

# 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)

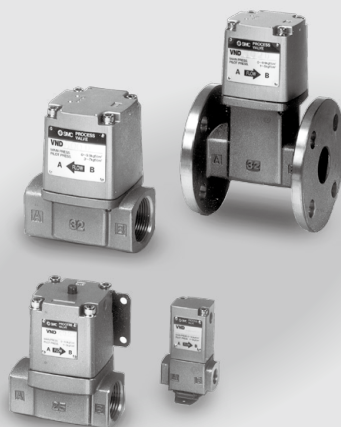
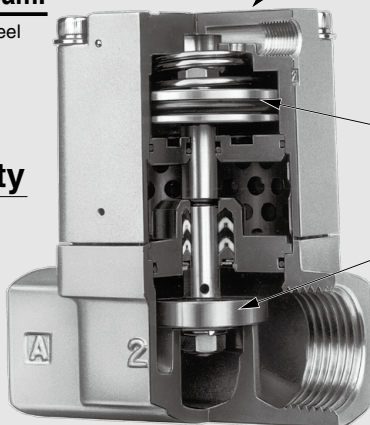
Flange type (32F to 50F)

**With indicator (Option)**

Selectable with indicator (for visual verification of operation)

**Cylinder actuation  
by external pilot air**

**PTFE seal**



VNA

VNB

SGC

SGH

VNC

VNH

**VND**

VCC

TQ

# Steam Valve: 2 Port Valve For Steam

# VND Series

## How to Order

Body option		Thread type	
Nil	Standard (Copper alloy)	Nil	Rc
S*	Stainless steel body	F	G*
		N	NPT
		T	NPTF

\* Threaded type only

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

Air operated

VND **2** **0** **D** **S** - **15A** -

### Option

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

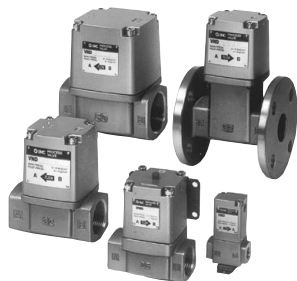
\* Brackets (for valve size 1/2/3/4 only) will be assembled at the time of shipment. Bracket part no.  
Valve size 1: VN1-A16#1 (with thread)  
Valve size 2 to 4: VN□-16#1

Valve size      Valve type      Port 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
		●	●	—	20A	3/4
4	ø25	●	●	—	25A	1
		●	●	—	32A	1 1/4
		●	●	—	32F	1/4 B Flange
6	ø40	●	●	—	40A	1 1/2
		●	●	—	40F	1/2 B Flange
		●	●	—	50A	2
7	ø50	●	●	—	50F	2B Flange
		●	●	—		

↑ 2 to 4

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## Model

Model	Port size		Orifice dia. ø (mm)	Flow rate characteristics		Weight (kg)
	Rc	Flange <sup>Note)</sup>		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	—	—	15	4.3	5.0	0.6
VND20□D-15A	1/2	—		4.6	5.4	
VND30□D-20A	3/4	—		8.6	9.9	
VND40□D-25A	1	—	25	13.6	16	1.4
VND50□D-32A	1 1/4	—		32	15.7	
VND50□D-32F	—	32	40		32.9	38
VND60□D-40A	1 1/2	—		40		
VND60□D-40F	—	40	50		53.6	62
VND70□D-50A	2	—		50		
VND70□D-50F	—	50				

Note) The companion flange is JIS B 2210 10K (standard) or its equivalent.

