

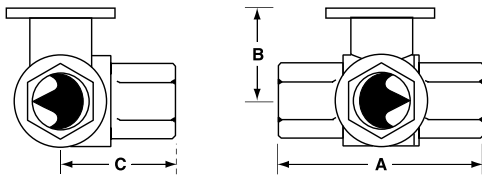
B3 Series, Three Way, Characterized Control Valve Stainless Steel Ball and Stem



Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Action	90° rotation
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	Tefzel®
Packing	2 EPDM O-rings, lubricated
Body pressure rating	
600 psi	½" - 1"
400 psi	1¼" - 2"
Media temp. range	0°F to 212°F [-18°C to 100°C]
Close off pressure	
200 psi	½" - 2"
Maximum differential pressure (ΔP)	30 psi for typical applications
Leakage	0% for A to AB <2.0% for B to AB
External leakage	according to EN 12266-1:2003
C _v rating	A-port: see product chart for values B-port: 70% of A to AB C _v

Tefzel® is a registered trademark of DuPont

Dimensions



3Way Valve-B307-B320

Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B307-B311	½"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312-B315	½"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317-B320	¾"	20	2.73" [69.3]	1.87" [47.4]	1.47" [37.3]
B322-B325	1"	25	3.09" [78.4]	1.87" [47.4]	1.59" [40.3]
B329-B331	1¼"	32	3.96" [100.6]	2.27" [57.7]	2.14" [54.3]
B338-B341	1½"	40	4.39" [111.6]	2.51" [63.7]	2.40" [61.1]
B347-B352	2"	50	4.90" [124.5]	2.73" [69.5]	2.74" [69.7]

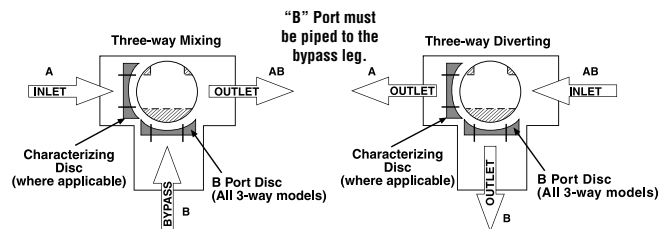
Application

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 or constant flow.

C _v	Valve Nominal Size		Type	Suitable Actuators		
	Inches	DN [mm]	3-Way NPT	Non-Spring	Spring	
0.3	½"	15	B307	TR Series	LR Series	NR...M4 Series
0.46	½"	15	B308			
0.8	½"	15	B309			
1.2	½"	15	B310			
1.9	½"	15	B311			
3	½"	15	B312			
4.7	½"	15	B313			
10	½"	15	B315*			
4.7	¾"	20	B317			
7.4	¾"	20	B318			
24	¾"	20	B320*	TF Series	LF Series	
7.4	1"	25	B322			
10	1"	25	B323			
30	1"	25	B325*			
10	1¼"	32	B329			
19	1¼"	32	B330			
25	1¼"	32	B331			
19	1½"	40	B338			
29	1½"	40	B339			
37	1½"	40	B340			
46	1½"	40	B341	AR Series	AR...M4 Series	
29	2"	50	B347			
37	2"	50	B348			
46	2"	50	B349			
57	2"	50	B350			
68	2"	50	B351			
83	2"	50	B352			

*Models without characterizing disc

Flow Patterns



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MFT



Models

- AFRX24-MFT
- AFRX24-MFT-S
- AFRX24-MFT-5-14
- AFRX24-MFT-S-5-14

Technical Data	
Control	MFT
Control signal	2 to 10 VDC, 4 to 20 mA (default) variable (VDC, PWM, floating point, on/off)
Power supply	24 VAC, +/- 20%, 50/60 Hz 24 VDC, +20% / -10%
Power consumption†	running 7.5 W holding 3 W
Transformer sizing†	10 VA (Class 2 power source)
Electrical connection	3 ft. [1m], 10 ft. [3m] or 16 ft. [5m] 18 GA appliance or plenum cables, with or without 1/2" conduit connector -S models: two 3 ft. [1m], 10 ft. [3m] or 16 ft. [5m] appliance cables with or without 1/2" conduit connectors
Overload protection	electronic throughout 0 to 90° rotation
Feedback output*	2 to 10 VDC, 0.5 mA max (variable)
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
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° (0° is spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Running time	motor* 150 seconds (default), variable (70 to 220 seconds) spring <20 sec @ -4°F to 122°F [-20°C to 50°C]
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Housing	NEMA 2, IP54, Enclosure Type 2
Agency listings	cULus according. To UL60730-1A/-2-14, CAN/CSA E60730- 1:02, CE according. To 2004/108/EC & 2006/95/EC
Noise level	≤40dB(A) motor @ 150 seconds, run time dependent ≤62dB(A) spring return
Quality standard	ISO 9001

† Programmed for 70 sec motor runtime. At 150 sec motor run time, transformer sizing is 8.5 VA and power consumption is 6 W running/3 W holding.

