

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

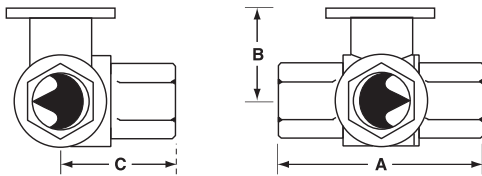


Technical Data

Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable Flow Range	75°
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 250°F [-18°C to 120°C]
Close off pressure	
200 psi	½" - 2"
Maximum differential pressure (ΔP)	50 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 Nominal Size			Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
B307-B311	½"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312-B316	½"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317-B321	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

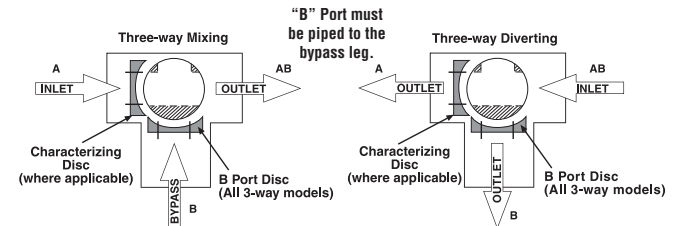
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable or constant flow.

* (Not for use in change over applications)

Valve Nominal Size			Type	Suitable Actuators	
C _v	Inches	DN [mm]	3-Way NPT	Non-Spring	Spring
0.3	½"	15	B307	TR Series	LR Series NR...N4 Series TF Series LF 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		
16	½"	15	B316		
4.7	¾"	20	B317		
7.4	¾"	20	B318	AR Series AR...N4 Series	AF Series
14	¾"	20	B320		
24	¾"	20	B321		
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	AR...N4 Series	AF Series
37	1½"	40	B340		
46	1½"	40	B341		
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



P10419 - 09/13 - Subject to change. © Belimo Aircontrols (USA), Inc.



Models

AFRB24
AFRB24-S
AFRX24
AFRX24-S

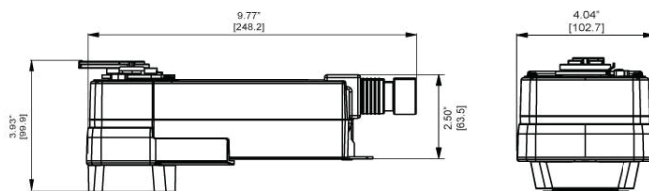
Technical Data	
Power supply	24 VAC $\pm$ 20% 50/60 Hz 24 VDC +20% / -10%
Power consumption	running 5 W holding 2.5 W
Transformer sizing	7.5 VA (class 2 power source)
Electrical connection	
AFRB24...	3 ft., 18 GA appliance cable, 1/2" conduit connector -S models: two 3 ft., 18 gauge appliance cables with 1/2" conduit connectors
AFRX24...	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 95° rotation
Control	on/off
Direction of rotation	spring reversible with CW/CCW mounting
Angle of rotation	95°
Running time	motor < 75 seconds spring 20 seconds @ -4°F to 122°F [-20°C to 50°C]; < 60 seconds @ -22°F [-30°C]
Position indication	visual indicator, 0° to 95° (0° is full spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Ambient temperature	-22°F to 122°F [-30°C to 50°C]
Storage temperature	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA 2, IP54, Enclosure Type2
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	<50dB(A) motor @ 75 seconds <62dB(A) spring return
Quality standard	ISO 9001

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

AFRB24-S, AFRX24-S

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



Wiring Diagrams

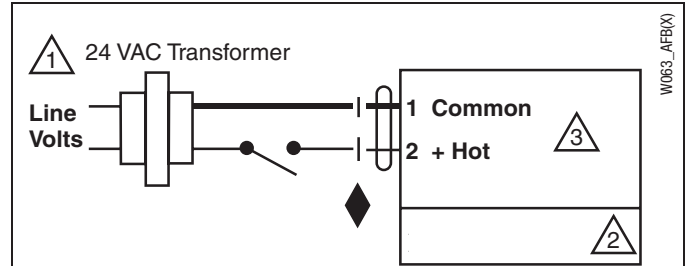
✂️ INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!**
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 4 For end position indication, interlock control, fan startup, etc., AFRB24-S and AFRX24-S incorporates two built-in auxiliary switches: 2 x SPDT, 3A (0.5A) @250 VAC, UL Approved, one switch is fixed at +10°, one is adjustable 10° to 90°.

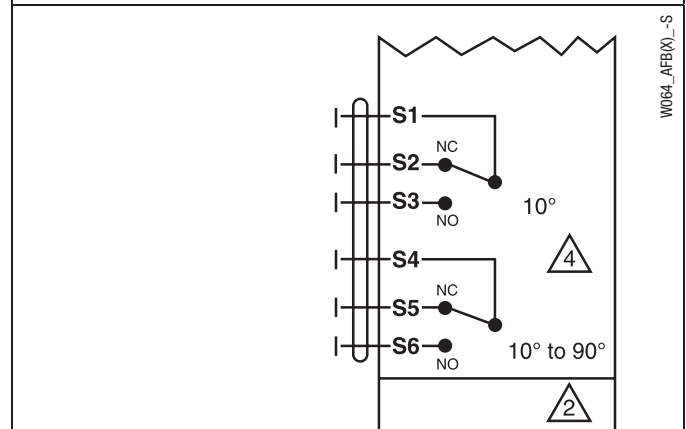
📄 APPLICATION NOTES

- ◆ Meets cULus 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.



On/Off wiring for AFRB24, AFRX24



Auxiliary Switches for AFRB24-S, AFRX24-S