B2...VB Series, 2-Way, VBall Control Valve
Carbon Steel Body, Hardened Chrome Plated, Stainless Steel Ball and Stem

- **Fast quarter turn open or closed operation**
- **Stainless steel ball and stem**
- **Positive shut-off**
- **Two-piece body construction**

Application
- Water-side control of air handling apparatus in ventilation and air-conditioning system
- Water/Steam control in heating systems
- 300:1 rangeability

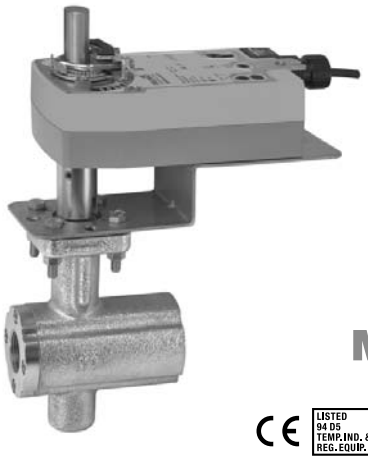
The dimensions and drilling of end flanges conform to the American cast iron flange standard, Class 150 (ANSI B16.1).

	Valve Nominal Size		Type	Suitable Actuators		
Cv	Inches	DN [mm]	2-way NPT	Spring	Non-Spring	
24	1"	25	B2100VB-024	NF Series	AM Series	SY Series
55	1½"	40	B2150VB-055			
77	2"	50	B2200VB-077	AF		

Technical Data	
Media	chilled or hot water, glycol, 250# steam
Flow characteristic	equal percentage
Action	90% rotation valve open CW, valve closed CCW
Sizes	1",1½",2"
Type of end fittings	NPT

Materials:	
Body	Carbon Steel
Ball	Stainless Steel with Hardened Chrome Plating
Seats	Teflon
Stem	Stainless Steel
Packing	Spring-loaded Teflon

Pressure rating	ANSI 300
Media temp. range	-22°F to 400°F (-30°C to 204°C)
Close-off pressure	150 psig @ 400°F
Maximum differential pressure (ΔP)	steam: 100psi water: 150psi



MFT 2 YEAR WARRANTY

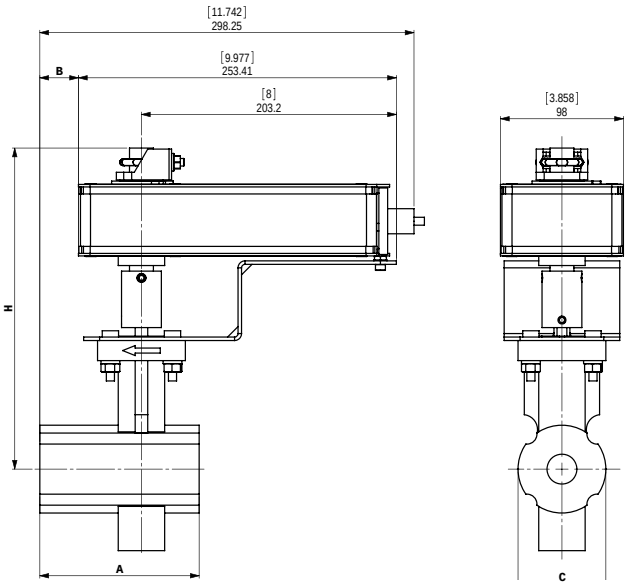
CE LISTED 94 D5 TEMP.IND. & REG.EQUIP. c UL us BRUSHLESS DC motor

Models

NFX24-MFT-X1

Technical Data		
Control		MFT
Control signal		2 to 10 VDC, (4 to 20 mA with 500 resistor)
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running	6.5 W
	holding	3 W
Transformer sizing		9 VA, class 2 power
Electrical connection		½" conduit connector 3 ft [1m], 18 GA appliance cable
Overload protection		electronic throughout rotation
Feedback output		variable DC
Angle of rotation		95°, adjustable 35° to 95° (mechanically with limit stops), MFT (electronically variable 0-100%)
Direction of rotation		external switch (proportional models) electronically selectable with MFT
Spring return reversible		CW/CCW mounting
Position indication		visual indicator, 0° to 95°
Running time	control	150 seconds default
	spring	<60 seconds at -22° F [-30°C] 20 seconds at -4°F to 122°F [-20°C to 50°C]
Operating temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2 / IP54, Enclosure Type2
Agency listings		cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC
Noise level		less than 45 dB(A)

Dimensions with 2-Way Valve



	Valve Nominal Size		Dimensions (Inches)				
Valve Body	COP	Inches	DN [mm]	A	B	C	H
B2100VB-024	150	1"	25	5.00	1.21	2.75	10.07
B2150VB-055	150	1½"	40	7.00	2.35	3.42	10.47

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.

