

# B250, 2-Way, Characterized Control Valve

## Stainless Steel Ball and Stem



| Technical Data                    |                                      |
|-----------------------------------|--------------------------------------|
| Service                           | chilled, hot water, up to 60% glycol |
| Flow Characteristic               | equal percentage                     |
| Controllable Flow Range           | 75°                                  |
| Size [mm]                         | 2" [50]                              |
| End Fitting                       | NPT female ends                      |
| Body                              | forged brass, nickel plated          |
| Ball                              | stainless steel                      |
| Stem                              | stainless steel                      |
| Stem Packing                      | EPDM (lubricated)                    |
| Seat                              | Teflon® PTFE                         |
| Seat O-ring                       | EPDM (lubricated)                    |
| Characterized Disc                | No Disc (full flow)                  |
| Body Pressure Rating [psi]        | 400                                  |
| Media Temperature Range (Water)   | 0°F to 250°F [-18°C to 120°C]        |
| Max Differential Pressure (Water) | 50 psi (345 kPa)                     |
| Close-Off Pressure                | 200 psi                              |
| Cv                                | 57                                   |
| Weight                            | 2.9 lb [1.3 kg]                      |
| Leakage                           | 0% for A to AB                       |
| Servicing                         | maintenance free                     |



### 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.

### Suitable Actuators

|      | Non-Spring | Spring  |
|------|------------|---------|
| B250 | ARB(X)     | AFRB(X) |

### Dimensions (Inches [mm])



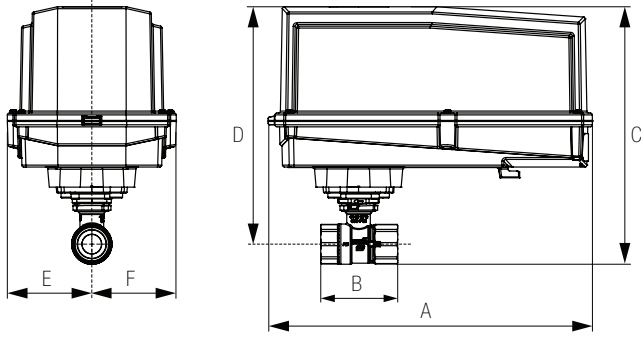
| A         | B           | C           | D           | E          | F | H1         | H2        |
|-----------|-------------|-------------|-------------|------------|---|------------|-----------|
| 10" [254] | 4.21" [107] | 6.84" [174] | 5.51" [140] | 1.73" [44] |   | 1.18" [30] | 0.5" [15] |

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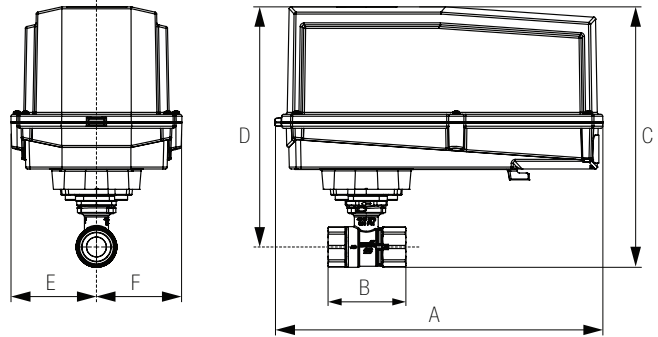
### Dimensions (Inches [mm])



**ARB N4, ARX N4, NRB N4, NRX N4**

| A               | B           | C          | D           | E          | F |
|-----------------|-------------|------------|-------------|------------|---|
| 11.36"<br>[289] | 4.21" [107] | 9.8" [249] | 7.55" [192] | 3.15" [80] |   |

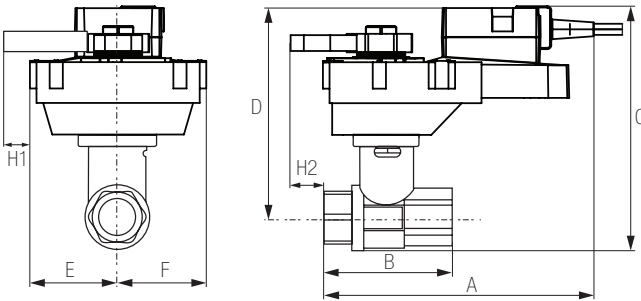
### Dimensions (Inches [mm])



