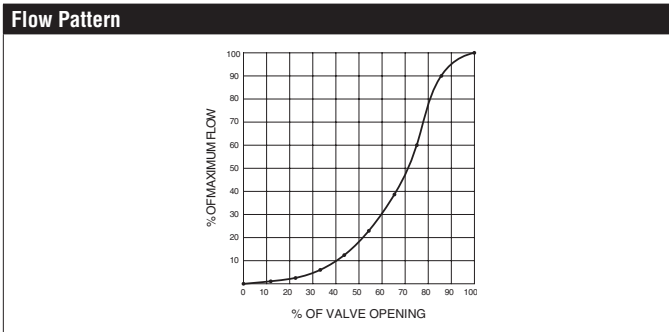


# F650HD, 2", 2-Way Butterfly Valve

Resilient Seat, 304 Stainless Steel Disc



| Technical Data                  |   |
|---------------------------------|---|
| Service                         | chilled, hot water, up to 60% glycol    |
| Flow Characteristic             | modified equal percentage               |
| Controllable Flow Range         | 90° rotation                            |
| Size [mm]                       | 2" [50]                                 |
| End Fitting                     | For use with ANSI Class 125/150 flanges |
| Body                            | ductile iron ASTM A536                  |
| Body Finish                     | epoxy powder coated                     |
| Stem Packing                    | EPDM (lubricated)                       |
| Seat                            | EPDM                                    |
| Shaft                           | 416 stainless steel                     |
| Bushings                        | RPTFE                                   |
| Disc                            | 304 stainless steel                     |
| Body Pressure Rating [psi]      | ANSI 125, standard class B              |
| Number of Bolt Holes            | 4                                       |
| Lug Threads                     | 5/8-11 UNC                              |
| Media Temperature Range (Water) | -22°F to 250°F [-30°C to 120°C]         |
| Close-Off Pressure              | 200 psi                                 |
| Rangeability                    | 10:1 (for 30° to 70° range)             |
| Maximum Velocity                | 12 FPS                                  |
| Cv                              | 115                                     |
| Weight                          | 5.3 lb [2.4 kg]                         |
| Leakage                         | 0%                                      |
| Servicing                       | maintenance free                        |



## Application

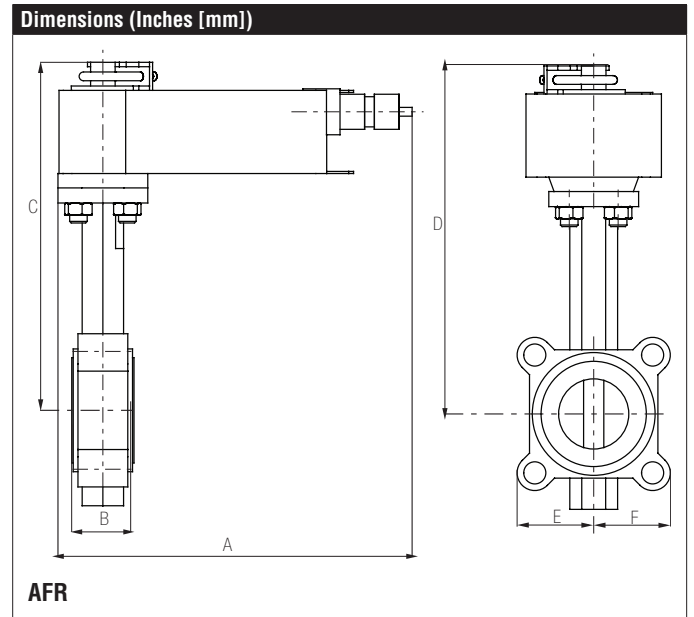
Valve is designed for use in ANSI flanged piping systems to meet the needs of bi-directional high flow HVAC hydronic applications with 0% leakage. Typical applications include cooling tower bypass, primary flow change-over systems, and large air handler coil control.

