

# 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

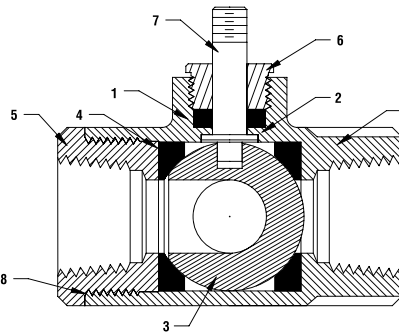
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV Box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

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

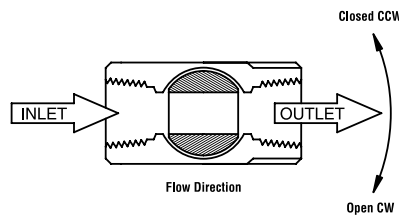
Technical Data	
Media	Chilled or hot water, glycol, 35# steam
Flow Characteristic	Modified equal percentage
Action	90° rotation valve open CW, valve closed CCW
Sizes	1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3"
Type of end fitting	SAE NPT (Female Connections)
Materials:	
1 Stem Packing	Reinforced PTFE
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	GM Series	SY Series
108	2	50	B249VS		
389	2	50	B250VS		
503	2 1/2	65	B265VS		
370	3	80	B280VS		

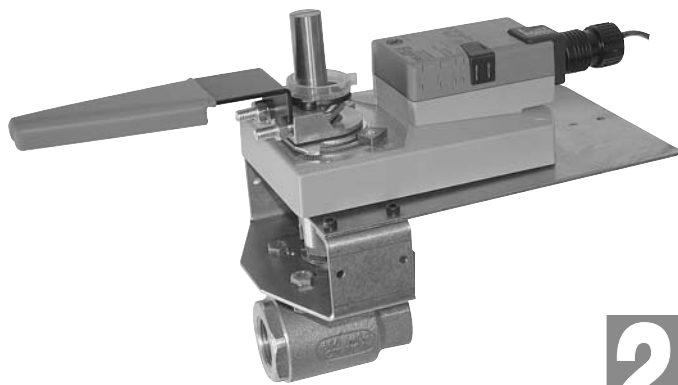


Pressure rating	600 psig WOG
Media temp. range	-22°F to 280°F (-30°C to 138°C)
Close-off pressure	600 psig @ 100°F
Maximum differential pressure (ΔP)	<600 psig

## Flow Patterns



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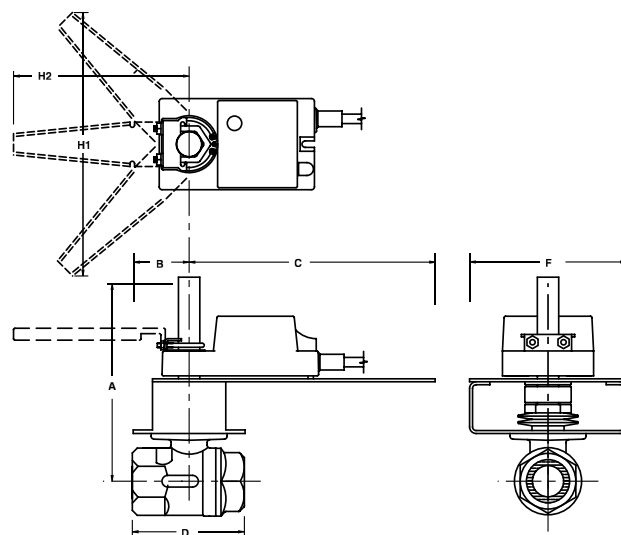
## Models

GMX24-MFT-X1  
 \*2xGMX24-MFT-X1  
 GMX24-MFT95-X1

### Technical Data

Control	On/Off, Floating Point, 2 to 10 VDC
Power supply	24 VAC $\pm$ 20% 50/60 Hz 24 VDC $\pm$ 10%
Power consumption	running 4.5 W holding 3 W
Transformer sizing	7 VA (Class 2 power source)
Electrical connection	□ 3 ft [1m] 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout stroke
Input impedance	100k $\Omega$ for 2 to 10 VDC (0.1 mA) 500 $\Omega$ for 4 to 20 mA 750 $\Omega$ for PWM 1500 $\Omega$ for On/Off and Floating Point
Feedback	2 to 10 VDC, 0.5 mA max VDC variable
Angle of rotation	95°
Direction of rotation	reversible with  switch
Position indication	reflective visual indicator (snap-on)
Running time	150 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing
Ambient temperature	-22°F to 122°F [-30°C to 50°C]
Housing	NEMA 2/IP54 with cable entry down
Housing material	UL94-5V (flammability rating)
Agency listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level	<45 dB(A)
Quality standard	ISO 9001

