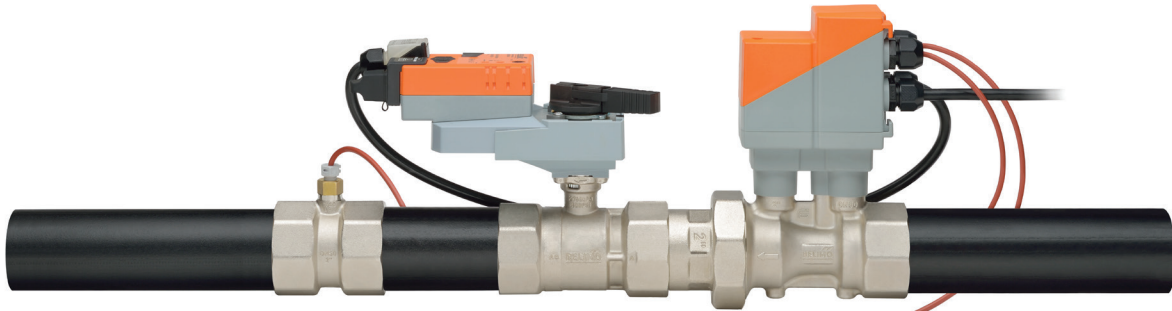


# Belimo Energy Valve™

## Knowledge is Power.



> Learn more  
[www.energyvalve.com](http://www.energyvalve.com)



Measures  
Energy

Controls  
Power

Manages  
Delta T

EXPERIENCE  
EFFICIENCY

**BELIMO**

# One Optimized Complete Solution.

The Energy Valve measures and manages coil energy by using a pressure independent valve, electronic flow meter, water supply and return temperature sensors. Moreover, it optimizes, documents, and proves water coil performance under all circumstances through BACnet or a computer.

Inefficient operation of water coils leads to an increase in energy consumption of energy intensive equipment (i.e. chiller, boiler and pumps) in the system.

## Measures Energy

The integrated BTU meter provides accurate coil performance. The data is used to verify system performance during commissioning and act as a baseline standard for system performance over time. This feature contributes to LEED points.

## Controls Power

The Energy Valve's built-in Power Control logic provides a linear heat transfer regardless of system temperature variations offering precise energy control. This mode improves comfort and allows for load shedding.

## Manages Delta T

The Energy Valve solves Low Delta-T Syndrome; reduces pumping cost while increasing chiller/boiler efficiency by optimizing the heat transfer of the coil.

## Energy is wasted when coils do not operate efficiently.

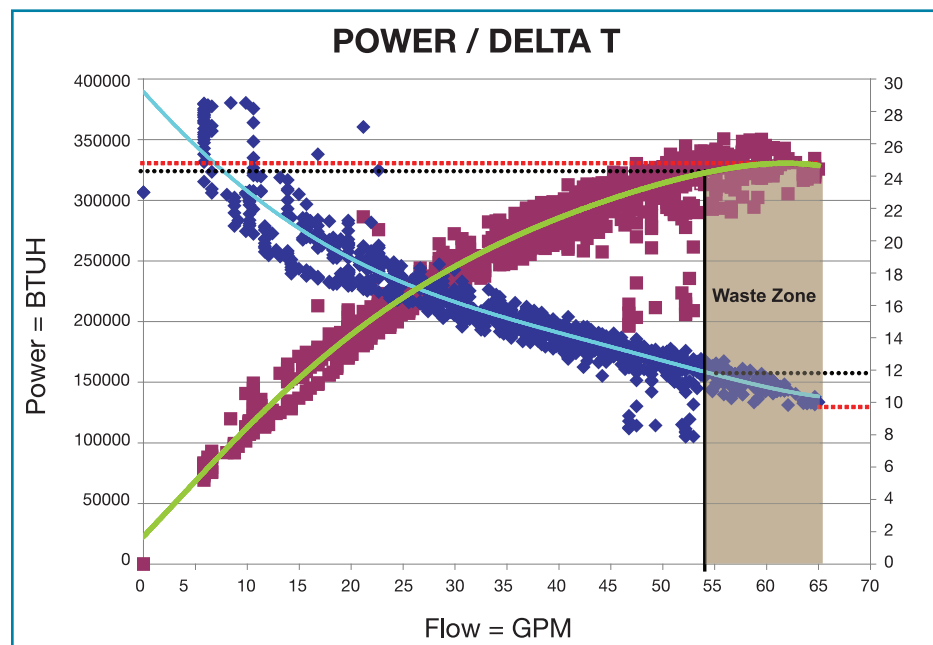
Achieving the ideal amount of heat transfer in a given coil is critical for overall system efficiency. When this does not occur, pumps, chillers and boilers must work harder to maintain space setpoints, a scenario that creates substantial energy waste. This is especially problematic in large chilled water systems because it frequently results in low Delta T – meaning that return water temperatures to the chiller are lower than the designer intended, which undermines chiller plant efficiency.