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.

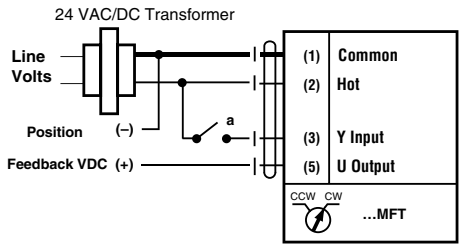
7 Position feedback cannot be used with Triac sink controller. The actuators internal common reference is not compatible.

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.

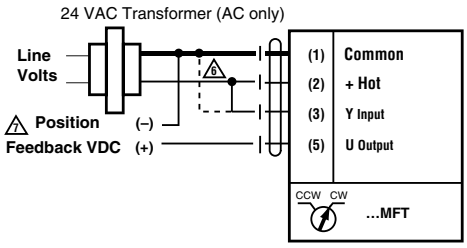
WARNING Live Electrical Components!
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

W043



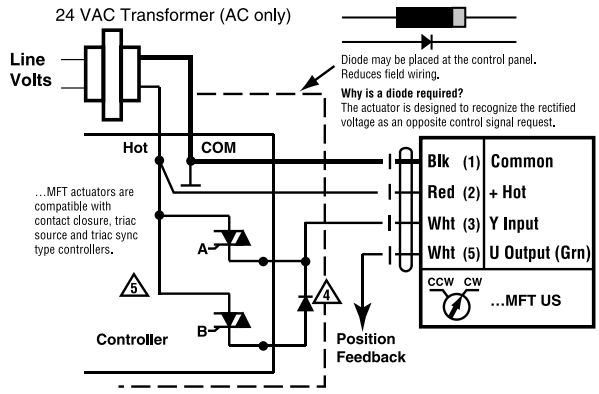
On/Off control

W041



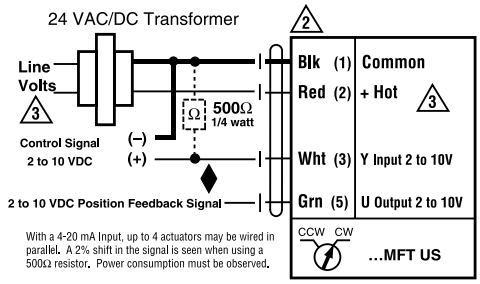
PWM, triac source and sink

W302



Floating Point control

W303

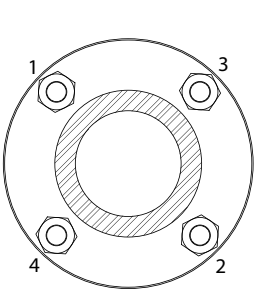


Proportional 2 to 10 or 4 to 20 mA control signal

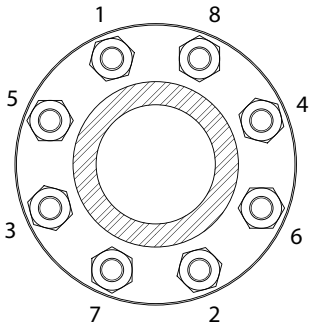
Valve Installation Procedure

3", 4" & 6" Valves - Flanged Installation

1. Valve must be in the closed position for installation.
2. **Figure 1 illustrates a flanged valve installation.**
3. Use hex bolts & nuts to secure valve to flange.
4. Ensure proper gaskets are used between the valve flange and pipe flange.
5. Tighten bolts & nuts in alternating opposite sides until completely tightened. Please see torque requirements below. Torque wrench is required.