## Jobsite Note

Valve assembly should be stored in a weather protected area prior to installation. Reference the butterfly valve installation instruction for additional information.

| Flow/Cv |        |        |        |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| Cv 10°  | Cv 20° | Cv 30° | Cv 40° | Cv 50° | Cv 60° | Cv 70° | Cv 80° | Cv 90° |
| 0.06    | 3      | 7      | 15     | 27     | 44     | 70     | 105    | 115    |

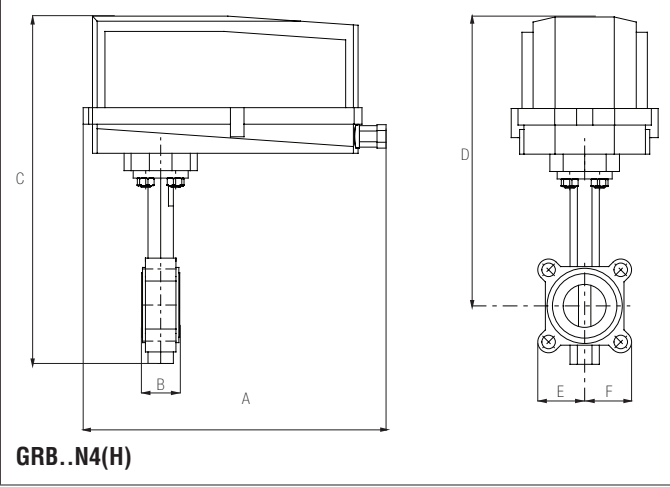
| Suitable Actuators |                |         |
|--------------------|----------------|---------|
|                    | Non-Spring     | Spring  |
| F650HD             | ARB(X), GRB(X) | AFRB(X) |



| A           | B            | C           | D           | E          | F |
|-------------|--------------|-------------|-------------|------------|---|
| 10.6" [270] | 1.72" [43.7] | 12.6" [320] | 9.87" [251] | 2.78" [71] |   |

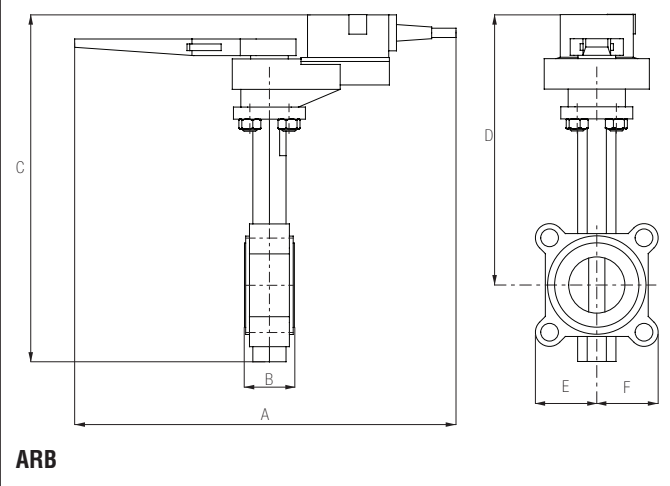
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**Dimensions (Inches [mm])**



| A           | B            | C           | D            | E          | F |
|-------------|--------------|-------------|--------------|------------|---|
| 14.1" [358] | 1.72" [43.7] | 16.1" [375] | 13.60" [345] | 2.78" [71] |   |

**Dimensions (Inches [mm])**



| A           | B            | C              | D             | E          | F |
|-------------|--------------|----------------|---------------|------------|---|
| 12.7" [323] | 1.39" [35.3] | 12.38" [314.4] | 9.57" [243.1] | 2.78" [71] |   |

