

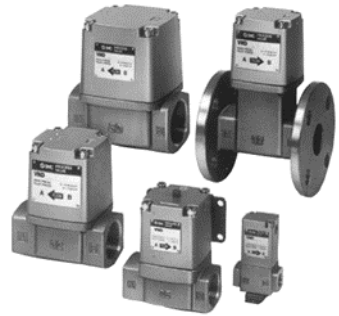


ORIGINAL INSTRUCTIONS

Instruction Manual

56-VND Series

Air operated 2-port valve for steam



For valve ISO symbols see section 2.3.

Ex classificationII 3 G Ex h IIB T3 Gc $-5^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ 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**

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)⁽¹⁾, and other safety regulations.⁽¹⁾ ISO 4414: Pneumatic fluid power - General rules relating to systems.
ISO 4413: Hydraulic fluid power - General rules relating to systems.
IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.

- Refer to product catalogue, Operation Manual and Handling Precautions for SMC Products for additional information.
- Keep this manual in a safe place for future reference.

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.

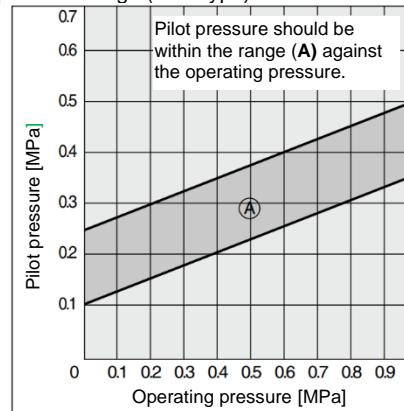
1.2 Special conditions of use**Warning**

- 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			
Materials			
Weight		Unrestricted	
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

Valve type / Valve size	N.C.		N.O.	
	Normally closed	Normally open	Normally closed	Normally open
VND1				
VND 2, 3, 4, 5, 6, 7				

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 in excess of the product's specifications.
- Do not mount in a location exposed to radiant heat that would result in temperatures in excess of 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 connecting piping make sure to clean up chips, cutting oil, dust etc.
- When installing piping or fittings, ensure sealant material does not enter inside the port. When using seal tape, leave 1.5 to 2 threads exposed on the end of the pipe/fitting.

- 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

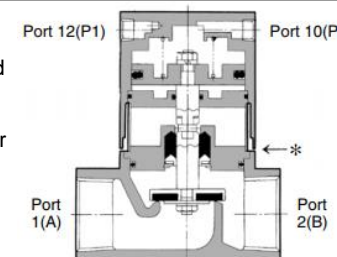
- Pilot port 12(P1) and 10(P2) piping
Depending on the valve model, P1 and P2 piping should be as follows:

Port	VND#0(0, 4)D	VND#02D	Connection thread
12 (P1)	External pilot	Bleed port	1/8
10 (P2)	Bleed port	External pilot	

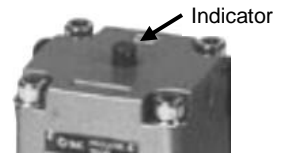
- Use only piping and fittings suitable for use with high temperature fluids (Self-align fittings, PTFE tubing or Copper piping, etc.).

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 the 56-VND catalogue located on the SMC website.

6 Outline Dimensions

As the dimensions of the 56-VND series are identical to the standard VND series, please refer to the 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 make sure the equipment is installed correctly.
- If any electrical connections are disturbed during maintenance, ensure they are reconnected correctly and safety checks are carried out as required to ensure continued 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 this product correctly, in order to reduce the impact on human health and the environment.

10 ContactsRefer to www.smcworld.com or www.smc.eu for your local distributor/importer.**SMC Corporation**

URL : <https://www.smcworld.com> (Global) <https://www.smc.eu> (Europe)
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