

Steam Valve

VND Series

2 Port Valve for Steam

2 Port Valve for Steam Max. **180°C**

**By adopting of PTFE seal,
the valve is suited for steam.**

Body material: Bronze, Stainless steel

Large valve capacity

Wide variations

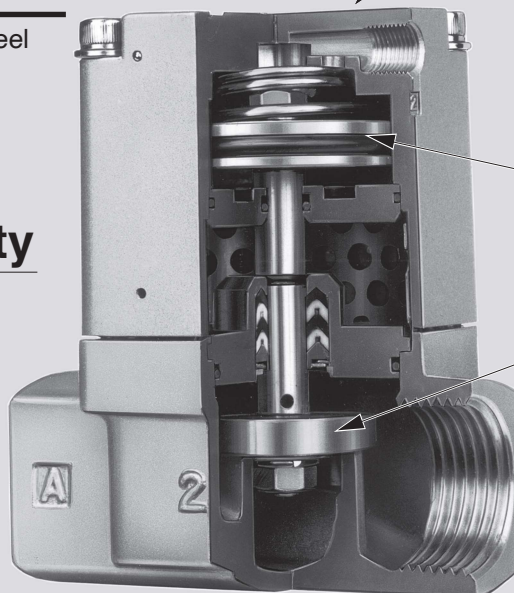
2 types — N.C., N.O.
Threaded type (6A to 50A)

With indicator (Option)

Selectable with indicator (for visual
verification of operation)

**Cylinder actuation
by external pilot air**

PTFE seal



Steam Valve: 2 Port Valve For Steam

VND Series

How to Order

Air operated VND 2 0 D S - 15A -

Body option

—	Standard (Copper alloy)
S*	Stainless steel body

* Threaded type only

Thread type

—	Rc
F	G*
N	NPT
T	NPTF

* For connection, prepare a fitting compliant with ISO 16030 and JIS B 8674.

Option

—	None
B*	With bracket
L	With indicator (visual verification of operation)
BL*	With bracket and indicator (visual verification of operation)

* Brackets (for valve size 1/2/3/4 only) will be assembled at the time of shipment. Bracket part no.
Valve size 1: VN1-A16#1 (with thread)
Valve size 2 to 4: VN□-16#1

Valve size

Symbol	Orifice dia. (mm)	Symbol			Symbol	Port size Rc
		0 N.C.	2 N.O.	4 N.C.		
1	ø7	—	●	●	6A	1/8
		—	●	●	8A	1/4
		—	●	●	10A	3/8
2	ø15	●	●	—	10A	3/8
		●	●	—	15A	1/2
3	ø20	●	●	—	20A	3/4
4	ø25	●	●	—	25A	1
5	ø32	●	●	—	32A	1 1/4
6	ø40	●	●	—	40A	1 1/2
7	ø50	●	●	—	50A	2

Valve type

Port size

2 to 4

VND Series



Model

Model	Port size	Orifice dia. ø (mm)	Flow rate characteristics		Weight (kg)
	Rc		Kv	Conversion Cv	
VND10□D-6A	1/8	7	0.9	1.1	0.3
VND10□D-8A	1/4		1.0	1.2	
VND10□D-10A	3/8		1.1	1.3	
VND20□D-10A	1/2	15	4.3	5.0	0.6
VND20□D-15A	3/4		4.6	5.4	
VND30□D-20A	1	20	8.6	9.9	0.9
VND40□D-25A	1 1/4	25	13.6	16	1.4
VND50□D-32A	1 1/2	32	15.7	18	2.3
VND60□D-40A	2	40	32.9	38	3.6
VND70□D-50A		50	53.6	62	5.7

Valve Specifications

Fluid (Main piping)			Steam
Fluid temperature			-5 to 180°C ^{Note 1)}
Ambient temperature			-5 to 60°C ^{Note 1)}
Proof pressure			1.5 MPa
Operating pressure range			0 to 0.97 MPa
External pilot air	Pressure	N.C.	0.3 to 0.7 MPa
		N.O.	0.1 + 0.25 x (Operating pressure) to 0.25 + 0.25 x (Operating pressure) MPa Refer to below “Graph (1)”.
	Lubrication		Not required
	Temperature		-5 to 60°C ^{Note 1)}
Mounting orientation			Unrestricted

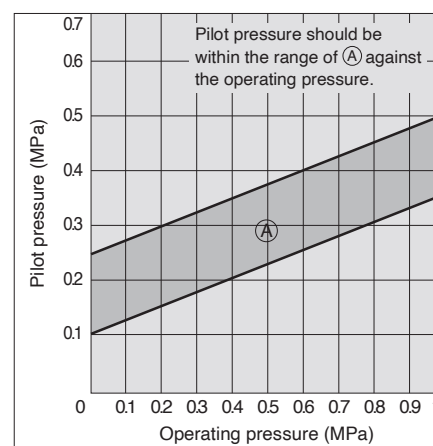
Note 1) No freezing

Note 2) Non-lubricant specifications are not available for this product.