# ARX24-3

On/Off, Floating Point, Non-Spring Return, 24 V



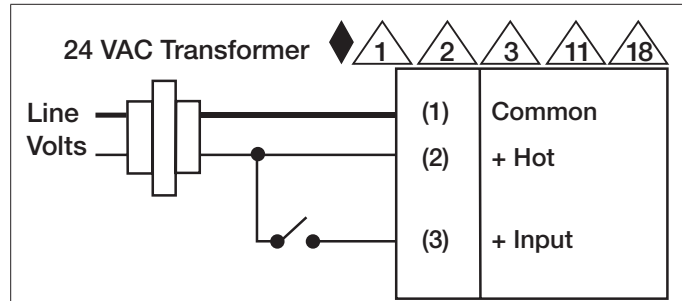
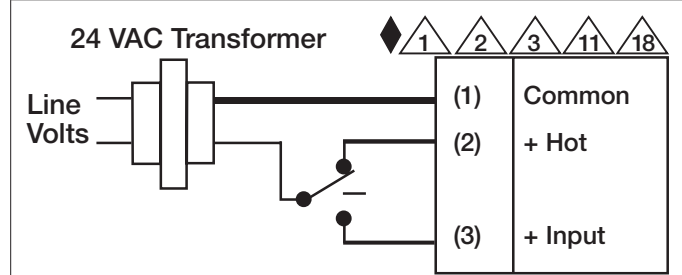
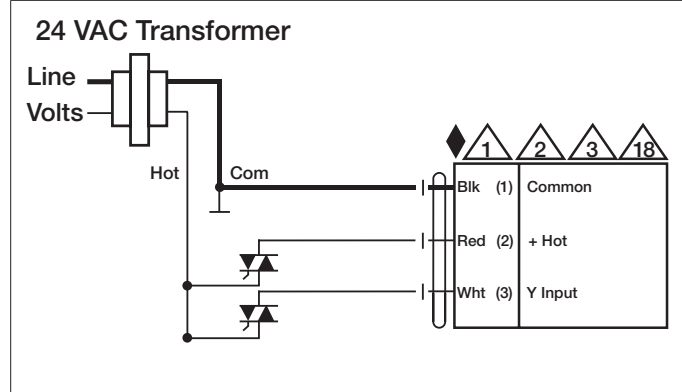
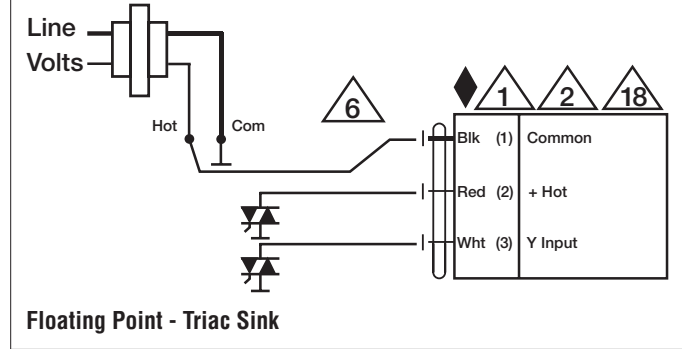
| Technical Data                |   |
|-------------------------------|---|
| Power Supply                  | 24 VAC, ±20%, 50/60 Hz, 24 VDC, ±10%  |
| Power Consumption Running     | 2.5 W   |
| Power Consumption Holding     | 0.5 W   |
| Transformer Sizing            | 5.5 VA (class 2 power source)   |
| Electrical Connection         | 18 GA plenum rated cable with 1/2" conduit connector protected NEMA 2 (IP54) 3ft [1m] 10ft [3m] and 16ft [5m] |
| Overload Protection           | electronic throughout 0° to 90° rotation  |
| Input Impedance               | 600 Ω   |
| Angle of Rotation             | 90°   |
| Direction of Rotation (Motor) | reversible with built-in switch   |
| Position Indication           | integrated into handle  |
| Manual Override               | external push button  |
| Running Time (Motor)          | 90 sec  |
| Ambient Temperature Range     | -22°F to 122°F [-30°C to 50°C]  |
| Storage Temperature Range     | -40°F to 176°F [-40°C to 80°C]  |
| Housing                       | NEMA 2, IP54  |
| Agency Listings†              | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC                    |
| Noise Level (Motor)           | <45 dB (A)  |
| Servicing                     | maintenance free  |
| Quality Standard              | ISO 9001  |

†Rated Impulse Voltage 800V, Type action 1.B, Control Pollution Degree 3.

**Wiring Diagrams**
**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.
- Actuators Hot wire must be connected to the control board common. Only connect common to neg. (-) leg of control circuits. Terminal models (-T) have no-feedback.
- 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.


**On/Off**

**Floating Point**

**Floating Point - Triac Sink**

**Floating Point - Triac Sink**

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