



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.

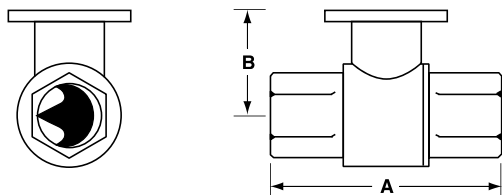
| Technical Data | |
|------------------------------------|--------------------------------------|
| Service | chilled or hot water, 60% glycol |
| Flow characteristic | A-port equal percentage |
| Action | 90° rotation |
| Sizes | ½", ¾" |
| Type of end fitting | NPT female ends |
| Materials: | |
| 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 212°F [-18°C to 100°C] |
| Close off pressure | 200 psi |
| Maximum differential pressure (ΔP) | 30 psi for typical applications |
| Leakage | 0% for A to AB |
| External leakage | according to EN 12266-1:2003 |
| C _v rating | A-port: see product chart for values |

Tefzel® is a registered trademark of DuPont

| C _v | Valve Nominal Size | | Type | Suitable Actuators | | | |
|----------------|--------------------|---------|--------|--------------------|-----------|-----------|-----------|
| | Inches | DN [mm] | | Non-Spring | | Spring | |
| 0.3 | ½" | 15 | B207B | TR Series | LR Series | TF Series | LF Series |
| 0.46 | ½" | 15 | B208B | | | | |
| 0.8 | ½" | 15 | B209B | | | | |
| 1.2 | ½" | 15 | B210B | | | | |
| 1.9 | ½" | 15 | B211B | | | | |
| 3 | ½" | 15 | B212B | | | | |
| 4.7 | ½" | 15 | B213B | | | | |
| 7.4 | ½" | 15 | B214B | | | | |
| 10 | ½" | 15 | B215B* | | | | |
| 4.7 | ¾" | 20 | B217B | | | | |
| 7.4 | ¾" | 20 | B218B | | | | |
| 10 | ¾" | 20 | B219B | | | | |
| 24 | ¾" | 20 | B220B* | | | | |

*Models without characterizing disc

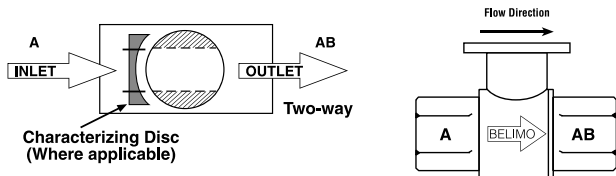
Dimensions



2WayValve-B207-B220

| Valve Body | Valve Nominal Size | | Dimensions (Inches [mm]) | |
|-------------|--------------------|---------|--------------------------|--------------|
| | Inches | DN [mm] | A | B |
| B207B-B211B | ½" | 15 | 2.41" [61.1] | 1.39" [35.2] |
| B212B-B215B | ½" | 15 | 2.38" [60.4] | 1.78" [45.2] |
| B217B-B220B | ¾" | 20 | 2.73" [69.3] | 1.87" [47.4] |

Flow Patterns



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TF24-3 Actuators, Floating Point



Models

TF24-3 US
TF24-3-S US w/built-in Aux. Switch

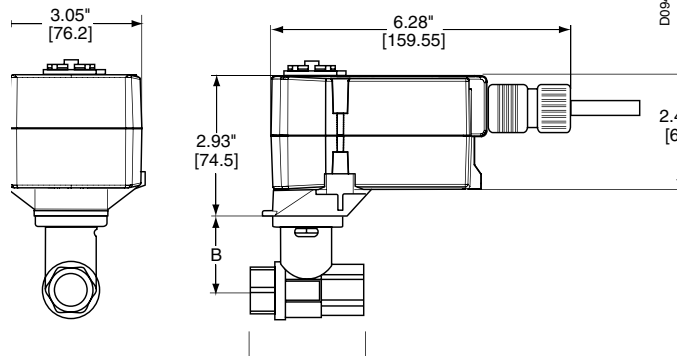
| Technical Data | |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Control | floating point |
| Power supply | 24VAC ± 20%, 50/60Hz |
| Power consumption | running 2.5 W holding 1.0 W |
| Transformer sizing | 4 VA (class 2 power source) |
| Electrical connection | ½" conduit connector 18 GA plenum rated cable |
| | TF24-3 US 3 ft [1m] TF24-3 /300 US 10 ft [3m] TF24-3 /500 US 16 ft [5m] |
| Overload protection | electronic throughout 0° to 95° rotation |
| Input impedance | 1000 Ω (0.6w) control inputs |
| Angle of rotation | 95° |
| Torque | min. 18 in-lb [2 Nm] |
| Direction of rotation | spring reversible with CW/CCW mounting motor reversible with built-in switch |
| Position indication | visual indicator, 0° to 95° |
| Running time | motor 95 sec constant, independent of load spring <25 sec @ -4°F to 122°F [-20°C to 50°C] <60 sec @ -22°F [-30°C] |
| Humidity | 5 to 95% RH 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 type 2/IP42 |
| Housing material | UL94 - 5VA |
| Agency listings† | 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) | running <35 db (A) spring return 62 db (A) |
| Quality standard | ISO 9001 |

