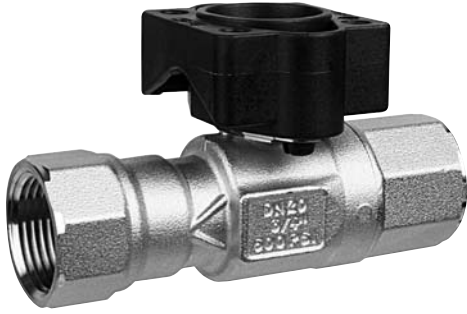


# B2...HT... Two-way High Temperature Characterized Control Valve

## Stainless Steel Ball and Stem



### 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.

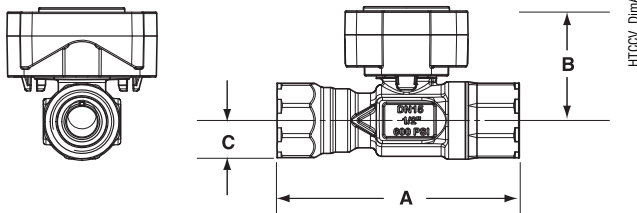
This valve is designed to fit in compact areas where on/off or floating point control is required using 24 VAC.

Technical Data	
Service	water/low pressure steam, 60% glycol
Flow characteristic	A-port equal percentage
Sizes	½", ¾", 1"
Type of end fitting	female, NPT
Materials:	
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seats	PTFE Teflon
Characterizing disc	PTFE Teflon
Packing	2 EPDM O-rings
Pressure rating	600 psi
Media temperature range	
Steam	250°F (15 psig)
Hot water	37°F - 266°F
Close off pressure	200 psi
Maximum differential pressure (ΔP)	116 psi full open ball 60 psi partially open ball
Leakage	bubble tight 0%

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]	2-way NPT	Spring	Non-Spring
0.29	½	15	B215HT029	TF Series	TR Series
0.46	½	15	B215HT046		
0.73	½	15	B215HT073		
1.16	½	15	B215HT116		
1.86	½	15	B215HT186		
2.90	½	15	B215HT290		
4.55	½	15	B215HT455*	LF Series	LR Series
1.86	¾	20	B220HT186		
2.90	¾	20	B220HT290		
4.64	¾	20	B220HT464		
7.31	¾	20	B220HT731		
9.28	¾	20	B220HT928		
13.20	¾	20	B220HT1320		
4.64	1	25	B225HT464		
7.31	1	25	B225HT731		
11.6	1	25	B225HT1160		
18.56	1	25	B225HT1856		
28.00	1	25	B225HT2800		

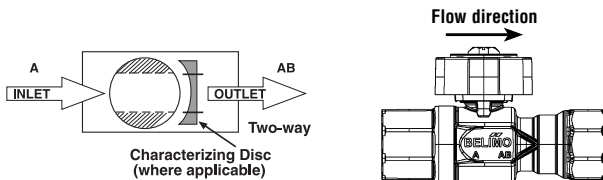
\* modified equal percentage

### Dimensions



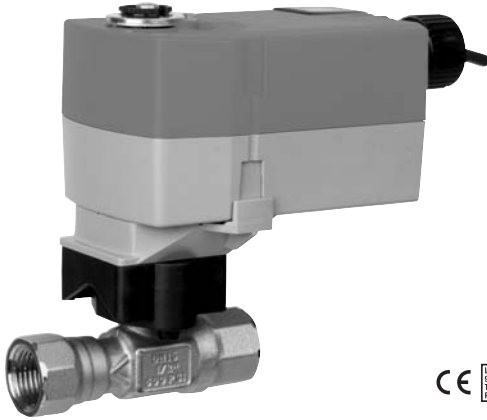
Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B215HT	½"	15	3.33" [84.6]	2.09" [53.2]	0.53" [13.5]
B220HT	¾"	20	3.96" [100.6]	2.37" [60.1]	0.67" [17.0]
B225HT	1"	25	5.14" [130.6]	3.14" [79.8]	0.92" [23.25]

### Flow Patterns

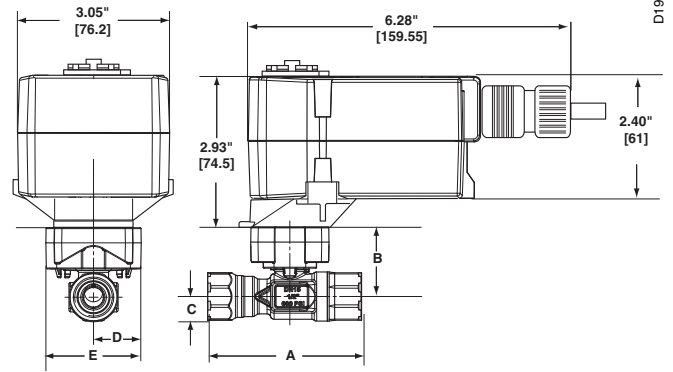


L30059 - 08/09 - Subject to change. © Belimo Aircontrols (USA), Inc.

