



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.

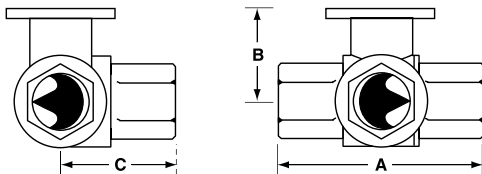
Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Action	90° rotation
Sizes	½", ¾"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	nickel plated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

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C _v	Valve Nominal Size		Type	Suitable Actuators			
	Inches	DN [mm]	3-way NPT	Non-Spring	Spring		
0.3	½	15	B307B	TR Series	LR Series		
0.46	½	15	B308B				
0.8	½	15	B309B				
1.2	½	15	B310B				
1.9	½	15	B311B				
3	½	15	B312B				
4.7	½	15	B313B				
10	½	15	B315B*				
4.7	¾	20	B317B			TF Series	LF Series
7.4	¾	20	B318B				
24	¾	20	B320B*				

*Models without characterizing disc

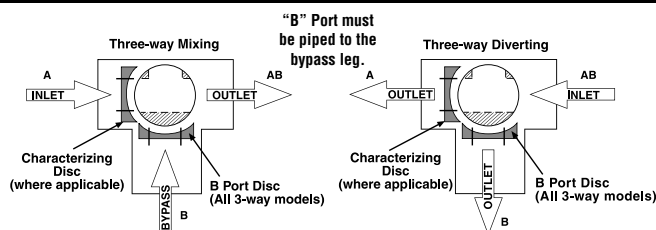
Dimensions



3Way/Valve-B307-B320

Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B307B-B311B	½"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312B-B315B	½"	15	2.38" [60.4]	1.72" [43.7]	1.26" [32.1]
B317B-B320B	¾"	20	2.73" [69.3]	1.81" [45.9]	1.45" [36.8]

Flow Patterns



TF24-SR US Actuators, Proportional



Models

TF24-SR US
TF24-SR-S US w/built-in Aux. Switch

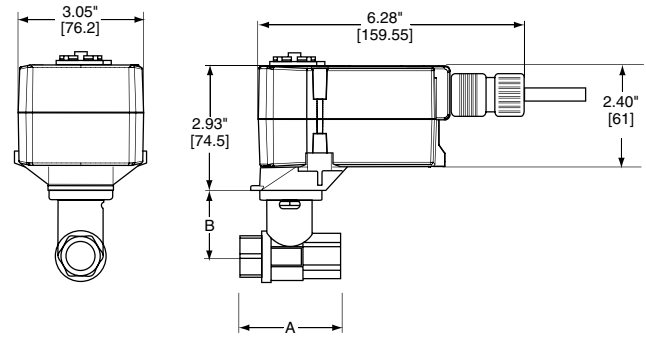
Technical Data	
Control	Proportional
Power supply	24 VAC ± 20%, 50/60 Hz 24 VDC ± 10%
Power consumption	running 2.5 W holding 1.0 W
Transformer sizing	4 VA (class 2 power source)
Electrical connection (-S models have 2 cables)	½" conduit connector 18 GA plenum rated cable TF24-SR US 3 ft [1m] TF24-SR /300 US 10 ft [3m] TF24-SR /500 US 16 ft [5m]
Electrical protection	actuators are double insulated
Overload protection	electronic throughout 0° to 95° rotation
Operating range Y	2 to 10 VDC, 4 to 20 mA
Input impedance	100k Ω (0.1mA), 500 Ω
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°
Running time	motor 95 sec constant, independent of load spring <25 sec @ -4°F to 122°F [-20°C to 50°C] <60 sec @ -22°F [-30°C]
Humidity	5 to 95% RH non-condensing
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 type 2/IP42
Housing material	UL94 - 5VA
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 for line voltage and/or -S versions
Noise level (max)	running <35 db (A) spring return <62 db (A)
Quality standard	ISO 9001

TF24-SR-S US

Auxiliary switch 1 x SPDT, 3A (0.5A) @ 250 VAC, UL Listed, adjustable 0° to 95°

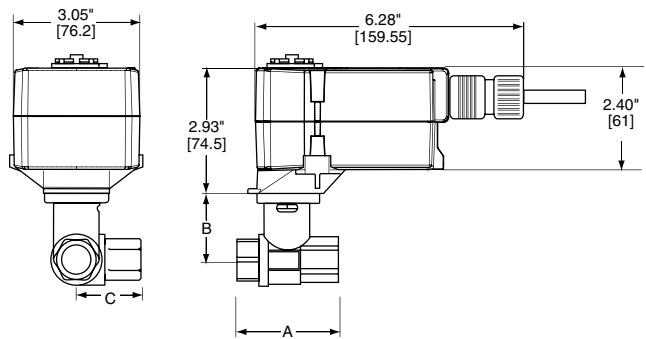
† Rated impulse voltage 800V (4kV for 120V model), Control pollution degree 3, Type of action 1.AA (1.AA.B for -S models)

Dimensions with 2-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
B207(B)-B211(B)	½"	15	2.41" [61.1]	1.39" [35.2]
B212(B)-B215(B)	½"	15	2.38" [60.4]	1.72" [43.7]
B217(B)-B220(B)	¾"	20	2.73" [69.3]	1.81" [45.9]

Dimensions with 3-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B307(B)-B311(B)	½"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312(B)-B315(B)	½"	15	2.38" [60.4]	1.72" [43.7]	1.26" [32.1]
B317(B)-B320(B)	¾"	20	2.73" [69.3]	1.81" [45.9]	1.45" [36.8]

L30034 - 07/09 - Subject to change. © Belimo Aircontrols (USA), Inc.

Wiring Diagrams

INSTALLATION NOTES

- 2 **CAUTION Equipment damage!**
Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- 4 Up to 4 actuators may be connected in parallel. With 4 actuators wired to one 500 Ω resistor, a +2% shift of control signal may be required. Power consumption must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 5 Only connect common to neg. (—) leg of control circuits.
- 6 Actuators with plenum rated cable do not have numbers on wires; use color codes instead.
- 7 For end position indication, interlock control, fan startup, etc., TF24-SR-S US incorporates one built-in auxiliary switch: 1 x SPDT, 3A (0.5A) @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.