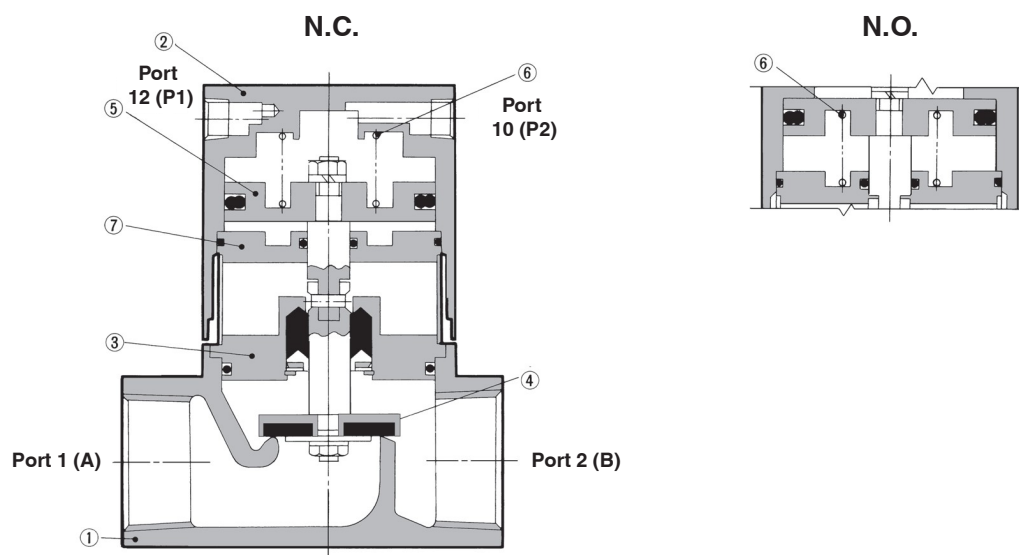
Symbol

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

Graph (1) VND□ 02 D Pilot Pressure (N.O. type)



Construction



Component Parts

No.	Description	Material	Note
1	Body	Bronze*	Clear coated
2	Cover assembly	Aluminum alloy	Platinum silver painted
3	Plate assembly	Brass*	PTFE, EPDM, FKM
4	Valve element	Brass*, PTFE	—
5	Piston assembly	Aluminum alloy	—
6	Return spring	Piano wire	—
7	Second plate assembly	Aluminum alloy	—

* Body option S is made of stainless steel.

Working Principle

VND□0□□ (N.C.)

When fluid is exhausted from the port 12(P1), the valve (4) connected with the piston (5) is closed by the return spring (6).

• When valve opens

When pressurized air enters through the port 12(P1), the valve piston moves upward by the pilot air that enters below the piston and the valve element opens.

• When valve closes

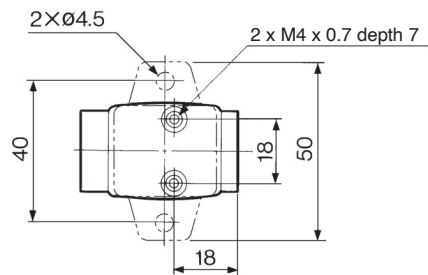
When fluid is exhausted from the port 12(P1), the pilot air below the piston is exhausted and the valve element is closed by the return spring.

VND□02□ (N.O.)

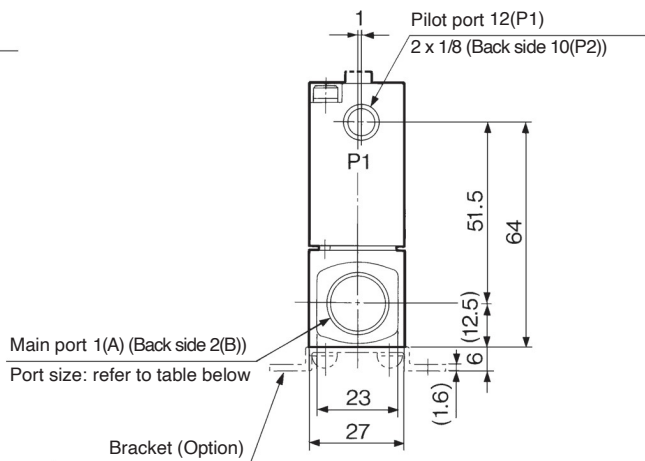
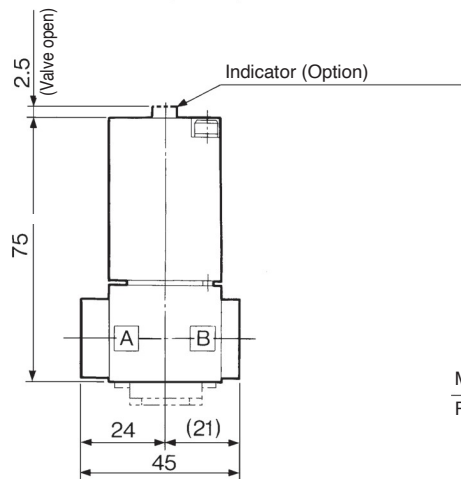
In contrast with the N.C., when air is exhausted from the port 10(P2), the return spring opens the valve element. Pressurized air that enters through the port 10(P2) closes the valve element.

