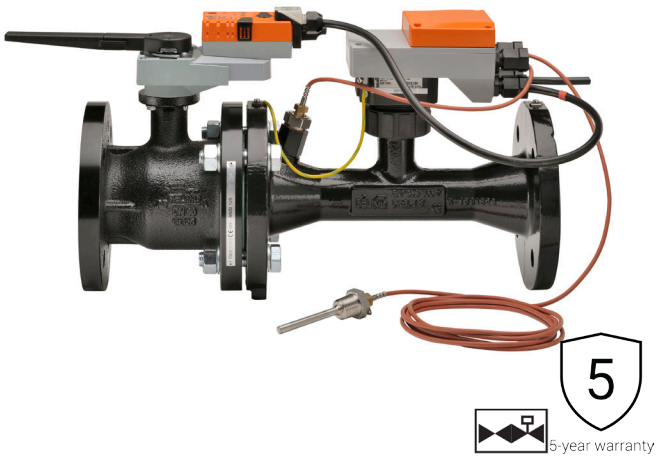
EV500S-495 Technical Data Sheet
Stainless Steel Ball, ANSI 125 Flange



5-year warranty

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.

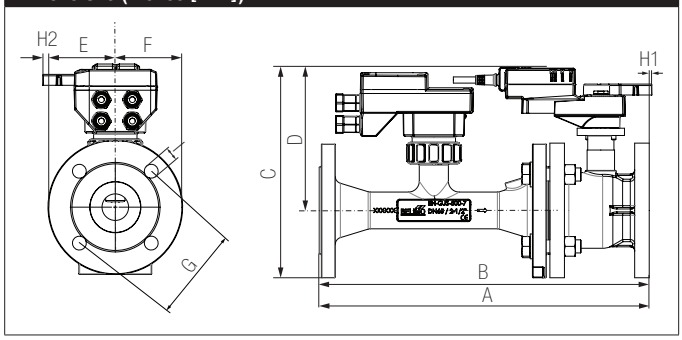
Suitable Actuators

	Non-Spring	Electronic fail-safe
EV500S-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 connection	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
Body Pressure Rating	ANSI Class 125, standard class B
ANSI Class	125
Conductivity	Min. 20µS/cm
Differential Pressure Range	5...50 psi or 1...50 psi see flow reductions chart in tech doc
Close-off pressure Δps	100 psi
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	electromagnetic
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
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]
Fluid Temp Range (water)	14...250°F [-10...120°C]
Leakage rate	0%

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

Dimensions (Inches [mm])



A	B	C	D	E	F	G	H1	H2	I
25.2” [640]		14.4” [366]	9.4” [239]	5.0” [127]		8.5” [216]	2.1” [53]	1.3” [33]	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

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 thoughout 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 2004/108/EC and 2006/95/EC
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

Ⓐ Actuators with appliance cables are numbered.

△2 Actuators may be connected in parallel. Power consumption and input impedance must be observed.

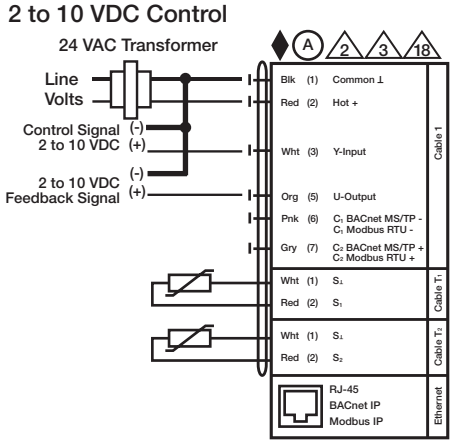
△3 Actuators may also be powered by 24 VDC.

△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.



2-10 VDC, BACnet MSTP/IP, Modbus RTU/IP