**AFRB N4, AFRX N4**

| A               | B           | C               | D           | E          | F |
|-----------------|-------------|-----------------|-------------|------------|---|
| 12.98"<br>[330] | 4.93" [125] | 10.29"<br>[261] | 9.24" [235] | 3.39" [86] |   |

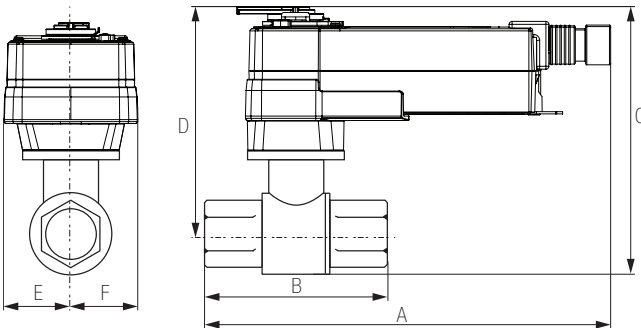
### Dimensions (Inches [mm])



**ARQB, ARQX**

| A             | B              | C              | D              | E          | F | H1         | H2        |
|---------------|----------------|----------------|----------------|------------|---|------------|-----------|
| 9.9"<br>[251] | 4.21"<br>[107] | 7.45"<br>[190] | 6.11"<br>[155] | 2.28" [58] |   | 0.75" [20] | 0.5" [15] |

### Dimensions (Inches [mm])



**AFRB, AFRX**

| A               | B           | C           | D           | E          | F |
|-----------------|-------------|-------------|-------------|------------|---|
| 10.82"<br>[275] | 4.21" [107] | 9.47" [241] | 8.14" [207] | 2.02" [51] |   |

# AFRXUP-S

On/Off, Spring Return, 24 to 240 VAC



| Technical Data                    |                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------|
| Power Supply                      | 24...240 VAC -20% / +10%, 50/60 Hz,<br>24...125 VDC ±10%                                      |
| Power Consumption Running         | 7 W                                                                                           |
| Power Consumption Holding         | 3.5 W                                                                                         |
| Transformer Sizing                | 7 VA @ 24 VAC (class 2 power source), 8.5 VA @ 120 VAC, 18 VA @ 240 VAC                       |
| Electrical Connection             | (2) 3ft [1m], 18 GA appliance cables with 1/2" conduit connectors                             |
| Overload Protection               | electronic throughout 0° to 95° rotation                                                      |
| Operating Range Y                 | on/off                                                                                        |
| Angle of Rotation                 | 90°                                                                                           |
| Direction of Rotation (Motor)     | reversible with CW/CCW mounting                                                               |
| Direction of Rotation (Fail-Safe) | reversible with CW/CCW mounting                                                               |
| Position Indication               | visual indicator, 0° to 95° (0° is full spring return position)                               |
| Manual Override                   | 5 mm hex crank (3/16" Allen), supplied                                                        |
| Running Time (Motor)              | <75 sec                                                                                       |
| Running Time (Fail-Safe)          | <20 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, UL enclosure type 2                                                             |
| 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)                                                                                    |
| Noise Level (Fail-Safe)           | <62 dB (A)                                                                                    |
| Servicing                         | maintenance free                                                                              |
| Quality Standard                  | ISO 9001                                                                                      |
| Auxiliary Switch                  | 2 x SPDT, 3A resistive (0.5A inductive) @ 250 VAC, one set at +10°, one adjustable 10° to 90° |

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

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**Wiring Diagrams**
**INSTALLATION NOTES**

- Actuators with appliance cables are numbered.
- Universal Power Supply (UP) models can be supplied with 24 VAC up to 240 VAC, or 24 VDC up to 125 VDC.
- Provide overload protection and disconnect as required.
- Actuators may be powered in parallel. Power consumption must be observed.
- Parallel wiring required for piggy-back applications.
- 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.