### Many of these problems can only be addressed at the coil.

Fortunately, the Energy Valve helps detect and address all of the following scenarios that commonly impact coil performance and thus system efficiency:

- Coil degradation due to fouling and scale.
- Improperly sized coils.
- Poor valve authority results in under or overflow of the coil.
- Changes made elsewhere in the system that frequently impact other circuits which are inherently interactive.

Waste Over Time (coil degradation)



- Power = 500 \* GPM \*  $\Delta T$
- ◆  $\Delta T \text{ Abs } [^{\circ}F]$
- $\Delta T$  Fit
- Power Fit

# Never before has one valve done so much – from providing power control and coil optimization to communicating, trending, and diagnostics.

## Belimo Energy Valve:

- **Delta-T Manager™** continuously monitors the coil delta T and compares this value with the desired delta T setpoint. If the actual delta T is below the setpoint, the valve will readjust flow to bring delta T back to the desired setpoint.
- **Power Control** allows you to set your power output to a specific value in a linear response. Coil and valve characteristics become irrelevant. Coil control is now both pressure and temperature independent.
- **Coil Data (13 Months)** is stored to provide ongoing commissioning. This valuable data give a level of operation transparency that was never previously available.
- **Dynamic Balancing** is achieved by maintaining constant flow regardless of pressure differential fluctuations.
- **Characterized Control Valve** technology improves light load control, provides self-cleaning, higher close-off, and zero leakage eliminating “ghost energy” losses in the system.
- **Energy Meter** measures energy usage, flow and differential temperature across the coil which creates load transparency.
- **BACnet** communication provides the ability to read and write parameters and settings through a BACnet IP or BACnet MS/TP network.

**Pressure Independent Valve Comparison**

Features	Mechanical PI	ePIV	Energy Valve
True Flow		•	•
Dynamic Balancing	•	•	•
Energy Meter			•
Power Control			•
Delta-T Manager™			•
Live Data		•	•
Coil History			•
CCV Technology	•	•	•
Zero Leakage	ANSI Class IV	0%	0%
High Close-off		•	•
Low Minimum Pressure Drop		•	•
Field Configuration		•	•
BACnet MS/TP or IP			•
5-Year Warranty		•	•

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: 2009/0009115: Control of sensor less and brushless DC-Motor.

The Energy Valve incorporates additional technology to provide delta T management – Powered by Optimum Energy™.

Product Range		Valve Nominal Size		Type	Suitable Actuators	
Valve Type	GPM Range	Inches	DN [mm]	2-way	Non-Spring Return	Electronic Fail-Safe
NPT	1.65 - 5.5	½	15	EV050S-055	LRB(X)24-EV	AKRB(X)24-EV
	6 - 10.3	¾	20	EV075S-103		
	11.1 - 18.2	1	25	EV100S-182		
	18 - 28.5	1¼	32	EV125S-285	NRB(X)24-EV	
	26.1 - 39.6	1½	40	EV150S-396		
	32.7 - 76.1	2	50	EV200S-761		
Flanged	80 - 127	2½	65	EV250S-127	ARB(X)24-EV	AKRB(X)24-EV
	133 - 180	3	80	EV300S-180		
	195 - 317	4	100	EV400S-317		
	335 - 495	5	125	EV500S-495	GRB(X)24-EV	GKRB(X)24-EV
	515 - 713	6	150	EV600S-713		

