



2-year warranty

Type overview

| Type | DN |
|-------------|----|
| B2100VB-024 | 25 |

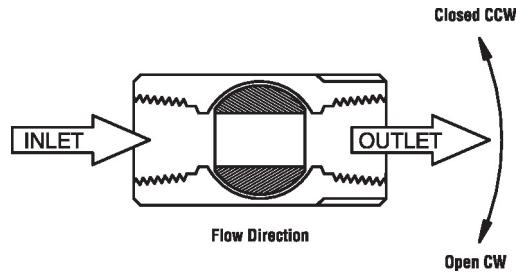
Technical data

| Functional data | Valve size [mm] | 1" [25] |
|---------------------------------------|---|-------------------------|
| Fluid | chilled or hot water, up to 60% glycol, steam | |
| Fluid Temp Range (water) | -22...380°F [-30...193°C] | |
| Fluid Temp Range (steam) | -22...380°F [-30...193°C] | |
| Body Pressure Rating | ANSI Class 300 | |
| Close-off pressure Δps | 250 psi | |
| Flow characteristic | equal percentage | |
| Rangeability Sv | 300:1 | |
| Maximum differential pressure (water) | 150 psi | |
| Max Differential Pressure (Steam) | 100 psi | |
| Close-Off Pressure (Steam) | 150 psi | |
| Flow Pattern | 2-way | |
| Leakage rate | ANSI Class IV | |
| Controllable flow range | 75° | |
| Cv | 24 | |
| Maximum Inlet Pressure (Steam) | 150 psi | |
| Materials | Valve body | WCC grade carbon steel |
| Body finish | matt black body finish | |
| Spindle | stainless steel | |
| Spindle seal | PTFE V-ring | |
| Seat | PTFE | |
| Pipe connection | NPT female ends | |
| Ball | stainless steel | |
| Suitable actuators | Non-Spring | SY1 AMB(X) PRB(X) |
| Spring | NF | |
| Electrical fail-safe | PKRB(X) | |

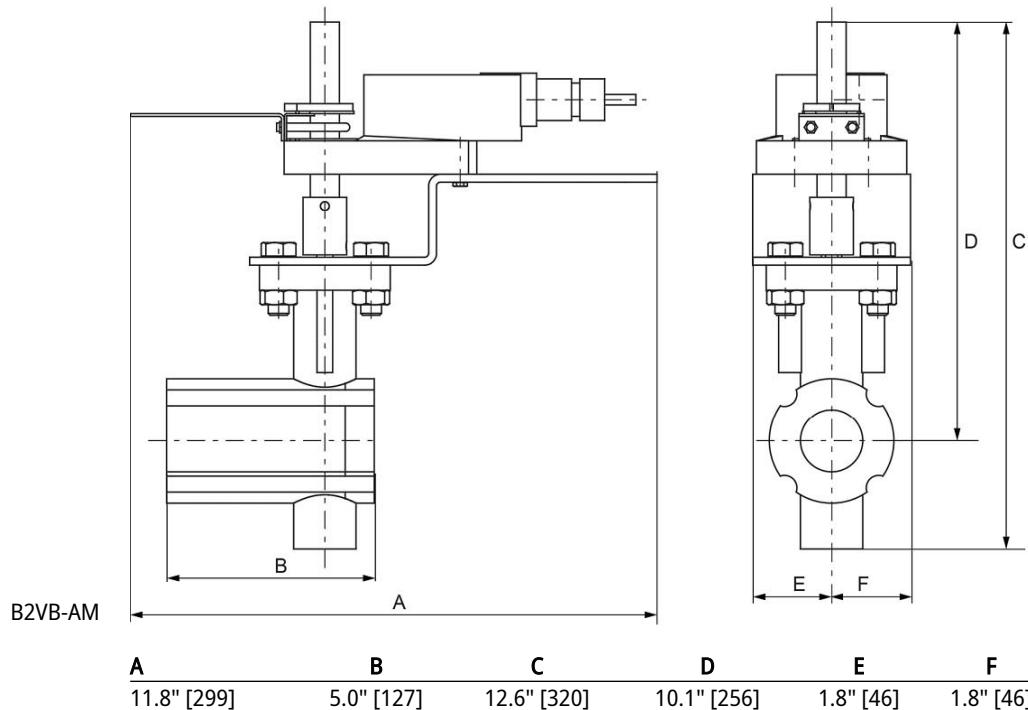
Product features

| Product features | Fast quarter turn open or closed operation, stainless-steel ball and stem, positive isolation, two-piece body construction |
|------------------|--|
| | |

