VNB Series Process Valve for Flow Control



Product Feature

- A wide variety of applicable fluids, such as air, water, oil, gas.
- Cylinder actuation by external pilot air.
- N.C, N.O., C.O., types are available.

Ordering Code

VNB Series Process Valve for Flow Control

VNB2 — Type code
VNB2: 2 ports process valve

0 — Acting type
0: Air operated
1: External pilot solenoid

1 — Valve type
1: Compressed air, air-liquid circuit control
2: Fluid Control
3: Coolant valves
4: Steam valves

015 — Joint size
06: 1/8
08: 1/4
10: 3/8
15: 1/2
20: 3/4
25:1
32: 1 1/4
40: 1 1/2
50: 2

NC — Control style
NO: Normally open
NC: Normally closed
CO: Liberty(double acting)

M — Seal material
B: NBR
F: FKM
C: EPDM
M: Metal
P: PTFE

□ — Thread type
Nil: G
2: NPT

Applicable Fluids Check List

Model	VNB2□1---B/F/C Seal material: NBR/FKM/EPDM			VNB2□2---B/F/C Seal material: NBR/FKM/EPDM			VNB2□3---M Seal material: Metal	VNB2□4---P Seal material: PTFE
	NBR	FKM	EPDM	NBR	FKM	EPDM		
Fluid	Air (Standard, Dry); Carbon monoxide (CO_2, 0.7MPa or less); Nitrogen gas(N_2); Turbine oil Hydraulic oil (Kinematic viscosity: 40~100mm²/s)	Argon Helium Turbine oil Hydraulic oil (Kinematic viscosity: 40~100mm²/s)	CO_2 (above 0.7MPa)	Water, oil, air, vacuum, etc. (-5~60℃)	Water, oil, etc. (air operated type only) (-5~99℃)		Coolant (-5~60℃) (-5~99℃ in air operated type)	Steam (-5~180℃)

VNB Series Process Valve for Flow Control

Specifications

Model	VNB2□1---B/F/C Seal Material: NBR/FKM/EPDM			VNB2□2---B/F/C Seal Material: NBR/FKM/EPDM			VNB2□3---M Seal Material: Metal		VNB2□4---P Seal Material: PTFE
Valve body	SS304/ Aluminum alloy								
Seal Material	NBR	FKM	EPDM	NBR	FKM	EPDM	NBR	FKM	-5~180℃
Fluid temperature	-5~60℃	-5~99℃		-5~60℃	-5~99℃		-5~60℃	-5~99℃	
Ambient temperature	-5~50℃ *1 (Air operated: 60℃)								-5~60℃
Proof pressure	1.5MPa								
Working pressure	0~1.0MPa			N.O./N.C./C.O. standard port: low vacuum~0.5Mpa N.C. smaller port: low vacuum~1.0Mpa			0~1.0MPa		0~0.9MPa
External pilot air — Pressure	0.2~0.7MPa			N.C.: 0.25~0.7Mpa NO./CO.: 0.1+0.25x(PRESS*5)~0.25+0.25x (PRESS)MPa *2			NC.: 0.25~0.7MPa NO.: 0.1+0.25x (PRESS)~0.7MPa		NC.: 0.3~0.7MPa NO.: 0.1+0.25x(PRESS)~ 0.25+0.25x(PRESS)MPa
External pilot air — Lubrication	Not required (Use turbine oil Class 1 ISO VG32, if lubricated.*3)								
External pilot air — Temperature	-5~50℃ (Air operated type: 60℃)								-5~60℃
Mounting	Free*4								

*1) No freezing.
*2) Adjust the operating pressure range from 0. 125 MPa to 0.275 MPa for low vacuum.
*3) Lubrication is not allowed in the case of seal material EPDM.
*4) For extenal pilot solenoid, it is recommended that the pilot solenoid valve be oriented either vertically upward or horizontally.
*5) PRESS= Working pressure