# TF24-3 Actuators, Floating Point



## Dimensions with 2-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B215HT	1/2"	15	3.33" [84.6]	2.09" [53.2]	0.53" [13.5]

## Models

- TF24-3 US
- TF24-3-S US w/built-in Aux. Switch

Technical Data	
Control	Floating
Power supply	24VAC ± 20%, 50/60Hz
Power consumption	running 2.5 W holding 1.0 W
Transformer sizing	4 VA (class 2 power source)
Electrical connection	3 ft, 18 GA appliance cable (-S model has 2 cables) (6 ft, 10 ft cables optional) 1/2" conduit connector
Overload protection	electronic throughout 0° to 95° rotation
Input impedance	1000 Ω (0.6w) control inputs
Angle of rotation	95°
Torque	min. 18 in-lb [2 Nm]
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 acc. to UL60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level (max)	running < 35 db (A) spring return 62 db (A)
Quality standard	ISO 9001

TF24-3-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)

### Wiring Diagrams

#### INSTALLATION NOTES



#### CAUTION Equipment damage!

Actuators may be connected in parallel.  
Power consumption and input impedance must be observed.



The common connection from the actuator must be connected to the Hot connection of the controller.



The actuator Hot must be connected to the control board common.



For end position indication, interlock control, fan startup, etc., TF24-3-S US incorporates one built-in auxiliary switch: 1 x SPDT, 3A (0.5A) @250 VAC, UL listed, adjustable 0° to 95°.



Actuators with plenum rated cable do not have numbers on wires; use color coded instead. Actuators with appliance rated cable use numbers.



#### APPLICATION NOTES

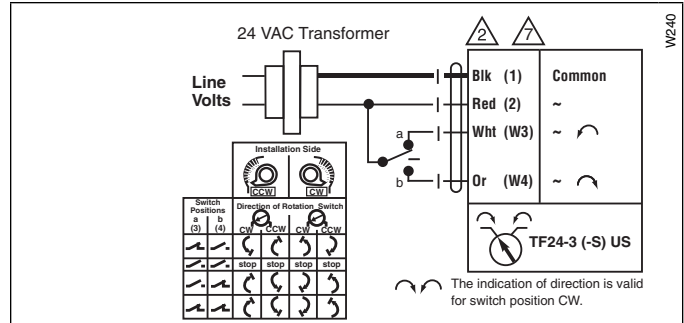


Meets cULus or UL and CSA requirements without the need of an electrical ground connection.



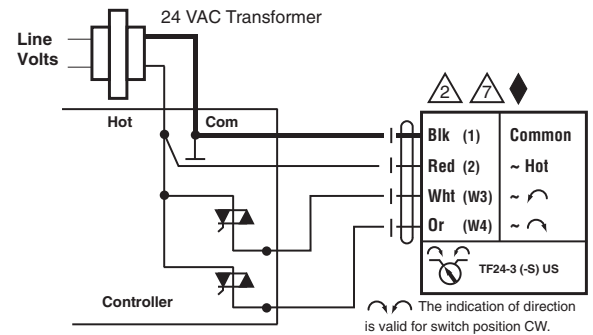
#### WARNING Live Electrical Components!

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.



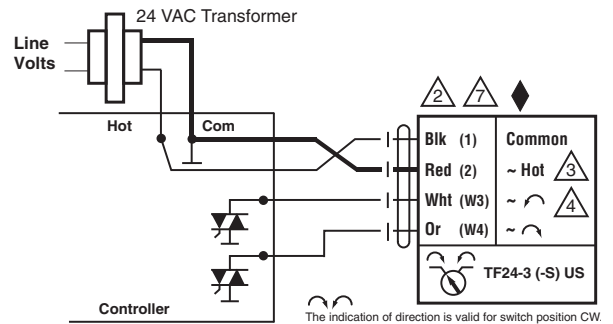
Floating point control

W240



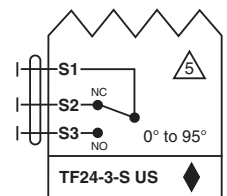
Triac source

W242



Triac sink with separate transformers

W243



Auxiliary switch

W241