

# Knowledge is Power.



## The Belimo Energy Valve™

Energy cannot be created or destroyed,  
but it can be wasted.

**BELIMO**

# Not every valve is a problem-solver, but the Belimo Energy Valve™ is.

When water coils do not operate efficiently, energy intensive components like chillers, boilers and system pumps consume more energy than they should.

Unfortunately, most owners do not know when coils are operating inefficiently or the impact this has on system wide efficiency.

The Energy Valve not only keeps owners and/or operators informed on coil performance, it has the Belimo Delta T Manager™ built-in that helps operators analyze and fine tune performance under any and all conditions. The valve communicates directly with the Building Automation System (BAS) system so operators can continuously:

- **ANALYZE** the installed power efficiency of each and every coil.
- **DOCUMENT** and create history reports on coil performance.
- **OPTIMIZE** performance using advanced algorithms.

**At the same time, the Energy Valve provides the same reliable, automatic, pressure independent flow control for which Belimo is famous!**

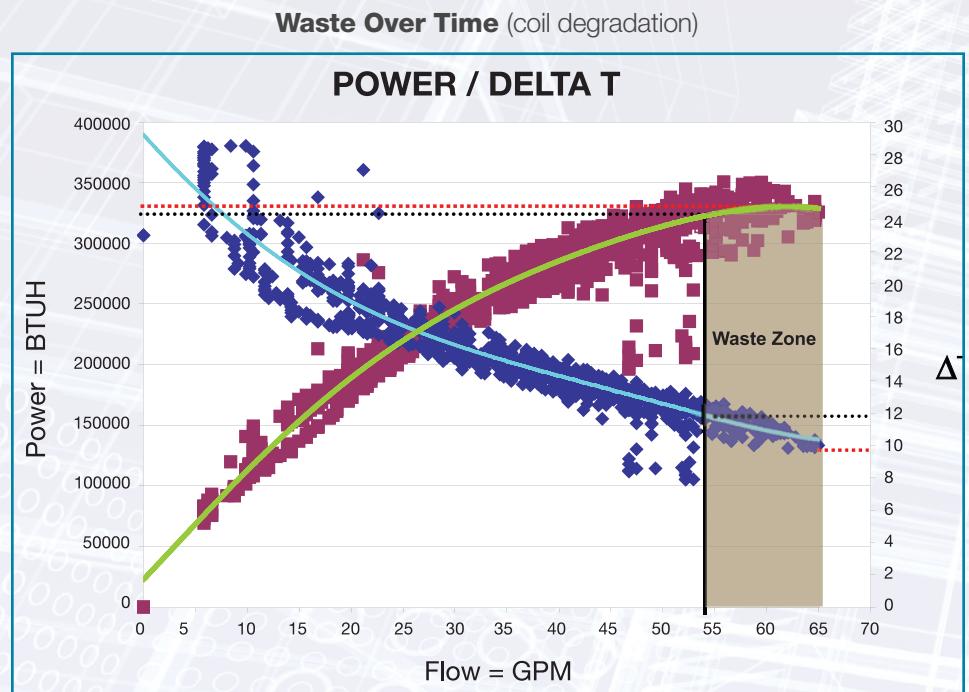
## Energy is wasted when coils do not operate efficiently.

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.





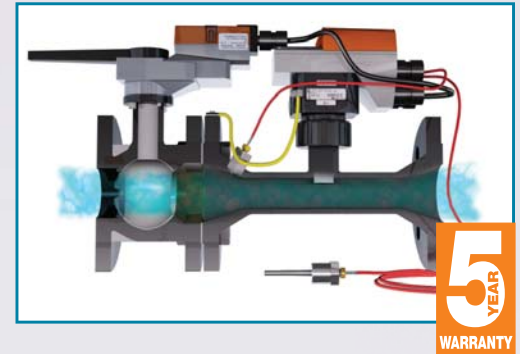
# How the Energy Valve Optimizes Coil and thus SYSTEM Performance

Never before has one valve done so much – from providing superior water flow control to trending and diagnostics.

