

# B2...VS Series, 2-way, Ball Valve Bronze Body, Stainless Steel Ball and Stem



- Live-load packing set
- Stainless steel ball & stem
- Blow-out proof stem design

## Application

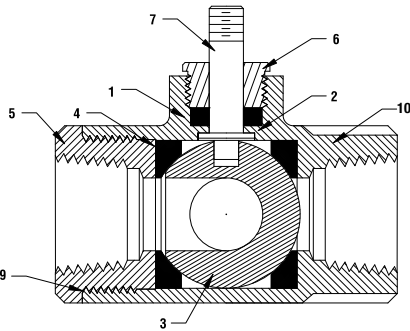
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV Box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

This valve is designed with MFT functionality which facilitates the use of various control input.

- Up to 35 psi steam
- ½" - 600 PSIG WOG, Cold Non-Shock.
- Federal Specification: WW-V-35C, Type II  
Composition: BZ  
Style: 3

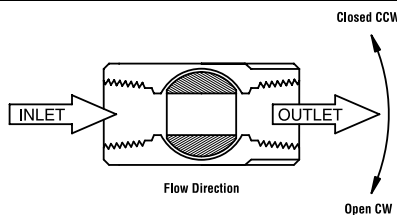
Technical Data	
Media	chilled or hot water, glycol, 35# steam
Flow characteristic	modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	SAE NPT (female connections)
Materials:	
1 Stem packing	reinforced PTFE
2 Stem bearing	reinforced PTFE
3 Ball	316 stainless steel
4 Seat (x2)	reinforced PTFE w/ Durafill
5 Retainer	B16 (¾" - 1") stainless steel B584 (1¼" - 2") stainless steel
6 Gland	B16 brass
7 Stem	316 stainless steel
8 Jam nut	stainless steel
9 Body seal	PTFE (1-1/4" to 2")
10 Body	B584-C84400 bronze

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]	2-way NPT	Spring Return	Non-Spring Return
1	½	15	B2050VS-01	LF Series	LM Series
2	½	15	B2050VS-02		
4	½	15	B2050VS-04		
15	½	15	B2050VS-15	NF	NM
30	¾	20	B219VS		
51	¾	20	B220VS	AF Series	AM Series
43	1	25	B224VS		
68	1	25	B225VS		
48	1¼	32	B232VS		
84	1½	40	B239VS		
177	1½	40	B240VS		
108	2	50	B249VS	GM Series	SY Series

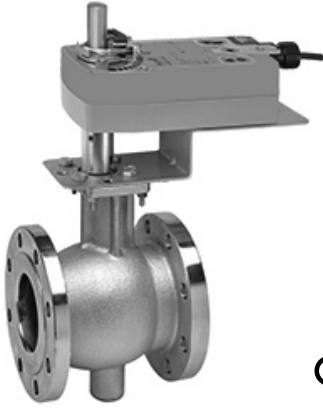


Pressure rating	600 psig WOG
Media temp. range	-22°F to +280°F (-30°C to +138°C)
Close-off pressure	600 psig @ 100°F
Maximum differential pressure (ΔP)	<600 psig

## Flow Patterns



Tech.Doc - 11/14 - Subject to change. © Belimo Aircontrols (USA), Inc.



## Models

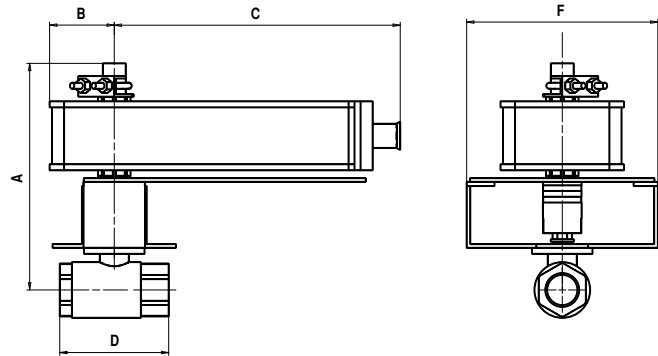
- AFB24-X1
- AFBUP-X1
- AFBUP-S-X1 w/built-in Aux. Switches
- AFRB24-3
- AFRX24-3

