

Belimo Energy Valve
Solving Low Delta T Leveraging IoT.

One Optimized Complete Solution – Now Cloud Based

The Belimo Energy Valve is an IoT cloud-connected pressure independent valve that monitors coil performance and energy consumption while maintaining the Delta T. The Energy Valve also has an exclusive glycol monitoring feature ensuring glycol content meets design needs.

Cloud Optimization

Remote cloud communication to optimize, monitor energy usage and provide advanced system data reporting driving product and system functionality delivering optimal performance.

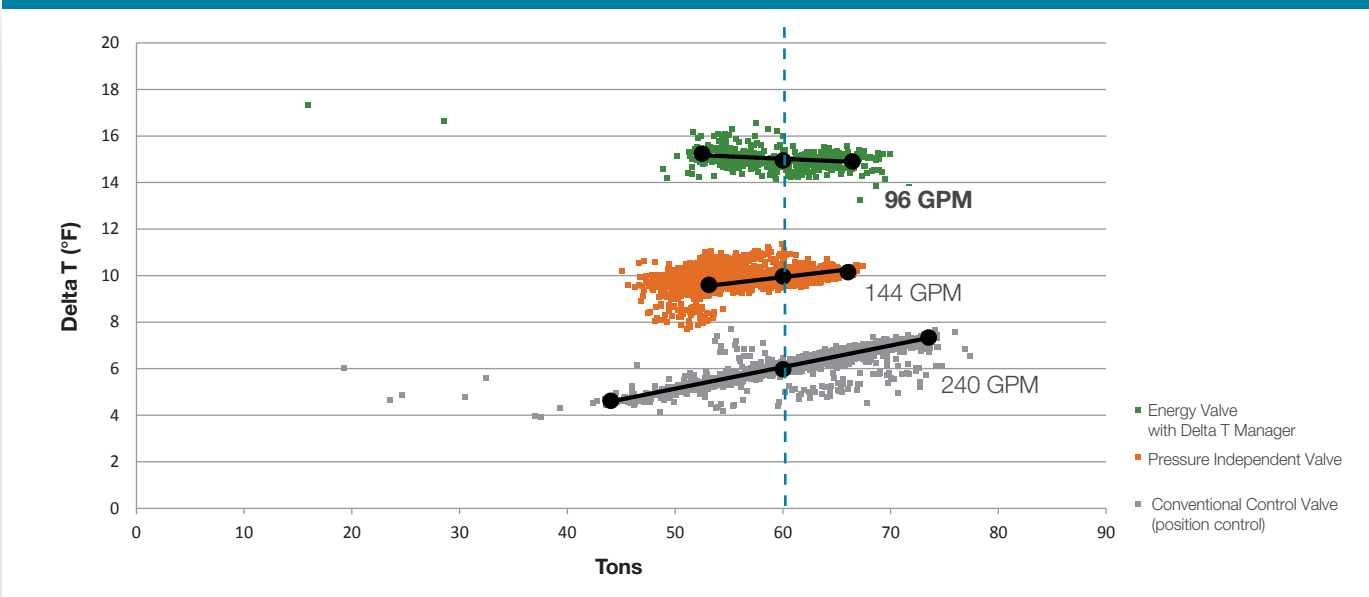
Delta T Management

Belimo Delta T Manager algorithm reduces pumping and chiller/boiler operating costs by increasing plant efficiency and mitigating low Delta T syndrome.

Energy Monitoring

Integrated energy meter provides accurate coil performance data. The data is used to verify system performance during commissioning and acts as a baseline standard for system performance over time. This feature helps achieve LEED points through Energy and Atmosphere within credits 1 and 5.

