



NENUTEC WATER - NVCB 7000 SERIES

BALL VALVES WITH CHARACTERISED DISC | 2-WAY AND 3-WAY



NVCB 7000 SERIES

NENUTEC ball valves with characterised discs are especially designed and produced for applications in the HVAC chiller and zone systems.

Our wide range of NENUTEC ball valves has been developed to regulate the flow of water and steam in response to the demand of a controller.

Ball valve:

- NVCB Ball valve size DN 15 (1/2") to DN 50 (2")
- 2-way and 3-way (mixing/diverting) version
- The demand of high-rise buildings with high-pressure pumping systems is assured.

Actuator:

- Torque 5 Nm / 08 Nm
- Power Supply AC/DC 24 V and AC 230 V
- Control 2 Point, 2 / 3 point or modulating DC 0 (2)... 10 V
- Bracket / mounting connection ball valve
- 1 adjustable auxiliary switch (SPDT)
- Customer version (on request)
- NENUTEC actuators can be factory or field installed
 - > NEBA.../NEBM...data sheet
 - > FSBA.../FSBM...data sheet

Pictures might not correspond with technical data.

TECHNICAL SPECIFICATIONS

Service	chilled, hot water, up to 50% glycol solutions		
Fluid temperature limits	water: -5° C...+120° C	steam: not rated for steam service	
Ambient operating temperature	-20° C...+50° C		
Non-operating temperature	-30° C...+60° C		
Valve body pressure / temperature rating	water: 580 psi (3,999 kPa) (PN 40)	steam: 15 psi (103 kPa) (PN1) saturated steam	
Maximum closeoff pressure	200 psi (1,378 kPa) (13.8 bar)		
Maximum operating pressure	Drop 50 psi (3.5 bar) (characterised valves) / 30 psi (2 bar) (full port valves)		
Flow characteristic (3-way)	Equal Percentage flow characteristic of A (coil) and linear flow characteristic of B (bypass)		
Rangeability	> 500 : 1 (ratio between maximum and minimum from controllable water volume)		
Leakage	0.01% of KVS (maximum flow) / 1% of KVS (maximum flow) for 3-way bypass port		
Pipe connection	BSP (European Standard) / NPT on request		
Thread connection	female thread		
Mark on shaft / stroke rotation	T drilling / mechanical 0°...90°		
Body sizes	DN 15 (1/2") to DN 50 (2")		
Materials	body: forged brass stem: brass	seats: PTFE stem seals: 2 x EPDM o-ring	ball: chrome plated brass disc: polyphthalamide resin



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MODEL SELECTION TABLE 2-WAY BALL VALVES

DN (mm)	DN (inch)	Model **	K _{vs}	Weight (kg)	Actuator type	EFS actuator
15	½"	NVCB 72015-BC	1.6	0.235	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 72015-BA	2.5	0.235	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 72015-BE	4.0	0.235	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 72015-BB	6.3	0.235	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 72015-BF *	10.0	0.235	NEBA...05	FSBA...05
20	¾"	NVCB 72020-BD	4.0	0.365	NEBA/NEBM...05	FSBA/FSBM...05
20	¾"	NVCB 72020-BE	6.3	0.365	NEBA/NEBM...05	FSBA/FSBM...05
20	¾"	NVCB 72020-BF *	10.0	0.365	NEBA...05	FSBA...05
25	1"	NVCB 72025-BE	10.0	0.545	NEBA/NEBM...08	FSBA/FSBM...08
25	1"	NVCB 72025-BF *	16.0	0.545	NEBA...08	FSBA...08
32	1¼"	NVCB 72032-BE	16.0	0.800	NEBA/NEBM...08	FSBA/FSBM...08
32	1¼"	NVCB 72032-BF *	25.0	0.800	NEBA...08	FSBA...08
40	1½"	NVCB 72040-BE	25.0	1.170	NEBA/NEBM...08	FSBA/FSBM...08
40	1½"	NVCB 72040-BF *	40.0	1.170	NEBA...08	FSBA...08
50	2"	NVCB 72050-BE	40.0	1.860	NEBA/NEBM...08	FSBA/FSBM...08
50	2"	NVCB 72050-BF *	63.0	1.860	NEBA...08	FSBA...08

* Full port without characterised insert / ** BSP thread standard (NPT on request)

