

# B3 Series, 3-Way, Characterized Control Valve Chrome Plated Brass Ball and Brass Stem

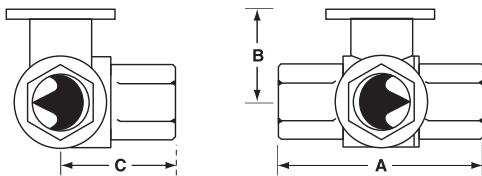


## Technical Data

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	1/2", 3/4"
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
Body pressure rating	600 psi
Media temp. range	0°F to 250°F [-18°C to 120°C]
Close off pressure	200 psi
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 <sub>v</sub> rating	A-port: see product chart for values B-port: 70% of A to AB C <sub>v</sub>

Tefzel® is a registered trademark of DuPont

## Dimensions

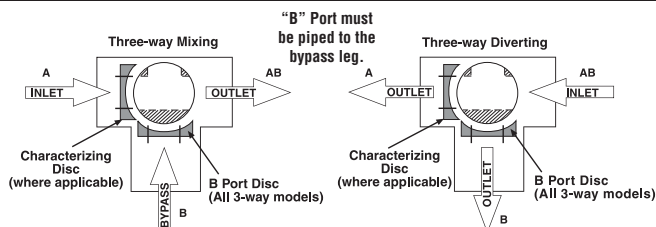


3WayValve-B307-B320

### Valve Nominal Size      Dimensions (Inches [mm])

Valve Body	Inches	DN [mm]	A	B	C
B307B-B311B	1/2"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312B-B316B	1/2"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317B-B321B	3/4"	20	2.73" [69.3]	1.87" [47.4]	1.47" [37.3]

## Flow Patterns



## 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)

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators			
	Inches	DN [mm]	3-way NPT	Non-Spring		Spring	
0.3	1/2	15	B307B	TR Series	LR Series	TF Series	LF Series
0.46	1/2	15	B308B				
0.8	1/2	15	B309B				
1.2	1/2	15	B310B				
1.9	1/2	15	B311B				
3	1/2	15	B312B				
4.7	1/2	15	B313B				
10	1/2	15	B315B				
16	1/2	15	B316B				
4.7	3/4	20	B317B				
7.4	3/4	20	B318B				
14	3/4	20	B320B				
24	3/4	20	B321B				

\*Models without characterizing disc

# TR24-SR Actuators, Proportional



## Models

### TR24-SR-T US

TR24-SR US	TR24-SR-T US with 3 ft plenum rated cable
TR24-SR/300 US	TR24-SR-T US with 10 ft plenum rated cable
TR24-SR/500 US	TR24-SR-T US with 16 ft plenum rated cable

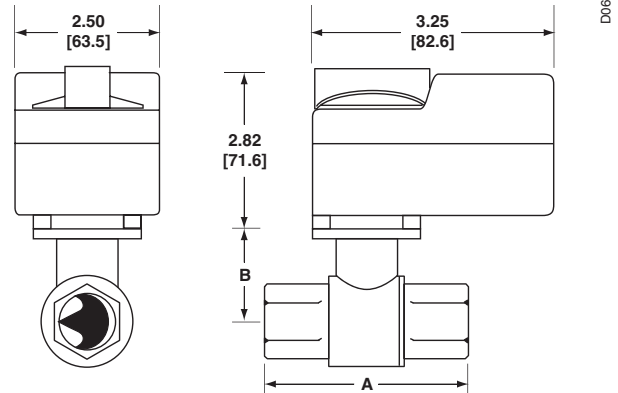
## Technical Data

Control	proportional
Nominal voltage	24 VAC 50/60 Hz, 24 VDC
Nominal voltage range	19.2...28.8 VAC, 21.6...28.8 VDC
Power consumption	0.5 W
Transformer sizing	1VA (class 2 power source)
Electrical connection	screw terminals accessible after removal of small cover (3 ft, 10 ft, 16 ft cables optional)
Input impedance	100 kΩ
Angle of rotation	90°
Direction of rotation	reversible with switch under cover
Position indication	integrated into handle
Manual override	push down handle
Running time	90 seconds
Humidity	5 to 95% 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 1/IP40
Housing rating	UL94-5V(B)
Agency listing†	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. 35 db (A)
Quality standard	ISO 9001

† Rated impulse voltage 500V, Control pollution degree 2, Type of action 1

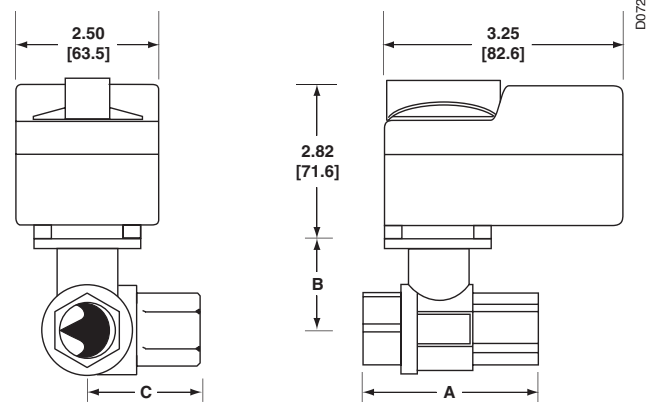
**NOTE:** Response sensitivity is 75mV

## 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]	1.78" [45.2]
B217(B)-B221(B)	¾"	20	2.73" [69.3]	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)	½"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312(B)-B315(B)	½"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317(B)-B321(B)	¾"	20	2.73" [69.3]	1.87" [47.4]	1.47" [37.3]

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### Wiring Diagrams

#### ✂ **INSTALLATION NOTES**

△<sup>2</sup> Actuators with color coded wires are optional. Wire numbers are provided for reference.

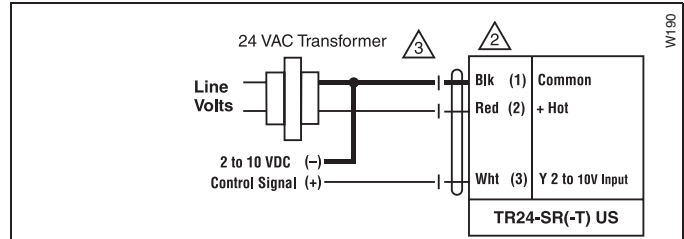
**CAUTION Equipment damage!**

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

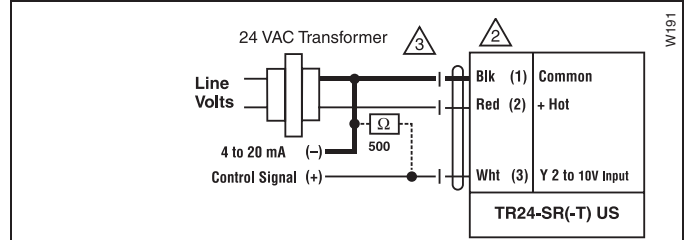
△<sup>3</sup> Actuators may also be powered by 24 VDC.

**⚠ 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.



2 to 10 VDC Control of TR24-SR(-T) US



4 to 20 mA Control of TR24-SR(-T) US

Direct/Reverse acting switch is under wiring cover.  
 R = CW with decrease in signal  
 L = CCW with decrease in signal  
 No feedback