



5-year warranty



Technical data

<b>Functional data</b>	Valve Size	0.5" [15]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	0...250°F [-18...120°C]
	Body Pressure Rating	600 psi
	Close-off pressure Δps	200 psi
	Flow characteristic	A-port Equal percentage; B-port modified linear for constant flow
	Servicing	maintenance-free
	Flow Pattern	3-way Mixing/Diverting
	Leakage rate	0% for A – AB, <2.0% for B – AB
	Controllable flow range	75°
	Cv	16
	Body pressure rating note	600 psi
	No Characterized Disc	TRUE
	Cv Flow Rating	A-port: as stated in chart B-port: 70% of A – AB Cv
<b>Materials</b>	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
<b>Suitable actuators</b>	Non-Spring	TR
		LRB(X)
		NR

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](http://www.p65warnings.ca.gov)

Product features

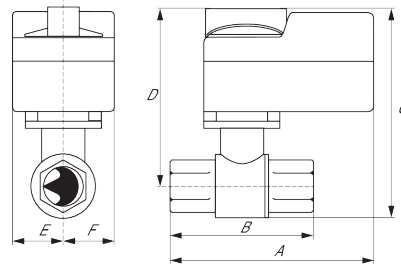
**Application** This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable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

**Flow/Mounting details**

**Dimensions**
**Dimensional drawings**


LRB, LRX

A	B	C	D	E	F	H1	H2
8.5" [216]	2.4" [60]	5.2" [132]	5.0" [127]	1.3" [33]	1.3" [33]	1.2" [30]	1.1" [28]



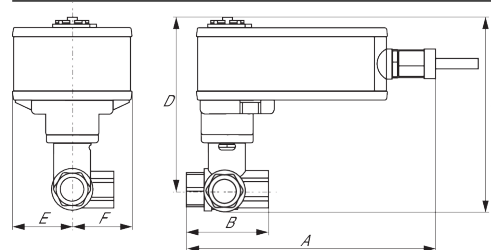
TR

A	B	C	D	E	F
3.7" [95]	2.4" [60]	5.2" [132]	4.6" [117]	1.3" [33]	1.3" [33]



TFRB, TFRX

A	B	C	D	E	F
6.6" [167]	2.4" [60]	4.9" [124]	4.7" [120]	1.5" [39]	1.3" [33]



LF

A	B	C	D	E	F
7.9" [200]	2.4" [60]	6.1" [154]	5.5" [140]	1.8" [46]	1.9" [48]

A	B	C	D	E	F
7.9" [200]	2.4" [60]	6.1" [154]	5.5" [140]	1.8" [46]	1.9" [48]



TFRB, TFRX

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Technical data

<b>Electrical data</b>	Nominal voltage	AC 24 V	
	Nominal voltage frequency	50/60 Hz	
	Power consumption in operation	1 W	
	Transformer sizing	1 VA (class 2 power source)	
	Electrical Connection	18 GA plenum cable, 3 ft [1 m]	
	Overload Protection	electronic throughout full rotation	
<b>Functional data</b>	Input Impedance	0.36 kΩ	
	Manual override	push down handle	
	Angle of rotation	90°	
	Running Time (Motor)	90 s / 90°	
	Noise level, motor	35 dB(A)	
	Position indication	Mechanically, pluggable	
<b>Safety data</b>	Degree of protection IEC/EN	IP40	
	Degree of protection NEMA/UL	NEMA 1 UL Enclosure Type 1	
	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	-22...122°F [-30...50°C]	
	Storage temperature	-40...176°F [-40...80°C]	
	Ambient humidity	max. 95% r.H., non-condensing	
	Servicing	maintenance-free	
	<b>Weight</b>	Weight	0.69 lb [0.31 kg]

Safety notes






- Cable for ZIP-RS232 US and ZIP-USB-MP US to Belimo gateways.
- Battery Back Up System for SY(7-10)-110
- 120 to 24 VAC, 40 VA transformer.
- Cable for ZTH US to actuators w/o diagnostics socket.
- MFT95 resistor kit for Series 90 control applications.
- 50% voltage divider kit (resistors with wires).
- PC Tool computer programming interface, serial port.

Electrical installation

**INSTALLATION NOTES**

- Provide overload protection and disconnect as required.
- Actuators may also be powered by 24 VDC.

-  Actuators cannot be wired in parallel.
-  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.

