**Technical data sheet** 

**B210B** 

Chrome Plated Brass Ball and Nickel Plated Brass Stem







#### **Technical data**

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Valve Size	0.5" [15]	
Fluid	chilled or hot water, up to 60% glycol	
Fluid Temp Range (water)	0250°F [-18120°C]	
Body Pressure Rating	600 psi	
Close-off pressure Δps	200 psi	
Flow characteristic	equal percentage	
Servicing	maintenance-free	
Flow Pattern	2-way	
Leakage rate	0% for A – AB	
Controllable flow range	75°	
Cv	1.2	
Body pressure rating note	600 psi	
Cv Flow Rating	A-port: as stated in chart B-port: 70% of A – AB Cv	
Valve body	Nickel-plated brass body	
Stem seal	EPDM (lubricated)	
Seat	PTFE	
Pipe connection	NPT female ends	
O-ring	EPDM (lubricated)	
Ball	chrome plated brass	

# Safety notes



Suitable actuators

Non-Spring

Materials

WARNING: This product can expose you to lead which is known to the State of California to cause cancer
and reproductive harm. For more information go to www.p65warnings.ca.gov

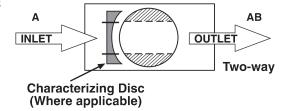
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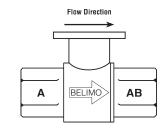
### **Product features**

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.

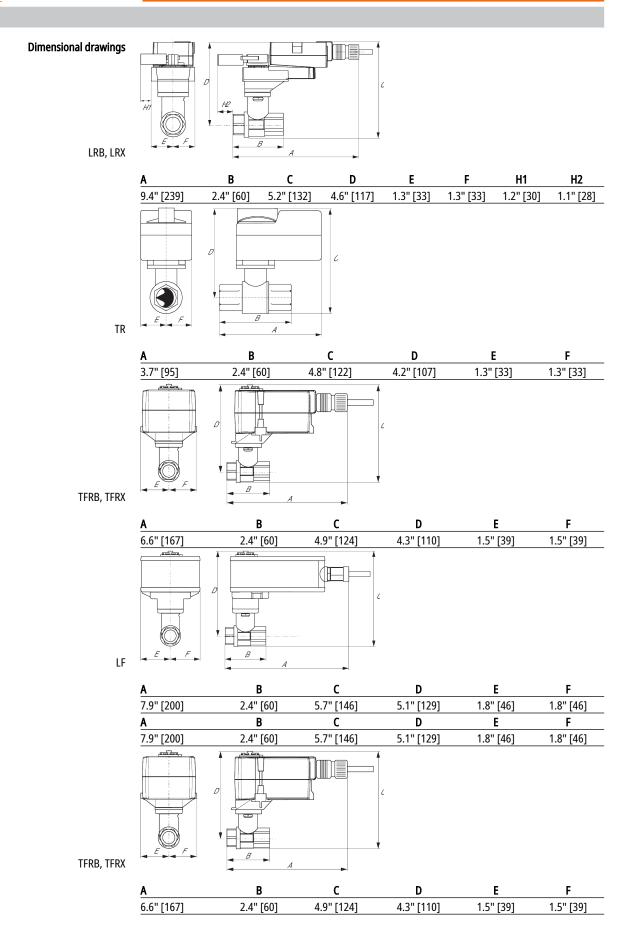
### Flow/Mounting details







## **Dimensions**



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Modulating, Spring Return, AC 24 V for DC 2...10 V or 4...20 mA Control Signal





TFRB24-SR



Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	2 W
	Power consumption in rest position	1 W
	Transformer sizing	4 VA (class 2 power source)
	Electrical Connection	18 GA plenum cable, 3 ft [1 m], with 1/2" conduit connector
	Overload Protection	electronic throughout 095° rotation
Functional data	Operating range Y	210 V
	Operating range Y note	420 mA w/ ZG-R01 (500 $\Omega$ , 1/4 W resistor)
	Input Impedance	100 k $\Omega$ for 210 V (0.1 mA), 500 $\Omega$ for 420 mA
	Position feedback U	210 V
	Position feedback U note	Max. 0.5 mA
	Direction of motion motor	selectable with switch 0/1
	Direction of motion fail-safe	reversible with cw/ccw mounting
	Angle of rotation	Max. 95°, 90°
	Angle of rotation note	90°
	Running Time (Motor)	95 s
	Running time fail-safe	<25 s tamb = 68°F [20°C]
	Noise level, motor	35 dB(A)
	Noise level, fail-safe	62 dB(A)
	Position indication	Mechanical
Safety data	Degree of protection IEC/EN	IP42
	Degree of protection NEMA/UL	NEMA 2 UL Enclosure Type 2
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/ EU; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC
	Quality Standard	ISO 9001
	Ambient temperature	-22122°F [-3050°C]
	Storage temperature	-40176°F [-4080°C]
	Ambient humidity	max. 95% r.H., non-condensing
	Servicing	maintenance-free
Weight	Weight	1.6 lb [0.80 kg]
Materials	Housing material	UL94-5VA

## **Electrical installation**

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#### > INSTALLATION NOTES

<u>1</u> Provide overload protection and disconnect as required.

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

Actuators may also be powered by 24 VDC.

S Only connect common to negative (-) leg of control circuits.

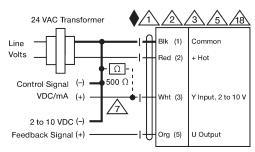
 $\Lambda$  A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

Actuators with plenum cable do not have numbers; use color codes instead.

• 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.



2...10 V / 4...20 mA Control