### Dimensions with 2-Way Valve

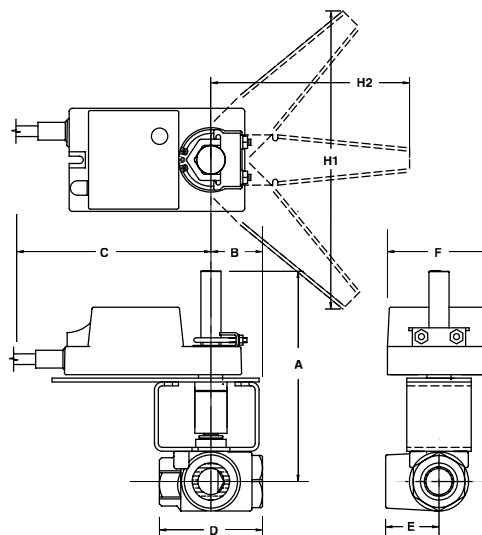


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Valve Nominal Size Dimensions (Inches)

Valve Body	COP	Inches	DN [mm]	A	B	C	D	F	H1	H2
B239VS	400	1½	40	7.50	3.00	8.00	4.37	6.25	9.75	8.50
B249VS	200	2	50	7.50	3.00	8.00	4.68	6.25	9.75	8.50
B239VSS	1000	1½	40	7.50	3.00	8.00	4.37	6.25	9.75	8.50
B249VSS	400	2	50	7.50	3.00	8.00	4.68	6.25	9.75	8.50

### Dimensions with 3-Way Valve



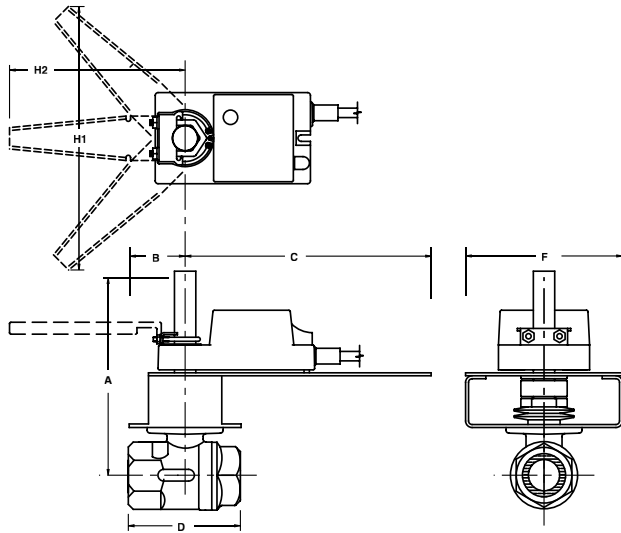
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Valve Nominal Size Dimensions (Inches)

Valve Body	COP	Inches	DN [mm]	A	B	C	D	E	F	H1	H2
B340VS	75	1½	40	7.00	2.00	8.00	4.44	2.25	6.25	9.75	8.50
B350VS	75	2	50	15.00	8.00	8.00	5.38	2.75	6.25	9.25	8.50

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### Dimensions with 2xGM... and 2-Way Valve



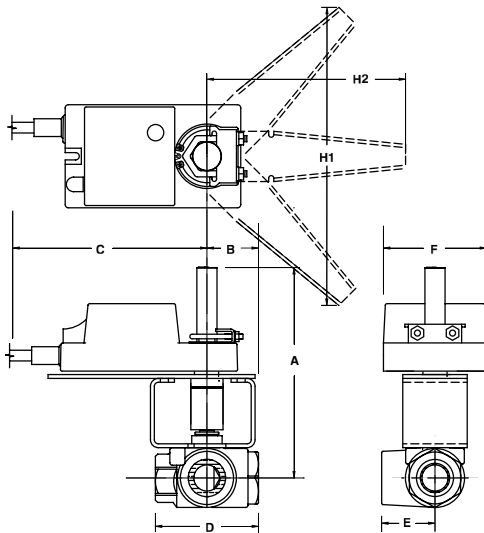
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Valve Nominal Size Dimensions (Inches)

Valve Body	COP	Inches	DN [mm]	A	B	C	D	F	H1*	H2*
B240VS	400	1½	40	7.50	3.00	8.00	4.75	6.25	9.75	8.50
B250VS	200	2	50	15.00	3.00	8.00	5.37	6.25	9.75	8.50
B265VS	100	2½	65	15.00	3.00	8.00	6.25	6.25	9.75	8.50
B280VS	50	3	80	15.00	3.00	8.00	6.75	6.25	9.75	8.50
B265VSS	200	2½	65	15.00	3.00	8.00	6.25	6.25	9.75	8.50
B280VSS	100	3	80	15.00	3.00	8.00	6.75	6.25	9.75	8.50