## Valve Specifications

<b>Fluid (Main piping)</b>		Steam	
<b>Fluid temperature</b>		-5 to 180°C <sup>Note 1)</sup>	
<b>Ambient temperature</b>		-5 to 60°C <sup>Note 1)</sup>	
<b>Proof pressure</b>		1.5 MPa	
<b>Operating pressure range</b>		0 to 0.97 MPa	
<b>External pilot air</b>	<b>Pressure</b>	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)".
	<b>Lubrication</b>	Not required	
	<b>Temperature</b>	-5 to 60°C <sup>Note 1)</sup>	
<b>Mounting orientation</b>		Unrestricted	

Note 1) No freezing

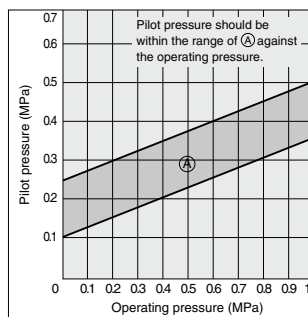
Note 2) Non-lubricant specifications are not available for this product.

## Symbol

Valve size	Valve type	N.C.	N.O.
		Normally closed	Normally open
VND1			
VND			

## Graph (1)

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



VNA

VNB

SGC

SGH

VNC

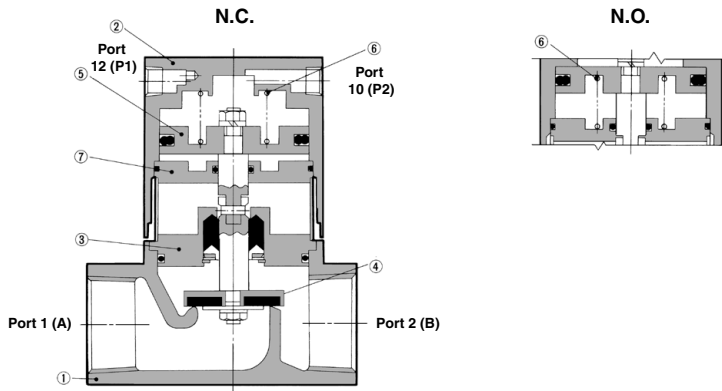
VNH

VND

VCC

TQ

## 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.

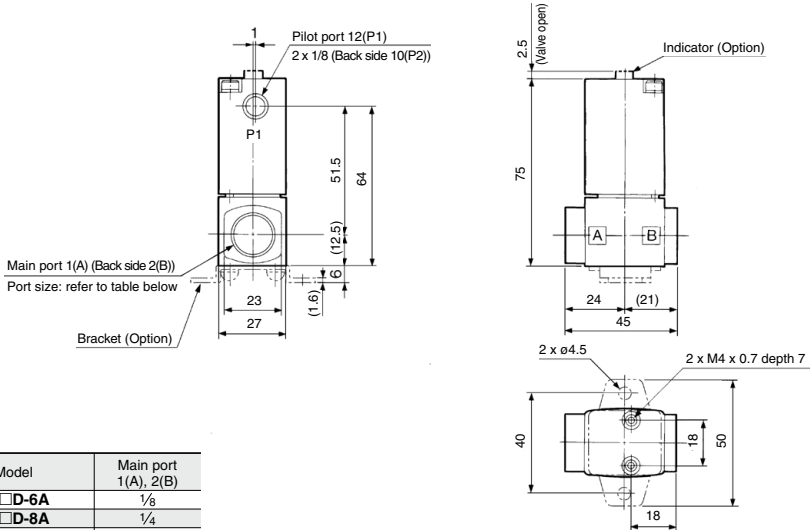
#### • When valve closes

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.)

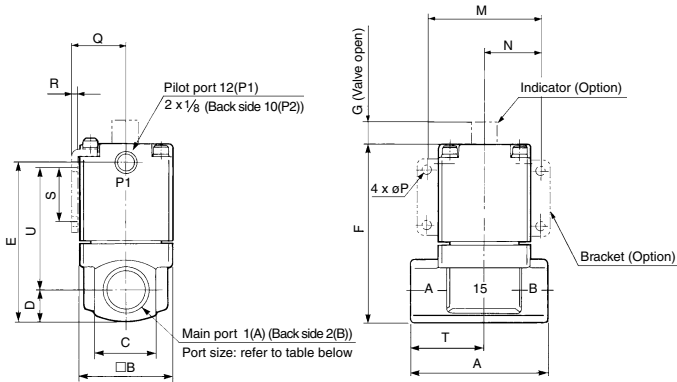
In contrast with the N.C., when air is exhausted from the port 10(P2), the return spring opens the valve element. Pressurized air that enters through the port 10(P2) closes the valve element.