Operating Mode Comparison Example



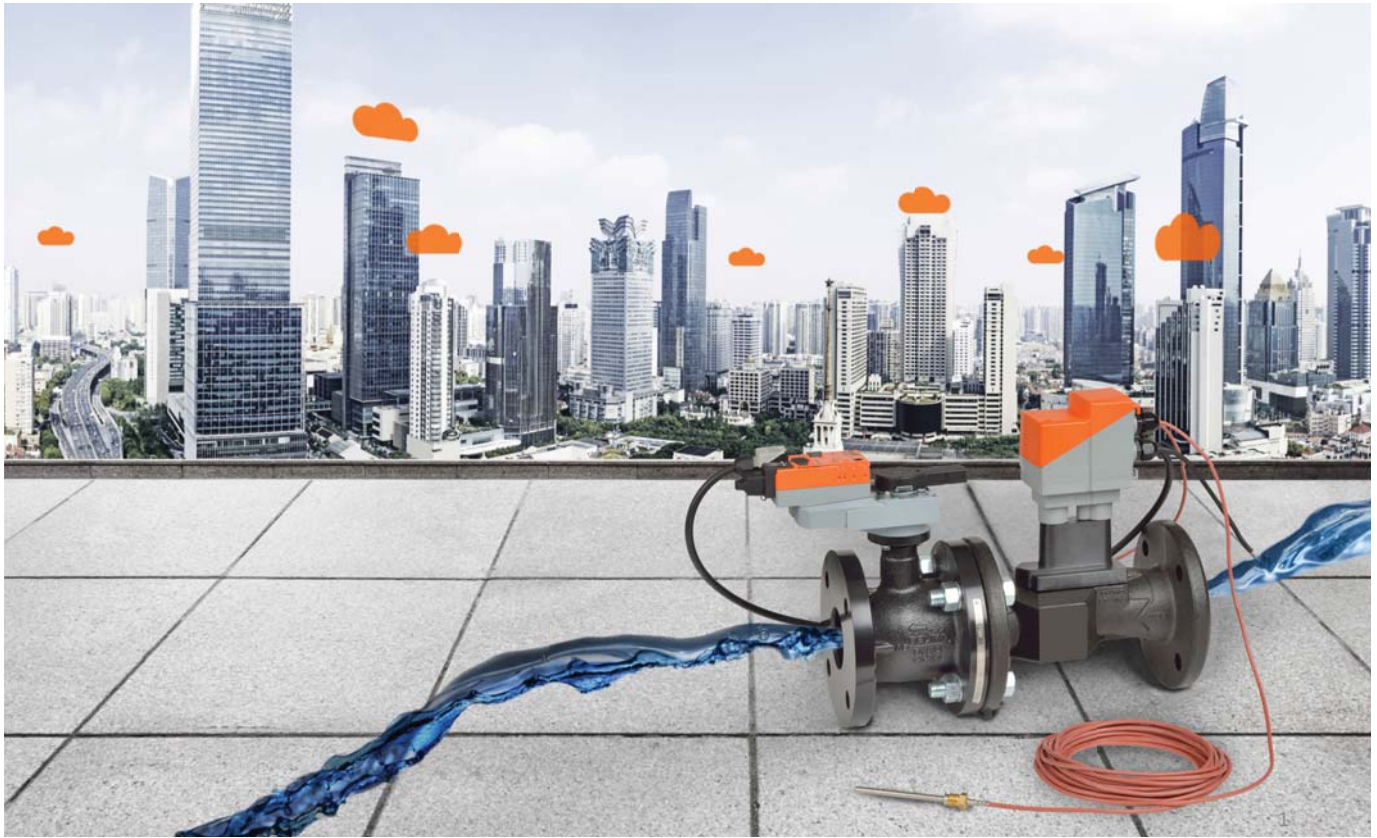
Coil performance to achieve 60 tons of cooling:

- Conventional control valve (position control) uses an average of 240 GPM with a 6°F Delta T.
- Flow control with Delta T Manager uses only 96 GPM with a 15°F Delta T.

A conventional control valve uses 2.5 times more water than the Energy Valve with Delta T Manager to serve the same load!

The Energy Valve Just Became More Intelligent

The Belimo Energy Valve is now an IoT cloud device utilizing advanced analytic technology while leveraging captured system data to improve coil and system performance achieving increased energy savings. Energy Valve with cloud access is unlike any other product on the market today.



