

Ball Valve (VS), DN 1" [25], 2-way, Cv 43



2-year warranty

Picture may differ from product

## Type overview

| Type   | DN      |
|--------|---------|
| B224VS | 1" [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...280°F [-30...138°C]                     |                             |
| Body Pressure Rating              | 600 psig WOG psi                              |                             |
| Close-off pressure $\Delta$ ps    | 600 psi                                       |                             |
| Flow characteristic               | modified equal percentage                     |                             |
| Leakage rate                      | ANSI Class VI                                 |                             |
| Pipe connection                   | Internal thread<br>NPT (female)               |                             |
| Max Differential Pressure (Steam) | 35 psi  |                             |
| Flow Pattern                      | 2-way   |                             |
| Controllable flow range           | 90° rotation                                  |                             |
| Cv                                | 43  |                             |
| Maximum Inlet Pressure (Steam)    | 35 psi [241 kPa]                              |                             |
| Materials                         | Valve body                                    | Bronze B584-C84400          |
|                                   | Housing seal                                  | PTFE                        |
|                                   | Stem  | 316 stainless steel         |
|                                   | Stem seal                                     | RPTFE                       |
|                                   | Seat  | RPTFE                       |
|                                   | Lock nut                                      | stainless steel             |
|                                   | Retainer                                      | B16 Brass                   |
|                                   | Ball  | 316 stainless steel         |
| Suitable actuators                | Non Fail-Safe                                 | AMB(X)<br>GRCB(X)<br>GRB(X) |
|                                   | Spring  | AF                          |

## Safety notes

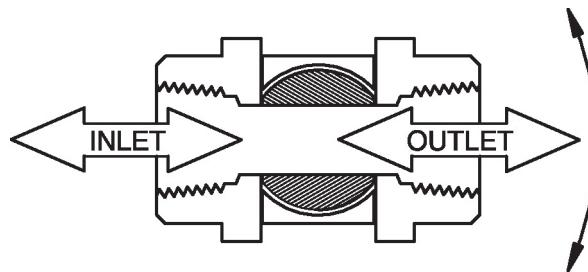


- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## Product features

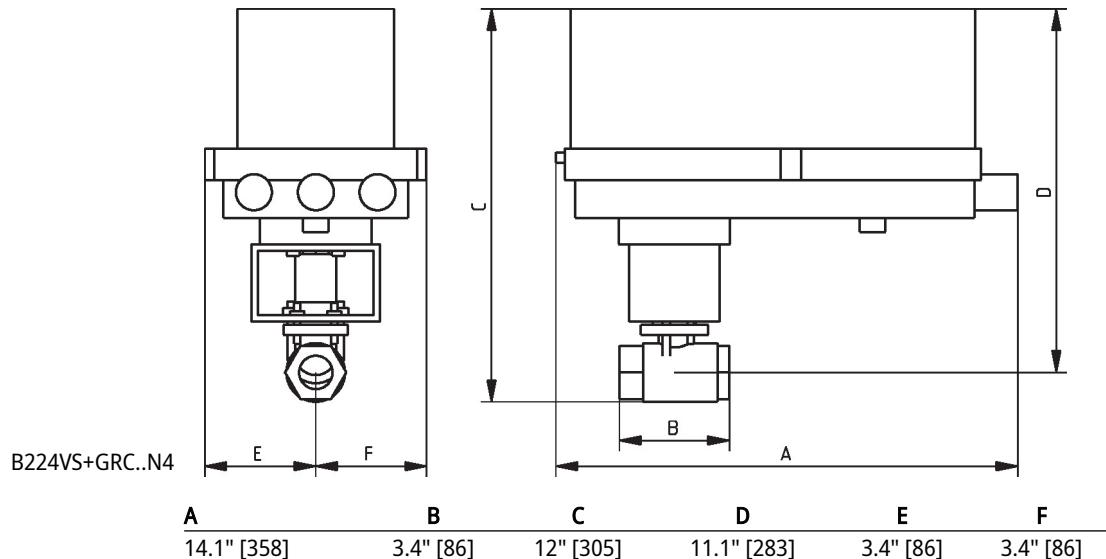
|                    |  |
|--------------------|--|
| <b>Application</b> | This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV Box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow. |
|                    | This valve is designed with MFT functionally which facilitates the use of various control input.   |
|                    | Up to 35 psi steam   |
|                    | 1/2" - 2" 600 PSIG WOG, Cold Non-Shock   |
|                    | Federal Specification: WW-V-35C, Type II   |
|                    | Composition: BZ  |
|                    | Style: 3   |

## Flow/Mounting details



## Dimensions

| Type   | DN      | Weight           |
|--------|---------|------------------|
| B224VS | 1" [25] | 1.7 lb [0.79 kg] |