TF24-3-S US

Auxiliary switch 1 x SPDT, 3A (0.5A) @ 250 VAC, UL Listed, adjustable 0° to 95°

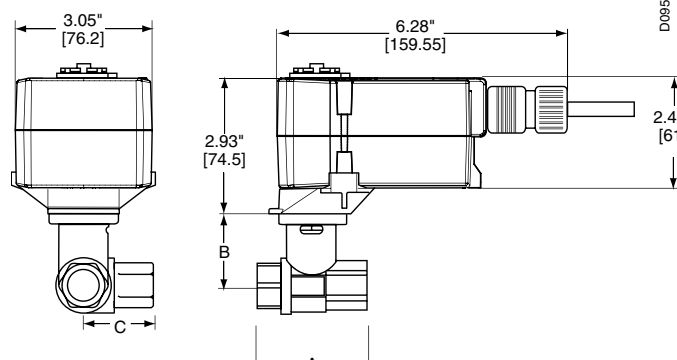
† Rated impulse voltage 800V (4kV for 120V model), Control pollution degree 3, Type of action 1.AA (1.AA.B for -S models)

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)-B220(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)-B320(B) | ¾" | 20 | 2.73" [69.3] | 1.87" [47.4] | 1.47" [37.3] |

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Wiring Diagrams

INSTALLATION NOTES



CAUTION Equipment damage!

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



The common connection from the actuator must be connected to the Hot connection of the controller.



The actuator Hot must be connected to the control board common.



For end position indication, interlock control, fan startup, etc., TF24-3-S US incorporates one built-in auxiliary switch: 1 x SPDT, 3A (0.5A) @250 VAC, UL listed, adjustable 0° to 95°.



Actuators with plenum rated cable do not have numbers on wires; use color coded instead. Actuators with appliance rated cable use numbers.



APPLICATION NOTES

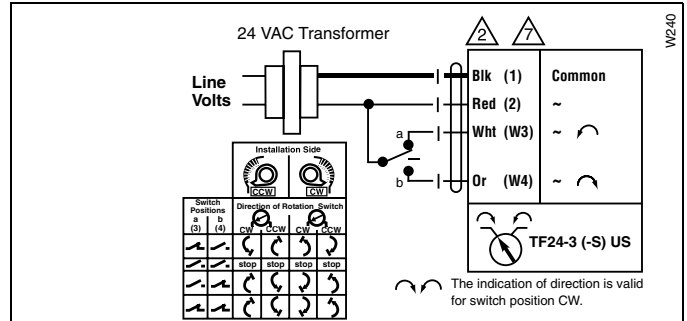


Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

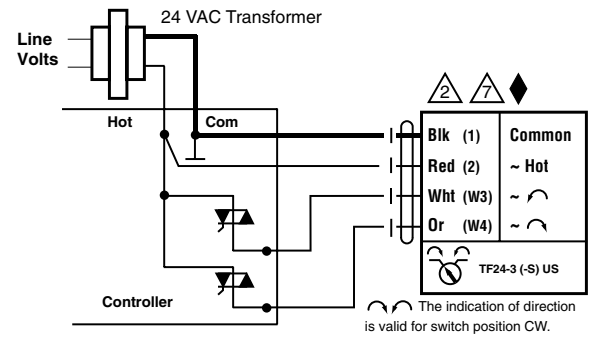


WARNING Live Electrical Components!

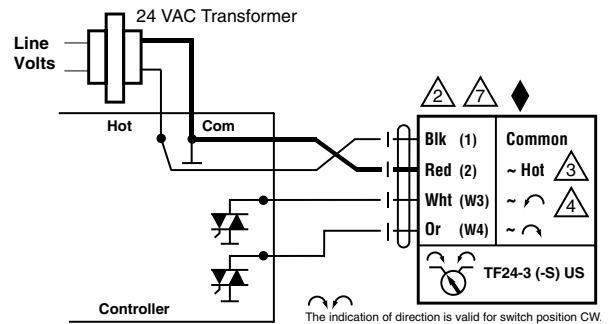
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



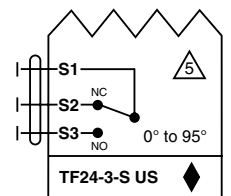
Floating point control



Triac source



Triac sink with separate transformers



Auxiliary switch