







#### **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	10
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

# Materials

**Suitable actuators** 

Valve body	Nickel-plated brass body
Stem seal	EPDM (lubricated)
Seat	PTFE
Pipe connection	NPT female ends
0-ring	EPDM (lubricated)
Ball	stainless steel
Non-Spring	TR LRB(X)

### Safety notes



 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

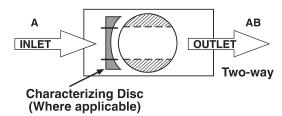
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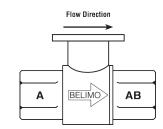
### **Product features**

## **Application**

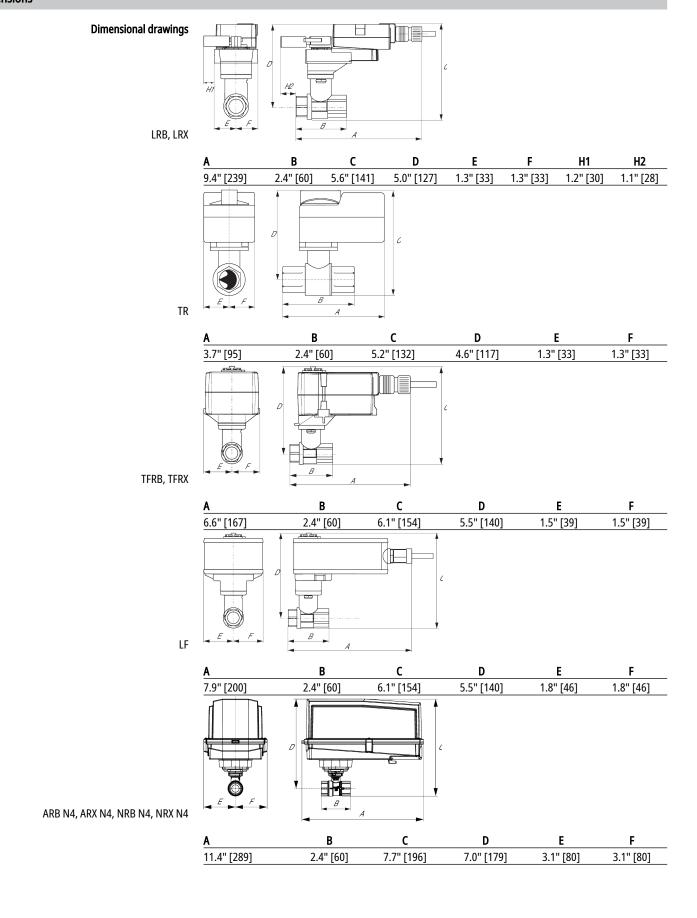
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

### Flow/Mounting details

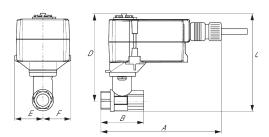




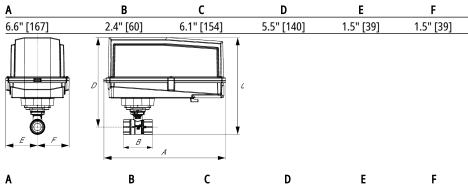








TFRB, TFRX



ARB N4, ARX N4, NRB N4, NRX N4

A	В	С	D	E	F
11.4" [289]	2.4" [60]	7.7" [196]	7.0" [179]	3.1" [80]	3.1" [80]

**Technical data sheet** 

TFRB24-SR-S

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







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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)
Auxiliary switch	1 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 095°
Switching capacity auxiliary switch	3 A resistive (0.5 A inductive) @ AC 250 V
Electrical Connection	(2) 18 GA appliance cables with 1/2" conduit connectors, 3 ft [1 m],
Overload Protection	electronic throughout 095° rotation
Operating range V	2 10 V

### Functional data

Operating range Y	210 V
Operating range Y note	420 mA w/ ZG-R01 (500 Ω, 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	1 8 lb [0 80 kg]	

# Weight

**1.8** lb [0.80 kg]

Materials Housing material

UL94-5VA

#### **Electrical installation**

### **X** INSTALLATION NOTES

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.

 $\frac{1}{2}$  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.

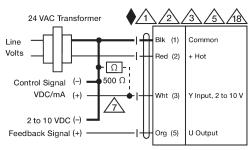
 $\lambda$  One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.

Meets cULus requirements without the need of an electrical ground connection.

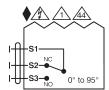
Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.

#### 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



**Auxiliary Switches**