Technical Data		
Control		on/off
Power consumption		
AFBUP-X1	running	5 W
	holding	2.5 W
AFBUP-S-X1	running	7 W
	holding	3.5 W
Transformer sizing	AFB24-X1	7.5 VA (class 2 power source)
	AFBUP(-S)-X1	7 VA @ 24 VAC (class 2 power source)
		8.5 VA @ 120 VAC
		18 VA @ 240 VAC
Electrical connection		½" conduit connector
(-S model has 2 cables)		3 ft. [1m], 18 GA appliance cables
Electrical protection		120V actuators double insulated
Overload protection		electronic throughout 0° to 95° rotation
Angle of rotation		95°
Position indication		visual indicator
Manual override		hex crank
Running time	control	150 seconds independent of load
	spring	<20 seconds
Ambient temperature		-22°F to +122°F [-30°C to +50°C]
Housing		NEMA 2 / IP54
Agency listings		UL 873, CSA C22.2 No. 24 certified, CE
Noise level		max. 45 dB(A)

AFBUP-S-X1	
Auxiliary switches	2 x SPDT, 7A (2.5A) @ 250 VAC, UL listed, one switch is fixed at +5°, one is adjustable 25° to 85° (double insulated)

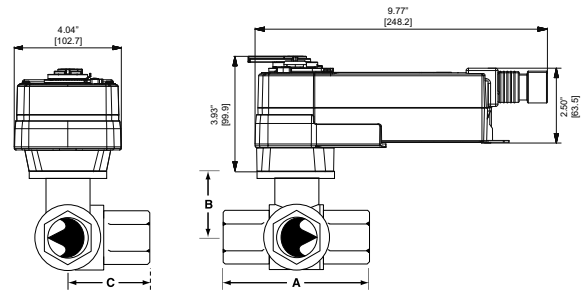
\* Dual Mounted Actuators

## Dimensions with 2-Way Valve



Valve Body	COP	Valve Nominal Size		Dimensions (Inches)					
		Inches	DN [mm]	A	B	C	D	F	
B224VS	400	1	25	7.00	1.25	6.77	3.37	6.25	
B225VS	200	1	25	7.00	1.25	6.77	3.62	6.25	
B232VS	600	1¼	32	7.00	1.25	6.77	3.97	6.25	
*B239VS	600	1½	40	15.00	N/A	13.54	4.37	6.25	
*B240VS	600	1½	40	15.00	N/A	13.54	4.75	6.25	
*B249VS	600	2	50	15.00	N/A	13.54	4.68	6.25	
B224VSS	1000	1	25	7.00	1.25	13.54	3.37	6.25	
*B249VSS	1000	2	50	15.00	N/A	13.54	4.68	6.25	

## Dimensions with 3-Way Valve



Valve Body	COP	Valve Nominal Size		Dimensions (mm)		
		Inches	DN [mm]	A	B	C
B332L	200	1¼	32	4.13" [105]	2.00" [51]	2.19" [56]
B340L	200	1½	40	4.80" [122]	2.44" [62]	2.61" [67]
B350L	200	2	50	5.60" [142]	2.67" [68]	3.11" [79]

### Wiring Diagrams

#### ✂️ INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment damage!**  
Actuators may be connected in parallel.  
Power consumption must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 4 For end position indication, interlock control, fan startup, etc., AF24-S US incorporates two built-in auxiliary switches: 2 x SPDT, 7A (2.5A) @ 250 VAC, UL listed, one switch is fixed at +5°, one is adjustable 25° to 85°.

#### 📄 APPLICATION NOTES

- ◆ Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

#### ⚠️ 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.

