

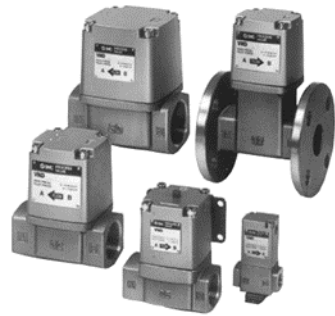


ORIGINAL INSTRUCTIONS

Instruction Manual

56-VND Series

Air operated 2-port valve for steam



For valve ISO symbols see section 2.3.

Ex classification

II 3 G Ex h IIB T3 Gc -5°C ≤ Ta ≤ +60°C

Certificate reference: SMC 19.0004 X
For special conditions of use see section 1.2.

The intended use of this product is to control (ON or OFF) the flow of steam in industrial steam lines.

1 Safety Instructions

1.1 General safety

Be sure to read the "Handling Precautions for SMC Products", "Product Catalogue" and the "Operation Manual" on the SMC website before handling this product.

<https://www.smcworld.com/pl/en-ip> <https://www.smc.eu/en-eu/safety-instructions>

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), and other safety regulations.

| | |
|----------------|--|
| Caution | Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury. |
| Warning | Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury. |
| Danger | Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury. |

Warning

- Always ensure compliance with relevant safety laws and standards.
- All work must be carried out in a safe manner by a qualified person in compliance with applicable national regulations.

1.2 Special conditions of use

Warning

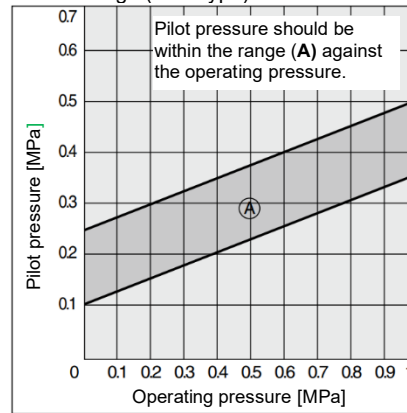
- The product shall be protected from impacts in compliance with the applicable explosive atmosphere standards.
- To avoid the build-up of electrostatic charge, do not mount in areas subject to electrostatic charging mechanisms and clean only with a damp cloth and allow to dry naturally.
- Exhaust ports, P2 (N.C.), P1 (N.O.) to be piped outside of Ex zone.

2 Specifications

2.1 Valve specifications

| | | | |
|-----------------------------|--|-----------------------------|---|
| Fluid | Steam | | |
| Proof pressure [MPa] | 1.5 | | |
| Operating pressure [MPa] | 0 to 0.97 | | |
| External pilot air | Pressure [MPa] | N.C. | 0.3 to 0.7 |
| | | N.O. | 0.1 + 0.25 x (operating pressure) to 0.25 + 0.25 x (operating pressure). See chart ^{Note 1)} |
| | Lubrication | Not required | |
| | Temperature [°C] | -5 to 60 ^{Note 2)} | |
| | Filtration [µm] | 5 or less | |
| Fluid temperature [°C] | -5 to 180 ^{Note 2)} | | |
| Ambient temperature [°C] | -5 to 60 ^{Note 2)} | | |
| Flow characteristics | See catalogue for standard VND series. | | |
| Dimensions | See catalogue for standard VND series. | | |
| Materials | See catalogue for standard VND series. | | |
| Weight | See catalogue for standard VND series. | | |
| Mounting orientation | Unrestricted | | |
| Minimum operating frequency | Once every 30 days | | |

Note 1) Pilot pressure range (N.O. type)



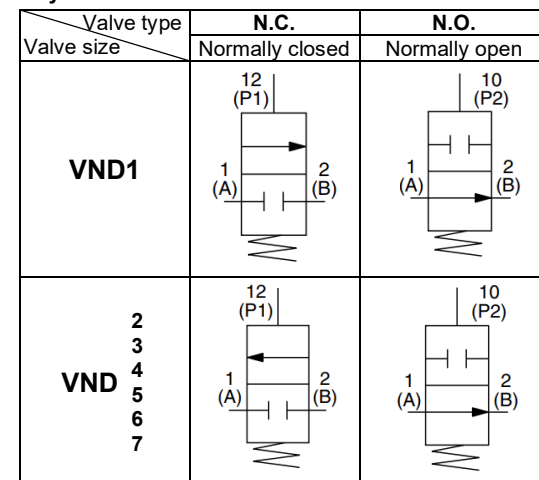
Note 2) No freezing.

2.2 Production batch codes

| Construction Year / Month | Production batch codes | | | | | | | | | | | |
|---------------------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 2021 | Zo | ZP | ZQ | ZR | ZS | ZT | ZU | ZV | ZW | ZX | Zy | ZZ |
| 2022 | Ao | AP | AQ | AR | AS | AT | AU | AV | AW | AX | Ay | AZ |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 2026 | Eo | EP | EQ | ER | ES | ET | EU | EV | EW | EX | Ey | EZ |

Note: The batch code is included on the product label.

