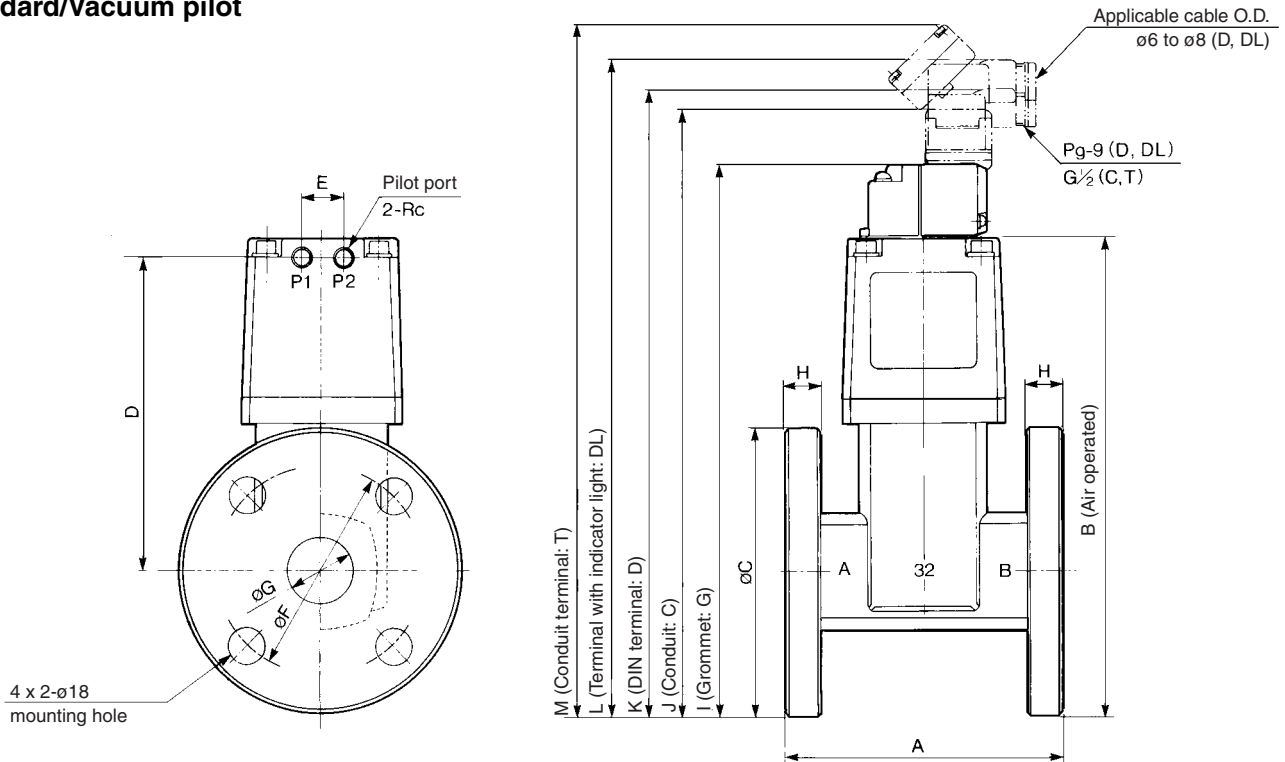
Standard/Vacuum pilot



| Model | Main port Rc | Pilot port Rc | A | B | C | D | E | F | G | H | I | J | K | L | M |
|--------------|--------------|---------------|-----|-----|----|------|-------|----|-------|-------|-------|-------|-------|-------|----|
| VNB5□□□□-32A | 1 1/4 | 1/8 | 105 | 77 | 53 | 26.5 | 120.5 | 20 | 129.5 | 163 | 175.5 | 219.5 | 222.5 | 229.5 | 55 |
| VNB6□□□□-40A | 1 1/2 | 1/4 | 120 | 96 | 60 | 30 | 137 | 24 | 147 | 180.5 | 193 | 237 | 240 | 247 | 63 |
| VNB7□□□□-50A | 2 | 1/4 | 140 | 113 | 74 | 37 | 160 | 24 | 170 | 203.5 | 216 | 260 | 263 | 270 | 74 |

Port size Flange: 32F, 40F, 50F

Standard/Vacuum pilot



| Model | Applicable flange | Pilot port Rc | A | B | C | D | E | F | G | H | I | J | K | L | M |
|--------------|-------------------|---------------|-----|-------|-----|-------|----|-----|----|----|-------|-------|-------|-------|-------|
| VNB5□□□□-32F | 32 | 1/8 | 130 | 210.5 | 135 | 134 | 20 | 100 | 36 | 12 | 244 | 256.5 | 300.5 | 303.5 | 310.5 |
| VNB6□□□□-40F | 40 | 1/4 | 150 | 226 | 140 | 146 | 24 | 105 | 42 | 12 | 259.5 | 272 | 316 | 319 | 326 |
| VNB7□□□□-50F | 50 | 1/4 | 180 | 250 | 155 | 162.5 | 24 | 120 | 54 | 14 | 283.5 | 296 | 340 | 343 | 350 |

⚠ Precautions

Be sure to read before handling.