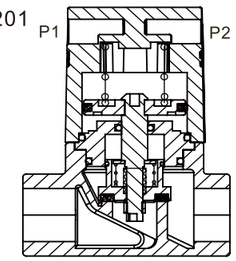
Symbol

Model	VNB2□1---			VNB2□2---			VNB2□3---			VNB2□4---	
Valve type / Type	N.C. Normally closed	N.O. Normally open	C.O. Double acting	N.C. Normally closed	N.O. Normally open	C.O. Double acting	N.C. Normally closed	N.O. Normally open		N.C. Normally closed	N.O. Normally open
Air operated	VNB201-□□NC	VNB201-□□NO	VNB201-□□CO	VNB202-□□NC	VNB202-□□NO	VNB202-□□CO	VNB203-□□NC	VNB203-□□NO	Air operated DN6/8/10	VNB204-□□NC	VNB204-□□NO
Air operated	VNB211-□□NC	VNB211-□□NO		VNB212-□□NC	VNB212-□□NO		VNB213-□□NC	VNB213-□□NO	Air operated DN15/20/25/32/40/50		

VNB Series Process Valve for Flow Control

Main Dimensions

VNB201



Compressed air, air-liquid circuit control valves

N.C.
Air operated valves are inlet from P1, the valve opens, and the valve element linked to the piston closes by the return spring.

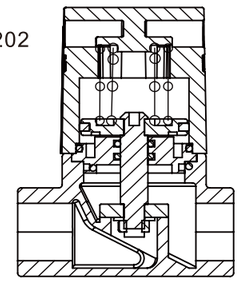
When energized: air operated valve is pressurized from the P1 port, and the pilot air under the piston moves the piston upward to open the valve element.

When the power is turned off: the air-operated valve exhausts air from the P1 port, and the pressure in the valve chamber below the piston decreases, and the return spring closes the valve element.

N.O.
In contrast to the N. C. . Air operated valves are pressurized by air inlet from port P2, and the valve is closed.
Air operated valves exhaust air from the P2 port, and the return spring opens the spool.

C.O.
Double air operated valves without return spring. When both P1 and P2 ports are in exhaust state, the valve spool is in any position. when P1 port is pressurized and P2 port is exhausted, the spool opens. When the P2 port is pressurized and the P1 port is exhausted, the spool is closed.

VNB202



Fluid Control valve

N.C.
Air operated valves are inlet from P1, the valve opens, and the valve element linked to the piston closes by the return spring.

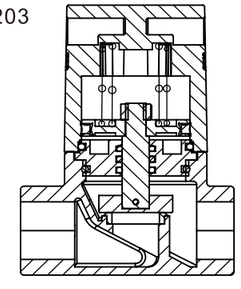
When energized: air operated valve is pressurized from the P1 port, and the pilot air under the piston moves the piston upward to open the valve element.

When the power is turned off: the air-operated valve exhausts air from the P1 port, and the pressure in the valve chamber below the piston decreases, and the return spring closes the valve element.

N.O.
In contrast to the N. C. . Air operated valves are pressurized by air inlet from port P2, and the valve is closed.
Air operated valves exhaust air from the P2 port, and the return spring opens the spool.

C.O.
Double air operated valves without return spring. When both P1 and P2 ports are in exhaust state, the valve spool is in any position. when P1 port is pressurized and P2 port is exhausted, the spool opens. When the P2 port is pressurized and the P1 port is exhausted, the spool is closed.

VNB203



Coolant Valves

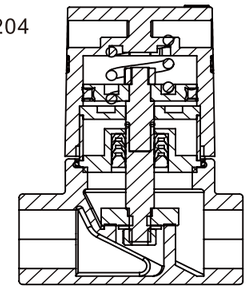
N.C.
Air operated valves are pressurized by air from P1, the valve opens and the spool on the piston is closed by the return spring.

When energized: air operated valve is pressurized by air from P1 port, the pilot pressure enters the valve chamber under the piston and moves the piston upward, and the spool opens.

When the power is turned off: the air operated valve is exhausted from the P1 port, the pressure in the valve chamber below the piston decreases, and the return spring closes the spool.

N.O.
In contrast to the N. C.. Air operated valve is pressurized by air inlet from the P2 port, and the valve is closed.
Air operated valves exhaust air from the P2 port, and the return spring opens the spool.

VNB204



Steam Valves

N.C.
When the P1 port is exhausted, the spool on the piston closes under the action of the return spring。

When energized: Pressurization from the P1 port, pilot air enters under the piston, causing the piston to move up and the spool to open. The piston moves upward and the spool opens.

When the power is off: P1 exhaust, the pilot pressure under the piston decreases, and the spool is closed by the return spring. The spool is closed by the return spring.