Delta T Optimization and Flow Setpoints

Cloud analytics provide recommended Delta T and flow setpoints which can be updated remotely or automatically to save time and improve efficiency.

Performance Reporting

Key performance indicators are graphically illustrated showing current and historical performance data of flow rates, energy usage, Delta T, and other points of interest.

Lifetime Data Access

Secure, single consolidated repository that stores and provides system data access for future optimization.

Online Tech Support

Belimo's industry leading technical support team available to assist you remotely.

Software Updates

Latest software and security updates automatically provided for maximum productivity and reliability.

Extended Warranty

5-year warranty is increased to 7-year with Belimo cloud connection.

Efficiency Through Innovation

Glycol Monitoring

Glycol Monitoring is an exclusive Energy Valve feature that utilizes an embedded temperature sensor, ultrasonic technology, and advanced logic algorithms to monitor the percentage of glycol content in the HVAC system assuring concentrations meet design needs. The benefits:

- **Optimum Efficiency**
Glycol content above the design concentration increases fluid viscosity which reduces pumping efficiency. Also, heat transfer effectiveness of the coil degrades; critical zones may starve of adequate flow resulting in a loss of comfort.
- **Safe Operation**
Glycol content below the design concentration puts the system at risk of freezing and imposing potential costly repairs or harm to the building.
- **Saves Money**
Glycol monitoring enables facility engineers to maintain the correct glycol concentration; increasing overall heat transfer and pumping efficiency and reducing operating cost.



Patented Power Control and Delta T Manager logic built-in monitor coil performance and optimize the available energy of the coil by maintaining the Delta T.



Dynamic coil performance illustrates the operation of the coil in real time accurately providing transparency of power degradation and other operational issues. Delta T setpoint suggestion is offered; eliminating the need to export data to external analysis tools.



Enhanced communication allows for expanded system integration and BMS control with the addition of Modbus RTU and TCP/IP. Other integration protocols include BACnet MSTP and BACnet IP, Belimo MP-Bus, and one analog feedback signal for valve flow, power, temperature or position.



Integrated energy meter

measures and analyzes historical energy data for benchmarking, optimization, and reporting.



Temperature sensors

with quality RTD's measure supply and return media for precise energy management.



Electronic flow meter

durable design, no moving parts and wet calibration ensures accuracy and repeatability.



Set-up wizard

offers easy configuration, valve operation, and programming options.



Save and reload

settings from one valve configuration and load them into another valve for fast and accurate setup.



Commissioning report

provides confirmation valves are correctly configured.

Most Capable Valve in the HVAC Industry

Features	Typical PI*	Original Energy Valve	Energy Valve 3.0
IoT Device			✓
Cloud Analytics			✓
Glycol Monitoring			✓
Commissioning Report			✓
True Flow		✓	✓
Dynamic Balancing	✓	✓	✓
Energy Meter		✓	✓
Power Control		✓	✓
Delta T Manager		✓	✓
Live Data and Coil History		✓	✓
CCV Technology**		✓	✓
Leakage	ANSI Class IV	0%	0%
High Close-off		✓	✓
Low Minimum Pressure Drop		✓	✓
Field Configuration	✓	✓	✓
Bus Communication		BACnet MS/TP or IP and MP Bus	BACnet MS/TP or IP, Modbus RTU or TCP/IP and MP Bus
Password Configuration			✓
Set-Up Wizard			✓
5-Year Warranty	✓	✓	✓
7-Year Warranty with Cloud Access			✓

*Typical pressure independent valves based on globe valve technology.