\*Handles not available on spring return series or dual mounted actuators

### Dimensions with 2xGM... and 3-Way Valve



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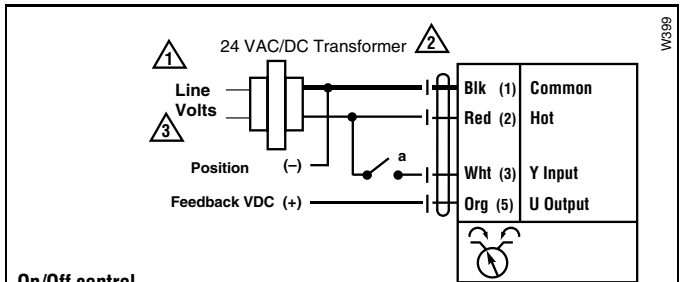
Valve Nominal Size Dimensions (Inches)

Valve Body	COP	Inches	DN [mm]	A	B	C	D	E	F	H1*	H2*
B350VS	200	2	50	15.00	8.00	8.00	5.38	2.75	6.25	9.75	8.50

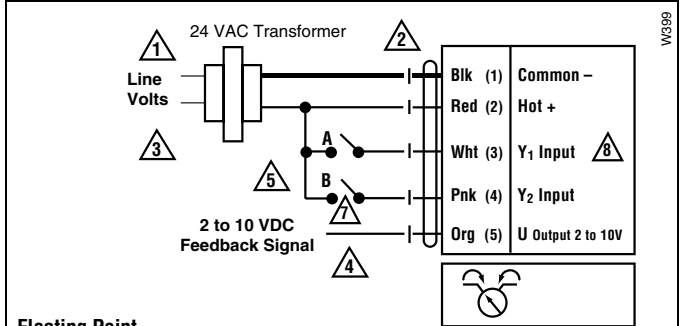
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### Wiring Diagrams

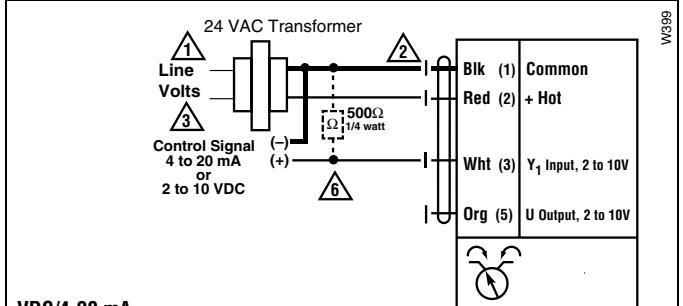
- 1 Provide overload protection and disconnect as required.
- 2 Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 4 Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible. Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
- 5 ZG-R01 may be used.
- 6 Contact closures A & B also can be triacs.
- 7 A & B should both be closed for triac source and open for triac sink.
- 8 For triac sink the common connection from the actuator must be connected to the hot connection of the controller.



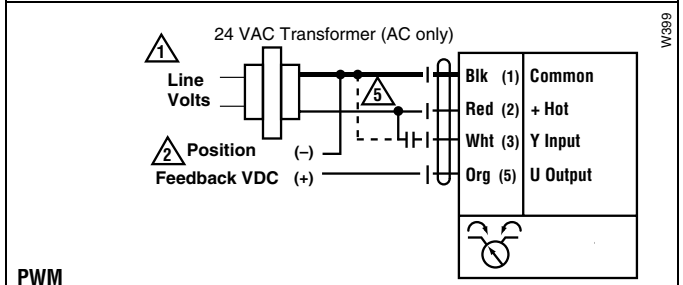
On/Off control



Floating Point



VDC/4-20 mA



PWM

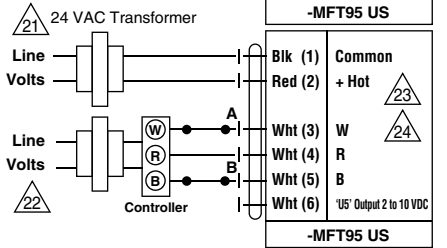
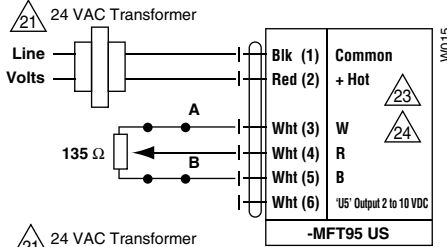
## INSTALLATION NOTES

- 21 Provide overload protection and disconnect as required.
- 22 Actuators and controller must have separate transformers.
- 23 Consult controller instruction data for more detailed information.
- 24 Resistor value depends on the type of controller and the number of actuators. No resistor is used for one actuator. Honeywell® resistor kits may also be used.
- 25 To reverse control rotation, use the reversing switch.