N.O.
In contrast to the N.C.. P2 port is exhausted and the spool is opened by the return spring.P2 is pressurized and the spool is closed.

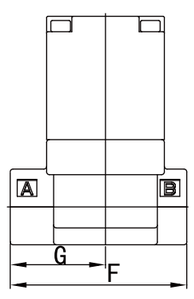
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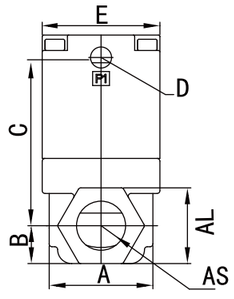
VNB Series Process Valve for Flow Control

Specifications

Model	VNB2□1---				VNB2□2---				VNB2□3---				VNB2□4---			
	Port size	Orifice (mm)	Effective area (mm²)	Cv	Port size	Orifice (mm)	Effective area (mm²)	Cv	Port size	Orifice (mm)	Flow rate characteristics		Port size	Orifice (mm)	Flow rate characteristics	
											Kv	Cv			Kv	Cv
VNB2□□-06	1/8	10	13	0.88	1/8	7	25	0.8	1/8	7	1.1	1.2	1/8	7	0.9	1.1
VNB2□□-08	1/4	10	23	1.5	1/4	7	29	1	1/4	7	1.1	1.3	1/4	7	1	1.2
VNB2□□-10	3/8	10	35	1.9	3/8	7	31	1.1	3/8	7	1.3	1.5	3/8	7	1.1	1.3
VNB2□□-10	3/8	15	70	3.8	3/8	11	71	2.6	3/8	11	3.4	3.9	3/8	15	4.3	5
VNB2□□-10	3/8	15	70	3.8	3/8	15	110	4	3/8	15	4.3	5	3/8	15	4.3	5
VNB2□□-15	1/2	15	90	4.8	1/2	11	76	2.6	1/2	11	3.9	4.5	1/2	15	4.6	5.4
VNB2□□-15	1/2	15	90	4.8	1/2	15	140	4.8	1/2	15	5	5.8	1/2	15	4.6	5.4
VNB2□□-20	3/4	20	140	7.5	3/4	14	140	5.4	3/4	14	6.1	7	3/4	20	8.6	9.9
VNB2□□-20	3/4	20	140	7.5	3/4	20	270	7.4	3/4	20	9.3	11	3/4	20	8.6	9.9
VNB2□□-25	1	25	220	12	1	16	130	7	1	16	7.9	9.1	1	25	13.6	16
VNB2□□-25	1	25	220	12	1	25	220	12	1	25	13.2	15	1	25	13.6	16
VNB2□□-32	1-1/4	32	320	18	1-1/4	22	210	11	1-1/4	22	14.3	17	1-1/4	32	15.7	18
VNB2□□-32	1-1/4	32	320	18	1-1/4	32	320	18	1-1/4	32	20	23	1-1/4	32	15.7	18
VNB2□□-40	1-1/2	40	500	28	1-1/2	28	330	19	1-1/2	28	22.5	26	1-1/2	40	32.9	38
VNB2□□-40	1-1/2	40	500	28	1-1/2	40	500	29	1-1/2	40	29.3	34	1-1/2	40	32.9	38
VNB2□□-50	2	50	770	43	2	33	520	19	2	33	35.4	41	2	50	53.6	62
VNB2□□-50	2	50	770	43	2	50	770	29	2	50	53.6	62	2	50	53.6	62

Main Dimensions





Model	Port size	A	B	C	D	E	F	G	AS	AL
DN 6	1/8	28	12.5	39.5	1/8	27	45	24	1/8	23
DN 8	1/4	28	12.5	39.5	1/8	27	45	24	1/4	23
DN 10	3/8	28	12.5	39.5	1/8	27	45	24	3/8	23
DN 10	3/8	37	14	55	1/8	42	63	34	3/8	27
DN 15	1/2	37	14	55	1/8	42	63	34	1/2	27
DN 20	3/4	46	17.5	60.5	1/8	50	80	43	3/4	33
DN 25	1	58	20	73	1/8	60	90	49	1	43
DN 32	1-1/4	68	26.5	94	1/8	77	105	52.5	1-1/4	48
DN 40	1-1/2	85	30	107	1/4	96	120	60	1-1/2	55
DN 50	2	100	37	123	1/4	113	140	70	2	66