Refer to page 17-6-3 for Safety Instructions and Solenoid Valve Precautions.

External Pilot

⚠ Caution

Pilot port P1 and P2 piping

Please arrange P1 and P2 piping as follows according to the model.

Standard

| Port | VNB□□ $\frac{1}{4}$ □ | VNB□□02□ | VNB□□03□ | VNB□□1 $\frac{1}{2}$ □ |
|------------|-----------------------|----------------|----------------|------------------------|
| 12 (P1) | External pilot | Bleed port | External pilot | External pilot |
| 10 (P2) | Bleed port | External pilot | External pilot | Pilot exhaust |

Vacuum pilot

| Port | VNB□□01□V | VNB□□02□V | VNB□□1 $\frac{1}{2}$ □V |
|------------|----------------|----------------|-------------------------|
| 12 (P1) | Bleed port | External pilot | External pilot |
| 10 (P2) | External pilot | Bleed port | Pilot exhaust |

Installing a silencer to the exhaust port and the bleed port is recommended for noise reduction and for dust entry prevention.

Mounting Direction of Pilot Solenoid Valve

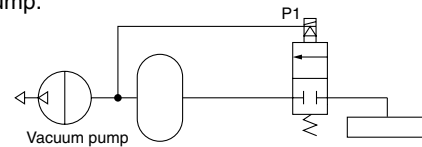
⚠ Caution

When replacing a valve, if an external pilot solenoid valve is mounted in the wrong direction, it may malfunction or leak air.

Vacuum Pilot

⚠ Caution

When using the VNB□□ $\frac{1}{2}$ □V N.C. vacuum pilot, maintain the specified pilot pressure by providing a tank with an appropriate capacity or by acquiring the pilot pressure from an area near the vacuum pump.



Piping

⚠ Caution

When high temperature fluids are used, use fittings and tube with heat resistant features.
(Self-align fittings, Teflon® tubing, Copper piping, etc.)

VC□

VDW

VQ

VX2

VX□

VX3

VXA

VN□

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

TI/
TIL

PA

PAX

PB

Series VNB

Construction

* C.O. type does not have a return spring ⑥.

Working Principle (Vacuum pilot type is excluded)

VNB□□□□, □1□□ (N.C.)
 When the pilot solenoid valve ⑦ is not energized (or when air is exhausted from the P1 port of the air operated type), the valve element ④ linked to the piston ⑤ is closed by the return spring ⑥.

- **When valve opens**
 When the pilot solenoid valve is energized (or when pressurized air enters through the P1 port of the air operated style), the pilot air that has entered under the piston moves upward to open the valve element.
- **When valve closes:**
 When the power to the pilot solenoid valve is turned off (or when fluid is exhausted from the P1 port of the air operated style), the pilot air under the piston is exhausted, and the return spring closes the valve element.

VNB□02□, □12□ (N.O.)
 In contrast with the N.C., when the power to the pilot solenoid valve is turned off (or when air is exhausted from the P2 port of the air operated style), the valve is held open by the return spring. When the pilot solenoid valve is energized (or when pressurized air enters through the P2 port of the air operated style), the valve element closes.

VNB□03□ (C.O.)
 The valve element for the C.O. type, which has no return spring, is in an arbitrary position when air is exhausted through the P1 and P2 ports. When pressurized air enters the P1 port (exhaust from the P2 port), the valve element opens, and it closes when pressurized air enters the P2 port (exhaust from the P1 port).

Component Parts

| No. | Description | Material | Note |
|-----|----------------------|--------------------------------|--------------------------------|
| ① | Body | Bronze* | Clear coated |
| ② | Cover assembly | Aluminum alloy | Platinum silver painted |
| ③ | Plate assembly | Brass* | Valve material (NBR, FKM, EPR) |
| ④ | Valve element | Valve material (NBR, FKM, EPR) | Stainless steel or brass* |
| ⑤ | Piston assembly | Aluminum alloy | — |
| ⑥ | Return spring | Piano wire | — |
| ⑦ | Pilot solenoid valve | — | — |

Note) Parts ③ and ④ are for selection of valve composition.
 * The body option "S" is stainless steel, and "L" is aluminum.

