

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

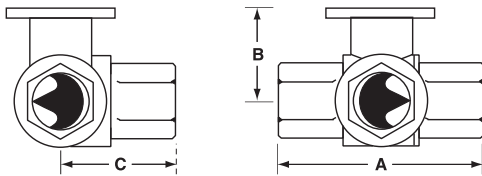


Technical Data

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

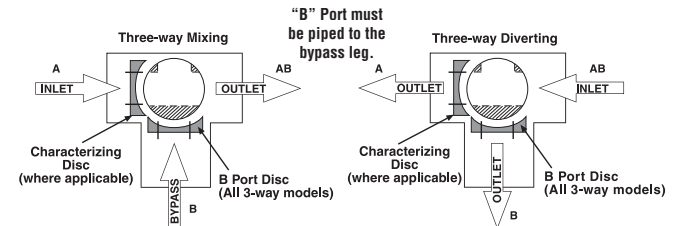
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable or constant flow.

* (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

LF24 US	
LF24-S US	w/built-in Aux. Switch
LF120 US	
LF120-S US	w/built-in Aux. Switch

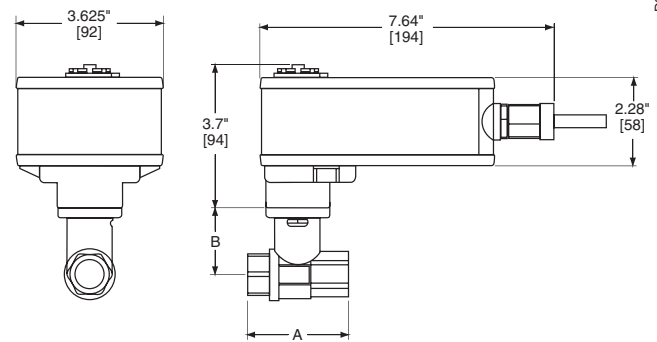
Technical Data	
Control	on/off
Power supply	
LF24(-S) US	24 VAC $\pm$ 20% 50/60 Hz
LF120(-S) US	24 VDC $\pm$ 10%
Power consumption	
LF24(-S) US	running 5 W
LF24(-S) US	holding 2.5 W
LF120(-S) US	running 5.5 W
LF120(-S) US	holding 3.5 W
Transformer sizing	
LF24(-S) US	7 VA, class 2 power source
LF120(-S) US	7.5 VA, class 2 power source
Electrical connection	1/2" conduit connector
(-S models have 2 cables)	3 ft [1m], 18 GA appliance cable
Electrical protection	120V actuators double insulated
Overload protection	electronic throughout rotation
Angle of rotation	95°
Spring return direction	reversible with CW/CCW mounting
Position indication	visual indicator 0° to 90°
Running time	motor <40 to 75 seconds (on/off)
spring	<25 sec. @-4°F to 122°F [-20°C to 50°C]
spring	<60 sec. @-22°F [-30°C]
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Housing	NEMA 2
Agency listings†	cULus according to UL 873 and CAN/CSA C22.2 No. 24-93
Noise level (max)	running <30 db(A)
spring return	62 db(A)
Quality standard	ISO 9001

LF...S US

Auxiliary switch	1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)
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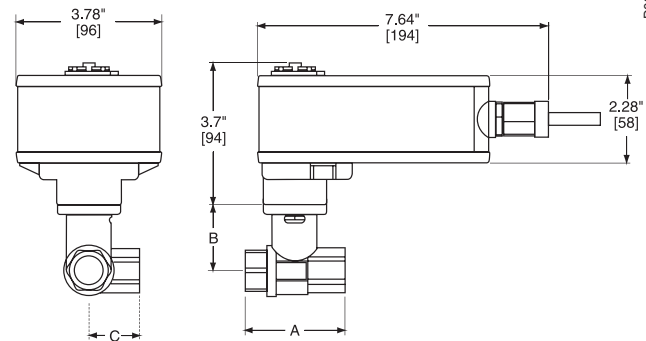
† Rated impulse voltage 800V (4kV for 120V model), Control pollution degree 3, Type of action 1.AA (1.AA.B for -S models)

Dimensions with 2-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
B207(B)-B211(B)	1/2"	15	2.41" [61.1]	1.39" [35.2]
B212(B)-B215(B)	1/2"	15	2.38" [60.4]	1.78" [45.2]
B217(B)-B220(B)	3/4"	20	2.73" [69.3]	1.87" [47.4]
B222-B225	1"	25	3.09" [78.4]	1.87" [47.4]
B229-B230	1 1/4"	32	3.72" [94.6]	1.87" [47.4]

Dimensions with 3-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B307(B)-B311(B)	1/2"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312(B)-B315(B)	1/2"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317(B)-B320(B)	3/4"	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]

Wiring Diagrams

✂️ INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 **CAUTION Equipment damage!**
Actuators may be connected in parallel.
Power consumption must be observed.

3 Actuator may also be powered by 24 VDC.

4 For end position indication, interlock control, fan startup, etc.,
LF24-S US and LF120-S US incorporates a built-in auxiliary switch:
1 x SPDT, 6A (1.5A) @ 250 VAC, UL listed, adjustable 0° to 95°.

📋 APPLICATION NOTES

◆ 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.

