



2-year warranty

Type overview

Type	DN
B2200VB-077	50

Technical data

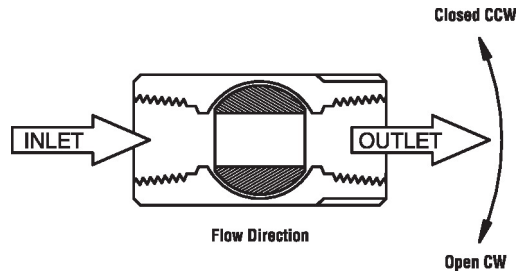
<b>Functional data</b>	Valve size [mm]	2" [50]
	Fluid	chilled or hot water, up to 60% glycol, steam
	Fluid Temp Range (water)	-22...380°F [-30...193°C]
	Fluid Temp Range (steam)	-22...380°F [-30...193°C]
	Body Pressure Rating	ANSI Class 300
	Close-off pressure Δps	250 psi
	Flow characteristic	equal percentage
	Rangeability Sv	300:1
	Maximum differential pressure (water)	150 psi
	Max Differential Pressure (Steam)	100 psi
	Close-Off Pressure (Steam)	150 psi
	Flow Pattern	2-way
	Leakage rate	ANSI Class IV
	Controllable flow range	75°
	Cv	77
	Maximum Inlet Pressure (Steam)	150 psi
<b>Materials</b>	Valve body	WCC grade carbon steel
	Body finish	matt black body finish
	Spindle	stainless steel
	Spindle seal	PTFE V-ring
	Seat	PTFE
	Pipe connection	NPT female ends
	Ball	stainless steel
<b>Suitable actuators</b>	Non-Spring	SY1 AMB(X) PRB(X)
	Spring	AF
	Electrical fail-safe	PKRB(X)

Product features

<b>Product features</b>	Fast quarter turn open or closed operation, stainless-steel ball and stem, positive isolation, two-piece body construction
-------------------------	--

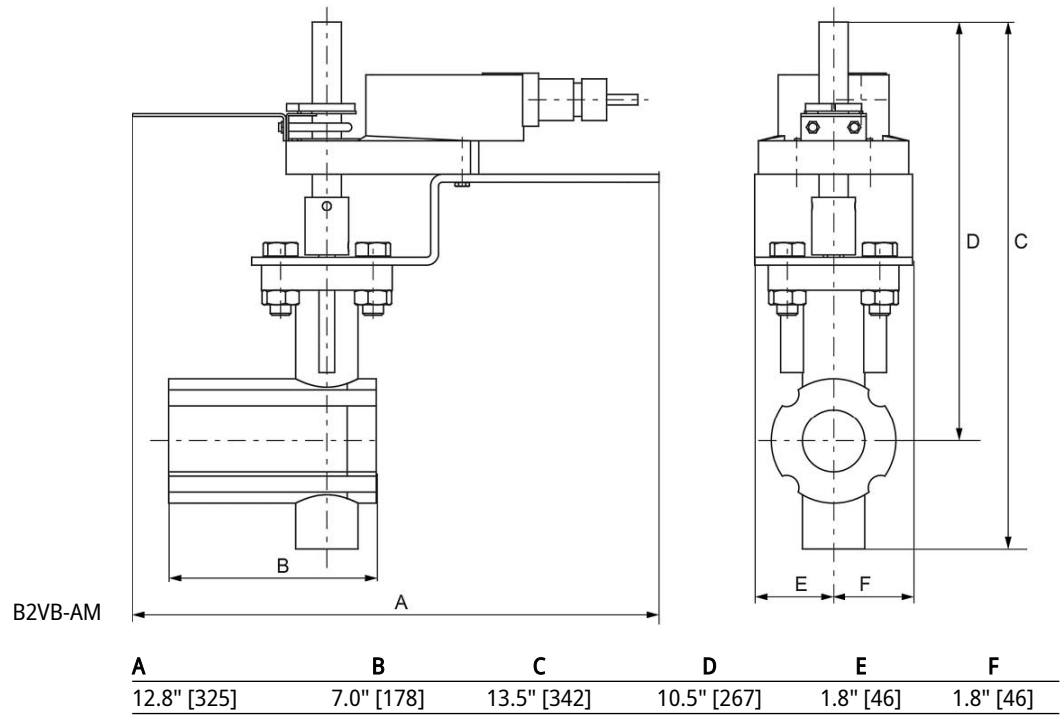
**Application** Water-side control of air handling apparatus in ventilation and air-conditioning system.  
 Water/Steam control in heating system.  
 300:1 rangeability.  
 The dimensions and drilling of end flanges conform to the American cast iron flange standard, Class 150 (ANSI B16.1).