MFT/programmable, Non fail-safe, 24 V



5-year warranty



## 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     | 8 W   |
|                 | Power consumption in rest position | 2.5 W   |
|                 | Transformer sizing                 | 11 VA   |
|                 | Electrical Connection              | Terminal blocks   |
|                 | Overload Protection                | electronic throughout 0...90° 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)   |
|                 | Input impedance                    | 600 Ω   |
|                 | Operating range Y variable         | Start point 0.5...30 V<br>End point 2.5...32 V  |
|                 | Operating modes optional           | variable (VDC, 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  |
|                 | Manual override                    | under cover   |
|                 | Angle of rotation                  | 90°   |
|                 | Angle of rotation note             | adjustable with mechanical stop   |
|                 | Running Time (Motor)               | 150 s / 90°   |
|                 | Running time motor variable        | 90...150 s  |
|                 | Noise level, motor                 | 45 dB(A)  |
|                 | Position indication                | Mechanical, 30...65 mm stroke   |
| Safety data     | Power source UL                    | Class 2 Supply  |
|                 | Degree of protection IEC/EN        | IP66/67   |
|                 | 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 |

|                          |   |                                       |
|--------------------------|---|---------------------------------------|
| <b>Safety data</b>       | 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  | 6.9 lb [3.1 kg]                       |
| <b>Materials</b>         | Housing material  | Die cast aluminium and plastic casing |

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

## Accessories

|                            | <b>Description</b>  | <b>Type</b> |
|----------------------------|---|-------------|
| Gateways                   | Gateway MP to BACnet MS/TP  | UK24BAC     |
|                            | Gateway MP to Modbus RTU  | UK24MOD     |
|                            | Gateway MP to LonWorks  | UK24LON     |
| Electrical accessories     | <b>Description</b>  | <b>Type</b> |
|                            | Auxiliary switch 1x SPDT add-on   | S1A         |
|                            | Auxiliary switch 2x SPDT add-on   | S2A         |
|                            | Feedback potentiometer 140 Ω add-on, grey   | P140A GR    |
|                            | Feedback potentiometer 1 kΩ add-on, grey  | P1000A GR   |
|                            | Feedback potentiometer 10 kΩ add-on, grey   | P10000A GR  |
|                            | Feedback potentiometer 2.8 kΩ add-on, grey  | P2800A GR   |
|                            | Feedback potentiometer 500 Ω add-on, grey   | P500A GR    |
|                            | Feedback potentiometer 5 kΩ add-on, grey  | P5000A GR   |
| Tools                      | <b>Description</b>  | <b>Type</b> |
|                            | Connecting cable 10 ft [3 m], A: RJ11 6/4 LINK.10, B: 3-pin Weidmüller and supply connection  | ZK4-GEN     |
|                            | Service tool, with ZIP-USB function, for configurable and communicative Belimo actuators, VAV controller and HVAC performance devices | ZTH US      |
| Factory add-on option only | <b>Description</b>  | <b>Type</b> |
|                            | Heater, with adjustable thermostat  | ACT_PACK_H  |

## Electrical installation

### ☒ INSTALLATION NOTES

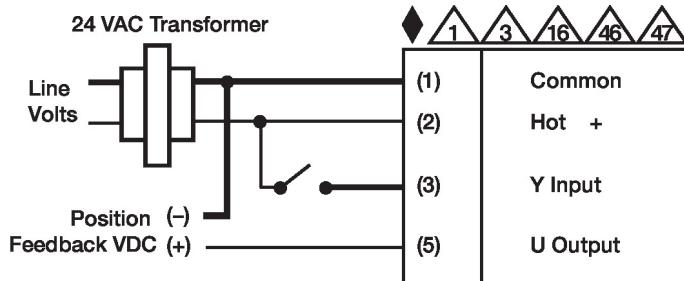
- ☒ 1 Provide overload protection and disconnect as required.
- ☒ 3 Actuators may also be powered by DC 24 V.
- ☒ 5 Only connect common to negative (-) leg of control circuits.
- ☒ 7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- ☒ 8 Control signal may be pulsed from either 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.
- ☒ 12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- ☒ 16 Actuators are provided with a numbered screw terminal strip instead of a cable.
- ☒ 46 Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- ☒ 47 Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).
- ☒ Meets cULus requirements without the need of an electrical ground connection.

**Warning! Live electrical components!**

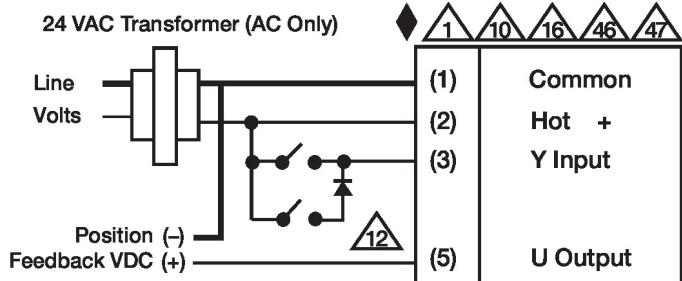
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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

**Wiring diagrams**

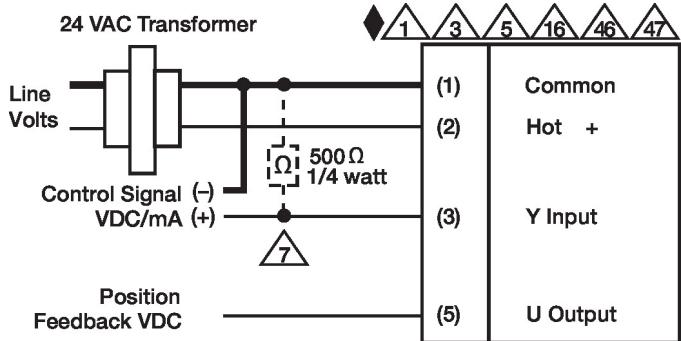
## On/Off



## Floating Point



## VDC/mA Control



## Primary - Secondary