MODEL SELECTION TABLE 3-WAY BALL VALVES

DN (mm)	DN (inch)	Model **	K _{vs}	Weight (kg)	Actuator type	EFS actuator
15	½"	NVCB 73015-BC	1.6	0.265	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 73015-BA	2.5	0.265	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 73015-BE	4.0	0.265	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 73015-BB	6.3	0.265	NEBA/NEBM...05	FSBA/FSBM...05
15	½"	NVCB 73015-BF *	10.0	0.255	NEBA...05	FSBA...05
20	¾"	NVCB 73020-BD	4.0	0.395	NEBA/NEBM...05	FSBA/FSBM...05
20	¾"	NVCB 73020-BE	6.3	0.395	NEBA/NEBM...05	FSBA/FSBM...05
20	¾"	NVCB 73020-BF *	10.0	0.395	NEBA...05	FSBA...05
25	1"	NVCB 73025-BE	10.0	0.665	NEBA/NEBM...08	FSBA/FSBM...08
25	1"	NVCB 73025-BF *	16.0	0.665	NEBA...08	FSBA...08
32	1¼"	NVCB 73032-BE	16.0	0.975	NEBA/NEBM...08	FSBA/FSBM...08
32	1¼"	NVCB 73032-BF *	25.0	0.975	NEBA...08	FSBA...08
40	1½"	NVCB 73040-BE	25.0	1.335	NEBA/NEBM...08	FSBA/FSBM...08
40	1½"	NVCB 73040-BF *	40.0	1.335	NEBA...08	FSBA...08
50	2"	NVCB 73050-BE	40.0	2.335	NEBA/NEBM...08	FSBA/FSBM...08
50	2"	NVCB 73050-BF *	63.0	2.335	NEBA...08	FSBA...08

* Full port without characterised insert / ** BSP thread standard (NPT on request)



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■ Selection Formula

Legend

- Δp_{max} = Maximum permitted pressure difference for a long-life cyclereferred to the full cycle of opening.
- · - Δp_{max} = For low-noise operation.
- Δp_{V100} = Pressure difference of ball valve when fully open
- V_{100} = Nominal flow rate with Δp_{V100}

Formula kVS for water

$$k_{VS} = \sqrt{\frac{\Delta p_{V100}}{100}}$$

$$k_{VS} \quad [m^3/h]$$

$$V_{100} \quad [m^3/h]$$

$$\Delta V_{100} \quad [m^2/h]$$

Flow rate – pressure difference

$$l/sec - bar$$

$$l/sec - kPA$$

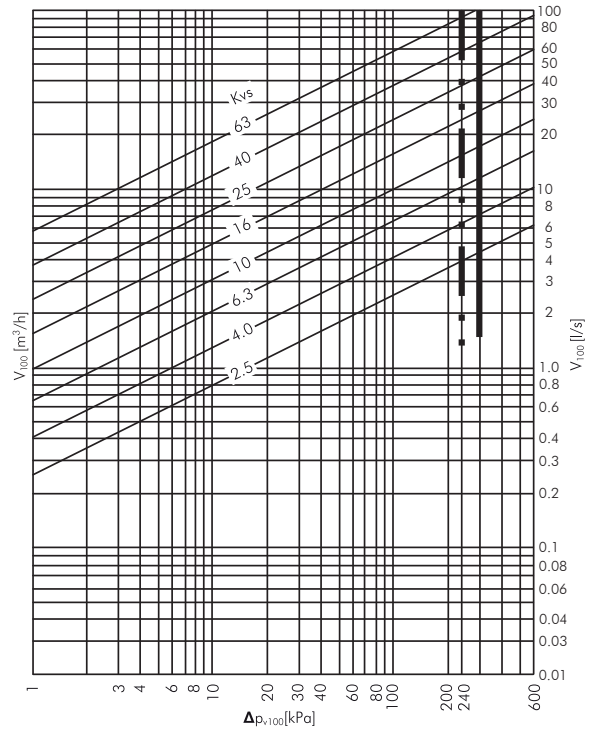
$$m^3/h - bar$$

$$m^3/h - kPA$$

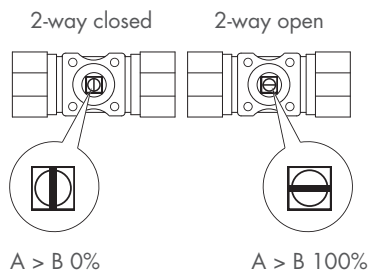
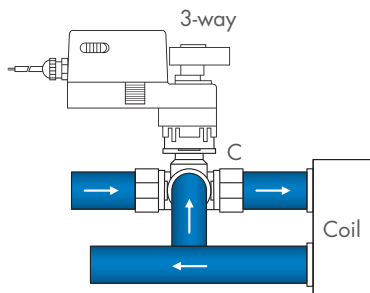
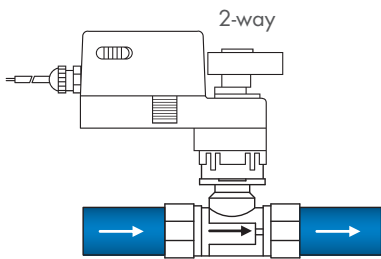
$$1 \text{ bar} = 100 \text{ kPA}$$

Definition of Δp_s

Closing pressure at which the actuator can still seal the valve tightly allowing for the appropriate leakage rate.

