Energy Savings
You Can See

Belimo Energy Valve™
Energy savings you can see

The Belimo Energy Valve is an IoT cloud-connected pressure independent valve that monitors coil performance and energy consumption while maintaining Delta T. It also has an exclusive glycol monitoring feature providing accurate, repeatable flow measurement, and ensuring glycol content meets design requirements.

“One thing that impressed us was having such intelligence right on the valve actuator. 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.”

Peter Cooper, Manager of Sustainable Engineering and Utility Planning, Massachusetts Institute of Technology

Cloud Optimization
Monitors and enhances energy usage delivering optimal system performance. System analytics are also provided to show historical performance.

Delta T Management
The Belimo Delta T Manager algorithm reduces pumping and chiller/boiler operating costs by increasing plant efficiency and maintaining design Delta T.

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

Coil performance to achieve 60 tons of cooling:
- Conventional control valve (position control) uses 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 for the same load!
Transparent energy monitoring

The Energy Valve has a patented Power Control and Belimo Delta T Manager™ logic built in to monitor coil performance and optimize the available energy of the coil by maintaining Delta T. In addition to the standard analog signal and feedback wiring, it communicates its data to the Building Management System (BMS) via BACnet MS/TP or BACnet IP as well as Modbus RTU and Modbus TCP/IP. The built-in web server enables clear visualization of the valves’ operation in real time. Performance data is stored for 13 months on board the valve. Cloud data provides lifetime data access.

FEATURES

- 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.

- Glycol Monitoring
  Detects the percentage of glycol content in the HVAC system, assuring concentrations meet design needs reducing overfilling, and eliminating adding glycol above necessary levels.

- 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.
One solution, so many benefits

**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 in power degradation and other operational issues. Delta T setpoint suggestion is offered; eliminates the need to export data to external analysis tools.

**Enhanced communication**
Enables 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.

**Glycol monitoring**
Utilizes an embedded temperature sensor, ultrasonic technology, and advanced logic algorithms to monitor the percentage of glycol content in the system. Glycol monitoring provides you with the knowledge to optimize heat transfer and pumping efficiency, while reducing operating costs and the risk of freezing.
Save and reload
settings from one valve configuration and load them into another valve for fast and accurate setup.

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.

Ultrasonic flow meter
durable design, no moving parts and wet calibration ensure true flow, accuracy and repeatability which can be shared with the DDC system.

Set-up wizard
offers easy configuration, valve operation, and programming options.

Commissioning report
provides confirmation valves are correctly configured.
Platform for on-site Energy Valve optimization

The Belimo Clear Edge is an analytical device that leverages the data from all installed Energy Valves in a BACnet Building Automation System (BAS). It automatically analyzes the Belimo Energy Valve data to optimize, manage, and monitor key performance indicators of water coil performance and hydronic energy consumption. The Clear Edge offers trending capability with automated Delta T setpoint adjustment to increase system performance and energy savings strategies. An internet connection is not needed.

The Belimo Clear Edge technology is accessible as a plug-in for SkySpark from Stackhub (www.stackhub.org).

FEATURES

- **Aggregated Start Screen**
  A simplified view of Key Performance Indicators (KPI’s) including BACnet object name, instance number, supply and return temperatures, Delta T, delta setpoint, flow, current energy usage, and 30 days of energy consumption.

- **Energy Dashboard**
  Input cost and kWh data, pump efficiency, and other building specific variables provide aggregated cost and energy savings due to reduced pumping. Reporting is available by the day, month, quarter, and year.

- **Automatic and Continuous Delta T Optimization**
  Software analytics providing the optimal Delta T and flow setpoints, which are automatically written to the Delta T Manager to save time and improve efficiency.

- **Coil Power and Delta T Curves**
  Scatter plots that automatically generate load profiles and flow saturation points of coil characteristics and Delta T performance.

- **Setpoint Configuration**
  Change parameters on installed Energy Valves individually or collectively.

- **Automatic Discovery**
  Energy Valves on a BACnet network are viewable with a single click. Point mappings automatically provide fast and easy analysis and optimization.
## Most capable valve in the HVAC industry

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

*Typical pressure independent valves based on globe valve technology.

**Not available on ANSI 250 models.

### Product Range

<table>
<thead>
<tr>
<th>Valve</th>
<th>Actuator Type</th>
<th>End Fittings</th>
<th>Design Flow Range GPM</th>
<th>Nominal Valve Size</th>
<th>Non Fail-Safe</th>
<th>Electronic Fail-Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPT</td>
<td></td>
<td></td>
<td>1.65 - 100</td>
<td>1½&quot; - 2&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flanged (ANSI 125)</td>
<td></td>
<td>NPT</td>
<td>38 - 713</td>
<td>2½&quot; - 6&quot;</td>
<td></td>
<td></td>
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<tr>
<td>Flanged (ANSI 250)</td>
<td></td>
<td>Flanged</td>
<td>38 - 713</td>
<td>2½&quot; - 6&quot;</td>
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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.” But that was not all. Kerney and Associates found that within one hour, the system went from using 600 gallons of water to 100 gallons per minute.

Red Wing School District will Achieve Payback in Under Two Years.

“Savings are always difficult to quantify for new buildings; however, at River Bluff, we are pumping approximately 50% less water than that of a similar sized building in our district,” Kevin Johnson, Director of Building and Grounds and Technology Director, Red Wing School District said. “This equates to substantial pump cost savings over the long-term and represents an improvement over traditional valves, which often deliver far more GPM than needed to maintain temperature setpoints.”

Awards

2018
- EnergieGenie Award

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