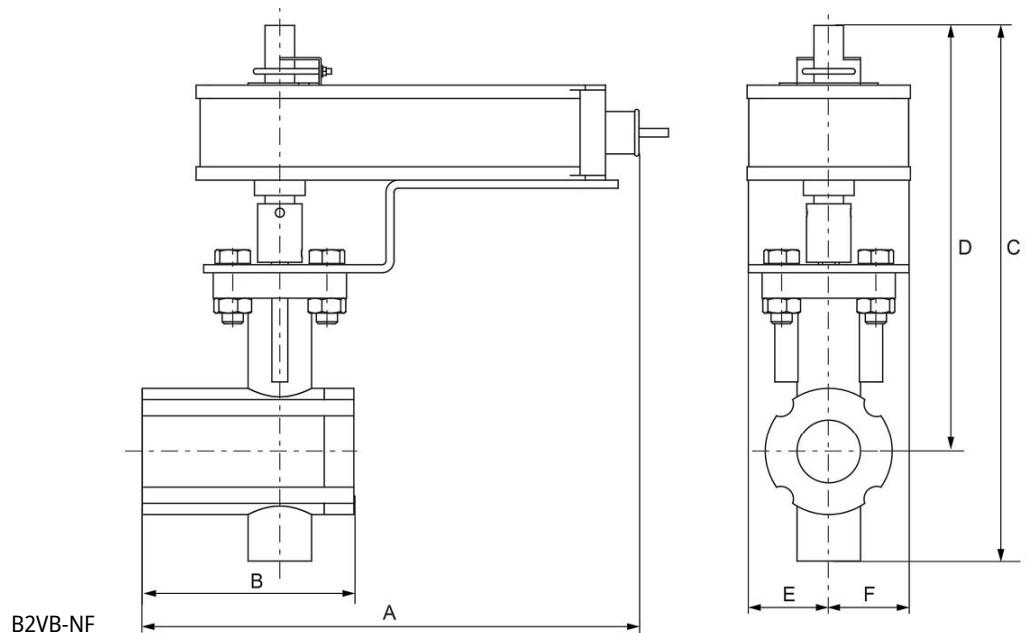
Application Water-side control of air handling apparatus in ventilation and air-conditioning system.
Water/Steam control in heating system.
300:1 rangeability.
The dimensions and drilling of end flanges conform to the American cast iron flange standard, Class 150 (ANSI B16.1).

Flow/Mounting details**Dimensions**

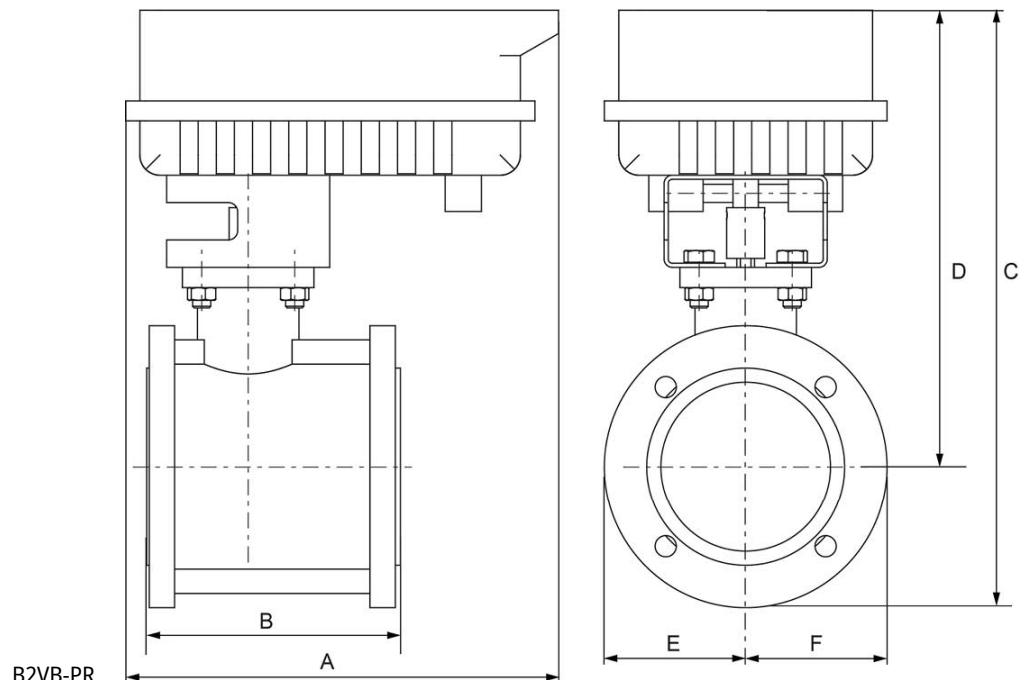
| Type | DN |
|-------------|----|
| B2100VB-024 | 25 |