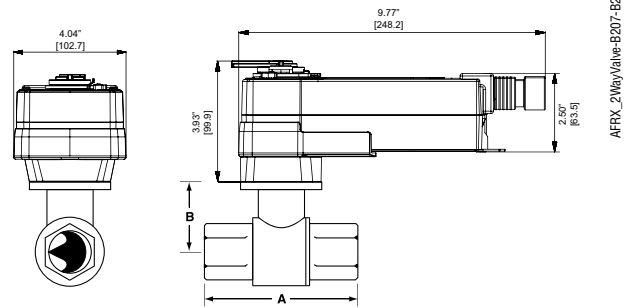
* Variable when configured with MFT options

‡ Rated Impulse Voltage 800V, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.

AFRX24-MFT-S, AFRX24-MFT-S-5-14

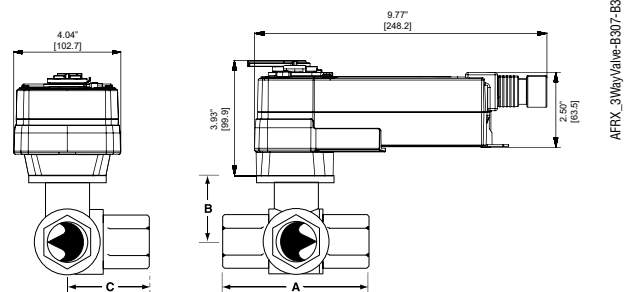
Auxiliary switches	2 x SPDT 3A (0.5A) @ 250 VAC, UL approved one set at +10° to 90°
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Dimensions



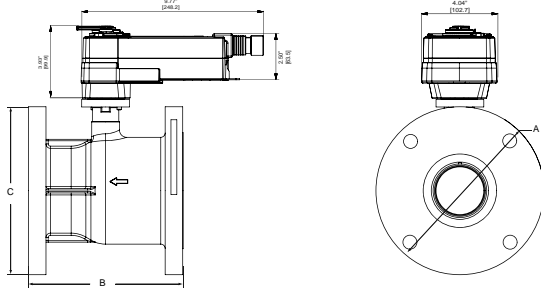
Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
B212-B215	1/2"	15	2.38" [60.4]	1.72" [43.7]
B217-B220	3/4"	20	2.73" [69.3]	1.81" [45.9]
B222-B225	1"	25	3.09" [78.4]	1.81" [45.9]
B229-B230	1 1/4"	32	3.72" [94.6]	1.81" [45.9]
B231-B232	1 1/4"	32	3.72" [94.6]	1.98" [50.4]
B238-B240	1 1/2"	40	3.88" [98.5]	1.98" [50.4]
B248-B250	2"	50	4.21" [107.0]	2.21" [56.2]
B251-B254	2"	50	4.93" [125.2]	2.68" [68.0]
B261-B265	2 1/2"	65	5.55" [140.9]	2.68" [68.0]
B277-B280	3"	80	5.82" [147.9]	2.68" [68.0]

Dimensions



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B312-B315	1/2"	15	2.38" [60.4]	1.72" [43.7]	1.26" [32.1]
B317-B320	3/4"	20	2.73" [69.3]	1.81" [45.9]	1.45" [36.8]
B322-B325	1"	25	3.09" [78.4]	1.81" [45.9]	1.56" [39.8]
B329-B331	1 1/4"	32	3.96" [100.6]	2.21" [56.2]	2.14" [54.3]
B338-B341	1 1/2"	40	4.39" [111.6]	2.45" [62.2]	2.33" [59.1]
B347-B352	2"	50	4.90" [124.5]	2.68" [68.0]	2.60" [66.0]

Dimensions



AFR_L66CV

Valve Body	Nominal Pipe Size	Top Flange Design	Flange Diameter	Face-to-Face Length	Height
			A	B	C
B6250	2½" [65]	F05	7.50" [190.5]	5.50" [139.7]	8.10" [205.4]
B6300	3" [80]		8.00" [203.2]	6.60" [167.6]	8.40" [213.1]
B6400	4" [100]		9.00" [228.6]	8.30" [210.8]	9.30" [235.9]