**Not available on ANSI 250 models.

Product Range

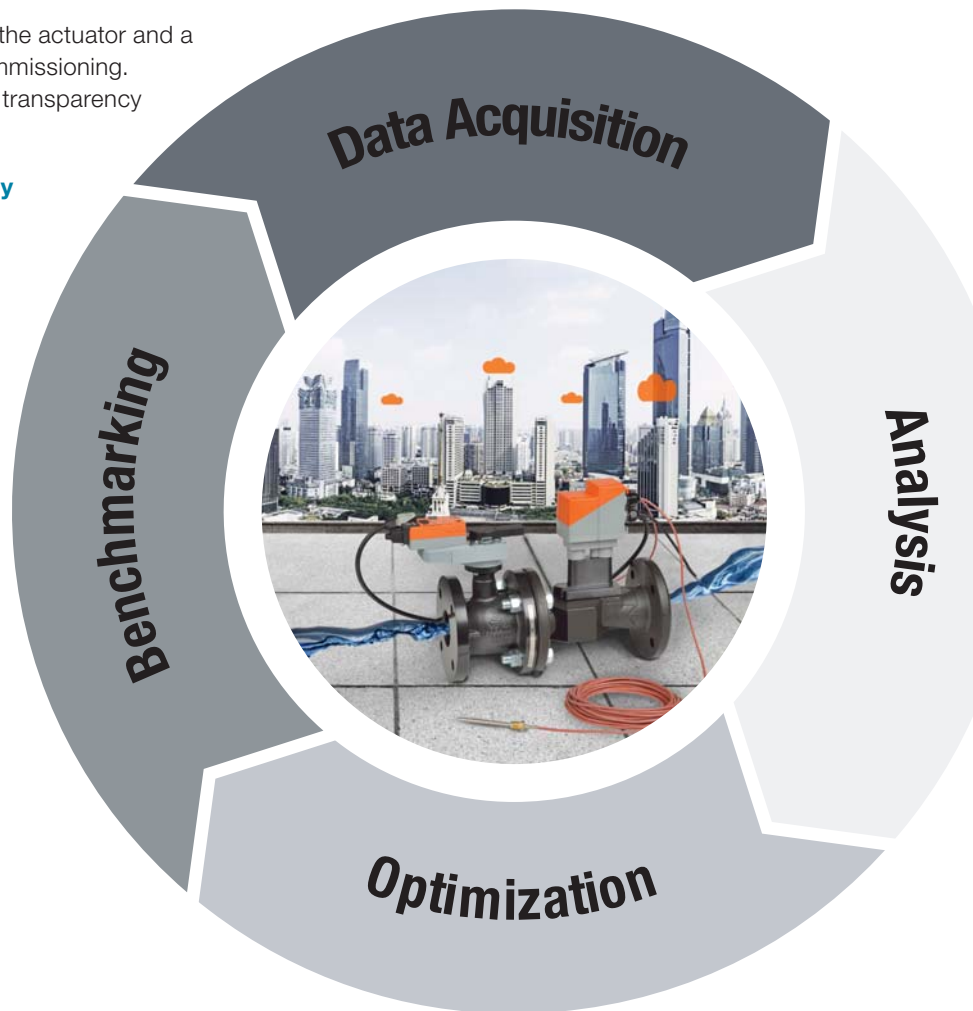
Valve			Actuator Type		Glycol Monitoring
End Fittings	Design Flow Range GPM	Valve Nominal Size	Non-Spring Return	Electronic Fail-Safe	Available
NPT	1.65 - 100	½" - 2"	•	•	•
Flanged (ANSI 125)	38 - 713	2½" - 6"	•	•	Q3 2017
Flanged (ANSI 250)	38 - 713	2½" - 6"	•	•	Q4 2017

BACnet is a registered trademark of ASHRAE. ASHRAE does not endorse or test products for compliance with ASHRAE standards. Compliance of listed products to requirements of ASHRAE Standard 135 is the responsibility of the BACnet International. BTL is a registered trademark of the BACnet International.

One Solution, So Many Benefits!