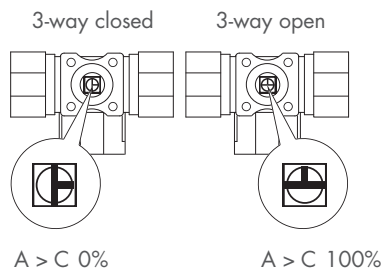


■ Pipe Connections



A > B 0%

A > B 100%

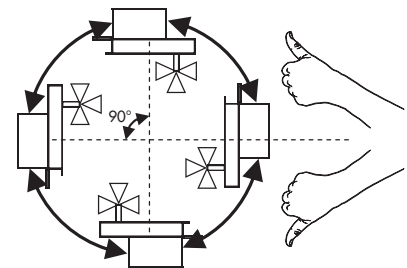


A > C 0%

B > C 100%

A > C 100%

B > C 0%



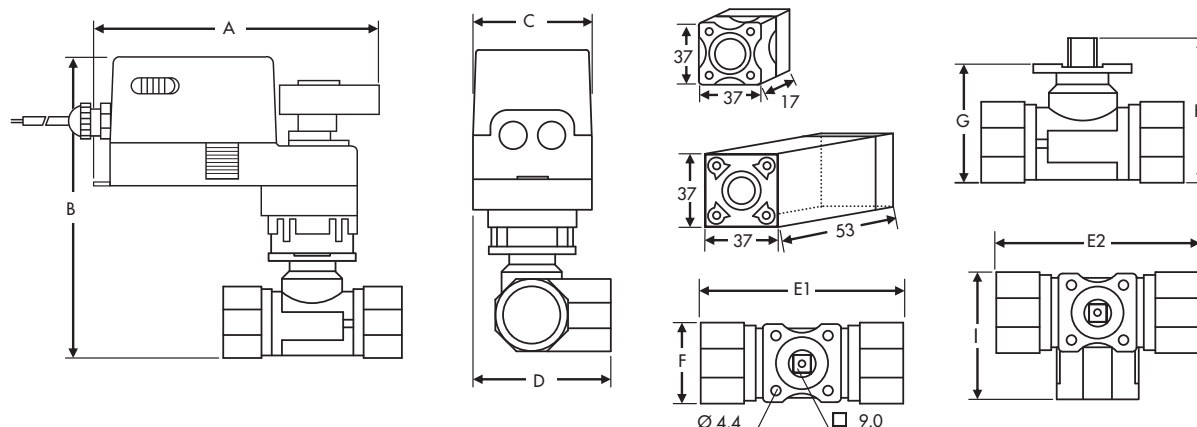


Maximum close-off pressure KPA (PSI) with actuator

Model	Torque (Nm)	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
NEB...-05	5	1'000 (145)	1'000 (145)	1'000 (145)	1'000 (145)	690 (100)	400 (58)
NEB...-08	08	1'400 (203)	1'400 (203)	1'400 (203)	1'400 (203)	1'000 (145)	1'000 (145)

Dimensions of valve body (mm)

Dimensions (~mm)	DN (mm)	A	B	C	D	E1	E2	F	G	H	I
2- and 3-way	15	122	142	65	68	66	60	22	48	57	46
	20	122	147	65	53	73	67	36	53	62	48
	25	122	153	65	79	95	89	43	59	68	68
	32	122	162	65	83	104	98	51	68	77	75
	40	122	167	65	87	112	106	60	73	82	84
	50	122	183	65	102	128	122	72	89	98	105



⚠ IMPORTANT REMARKS

This actuator includes electrical and electronic components and may not be disposed as household garbage. Please consider the local valid legislation.



AC/DC 24 V: Connect via safety isolating transformer.

AC 230 V: To isolate from the main power supply, the system must incorporate a device which disconnects the phase conductor (with at least a 3 mm contact gap).

Consult NENUTEC representatives for specific requirements and material selections for your intended application. The entire content of this technical datasheet is protected by copyright with all rights reserved ©.

The performance specifications are nominal and conform to acceptable industry standards. NENUTEC shall not be liable for damages resulting from misapplication or misuse of its products.

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