Energy savings you can see.

The multifunctional Belimo Energy Valve™
The Belimo Energy Valve™ provides pressure-independent flow control and transparent monitoring of heating or cooling systems, ensuring that it is not operated with too low a temperature spread (delta T). By measuring, calculating and visualising important system data and with the performance reports provided by Belimo, energy-efficient system operation is guaranteed for the entire service life. The Belimo Energy Valve™ can be connected to the Belimo Cloud, providing easy access to data and reports – anytime, anywhere.
The Belimo Energy Valve™ is an IoT device (IoT: Internet of Things), i.e. an intelligent pressure-independent valve that can be connected to the Belimo Cloud. Unique functions such as the delta T manager or the possibility of direct power control provide clarity, enhance efficiency and reduce costs.

**Transparent**
Integrated sensors and logic provide accurate data on heat exchanger power. Energy monitoring data is used to verify system performance throughout the entire service life and to optimise it as necessary.

**Connected**
The Belimo Cloud application monitors energy consumption and provides evaluations to improve product and system quality. Communication via Modbus, BACnet, MP-Bus or analogue connection enables flexible system integration.

**Efficient**
Increased efficiency thanks to power monitoring. With the Belimo Energy Valve™ you always know where the energy is going. The power control enables pressure and temperature-independent control of the power output at the heat exchanger.

"The default works well; if you want to go a step further, however, tailored solutions are required. Thanks to the Belimo Energy Valve™, we can recognise the precise energy requirements of the heating system and produce exactly the amount of heat that is actually needed."

Samuel Lorez, Technical Manager
Lenzerheide Bergbahnen AG
Added value with the Belimo Energy Valve™.

Facilitating work, minimising expenses and preventing sources of error were all important aspects in the development of the Belimo Energy Valve™.

Your advantages as

Consulting engineers:
- Reduced planning effort and time savings through simple valve selection
- Automatic hydronic balancing at every load condition
- Easy adaptations to power changes possible
- Specially designed planning aids and documents to assist you in your day-to-day work

Installers:
- Cost reduction and time savings with an all-in-one solution
- No complicated hydronic balancing necessary
- Easy commissioning in just a few steps with an intuitive start-up assistant

System integrators:
- Free choice of control (BACnet, Modbus, MP-Bus or analogue signal)
- Energy optimisation through data transparency
- Connection to the Belimo Cloud
- Real-time function monitoring

Operators:
- High transparency and efficiency through energy and system monitoring
- System safety guaranteed by measuring the glycol content and fail-safe
- Optimisation options during operation
- Maximum comfort with minimum operating costs throughout the entire life cycle
The most important features and functions at a glance
A look at the four areas of planning, installation, integration and operation uncovers the benefits of the unique Belimo Energy Valve™.

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<th>Operators</th>
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<td>All-in-one solution</td>
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The multifunctional all-in-one solution.

The Belimo Energy Valve™, which consists of a 2-way or 3-way characterised control valve, a volumetric flow meter, two temperature sensors and an actuator with integrated logic, combines several functions in one single, easy-to-install unit.

This all-in-one solution reduces investment costs compared to conventional solutions. Furthermore, installation costs are lower, hydronic balancing is considerably simplified and easy adaptation is possible for conversions.

**Measuring**
Integrated sensors for measuring the temperature spread, the flow (incl. glycol content compensation) and thereby the power.

**Controlling**
Control the valve position, flow or power to perfectly control the heat exchanger.

**Balancing**
The Belimo Energy Valve™ always ensures the correct amount of water – even if there are differential pressure changes and during partial load operation.

**Isolating**
No leakages thanks to an air-bubble tight-closing characterised control valve.

**Energy monitoring**
Highlighting of optimisation potential through recording of all system data.

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**Shopping list**

- 1 Belimo Energy Valve ✓
- 1 Control valve
- 1 Balancing valve
- 1 Flow sensor
- 2 Temperature sensors
- 1 Complex calculation
- 30 min hydronic balancing
- 30 min for installation
Modern hydraulics in various applications.

To ensure high-energy performance in buildings, efficient heating and cooling systems are becoming increasingly important.

For energy-efficient operation in heating and cooling systems, hydraulics is of enormous importance as it forms the link between generation, distribution and the consumer system.

Modern hydraulics with intelligent components

Utilising appropriate circuits and selecting the right components, such as variable-speed pumps or pressure-independent valves, make it possible to implement a modern system that is adapted to all system components. "Intelligent" components are necessary to make energy flows transparent and prevent over- or undersupply of system components. Thus, a cycle of measuring and adapting is inevitable.

The all-in-one features of the Belimo Energy Valve™ provide power control for pressure and temperature-independent operation.

2-way applications

- Flow control (injection circuit)
- Air heater (injection circuit)
- Throttling circuit

3-way applications

- Supply temperature control (weather-compensated)
- Supply air temperature control

PROPERTIES FOR OPTIMAL AND ENERGY-EFFICIENT POWER TRANSMISSION:

- Complete system observation (e.g. consumer impact on the generating system)
- Suitable hydronic circuits (distributors, consumers)
- Consistent temperature and volumetric flow measurement for accurate power control
- Suitable pump behaviour (proportionally regulated pump)

The Belimo Energy Valve™ symbol is available for CAD planning tools (standard colour black).
Operational optimisation made easy.