| A | B | C | D | E | F |
|-------------|------------|-------------|-------------|-----------|-----------|
| 11.8" [299] | 5.0" [127] | 12.6" [320] | 10.1" [256] | 1.8" [46] | 1.8" [46] |



| A | B | C | D | E | F |
|-------------|------------|-------------|-------------|-----------|-----------|
| 11.7" [298] | 5.0" [127] | 12.6" [320] | 10.1" [256] | 1.9" [48] | 1.9" [48] |



| A | B | C | D | E | F |
|-------------|------------|-------------|-------------|------------|------------|
| 11.8" [299] | 5.0" [127] | 15.0" [380] | 12.6" [321] | 3.9" [100] | 3.9" [100] |



5-year warranty

**MFT****Technical data**

| Electrical data | Nominal voltage | AC/DC 24 V |
|-----------------|-------------------------------------|---|
| | Nominal voltage frequency | 50/60 Hz |
| | Nominal voltage range | AC 19.2...28.8 V / DC 21.6...28.8 V |
| | Power consumption in operation | 6.5 W |
| | Power consumption in rest position | 3 W |
| | Transformer sizing | 9 VA |
| | Auxiliary switch | 2 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, one set at 10°, one adjustable 10...90° |
| | Switching capacity auxiliary switch | 3 A resistive (0.5 A inductive) @ AC 250 V |
| | Electrical Connection | (2) 18 GA appliance cables, 1 m, with 1/2" conduit connectors |
| | Overload Protection | electronic throughout 0...95° rotation |
| Functional data | Operating range Y | 2...10 V |
| | Operating range Y note | 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor) |
| | Operating range Y variable | Start point 0.5...30 V End point 2.5...32 V |
| | Operating modes optional | variable (VDC, PWM, on/off, floating point) |
| | Position feedback U | 2...10 V |
| | Position feedback U note | Max. 0.5 mA |
| | Position feedback U variable | VDC variable |
| | Direction of motion motor | selectable with switch 0/1 |
| | Direction of motion fail-safe | reversible with cw/ccw mounting |
| | Manual override | 5 mm hex crank (3/16" Allen), supplied |
| | Angle of rotation | 95° |
| | Running Time (Motor) | 150 s / 90° |
| | Running time motor variable | 40...150 s |
| | Running time fail-safe | <20 s @ -4...122°F [-20...50°C], <60 s @ -22°F [-30°C] |
| | Override control | MIN (minimum position) = 0% MID (intermediate position) = 50% MAX (maximum position) = 100% |
| | Noise level, motor | 50 dB(A) |
| | Noise level, fail-safe | 62 dB(A) |
| | Position indication | Mechanical |
| Safety data | Power source UL | Class 2 Supply |
| | Degree of protection IEC/EN | IP54 |
| | Degree of protection NEMA/UL | NEMA 2 |
| | Enclosure | UL Enclosure Type 2 |
| | Agency Listing | UL 873 listed, CSA C22.2 No. 24 certified |

| | | |
|--------------------|---------------------------------------|---|
| Safety data | Quality Standard UL 2043 Compliant | ISO 9001 Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC |
| | Ambient humidity | Max. 95% RH, non-condensing |
| | Ambient temperature | -22...122°F [-30...50°C] |
| | Storage temperature | -40...176°F [-40...80°C] |
| | Servicing | maintenance-free |
| Weight | Weight | 4.4 lb [2.0 kg] |
| Materials | Housing material | Galvanized steel and plastic housing |

Footnotes *Variable when configured with MFT options.