## A look inside the Belimo Energy Valve:

The Energy Valve combines ALL of the following components:

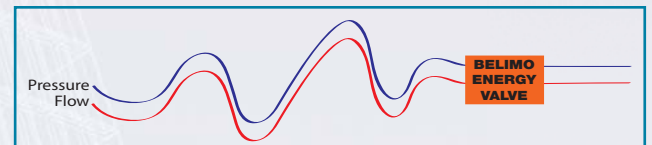
- Belimo CCV (Characterized Control Valve).
- Electromagnetic flow sensor.
- Advanced control options with Belimo Delta T Manager.
- Supply and return water temperature sensors, for energy management.
- BACnet MS/TP or BACnet IP network communication.



The Energy Valve is a pressure independent characterized control valve that is multi-tasking at all times to optimize the coil performance.

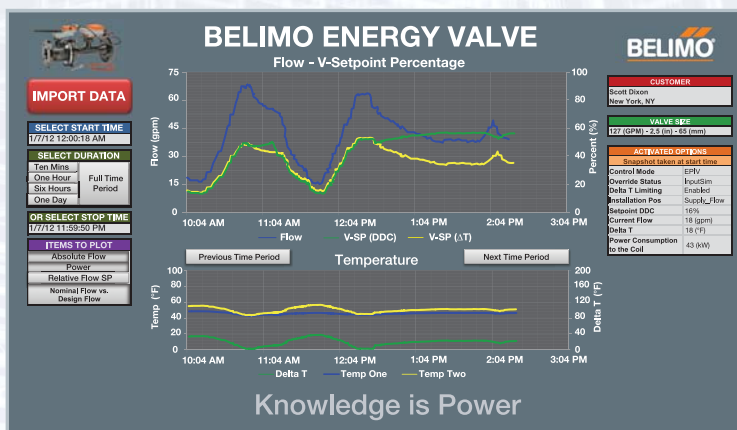
## Flow Control

**Accurate and automatic flow control** are achieved through the Energy Valve's electromagnetic flow sensor and patented characterizing disc, which has high rangeability and turndown ratio. The equal percentage characteristic of the disc decreases “hunting” and stabilizes system output through small, incremental changes in water flow during the first 10 to 30 degrees of valve opening—where control is most critical. Automatic flow control is enabled through the combination of an accurate flow sensor and powerful algorithm that modulates the control valve to maintain the exact flow.



## Monitoring & Adjustment

In addition, the Belimo Delta T Manager continuously monitors the coil Delta T and compares this value with the desired Delta T value or setpoint. For example in a cooling application, if the actual Delta T is below the setpoint, the valve will readjust flow to bring Delta T back to the desired setpoint. Once the appropriate Delta T is re-established, the valve control resumes its normal operating mode taking its signal from the DDC controller.



The software monitors and can trend all sensed or calculated values for up to 13 months. These values include water flow, return and supply water temperature, power, energy, or media density and more.

## Trending & Diagnostics

All of the data that the Energy Valve continuously collects is reported back to the BAS, where it can be accessed for virtually unlimited trending and diagnostics. For instance, a downward trend in the coil power output could signal that the coil is in need of servicing.

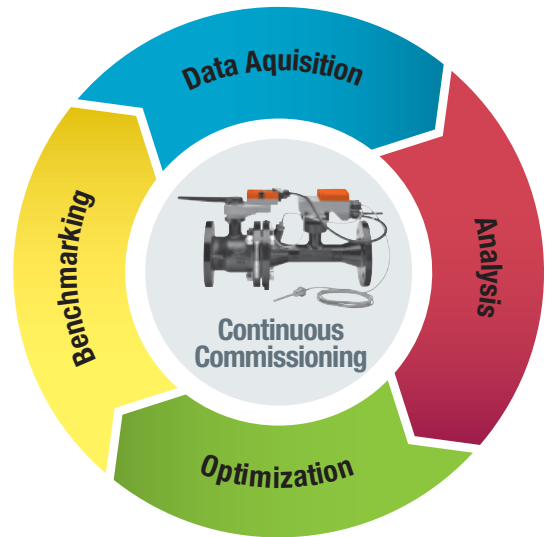
# One solution, so many benefits!

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

The Energy Valve not only keeps owners and/or operators informed of coil performance, it has built-in Belimo Delta T Manager that helps operators analyze and fine tune performance under any and all conditions.

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 enables through the Belimo Energy Valve:

- **Combat Low Delta T.** The risk of Low Delta T (the most common culprit of major system inefficiencies) is dramatically reduced or eliminated.
- **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 to the BAS 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 equipment.



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