

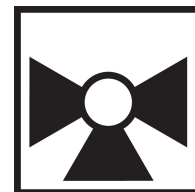
3-way Mixing/Diverting, Characterized Control Valve, Stainless Steel Ball and Stem



Picture may differ from product



5-year warranty



## Type overview

### Type

B331

### DN

1 1/4" [32]

## Technical data

|                    |                          |                                                                        |
|--------------------|--------------------------|------------------------------------------------------------------------|
| Functional data    | Valve size [mm]          | 1.25" [32]                                                             |
|                    | Fluid                    | chilled or hot water, up to 60% glycol                                 |
|                    | Fluid Temp Range (water) | 0...250°F [-18...120°C]                                                |
|                    | Body Pressure Rating     | 400 psi                                                                |
|                    | Close-off pressure Δps   | 200 psi                                                                |
|                    | Flow                     | A-port: as stated in chart B-port: 70% of A – AB Cv                    |
|                    | Flow characteristic      | A-port equal percentage, B-port modified for constant common port flow |
|                    | Leakage rate             | 0% for A – AB, <2.0% for B – AB                                        |
|                    | Pipe connection          | Internal thread<br>NPT (female)                                        |
|                    | Servicing                | maintenance-free                                                       |
|                    | Flow Pattern             | 3-way Mixing/Diverting                                                 |
|                    | Controllable flow range  | 75°                                                                    |
|                    | Cv                       | 25                                                                     |
| Materials          | Valve body               | Nickel-plated brass body                                               |
|                    | Stem                     | stainless steel                                                        |
|                    | Stem seal                | EPDM (lubricated)                                                      |
|                    | Seat                     | PTFE                                                                   |
|                    | Characterized disc       | Ryton PPS                                                              |
|                    | O-ring                   | EPDM (lubricated)                                                      |
|                    | Ball                     | stainless steel                                                        |
| Suitable actuators | Non Fail-Safe            | ARB(X)<br>ARQB(X)<br>ARB(X) N4                                         |
|                    | Spring                   | AFRB(X)                                                                |

## Safety notes



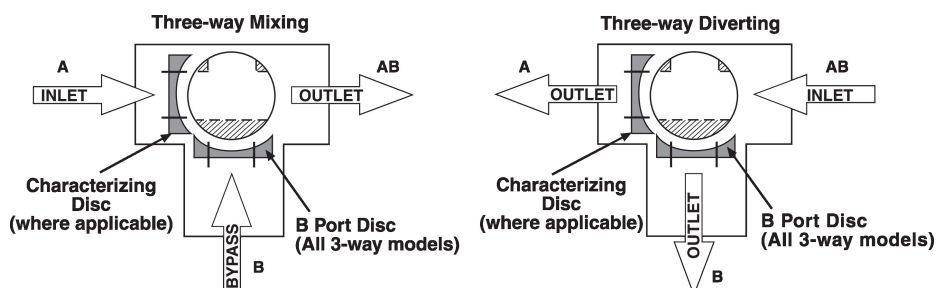
- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## 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.

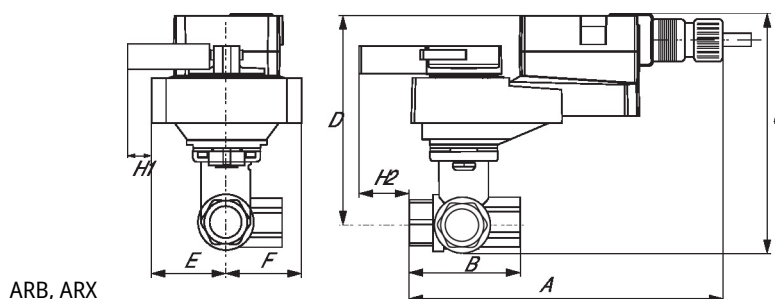
## Flow/Mounting details

This valve is not suitable for use as a change over valve.