**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				29	14.5											56
VND20□S-15A	1/2			28	14											56.5
VND30□D-20A				28	14											
VND30□S-20A	3/4	80	50	35	17.5	85	93	5	62	31	5.5	28.3	2.3	30	43	61.5
VND40□D-25A																
VND40□S-25A	1	90	60	40	20	101	109	6	72	36	6.5	33.3	2.3	35	49	76
VND40□S-25A																

VNA

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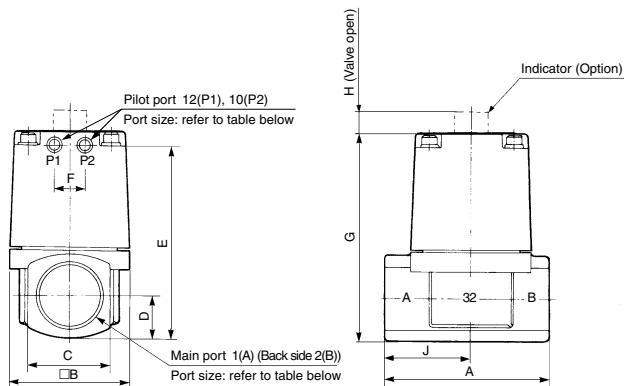
VND

VCC

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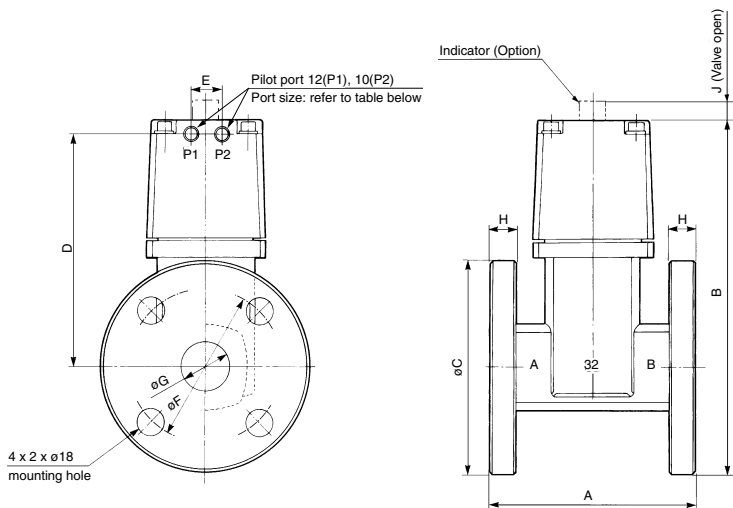
# VND Series

## 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

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



Model	Applicable flange 1(A), 2(B)	Pilot port 12(P1), 10(P2)	A	B	C	D	E	F	G	H	J
VND50□D-32F	32	1/8	130	211.5	135	135	20	100	36	12	8
VND60□D-40F	40	1/4	150	227	140	147	24	105	42	12	10
VND70□D-50F	50	1/4	180	251	155	163.5	24	120	54	14	12



# VND Series

## Specific Product Precautions

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 17 to 19 for 2 Port Solenoid Valve for Fluid Control Precautions.

### 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

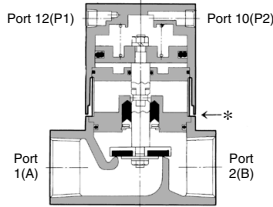
#### ⚠ Caution

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.



VNA

VNB

SGC

SGH

VNC

VNH

**VND**

VCC

TQ