3" Bolt Tightening Sequence



4" & 6" Bolt Tightening Sequence

⚠ *WARNING: Exceeding the Maximum Torque Can Damage the Valve and Void the Warranty!*

3" ANSI 150 Flange - 65 ft/lbs
4" ANSI 150 Flange - 70 ft/lbs
6" ANSI 150 Flange - 100 ft/lbs

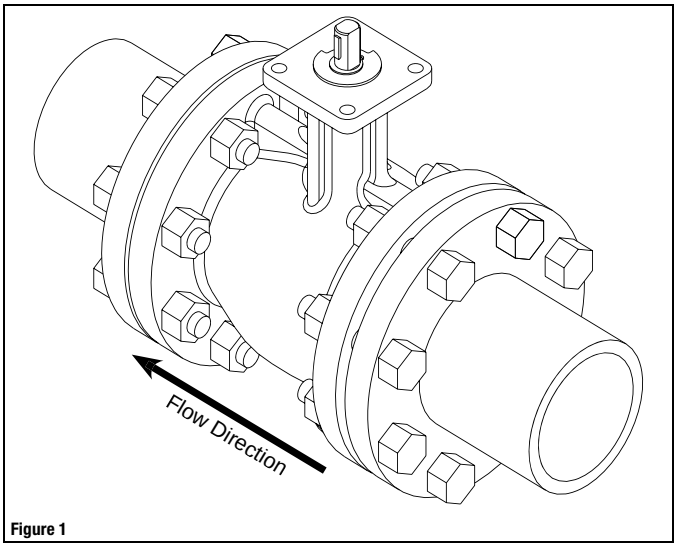


Figure 1

Seat Replacement Procedure

3", 4" & 6" Valves

1. Remove valve from pipe
2. Remove 2 cap retaining washers **(1)**
3. Using 2 wrenches/flat-head screwdrivers, pry cap assembly **(2)** out of valve
4. Rotate valve to fully open position
5. Using hands, pull seat **(3)** out of the valve
6. Replace seat and reverse procedure to reassemble
7. Reinstall valve per installation instructions

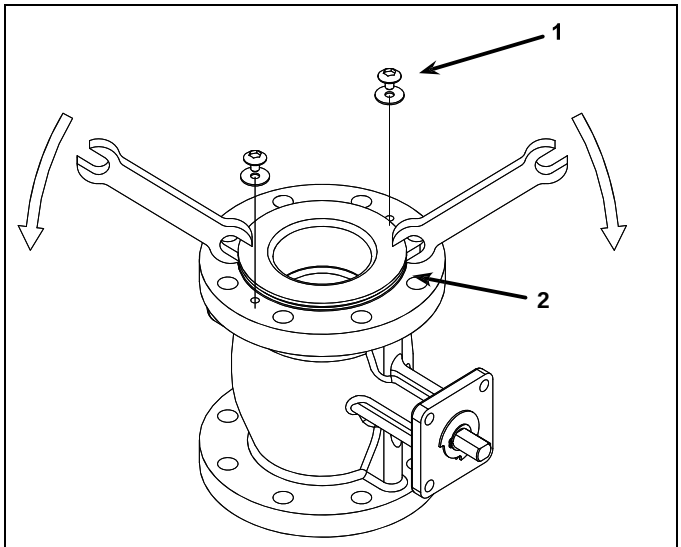


Figure 2

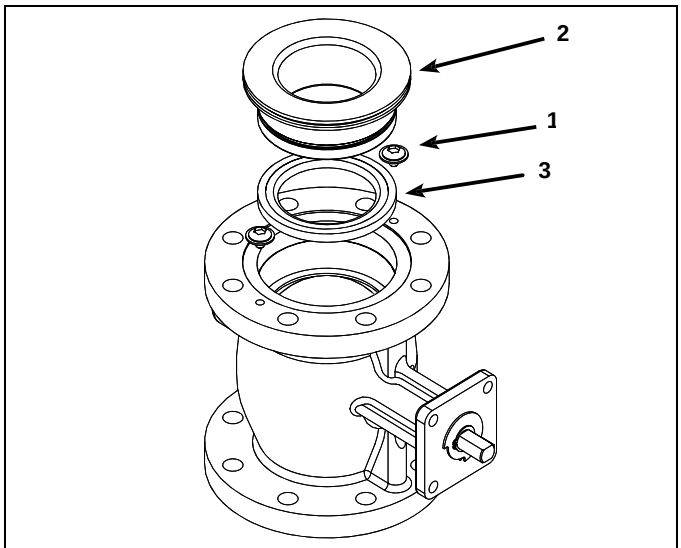


Figure 3