

EV500SU-495 Technical Data Sheet

Stainless Steel Ball, ANSI 125 Flange



Application

Water-side control of heating and cooling systems for AHUs and water coils. Equal Percentage/ Linear: heating and cooling applications.

Operation

The Energy Valve is an energy metering pressure independent control valve that measures, documents and optimises water coil performance.

Product Features

The Energy Valve measures energy using its built-in electronic flow sensor and supply and return temperature sensors. Controls power with its Power Control logic providing linear heat transfer regardless of temperature and pressure variations. Manages Low Delta-T syndrome with its built in Delta-T manager. An IoT device utilizing cloud-based technology to optimize performance.

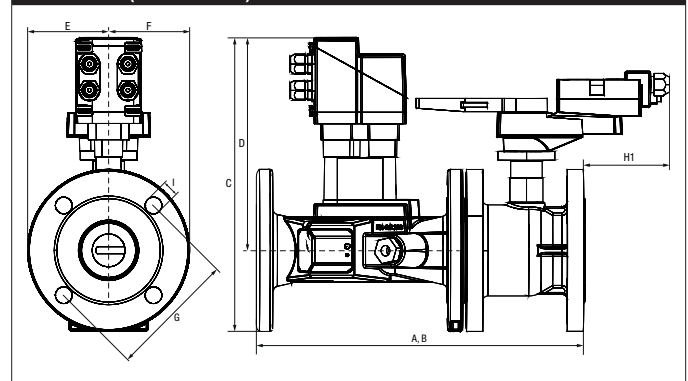
Suitable Actuators

| | Non-Spring | Electronic fail-safe |
|-------------|------------|----------------------|
| EV500SU-495 | GRB(X) | GKRB(X) |

Technical Data

| | |
|---|---|
| Fluid | chilled or hot water, up to 60% glycol max (open loop/steam not allowed) |
| Flow characteristic | equal percentage or linear |
| GPM Range | 149-495 |
| Valve Size [mm] | 5" [125] |
| Pipe connector | pattern to mate with ANSI 125 flange |
| Housing | Cast iron - GG 25 |
| Flow measuring pipe | Ductile cast iron - GGG50 |
| Ball | stainless steel |
| Stem | stainless steel |
| Stem seal | EPDM (lubricated) |
| Seat | PTFE |
| O-ring | EPDM (lubricated) |
| Characterized disc | stainless steel |
| Package | EPDM |
| Body Pressure Rating | ANSI Class 125, standard class B |
| ANSI Class | 125 |
| Number of Bolt Holes | 8 |
| Differential Pressure Range | 5...50 psi or 1...50 psi see flow reductions chart in tech doc |
| Close-off pressure Δ ps | 175 psi |
| Ambient temperature | -22...122°F [-30...50°C] |
| Inlet Length to Meet Specified Measurement Accuracy | 5X nominal pipe size (NPS) |
| Ambient humidity | max. 95% r.H., non-condensing |
| Measuring accuracy flow | ±2% * |
| Control accuracy | ±5% |
| Flow Measurement Repeatability | ±0.5% |
| Sensor Technology | ultrasonic with glycol and temperature compensation |
| Temperature Sensors | Pt1000 insertion sensors with thermal well |
| Temperature Measurement Tolerance | According to Pt1000 DIN EN60751 Class B |
| Resolution of Temperature Sensor | 0.18°F [0.1°C] |
| Rated impulse voltage supply | actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV |
| Rangeability Sv | 100:1 |
| Degree of Protection | NEMA 1, UL Enclosure Type 1 |
| Weight | 120 lb [54 kg] |
| Remote Temperature Sensor Length | Optional: 4.9 ft. [1.5m], 9.8 ft. [3m], 16.4 ft. [5m] Standard: 32.8 ft. [10m] |

Dimensions (Inches [mm])



| A | B | C | D | E | F | G | H1 | I |
|-------------|---|-------------|-------------|------------|---|------------|-----------|-----------|
| 22.8" [579] | | 15.0" [380] | 10.2" [260] | 5.0" [127] | | 8.5" [216] | 0.8" [20] | 0.9" [22] |

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



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| | |
|-----------------------------|--------------------------|
| Fluid Temp Range (water) | 14...250°F [-10...120°C] |
| Leakage rate | 0% |
| Glycol Measurement Accuracy | ±5% |

*All flow tolerances are at 68°F (20°C) & water.

Date created, 06/11/2020 - Subject to change. © Belimo Aircontrols (USA), Inc.

GKRX24-EV Technical Data Sheet



5-year warranty



| Technical Data | |
|--------------------------------|---|
| Power Supply | 24 VAC, ±20%, 50/60 Hz, 24 VDC, -10% / +20% |
| Power consumption in operation | 17 W |
| Transformer sizing | 29 VA (class 2 power source) |
| Electrical Connection | 18 GA plenum cable and RJ45 socket (ethernet) |
| Overload Protection | electronic throughout 0...90° rotation |
| Operating Range | 2...10 V (default), 4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor), VDC variable |
| Input Impedance | 100 kΩ (0.1 mA), 500 Ω |
| Position Feedback | default 2...10 V, VDC variable |
| Angle of rotation | 90° |
| Direction of motion motor | reversible with web view |
| Direction of motion fail-safe | reversible with switch |
| Position indication | Mechanically, pluggable |
| Manual override | external push button |
| Running Time (Motor) | 90 s |
| Running time fail-safe | <35 s |
| Ambient humidity | max. 95% r.H., non-condensing |
| Ambient temperature | -22...122°F [-30...50°C] |
| Storage temperature | -40...176°F [-40...80°C] |
| Degree of Protection | IP54, NEMA 1, UL Enclosure Type 1 |
| Housing material | UL94-5VA |
| Agency Listing | cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU |
| Noise level, motor | 52 dB(A) |
| Noise level, fail-safe | 61 dB(A) |
| Servicing | maintenance-free |
| Quality Standard | ISO 9001 |
| Weight | 5.51 lb [2.5 kg] |
| Communication | BACnet IP BACnet MS/TP Modbus RTU Modbus TCP MP-Bus |

The Energy Valve is based on Belimo patent and patent pending technology, US-Patent 6,039,304: ball valve with modified characteristics, US-Patent Pending: 2011/0153089: HVAC actuator comprising a network interface, data store and a processor, US-Patent Pending: 2009/009115: control of sensor less and brushless DC-Motor.

The Energy Valve incorporates additional technology - powered by Optimum Energy TM.

Wiring Diagrams

INSTALLATION NOTES

- (A)** Actuators with appliance cables are numbered.
- 2** Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- 3** Actuators may also be powered by 24 VDC.
- 18** 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.