The low delta T syndrome
Monitoring the temperature spread (delta T) is necessary to ensure efficient operation of a system over its entire life cycle. If a heating or cooling system is operated with too much water, this cannot be converted into higher heating or cooling capacity. In this case, the temperature spread between supply and return decreases. The so-called low delta T syndrome occurs. This impairs the efficiency of the entire system and increases the energy requirement of the pumps and generating system. Possible causes of low delta T syndrome are operational soiling of the heat exchanger, incorrectly dimensioned control valves, lack of hydronic balancing and differential pressure fluctuations.

Delta T management from Belimo
The delta T manager integrated in the Belimo Energy Valve™ is a function that continuously measures the temperature spread and compares it with the system-specific limiting value. If it falls below this, the Belimo Energy Valve™ automatically adjusts the flow so that only the amount of water actually needed to achieve the desired power is used. As a result, the integrated logic prevents the occurrence of the low delta T syndrome and ensures maximum comfort with the lowest possible energy consumption. All values can be conveniently viewed via the Belimo Cloud and can also be adjusted at any time during operation. For even better energy efficiency, delta T management can also be performed by Belimo experts through the Belimo Cloud.

The buildings and buildings construction sectors combined are responsible for 36% of global final energy consumption and nearly 40% of total direct and indirect CO₂ emissions.
Added value through intelligent networking.

The potential of connected buildings
Belimo uses IoT technology to meet the future needs of connected buildings for greater efficiency and convenience. With the help of the cloud connection or versatile bus communication, buildings can be more easily optimised, managed and maintained thanks to the Belimo Energy Valve™.

The multifunctional Belimo Energy Valve™ with connection to the Belimo Cloud
Optimisation in the Belimo Cloud fully exploits the energy potential. Cloud-based evaluations provide the recommended delta T settings for efficient operation. System performance and stability are improved.

In addition, Belimo Support assists with commissioning and optimally adjusting the Belimo Energy Valve™ in all operating phases. Experienced technicians from Belimo help users solve technical problems.

The Belimo Cloud provides easy access to all data throughout the lifecycle of the Belimo Energy Valve™. Online software updates ensure that the Belimo Energy Valve™ is always up-to-date. Performance reporting also offers a clear report that presents current and past performance data, such as flow, energy consumption, power requirements and delta T. Another advantage of the cloud connection is the extension of the guarantee from five to seven years.

Versatile bus communication
Not only can the Belimo Energy Valve™ be controlled via the cloud, but it also supports all common building automation communication protocols (BACnet, Modbus, Belimo MP-Bus). Even with conventional control by means of analogue positioning signals, the bus communication can be used for monitoring and override.
Proven logic with exclusive functions.

Advantages at a glance
- Quick and reliable selection as well as simple commissioning
- Energy saving, thanks to automatic and permanent hydronic balancing
- Increased room comfort by ensuring the correct amount of water for differential pressure changes and in partial load operation
- Efficient operation guaranteed with the delta T manager
- Intelligent networking

Flow measurement with glycol compensation
The Belimo Energy Valve™ provides accurate and reproducible flow measurement of water and water-glycol mixtures in all HVAC applications. The integrated patented logic for temperature and glycol compensation eliminates the need for manual calibration. Optionally, the measured glycol content can be output for monitoring purposes.

Characterised control valve technology
The tight-sealing characterised control valve prevents internal leakage in the closed state and thus unwanted consumption at zero load. The self-cleaning effect prevents the control element from sticking and ensures reliable activation of the cooling or heating power. Even low heating or cooling capacities (lowest partial load range) are very easy to control, since there is no input jump in the opening range of the valve. The small height reduces the space requirement and accordingly increases the freedom of design.

→ Sold over 20,000 times
→ Award winner
A complete product range.

The 3-way version of the Belimo Energy Valve™
The innovative valve technology, specially developed for use in mixing circuits with low-pressure distributors, is now also available in a 3-way version. When used in mixing circuits with low-pressure distributors, the constant flow is determined by the consumer via a secondary pump.

The new 3-way Belimo Energy Valve™ controls the mixing ratio for the control path and bypass. For energy monitoring, both temperature sensors and the flow measurement in the primary circuit are used to monitor and control the power delivered at the heat exchanger.

The Belimo Energy Valve™ as a 2-way and 3-way solution

<table>
<thead>
<tr>
<th>Nominal diameter DN</th>
<th>Adjustable flow $V_{\text{max}}$ [l/s]</th>
<th>Adjustable flow $V_{\text{max}}$ [l/min]</th>
<th>Adjustable flow $V_{\text{max}}$ [m³/h]</th>
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<tr>
<td>15...50</td>
<td>0.11...4.8</td>
<td>6.3...288</td>
<td>0.38...17.28</td>
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<tr>
<td>65...150</td>
<td>2.4...45</td>
<td>144...2700</td>
<td>8.64...162</td>
</tr>
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</tbody>
</table>

Fluid temperature: –10...120 °C
System pressure ($p_1$): 1600 kPa
Belimo as a global market leader develops innovative solutions for the controlling of heating, ventilation and air-conditioning systems. Actuators, valves and sensors represent our core business.

Always focusing on customer added value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

The “small” Belimo devices have a big impact on comfort, energy efficiency, safety, installation and maintenance. In short: small devices, big impact.