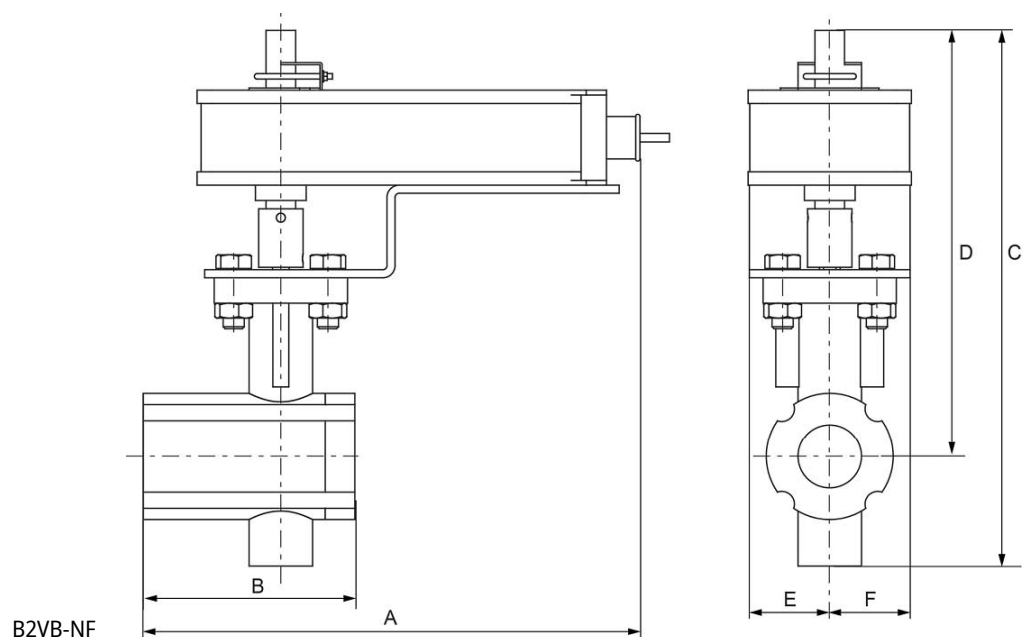
**Flow/Mounting details**



**Dimensions**

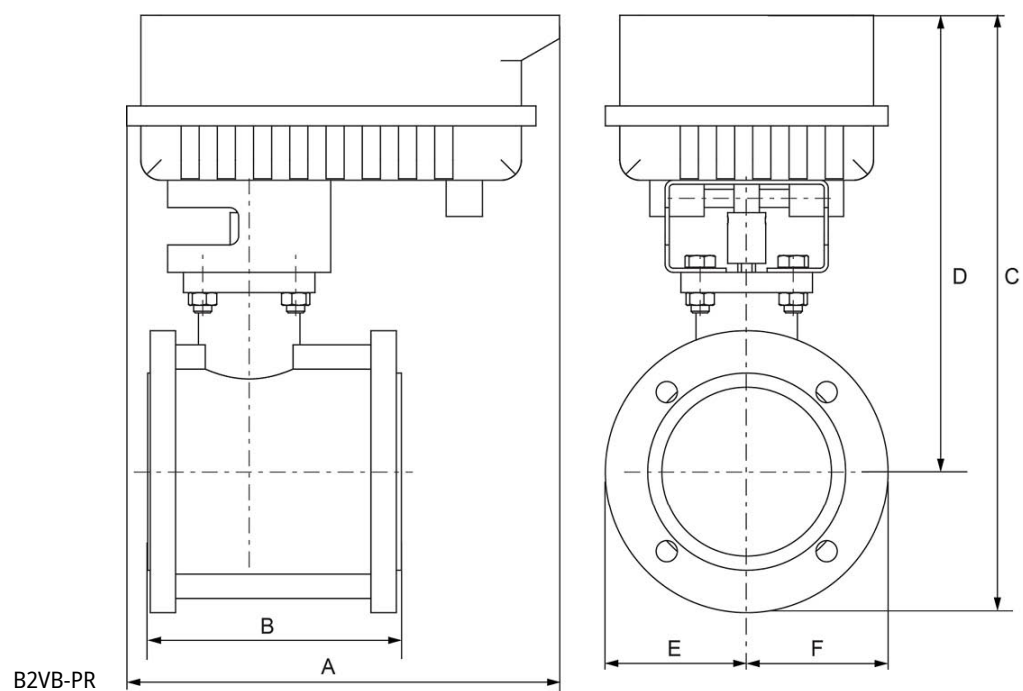
<b>Type</b>	<b>DN</b>
B2200VB-077	50





B2VB-NF

A	B	C	D	E	F
11.4" [289]	7.0" [178]	14.5" [368]	11.1" [283]	1.9" [48]	1.9" [48]



