

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

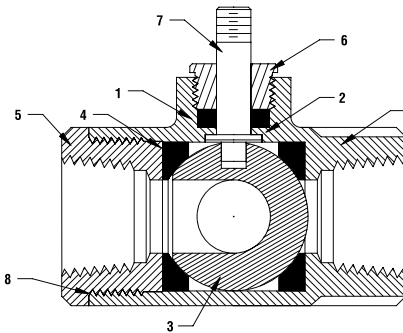
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV Box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

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

- Up to 35 psi steam
- 1/2" - 600 PSIG WOG, Cold Non-Shock.
- Federal Specification: WW-V-35C, Type II
Composition: BZ
Style: 3

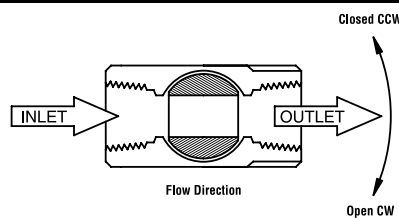
Technical Data	
Media	Chilled or hot water, glycol, 35# steam
Flow Characteristic	Modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3"
Type of end fitting	SAE NPT (Female Connections)
Materials:	
1 Stem Packing	Reinforced PTFE
2 Stem Bearing	Reinforced PTFE
3 Ball	316 Stainless Steel
4 Seat (x2)	Reinforced PTFE w/ Durafill
5 Retainer	B16 (3/4" - 1") Brass B584 (1 1/4" - 3") Brass
6 Gland	B16 Brass
7 Stem	316 Stainless Steel
8 Jam Nut	Stainless Steel
9 Body Seal	PTFE (1-1/4" to 3")
10 Body	B584-C84400 Bronze

Cv	Valve Nominal Size		Type	Suitable Return Actuators	
	Inches	DN [mm]	2-way NPT	Spring	Non-Spring
1	1/2	15	B2050VS-01	LF Series	LM Series
2	1/2	15	B2050VS-02		
4	1/2	15	B2050VS-04		
15	1/2	15	B2050VS-15	NF	NM
30	3/4	20	B219VS		
51	3/4	20	B220VS	AF Series	AM Series
43	1	25	B224VS		
68	1	25	B225VS		
48	1 1/4	32	B232VS		
84	1 1/2	40	B239VS		
177	1 1/2	40	B240VS		
108	2	50	B249VS	GM Series	SY Series
389	2	50	B250VS		
503	2 1/2	65	B265VS		
370	3	80	B280VS		



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



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MFT

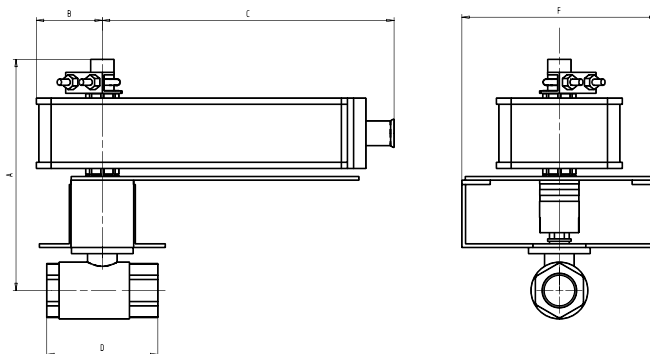


Models

NFX24-MFT-X1
NFX24-MFT-S-X1

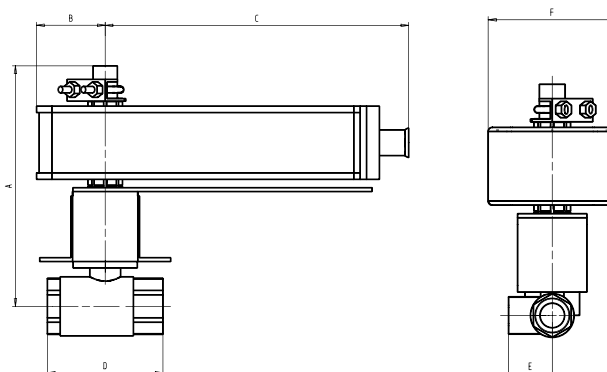
Technical Data	
Control	MFT
Control signal	2 to 10 VDC, (4 to 20 mA with 500 Ω resistor)
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 20% / -10%
Power consumption	running 6.5 W holding 3 W
Transformer sizing	9 VA, (class 2 power source)
Electrical connection	½" conduit connector 3 ft [1m], 18 GA appliance cable
Overload protection	electronic throughout 0 to 95° rotation
Input impedance	100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 1500 Ω for on/off and floating point
Feedback output	2 to 10 VDC, 0.5 mA max
Angle of rotation	95°
Direction of Rotation	spring reversible with CW/CCW mounting motor reversible with built-in switch
Position indication	visual indicator, 0° to 95°
Running time	motor 150 seconds (default), variable (40 to 220 seconds) spring <20 sec @ -4°F to 122°F [-20°C to 50°C]; <60 sec @ -22°F [-30°F]
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Housing	NEMA 2 / IP54, Enclosure Type 2
Agency listings	cULus acc. to UL60730-1A/ -2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC & 2006/95/EC
Noise level	<40 dB(A) motor @ 150 seconds, run time dependent <62 dB(A) spring return
NFX24-MFT-S-X1	
Auxiliary switch	2 x SPDT, 3A (0.5A) @ 250 VAC, UL Approved one set at +10°, one adjustable 10° to 90°