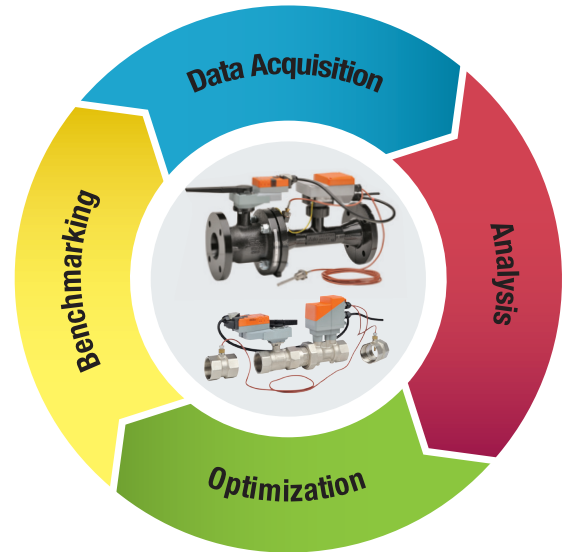
# One solution, so many benefits!

Hydronic systems cannot truly be optimized unless equipment inefficiencies are eliminated.

Once these problems are eliminated, the opportunities for system wide optimization open up. At that point, owners, engineers, and contractors realize a host of benefits that are enabled using the Belimo Energy Valve.

With its Delta-T Manager, the Energy Valve helps operators analyze and fine tune system operation under all conditions while keeping them informed of coil performance.

- **Combat Low Delta T.** The risk of Low Delta T (the most common culprit of major system inefficiencies) is dramatically reduced or eliminated.
- **Power Control.** This logic assures that coil heat transfer matches coil design. Coil energy feedback enables an early response to changes in supply water temperature providing precise linear heat transfer under all circumstances.
- **Enhanced Energy Optimization.** Owners capitalize on optimization strategies such as variable flow pumping without risking occupant comfort.
- **Improved Commissioning.** Start-up commissioning as well as retro-commissioning is greatly simplified.
- **Better System Maintenance.** Operators are much more informed about coil performance and thus better able to schedule preventive maintenance measures.
- **Green Certifications.** The Belimo Energy Valve's ability to analyze, document, and optimize performance data contributes toward satisfying credit EAc5: Measurement and Verification under LEED.
- **More Effective Control.** Engineers are able to implement more advanced control strategies by taking advantage of the data logging provided at individual coils.
- **Smaller Equipment.** Buildings are able to meet comfort demand with smaller, less expensive piping and components (i.e. pumps, chillers, and boilers).



[www.energyvalve.com](http://www.energyvalve.com)

Belimo Worldwide: [www.belimo.com](http://www.belimo.com)

#### **BELIMO Americas**

**USA Locations, 43 Old Ridgebury Road, Danbury, CT 06810**

Tel. 800-543-9038, Fax 800-228-8283, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

1049 Fortunato Loop, Sparks, NV 89436

Tel. 800-987-9042, Fax 800-987-8875, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

**Canada Locations, 5845 Kennedy Road, Mississauga, Ontario L4Z 2G3**

Tel. 866-805-7089, Fax 905-712-3124, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

**Latin America and the Caribbean Customer Service**

Tel. 203-791-8396, Fax 203-791-9139, [marketing@us.belimo.com](mailto:marketing@us.belimo.com)

**Belimo Brasil Comércio de Automação Ltda.**

Tel: 55 11 3643-5656, Fax: 55 11 3643 5657, [atendimentoaocliente@br.belimo.com](mailto:atendimentoaocliente@br.belimo.com).

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