VND Series

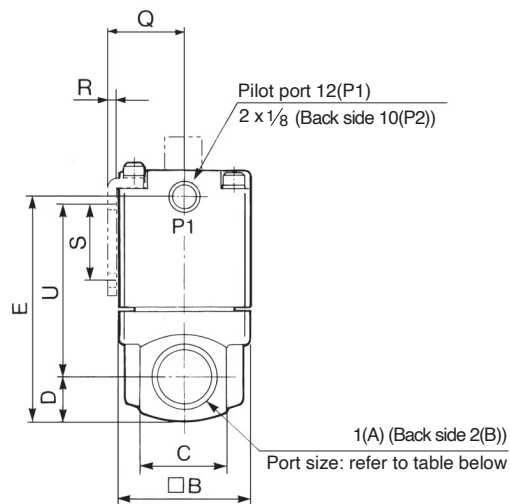
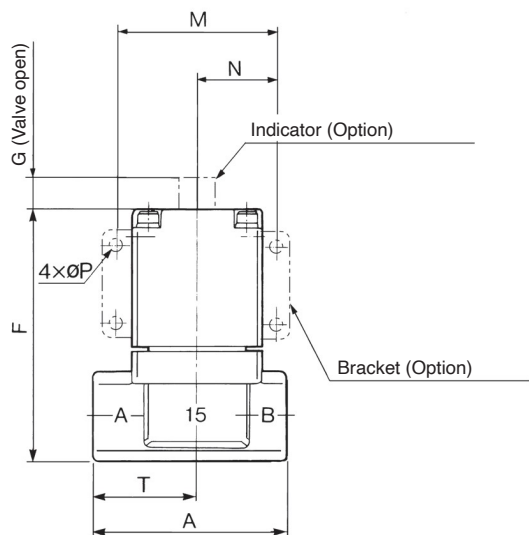
Port size: 6A, 8A, 10A



Model	Main port 1(A), 2(B)
VND10□D-6A	1/8
VND10□D-8A	1/4
VND10□D-10A	3/8

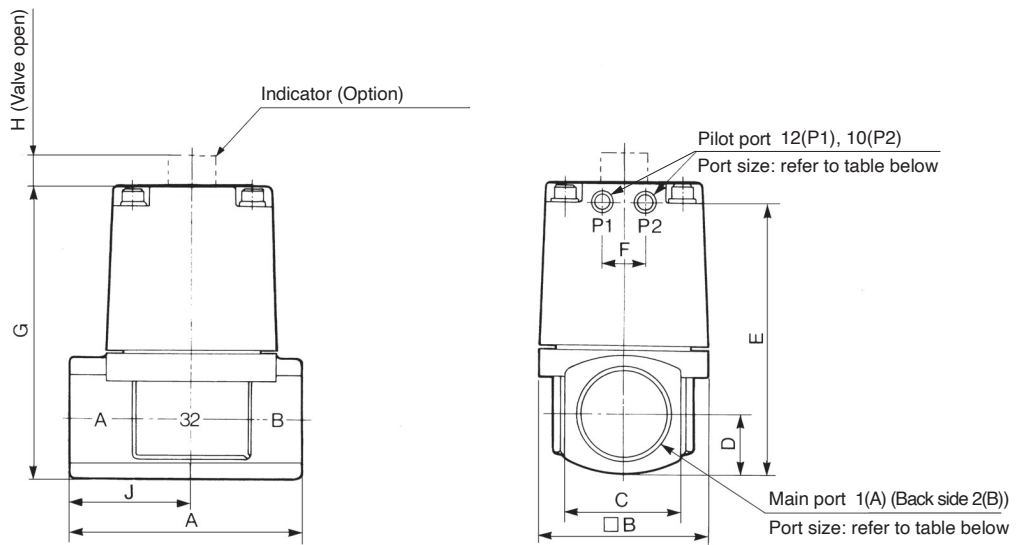


Port size: 10A, 15A, 20A, 25A



Model	Main port 1(A), 2(B)	A	B	C	D	E	F	G	M	N	P	Q	R	S	T	U
VND20□D-10A	3/8	63	42	29	14.5	73.5	81.5	4	52	26	4.5	24.3	2.3	25	34	56
VND20□S-10A				28	14											56.5
VND20□D-15A	1/2			29	14.5											56
VND20□S-15A				28	14											56.5
VND30□D-20A	3/4	80	50	35	17.5	85	93	5	62	31	5.5	28.3	2.3	30	43	61.5
VND30□S-20A																
VND40□D-25A	1	90	60	40	20	101	109	6	72	36	6.5	33.3	2.3	35	49	76
VND40□S-25A																