B2VB-PR

A	B	C	D	E	F
11.4" [289]	7.0" [178]	15.0" [380]	12.6" [321]	3.9" [100]	3.9" [100]



5-year warranty



**MFT**

Technical data

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	7.5 W
	Power consumption in rest position	3 W
	Transformer sizing	10 VA
	Auxiliary switch	2 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, one set at 10°, one adjustable 10...90°
	Switching capacity auxiliary switch	3 A resistive (0.5 A inductive) @ AC 250 V
	Electrical Connection	(2) 18 GA appliance cables, 1 m, 3 m or 5 m, with or without 1/2" conduit connectors
	Overload Protection	electronic throughout 0...95° rotation
<b>Functional data</b>	Operating range Y	2...10 V
	Operating range Y note	4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
	Operating range Y variable	Start point 0.5...30 V End point 2.5...32 V
	Operating modes optional	variable (VDC, PWM, on/off, floating point)
	Position feedback U	2...10 V
	Position feedback U note	Max. 0.5 mA
	Position feedback U variable	VDC variable
	Direction of motion motor	selectable with switch 0/1
	Direction of motion fail-safe	reversible with cw/ccw mounting
	Manual override	5 mm hex crank (3/16" Allen), supplied
	Angle of rotation	95°
	Angle of rotation note	adjustable with mechanical end stop, 35...95°
	Running Time (Motor)	150 s / 90°
	Running time motor variable	70...220 s
	Running time fail-safe	<20 s
	Override control	MIN (minimum position) = 0% MID (intermediate position) = 50% MAX (maximum position) = 100%
	Noise level, motor	40 dB(A)
	Noise level, fail-safe	62 dB(A)
Position indication	Mechanical	
<b>Safety data</b>	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	UL Enclosure Type 2















<b>Safety data</b>	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU
	Quality Standard	ISO 9001
	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
<b>Weight</b>	Weight	4.6 lb [2.1 kg]
<b>Materials</b>	Housing material	Galvanized steel and plastic housing

**Footnotes** \*Variable when configured with MFT options.

### Accessories

Electrical accessories	Description	Type
	Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

### Electrical installation

-  **Warning! Live electrical components!**  
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.
-  Meets cULus requirements without the need of an electrical ground connection.
-  Actuators with appliance cables are numbered.
-  Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.
-  Provide overload protection and disconnect as required.
-  Actuators may also be powered by DC 24 V.
-  Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.
-  Only connect common to negative (-) leg of control circuits.
-  A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
-  Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.
-  For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
-  IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
-  Actuators may be controlled in parallel. Current draw and input impedance must be observed.
-  Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).

### Wiring diagrams

On/Off

#### 24 VAC Transformer



Floating Point

#### 24 VAC Transformer (AC Only)



VDC/mA Control

#### 24 VAC Transformer



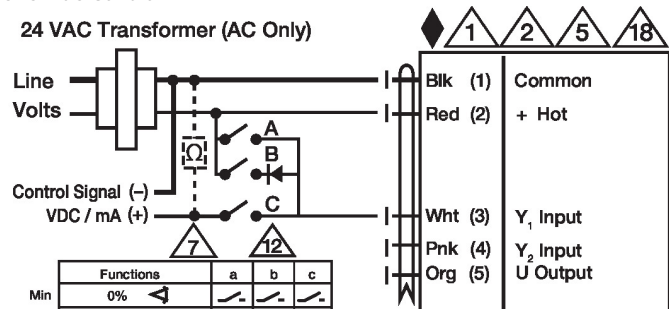
PWM Control

#### 24 VAC Transformer (AC only)



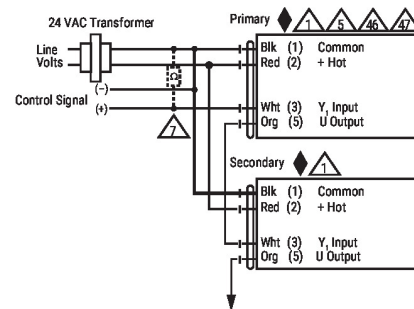
Override Control

#### 24 VAC Transformer (AC Only)



Functions	a	b	c
Min 0%			
Mid 50%			
Max 100%			
Normal	Control mode acc. to Y <sub>1</sub>		

Primary - Secondary



PWM Control

#### 24 VAC Transformer (AC only)