Accessories

| Electrical accessories | Description | Type |
|------------------------|---|--------|
| | Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US |

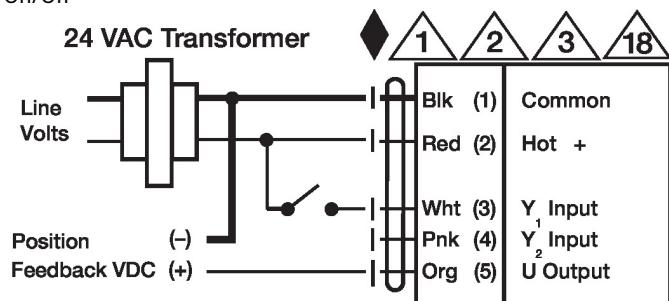
Electrical installation

INSTALLATION NOTES

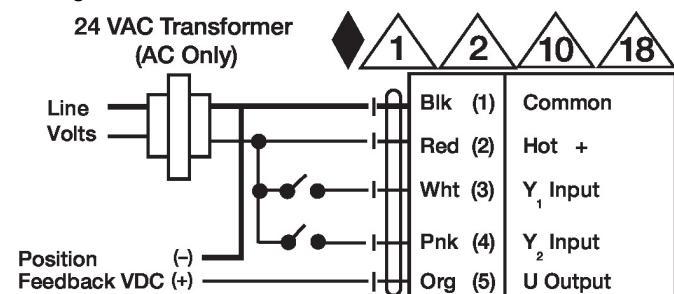
-  A Actuators with appliance cables are numbered.
-  1 Provide overload protection and disconnect as required.
-  3 Actuators may also be powered by DC 24 V.
-  4 Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.
-  5 Only connect common to negative (-) leg of control circuits.
-  7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
-  8 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.
-  10 For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
-  11 Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.
-  12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
-  13 Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.
-  14 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.

Wiring diagrams

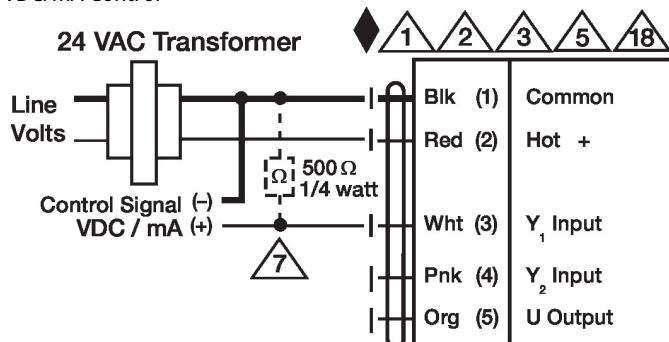
On/Off



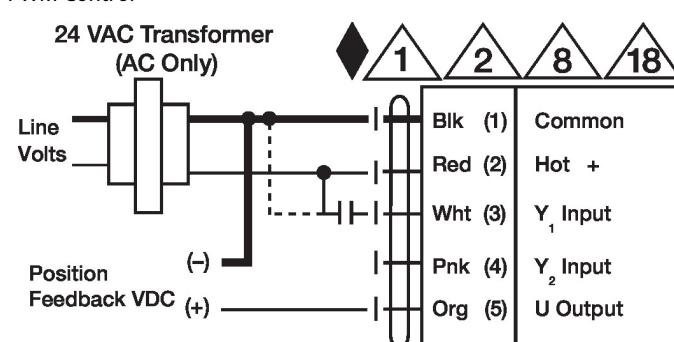
Floating Point



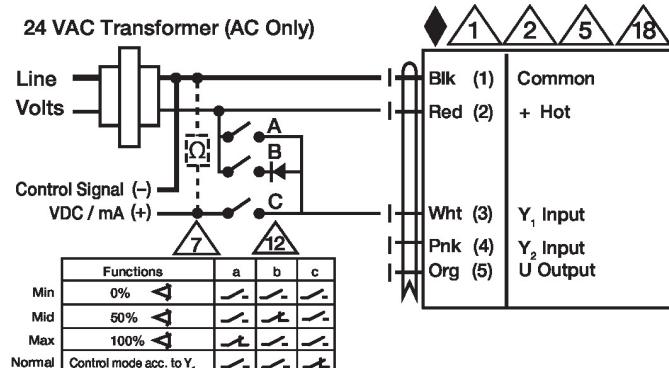
VDC/mA Control



PWM Control



Override Control



Auxiliary Switches