Belimo Energy Valve

- **Advanced System Optimization** through cloud technology provides analysis of captured and stored system data to improve heat transfer performance enabling increased energy savings and improved system performance.
- **Glycol Monitoring** with an advanced algorithm monitors the percentage of glycol content in the system to ensure concentration meets design needs. Glycol concentration percentage is a BACnet object that can be integrated into the Building Management System (BMS) for continuous monitoring or to generate an alarm.
- **Energy Meter** measures energy usage, flow and differential temperature across the coil creating load transparency.
- **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.
- **Delta T Manager™** continuously monitors the coil Delta T and compares it to 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.
- **True Flow** is achieved with the built-in electronic flow meter which can be shared with the DDC system. Flow verification is simple and troubleshooting is fast.
- **Dynamic Balancing** provides pressure independent operation by maintaining constant flow regardless of pressure differential fluctuations.
- **Coil Data** is stored for up to 13 months on the actuator and a lifetime on the cloud to provide ongoing commissioning. This valuable data gives a level of operation transparency that was never previously available.
- **Characterized Control Valve Technology** improves light load control, provides self-cleaning, higher close-off, and zero leakage eliminating “ghost energy” losses in the system.
- **Communication** enables the ability to read values and write settings through BACnet IP or BACnet MS/TP, Modbus RTU or TCP/IP, and Belimo MP Bus networks.



Awards and Accolades

Awards

2017

- AHR Expo: **Innovation Award Finalist**

2016

- ACME: **Innovation Award**
- Poznan International Trade Fair: **Gold Medal**
- Control Trends: **Energy Savings Solution Product of the Year**

2015

- Energy Show: **Best Energy Efficient Product of the Year**
- AREX: **Award of Excellence**
- CSA: **Innovation in Commissioning**
- Deutscher Rechenzentrumspreis: **German Data Centre Prize**

2014

- Control Trends: **Energy Saving Product of the Year**
- AHR EXPO: **Innovation Award**
- Shanghai Energy Conference: **Golden Key Award**
- Poznan International Trade Fair: **Gold Medal**

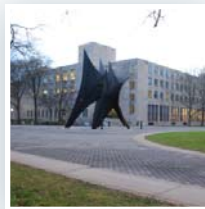
2013

- Building Efficiency Congress Fair: **Building Efficiency Award**
- Interclima Show: **Silver Trophy Award**
- BCIA: **Technical Innovation of the Year Products**
- Trade Fair: **Building Efficiency**
- Innovation Competition: **Intelligent Energy Management**

2012

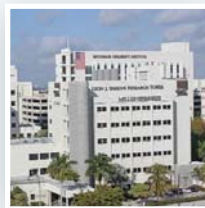
- Control Trends: **Best Commercial Product of the Year**
- HVR Awards: **Air Conditioning Product of the Year**

Success Stories



New Energy Valve Technology at Charles Hayden Library Reaps the Rewards of Higher Delta T!

“One thing that impressed us was having such intelligence right on the valve actuator,” said Peter Cooper, Manager of Sustainable Engineering and Utility Planning at MIT, Hayden Library. “You can characterize a coil’s performance with just a couple of pieces of data and with that information you can observe the degradation of coils and refocus your maintenance efforts accordingly.”



Belimo Energy Valve™ Cures Medical University’s Low Delta T!

“The University started seeing a 10-degree Delta T,” said Scott Czubkowski, PE, Director of Engineering at Kerney Associates. “It went from a 7-degree to a 10-degree Delta T within a day.” That wasn’t all. Kerney and Associates found that within one hour, the system went from using 600 gallons of water to 100 gallons per minute.



Belimo Energy Valve Plays Integral Role in Land O’ Lakes, Inc.’s Corporate Facility Upgrade

“The installation of Belimo Energy Valves was a great jump-start to our sustainability efforts, as it helped us decrease energy usage without impacting the comfort of our employees. We are currently installing new water cooled centrifugal chillers this year, and when paired up with the Energy Valves, it will help us continue to drive top performance and efficiency of our chilled water system.” - Joshua Kline, Lead Mechanical Engineer at Land O’ Lakes, Inc.

Belimo Americas

USA, Latin America, and the Caribbean: www.belimo.us

Canada: www.belimo.ca

Brazil: www.belimo.com.br

Belimo Worldwide: www.belimo.com