Dimensions with 2-Way Valve



Valve Body	COP	Valve Nominal Size		Dimensions (Inches)				
		Inches	DN [mm]	A	B	C	D	F
B219VS	400	¾	20	7.00	2.00	8.00	3.37	6.25
B220VS	200	¾	20	7.00	2.00	8.00	3.37	6.25

Dimensions with 3-Way Valve



Valve Body	COP	Valve Nominal Size		Dimensions (Inches)					
		Inches	DN [mm]	A	B	C	D	E	F
B320VS	75	¾	20	7.00	2.00	8.00	3.56	1.88	3.86

Wiring Diagrams

INSTALLATION NOTES

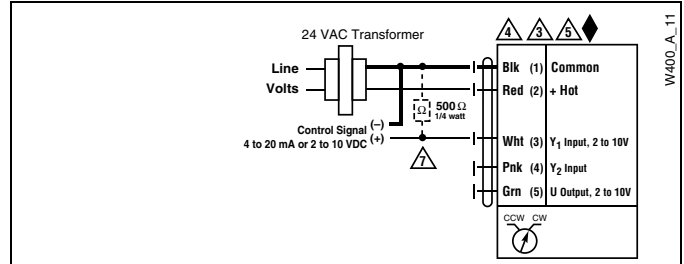
- 2 **CAUTION Equipment damage!**
Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 4 IN4004 or IN4007 diode (IN4007 supplied, Belimo part number 40155).
- 5 Triac A and B can also be contact closures.
- 6 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 VAC line.
- 7 Position feedback cannot be used with Triac sink controller. The actuators internal common reference is not compatible.

APPLICATION NOTES

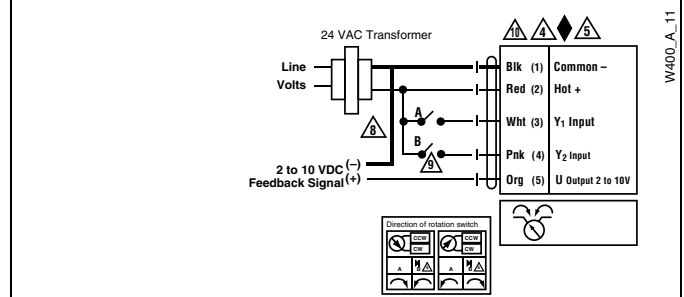
- ◆ The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.
- ◆ Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

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.

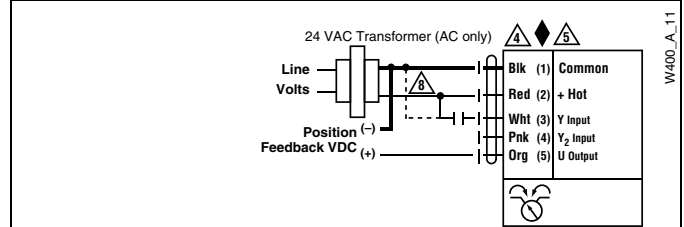
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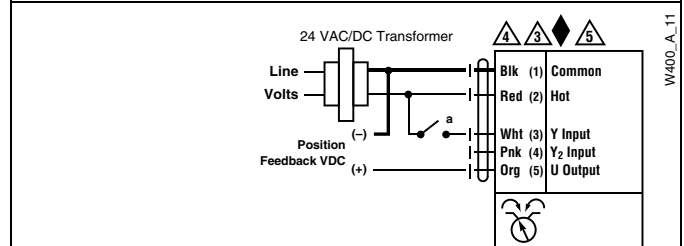
VDC/4-20 mA



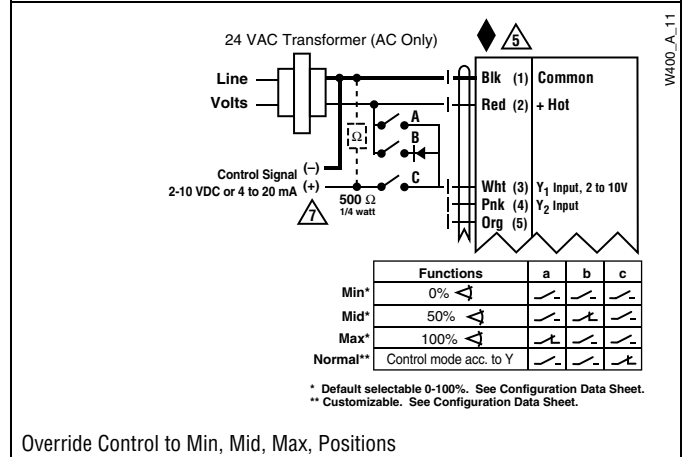
Floating Point



PWM



Two Position



Override Control to Min, Mid, Max, Positions