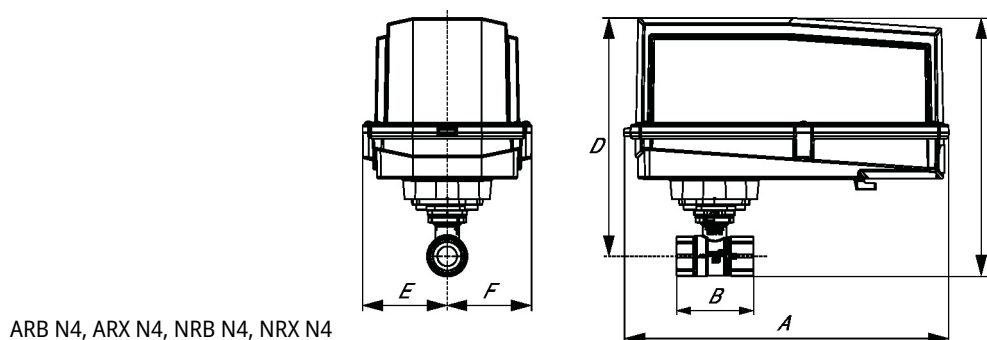


## Dimensions

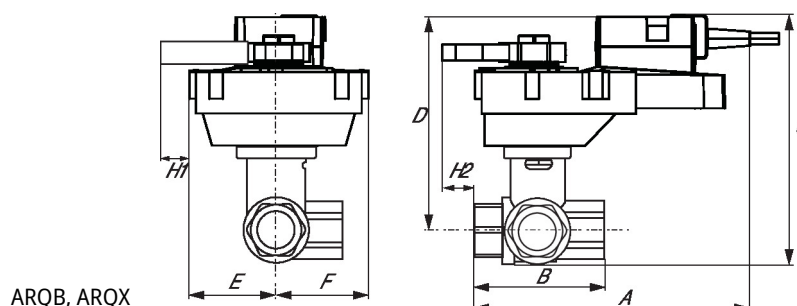
| Type | DN          | Weight          |
|------|-------------|-----------------|
| B331 | 1 1/4" [32] | 2.5 lb [1.1 kg] |



| A           | B          | C          | D          | E          | F         | H1        | H2        |
|-------------|------------|------------|------------|------------|-----------|-----------|-----------|
| 10.0" [254] | 4.0" [101] | 6.8" [172] | 5.5" [140] | 1.77" [44] | 2.1" [54] | 0.8" [20] | 1.2" [30] |

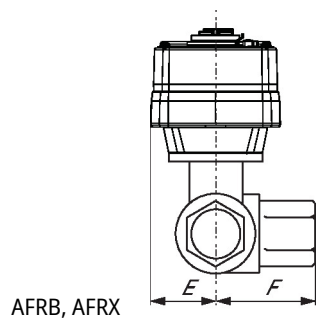


| A           | B          | C          | D          | E         | F         |
|-------------|------------|------------|------------|-----------|-----------|
| 11.4" [289] | 4.0" [101] | 8.9" [226] | 7.6" [194] | 3.1" [80] | 3.1" [80] |

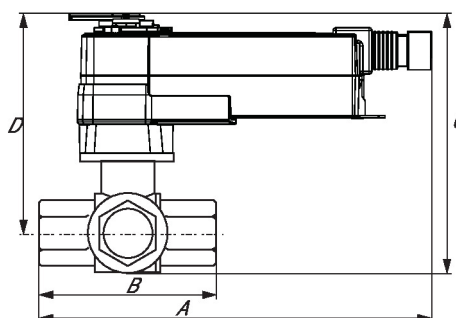


| A          | B          | C          | D          | E          | F         | H1        | H2        |
|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| 9.7" [246] | 4.0" [101] | 7.5" [191] | 6.2" [158] | 1.77" [44] | 2.1" [54] | 1.4" [34] | 0.8" [20] |

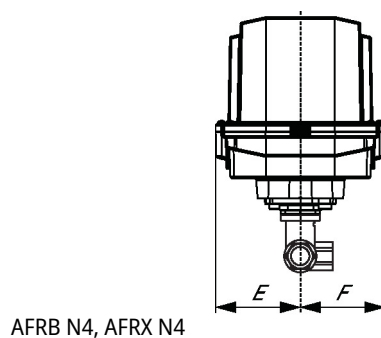
## Dimensions



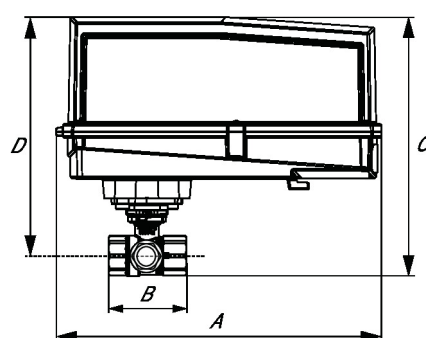
AFRB, AFRX



| A           | B          | C          | D          | E         | F         |
|-------------|------------|------------|------------|-----------|-----------|
| 10.6" [269] | 4.0" [101] | 6.9" [175] | 5.7" [146] | 2.1" [54] | 1.3" [33] |



AFRB N4, AFRX N4



| A           | B          | C           | D          | E         | F         |
|-------------|------------|-------------|------------|-----------|-----------|
| 13.0" [330] | 4.0" [101] | 10.5" [267] | 9.5" [241] | 3.7" [95] | 3.7" [95] |

On/Off, Spring return, 24...240 V



5-year warranty



Please note: Due to a supplier issue, certain NEMA 4 actuator covers will be supplied in gray instead of orange until further notice. This change ensures uninterrupted shipping, and the same protective properties and product specifications.

