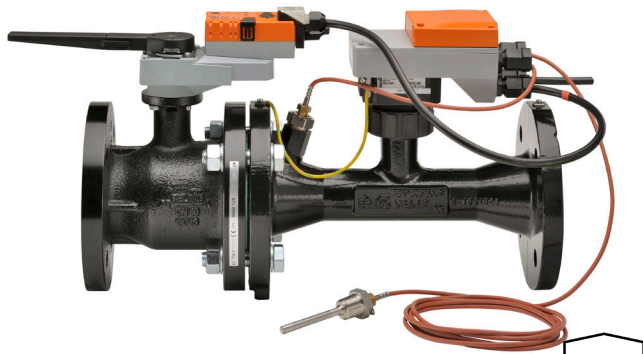


EV300S-180 Technical Data Sheet

Stainless Steel Ball, ANSI 125 Flange



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	54-180
Valve Size [mm]	3" [80]
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)
Characterised disc	stainless steel
Body Pressure Rating	ANSI Class 125, standard class B
ANSI Class	125
Conductivity	Min. 20µS/cm
Differential Pressure Range	5 to 50 psid or 1 to 50 psid 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	63.93 lb [29 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.

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.

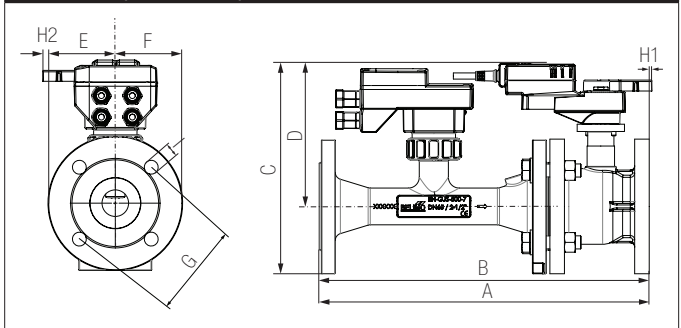
Product Features

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
EV300S-180	ARB(X)	AKRB(X)

Dimensions (Inches [mm])



A	B	C	D	E	F	G	H1	H2	I
19.6" [499]		11.8" [300]	7.9" [200]	3.9" [100]		6" [152]	2.1" [53]	1.3" [33]	0.7" [19]

Safety Notes

WARNING: For Belimo products sold in California: these products do or may contain chemicals which are known to the State of California to cause cancer and or birth defects or other reproductive harms. For more information see www.p65warnings.ca.gov.

Date created, 09/11/2019 - Subject to change. © Belimo Aircontrols (USA), Inc.

AKRX24-EV Technical Data Sheet

Modulating, Electronic Fail-Safe, 24 V, Shared Logic Technology®



5-year warranty



Technical Data

Power Supply	24 VAC, ±20%, 50/60 Hz, 24 VDC, ±10%
Power consumption in operation	14 W (0.5" to 2"), 16 W (2.5" to 6")
Transformer sizing	23 VA (0.5" to 2"), 26 VA (2.5" to 6") (class 2 power source)
Electrical Connection	18 GA plenum cable and RJ45 socket (ethernet)
Overload Protection	electronic throughout 0...90° rotation
Operating Range	DC 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 DC 2...10 V, VDC variable
Angle of rotation	90°
Direction of rotation 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] (ultrasonic sensor), 14...122°F [-10...50°C] (electro-magnetic sensor)
Storage temperature	-40...176°F [-40...80°C]
Degree of Protection	IP40, 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	45 dB(A)
Noise level, fail-safe	45 dB(A)
Maintenance	maintenance-free
Quality Standard	ISO 9001
Weight	1.94 lb [1.5 kg]
Communication	BACnet IP BACnet MS/TP Modbus RTU Modbus TCP MP-Bus

Safety Notes

WARNING: For Belimo products sold in California: these products do or may contain chemicals which are known to the State of California to cause cancer and or birth defects or other reproductive harms. For more information see www.p65warnings.ca.gov.

Date created, 09/11/2019 - Subject to change. © Belimo Aircontrols (USA), Inc.

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.