Part no.

| No. | Description | Part no. | | | | | | | | | | | |
|--|----------------------|---------------------------------------|----------------------|-----------------|-----------------|----------------------|----------------------|--|-----------------------|----------------------|----------------------|------------|--|
| | | VNB1□□□ -6A, 8A, 10A | VNB2□□□ -10A, 15A | VNB3□□□ -20A | VNB4□□□ -25A | VNB5□□□ -32A, 32F | VNB5□4□ -32A, 32F | VNB6□□□ -40A, 40F | VNB6□4□ -40A, -40F | VNB7□□□ -50A, 50F | VNB7□4□ -50A, 50F | | |
| Note) ③ Plate assembly | Valve material | NBR | VN1-A3BA | VN2-A3BA | VN3-A3BA | VN4-A3BA | VN5-A3BA | VN5-A3BA | VN6-A3BA | VN6-A3BA | VN7-A3BA | VN7-A3BA | |
| | | FPM | VN1-A3BB | VN2-A3BB | VN3-A3BB | VN4-A3BB | VN5-A3BB | VN5-A3BB | VN6-A3BB | VN6-A3BB | VN7-A3BB | VN7-A3BB | |
| | | EPR | VN1-A3BC | VN2-A3BC | VN3-A3BC | VN4-A3BC | VN5-A3BC | VN5-A3BC | VN6-A3BC | VN6-A3BC | VN7-A3BC | VN7-A3BC | |
| Note) ④ Valve element <small>(32° to 50° come in valve element assembly)</small> | Valve material | NBR | VN1-4BA | VN2-4BA | VN3-4BA | VN4-4BA | VN5-A4BA | VN5-A4BA-3 | VN6-A4BA | VN6-A4BA-3 | VN7-A4BA | VN7-A4BA-3 | |
| | | FPM | VN1-4BB | VN2-4BB | VN3-4BB | VN4-4BB | VN5-A4BB | VN5-A4BB-3 | VN6-A4BB | VN6-A4BB-3 | VN7-A4BB | VN7-A4BB-3 | |
| | | EPR | VN1-4BC | VN2-4BC | VN3-4BC | VN4-4BC | VN5-A4BC | VN5-A4BC-3 | VN6-A4BC | VN6-A4BC-3 | VN7-A4BC | VN7-A4BC-3 | |
| ⑦ | Pilot solenoid valve | SF4□□□-23 (Refer to the table below.) | | | | | | VO301□-00□□□ (Refer to the table below.) | | | | | |

Note) In the case of body options "S" and "L", the materials of the part nos. ③ and ④ are as follows: (Example): VN1-A3B□L
 However all brackets of valve element VNB 1 to 4 are made of stainless steel. (No need to add options "S" and "L.") L: Aluminum, S: Stainless steel

How to Order Pilot Solenoid Valves

Valve size 1/2/3/4

SF4 — 1 DZ — 23

Coil 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
- 7* — 240 VAC 50/60 Hz
- 9* — Other

* Option

Manual override

- Nil — Non-locking push type
- A* — Non-locking extended type
- B* — Locking slotted type

* Option

Electrical entry/With indicator light/surge voltage suppressor

| | |
|----|--|
| G | Grommet |
| GS | Grommet with surge voltage suppressor |
| E | Grommet terminal |
| EZ | Grommet terminal with light/surge voltage suppressor |
| T | Conduit terminal |
| TZ | Conduit terminal with light/surge voltage suppressor |
| D | DIN terminal |
| DZ | DIN terminal with light/surge voltage suppressor |

Valve size 5/6/7

VO301 — 00 — — —

Body option

- Nil — Standard
- V — Vacuum pilot

Coil 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
- 7* — 240 VAC 50/60 Hz
- 9* — Other

* Option

With surge voltage suppressor

- Nil — None
- S — Surge voltage suppressor (Except "DL")

Electrical entry

- G — Grommet
- C — Conduit
- T (Note) — Conduit terminal
- D — DIN terminal
- DL* — DIN terminal with indicator light

* Option

Note) When the electrical entry is T, the pilot solenoid valve parts are as follows:
 VO301□-00□□□-X302

Coil rated voltage — Light/Surge voltage suppressor

Accessory
 Function plate (D sealing, with thread) : DXT060-32-4A