## Technical data

|                        |                                    |                                                                                           |
|------------------------|------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Electrical data</b> | Nominal voltage                    | AC 24...240 V / DC 24...125 V                                                             |
|                        | Nominal voltage frequency          | 50/60 Hz                                                                                  |
|                        | Nominal voltage range              | AC 19.2...264 V / DC 21.6...137.5 V                                                       |
|                        | Power consumption in operation     | 7 W                                                                                       |
|                        | Power consumption in rest position | 3.5 W                                                                                     |
|                        | Electrical Connection              | 18 AWG appliance cable, 1 m, with 1/2" NPT conduit connector                              |
|                        | Overload Protection                | electronic throughout 0...95° rotation                                                    |
| <b>Functional data</b> | Direction of motion motor          | selectable by ccw/cw mounting                                                             |
|                        | Direction of motion fail-safe      | reversible with cw/ccw mounting                                                           |
|                        | Manual override                    | 5 mm hex crank (3/16" Allen), supplied                                                    |
|                        | Angle of rotation                  | 90°                                                                                       |
|                        | Running Time (Motor)               | 75 s / 90°                                                                                |
|                        | Running time fail-safe             | <20 s                                                                                     |
|                        | Noise level, motor                 | 45 dB(A)                                                                                  |
|                        | Noise level, fail-safe             | 62 dB(A)                                                                                  |
| <b>Safety data</b>     | Position indication                | Mechanical                                                                                |
|                        | Power source UL                    | Class 2 Supply                                                                            |
|                        | Degree of protection IEC/EN        | IP66                                                                                      |
|                        | Degree of protection NEMA/UL       | NEMA 4X                                                                                   |
|                        | Housing                            | UL Enclosure Type 4X                                                                      |
|                        | Agency Listing                     | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU |
|                        | Quality Standard                   | ISO 9001                                                                                  |
|                        | Ambient humidity                   | Max. 100% RH                                                                              |
|                        | Ambient temperature                | -22...122°F [-30...50°C]                                                                  |
|                        | Ambient temperature note           | -40...50°C [104...122°F] for actuator with integrated heating                             |
|                        | Storage temperature                | -40...176°F [-40...80°C]                                                                  |
|                        | Servicing                          | maintenance-free                                                                          |
| <b>Weight</b>          | Weight                             | 6.6 lb [3.0 kg]                                                                           |

**Materials** Housing material Die cast aluminium and plastic casing

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

### Peripheral devices

| Description                                                                                                                                                         | Type      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Cable conduit connector 1/2"                                                                                                                                        | TF-CC US  |
| Wrench 0.32 in and 0.39 in [8 mm and 10 mm]                                                                                                                         | TOOL-06   |
| Mounting bracket for AF..                                                                                                                                           | ZG-100    |
| Mounting bracket for AF / NF                                                                                                                                        | ZG-101    |
| Mounting bracket for AF / NF                                                                                                                                        | ZG-118    |
| Mounting kit for foot mount installation                                                                                                                            | ZG-AFB118 |
| Weather shield 13x8x6" [330x203x152 mm] (LxWxH)                                                                                                                     | ZS-100    |
| Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)                                                                                                                 | ZS-150    |
| Explosion proof housing 16x10x6.435" [406x254x164 mm] (LxWxH), UL and CSA, Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous (classified) Locations | ZS-260    |
| Weather shield 17-1/4x8-3/4x5-1/2" [438x222x140 mm] (LxWxH), NEMA 4X, with mounting brackets                                                                        | ZS-300    |

### Accessories

| Factory add-on option only | Description                        | Type       |
|----------------------------|------------------------------------|------------|
|                            | Heater, with adjustable thermostat | ACT_PACK_H |
|                            | Heater, with adjustable thermostat | ACT_PACK_Y |

### Electrical installation

#### Wire colors:

- 1 = blue
- 2 = brown

AC 24...240 V / DC 24...125 V, on/off