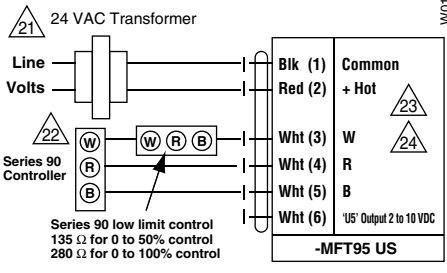
### Override

Switch A	Switch B	Damper Position
		Damper Open
		Damper Closed

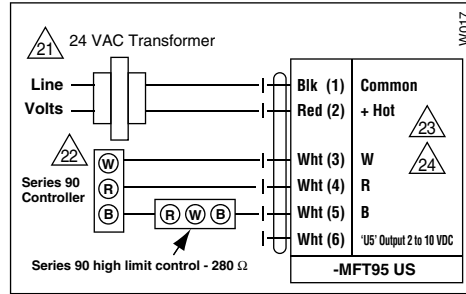
The direction of rotation switch is set so that the fail safe position and the position of the damper is closed with no signal at wire R.



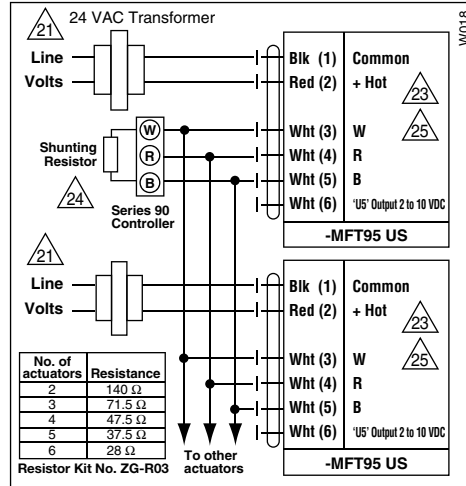
### Low Limit Control



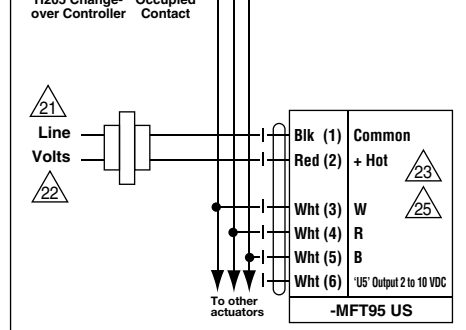
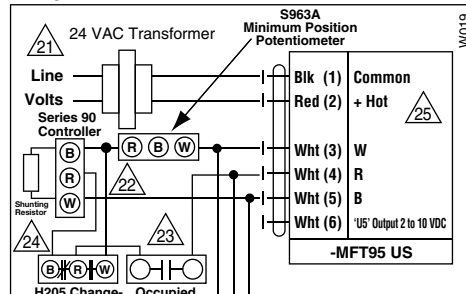
### High Limit Control



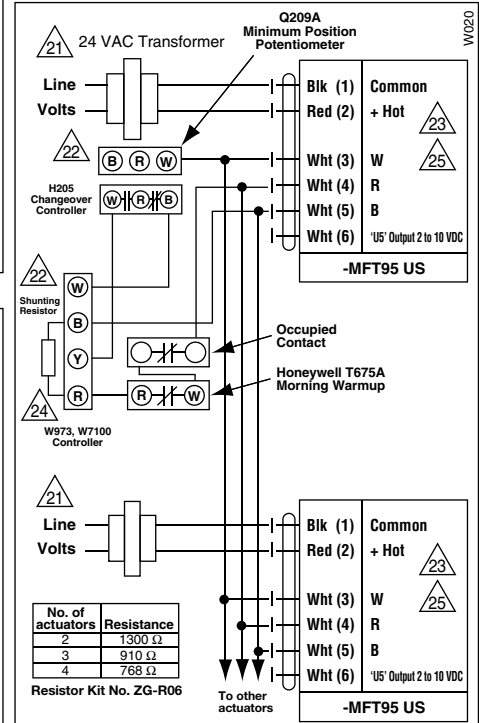
### Wiring Multiple Actuators to a Series 90 Controller



### Wiring Multiple Actuators to a Series 90 Controller using a Minimum Position Potentiometer



### Typical wiring diagrams for multiple actuators used with the W973, W7100 and T775 controllers



Used with the W973 and W7100 controllers