Wiring Diagrams

INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 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 Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible.
- 5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
- 8 Contact closures A & B also can be triacs.
- 8 A & B should both be closed for triac source and open for triac sink.
- 9 For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

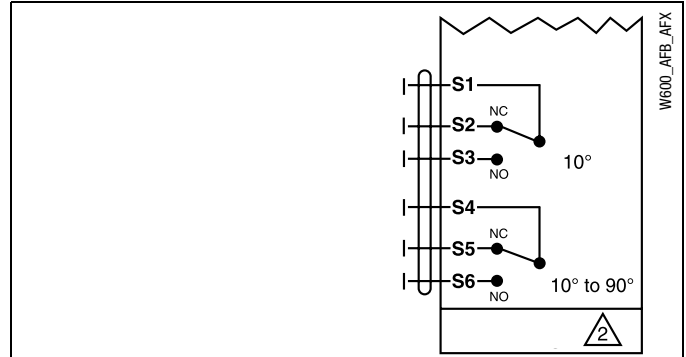
APPLICATION NOTES

- ◆ Meets UL requirements without the need of an electrical ground connection.
- ◆ The ZG-R01 500 Ω resistor may be used.

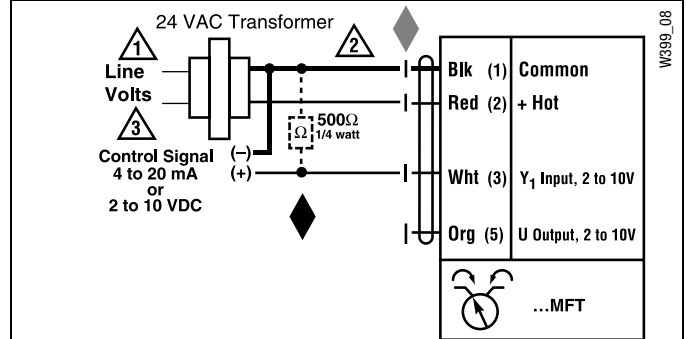
WARNING Live Electrical Components!

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.

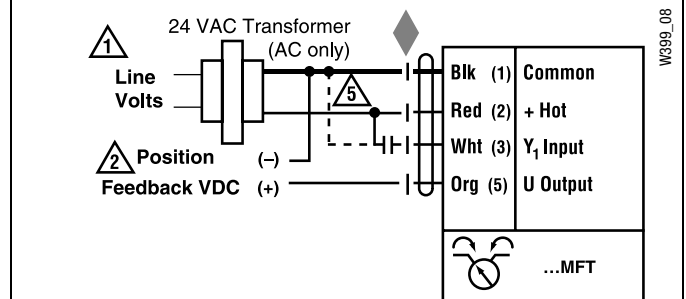
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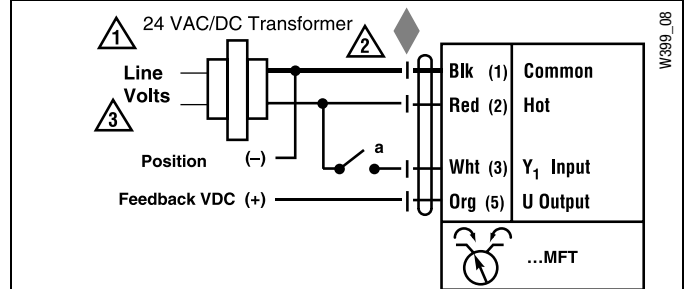
Auxiliary Switches for AFRX24-MFT



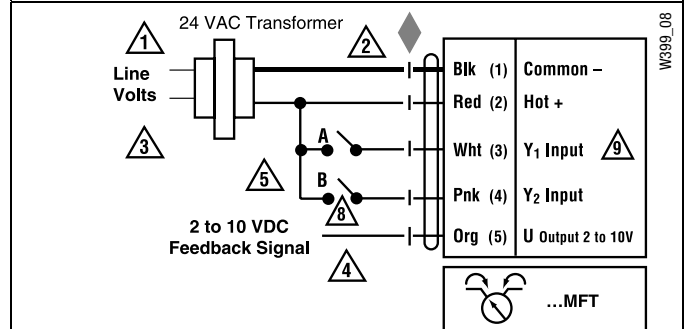
VDC/4-20 mA



PWM



On/Off control



Floating Point control