



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 $\Delta$ ps | 200 psi  |
|                           | Flow characteristic            | A-port equal percentage, B-port modified for constant common port 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                             | 1.9  |
|                           | Body pressure rating note      | 600 psi  |
|                           | Cv Flow Rating                 | A-port: as stated in chart B-port: 70% of A – AB Cv                    |
|                           | <b>Materials</b>               | Valve body   |
| Stem seal                 |                                | EPDM (lubricated)  |
| Seat                      |                                | PTFE   |
| Pipe connection           |                                | NPT female ends  |
| O-ring                    |                                | EPDM (lubricated)  |
| Ball                      |                                | stainless steel  |
| <b>Suitable actuators</b> | Non-Spring                     | TR<br>LRB(X)<br>NRB(X) N4  |

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] | 4.6" [117] | 1.3" [33] | 1.3" [33] | 1.2" [30] | 1.1" [28] |



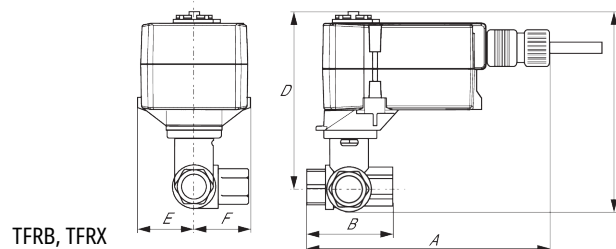
LRQB, LRQX

| A          | B         | C          | D          | E         | F         | H1        | H2        |
|------------|-----------|------------|------------|-----------|-----------|-----------|-----------|
| 8.9" [226] | 2.4" [60] | 5.7" [146] | 5.2" [131] | 1.6" [40] | 1.6" [40] | 1.2" [30] | 1.3" [33] |



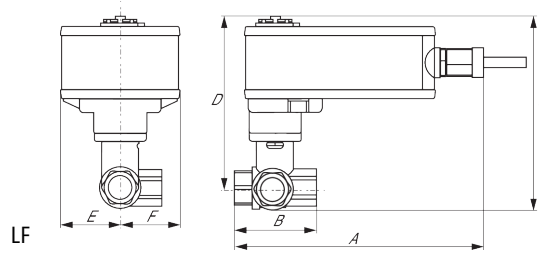
TR

| A         | B         | C          | D          | E         | F         |
|-----------|-----------|------------|------------|-----------|-----------|
| 3.7" [95] | 2.4" [60] | 4.8" [122] | 4.2" [107] | 1.3" [33] | 1.2" [31] |

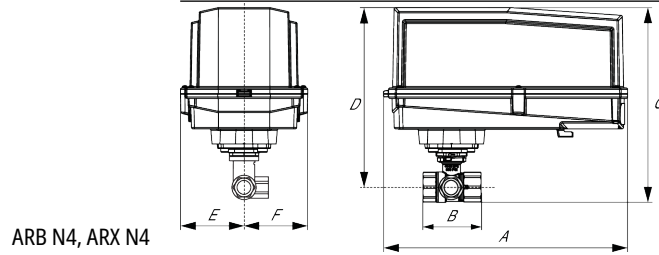


TFRB, TFRX

| A          | B         | C          | D          | E         | F         |
|------------|-----------|------------|------------|-----------|-----------|
| 6.6" [167] | 2.4" [60] | 4.9" [124] | 4.3" [110] | 1.5" [39] | 1.5" [39] |



| A          | B         | C          | D          | E         | F         |
|------------|-----------|------------|------------|-----------|-----------|
| 7.9" [200] | 2.4" [60] | 5.7" [146] | 5.1" [129] | 1.8" [46] | 1.8" [46] |



| A           | B         | C          | D          | E         | F         |
|-------------|-----------|------------|------------|-----------|-----------|
| 11.4" [289] | 2.4" [60] | 7.2" [184] | 6.7" [169] | 3.1" [80] | 3.1" [80] |



5-year warranty



Technical data

|                        |                                    |  |
|------------------------|------------------------------------|--|
| <b>Electrical data</b> | Nominal voltage                    | AC/DC 24 V   |
|                        | Nominal voltage frequency          | 50/60 Hz   |
|                        | Power consumption in operation     | 2 W  |
|                        | Power consumption in rest position | 1.3 W  |
|                        | Transformer sizing                 | 5 VA (class 2 power source)  |
|                        | Electrical Connection              | 18 GA appliance cable, 3 ft [1 m], with 1/2" conduit connector             |
|                        | Overload Protection                | electronic throughout 0...95° rotation                                     |
| <b>Functional data</b> | Position feedback U note           | No Feedback  |
|                        | Direction of motion motor          | selectable by ccw/cw mounting  |
|                        | Direction of motion fail-safe      | reversible with cw/ccw mounting  |
|                        | Angle of rotation                  | Max. 95°, 90°  |
|                        | Angle of rotation note             | 90°  |
|                        | Running Time (Motor)               | 75 s   |
|                        | Running time fail-safe             | <75 s t <sub>amb</sub> = 68°F [20°C]                                       |
|                        | Noise level, motor                 | 50 dB(A)   |
|                        | Noise level, fail-safe             | 50 dB(A)   |
| Position indication    | Mechanical                         |  |
| <b>Safety data</b>     | 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 |
|                        | 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                             | 1.6 lb [0.80 kg]   |
| <b>Materials</b>       | Housing material                   | UL94-5VA   |

Electrical installation

**INSTALLATION NOTES**

- Actuators with appliance cables are numbered.
- 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.
- 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.