2.3 ISO Symbols



3 Installation

Warning

- Do not install the product unless the safety instructions have been read and understood.
- Do not install in areas subject to electrostatic charging mechanisms.

3 Installation - continued

3.1 Environment

Warning

- Do not use in an environment where corrosive gases, chemicals, salt water or steam are present.
- Do not expose to direct sunlight. Use a suitable protective cover.
- Do not install in a location subject to vibration or impact exceeding the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures exceeding the product's specifications.

3.2 Lubrication

Caution

- SMC products have been lubricated for life at manufacture, and do not require lubrication in service.
- If a lubricant is used in the system, refer to catalogue for details.

3.3 Pilot air supply

Warning

- Use clean air. If the compressed air supply includes chemicals, synthetic materials (including organic solvents), salinity, corrosive gas etc., it can lead to damage or malfunction.

Caution

- Install an air filter upstream of the valve. Select an air filter with a filtration size of 5 µm or smaller.

3.4 Piping

Warning

- Exhaust ports, P2 (N.C.), P1 (N.O.) to be piped outside of Ex zone.

Caution

- Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil, and other debris from inside the pipe.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave sufficient space at

the end of the thread to ensure that sealing tape does not enter the product.

- For details regarding pipe sizes, please refer to the catalogue for the standard VND Series.
- Tighten fittings to the specified tightening torque.

| Connection thread | Tightening torques [N·m] |
|-------------------|--------------------------|
| 1/8 | 7 to 9 |
| 1/4 | 12 to 14 |
| 3/8 | 22 to 24 |
| 1/2 | 28 to 30 |
| 3/4 | 28 to 30 |
| 1 | 36 to 38 |
| 1 1/4 | 40 to 42 |
| 1 1/2 | 48 to 50 |
| 2 | 48 to 50 |

- Pilot port 12(P1) and 10(P2) piping
Depending on the valve model, P1 and P2 piping should be as follows:

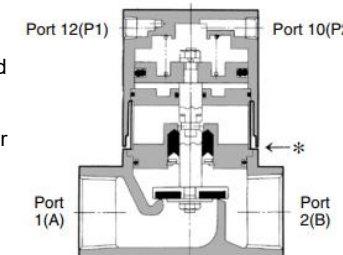
| Port | VND#0(0, 4)D | VND#02D | Connection thread |
|---------|----------------|----------------|-------------------|
| 12 (P1) | External pilot | Bleed port | VND(1-5)0#: 1/8" |
| 10 (P2) | Bleed port | External pilot | VND(6,7)0#: 1/4" |

- Use only piping and fittings suitable for use with high temperature fluids (Self-align fittings, PTFE tubing or Copper piping, etc.).

3.5 Air circulation gap

Caution

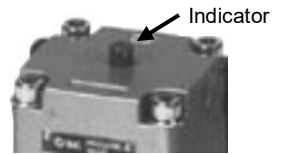
* There is a gap of approximately 1 mm between the valve body and cover. This gap should not be covered as it allows for the circulation of air to the inner chamber due to fluctuations in temperature and pressure.



4 Settings

4.1 Mechanical indicator

Valves with mechanical indicator give visual indication of when the valve is open.



5 How to Order

Refer to 56-VND online catalogue for 'How to Order'.

6 Outline Dimensions

As the dimensions of the 56-VND series are identical to the standard VND series, please refer to the on-line catalogue for the standard VND series.

7 Maintenance

7.1 General maintenance

Caution

- Not following proper maintenance procedures could cause the product to malfunction and lead to equipment damage.
- If handled improperly, compressed air can be dangerous.
- Maintenance of pneumatic systems should be performed only by qualified personnel.
- Before performing maintenance, turn off the power supply and be sure to cut off the supply pressure. Confirm that the air is released to atmosphere.
- After installation and maintenance, apply operating pressure and power to the equipment, and perform appropriate functional and leakage tests to ensure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and that safety checks are carried out as required to maintain compliance with applicable national regulations.
- Do not make any modification to the product.
- Do not disassemble the product, unless required by installation or maintenance instructions.

8 Limitations of Use

8.1 Limited warranty and disclaimer/compliance requirements

Refer to Handling Precautions for SMC Products.

Warning

- Refer to the Ex classification for the product.
- Refer to the 'Special conditions of use', section 1.2.

9 Product Disposal

This product shall not be disposed of as municipal waste. Check your local regulations and guidelines to dispose of this product correctly, in order to reduce the impact on human health and the environment.

10 Support / Importer / Manufacturer

Support: Please contact your distributor or importer in the country of purchase if you need assistance.

Importer: Address of importer in the country of purchase is listed at <https://www.smc.eu/en-eu/worldwide-addresses>

Manufacturer:
SMC Corporation

URL: <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)
SMC Corporation, 1-5-5, Kyobashi, Chuo-ku, Tokyo 104-0031, Japan
Specifications are subject to change without prior notice from the manufacturer.
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