Port size: 32A, 40A, 50A



Model	Main port 1(A), 2(B)	Pilot port 12(P1), 10(P2)	A	B	C	D	E	F	G	H	J
VND50□D-32A	1 1/4	1/8	105	77	53	26.5	121.5	20	130.5	8	55
VND60□D-40A	1 1/2	1/4	120	96	60	30	138	24	148	10	63
VND70□D-50A	2	1/4	140	113	74	37	161	24	171	12	74



VND Series

Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. Refer to the “Handling Precautions for SMC Products” on the SMC website: <https://www.smc.eu>

External Pilot

⚠ Caution

Pilot port 12(P1) and 10(P2) piping

P1 and P2 piping should be as follows according to the model.

Port	VND□O□D	VND□O2D
12(P1)	External pilot	Bleed port
10(P2)	Bleed port	External pilot

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

Piping

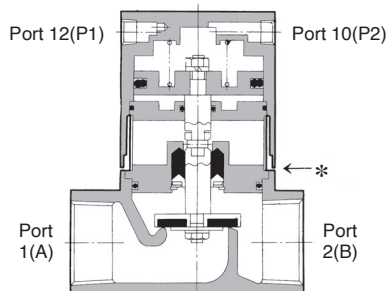
⚠ Caution

To use the piping with a high temperature fluid, use heat resistant fittings and tubing (Self-align fittings, PTFE tubing or Copper piping, etc.).

Adiabatic Space

⚠ Caution

There is a space between body and cover (*: approximate 1 mm) for adiabatic effect.



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) ¹⁾, and other safety regulations.

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

- 1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.
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.
etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments.

Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. ²⁾ Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
 2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
 3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.
- 2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

SMC Corporation (Europe)

Austria	+43 (0)2262622800	www.smc.at	office.at@smc.com
Belgium	+32 (0)33551464	www.smc.be	info@smc.be
Bulgaria	+359 (0)2807670	www.smc.bg	sales.bg@smc.com
Croatia	+385 (0)13707288	www.smc.hr	sales.hr@smc.com
Czech Republic	+420 541424611	www.smc.cz	office.at@smc.com
Denmark	+45 70252900	www.smc.dk	smc.dk@smc.com
Estonia	+372 651 0370	www.smc.ee	info.ee@smc.com
Finland	+358 207513513	www.smc.fi	smc.fi@smc.com
France	+33 (0)164761000	www.smc-france.fr	supportclient.fr@smc.com
Germany	+49 (0)61034020	www.smc.de	info.de@smc.com
Greece	+30 210 2717265	www.smc.hellas.gr	sales@smchellas.gr
Hungary	+36 23513000	www.smc.hu	office.hu@smc.com
Ireland	+353 (0)14039000	www.smcautomation.ie	technical.ie@smc.com
Italy	+39 03990691	www.smcitalia.it	mailbox.it@smc.com
Latvia	+371 67817700	www.smc.lv	info.lv@smc.com

Lithuania	+370 5 2308118	www.smolt.lt	info.lt@smc.com
Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Norway	+47 67129020	www.smc-norge.no	post.no@smc.com
Poland	+48 22 344 40 00	www.smc.pl	office.pl@smc.com
Portugal	+351 214724500	www.smc.eu	apoiocliente.pt@smc.com
Romania	+40 213205111	www.smcromania.ro	office.ro@smc.com
Russia	+7 (812)3036600	www.smc.eu	sales@smcru.com
Slovakia	+421 (0)413213212	www.smc.sk	sales.sk@smc.com
Slovenia	+386 (0)73885412	www.smc.si	office.si@smc.com
Spain	+34 945184100	www.smc.eu	post.es@smc.com
Sweden	+46 (0)86031240	www.smc.nu	order.se@smc.com
Switzerland	+41 (0)523963131	www.smc.ch	helpcenter.ch@smc.com
Turkey	+90 212 489 0 440	www.smcturkey.com.tr	satis.tr@smc.com
UK	+44 (0)845 121 5122	www.smc.uk	sales.gb@smc.com
South Africa	+27 10 900 1233	www.smcza.co.za	Sales.za@smc.com