



**Energy savings
you can see.**

The multifunctional Belimo Energy Valve™

BELIMO®

Know where the energy is going.

The Belimo Energy Valve™ provides pressure-independent flow and power control and transparent monitoring of heating or cooling systems, ensuring that they are not operated with a temperature spread that is too low (low delta T syndrome). 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

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.

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~~

~~Expenses for cloud connection~~

Where power control is easier than ever before.

Controlling and balancing

Control of valve position, flow or power for perfect modulation of the coil.

**Multi-bus connection**

Bus connection to BACnet, MP-Bus and Modbus with the same valve.

**Additional fail-safe function**

provides security for safety sequences upon a loss of power.

**Power control and delta T manager**

logic built-in monitor coil performance and optimise the available energy of the coil by maintaining the delta T.

**Integrated webserver**

User interface with an intuitive installation setup to make it ready in only a few steps.



**Glycol monitoring**

is an exclusive Belimo Energy Valve™ feature that utilises an embedded temperature sensor and advanced logic algorithms to monitor the percentage of glycol content in the HVAC system.

**Flow measurement**

Flow sensor for accurate measurement over the entire range.

**Temperature measurement**

Twin sensors for a better differential temperature measurement.

**Shutting**

Air bubble-tight characterised control valve.

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™.

	Consulting engineers	Installers	System integrators	Operators
Automatic hydronic balancing	■	■		■
Measurement of glycol content	■		■	■
Optimisation via cloud			■	■
Time savings	■	■	■	■
System monitoring			■	■
Transparency	■		■	■
Easy conversion	■	■	■	■
Flexible installation	■	■		
Energy efficiency	■			■
Delta t management	■			■
All-in-one solution	■	■	■	■

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

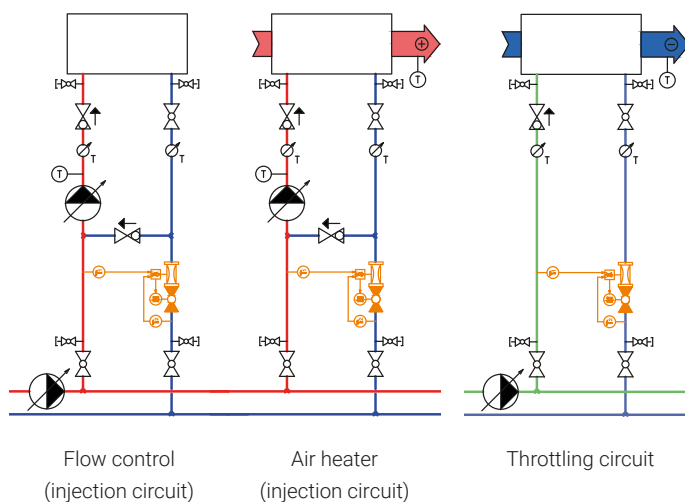
Utilising appropriate circuits and selecting the right components, such as variable-speed pumps or pressure-independent valves, make it possible to implement a modern system that is adapted to all system components. "Intelligent" components are necessary to make energy flows transparent and prevent over-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

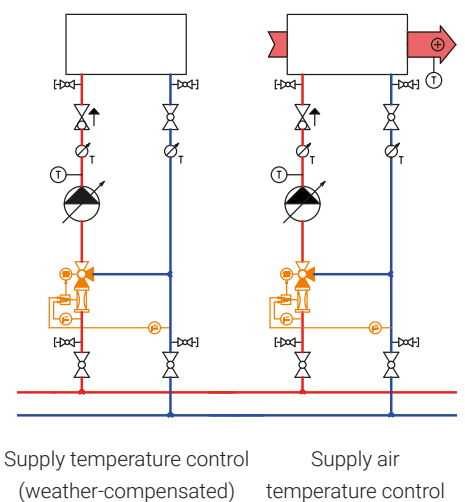
PROPERTIES FOR OPTIMAL AND ENERGY-EFFICIENT POWER TRANSMISSION:

- 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)

2-way applications



3-way applications

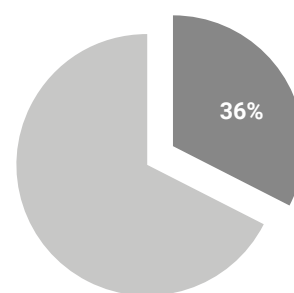
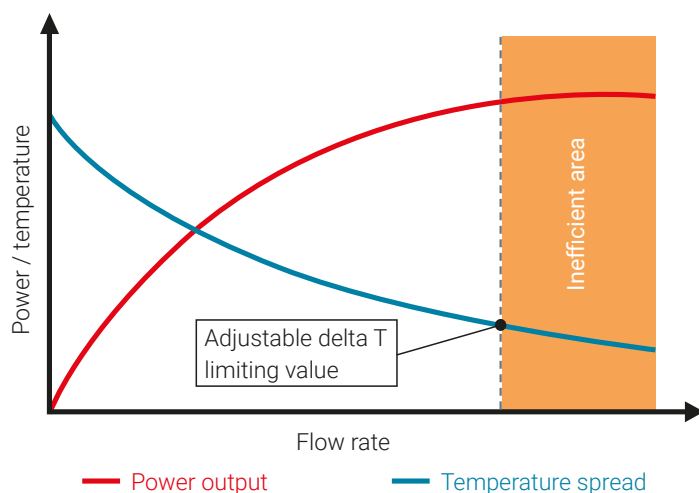


The Belimo Energy Valve™ symbol
is available for CAD planning tools (standard colour black).

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.



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.

(Source: International Energy Agency, 2019, www.iea.org/topics/energyefficiency/buildings)

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.

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.

Flow measurement with glycol compensation

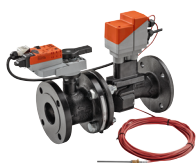
The Belimo Energy Valve™ provides accurate and reproducible flow measurement of water and water-glycol mixtures in all HVAC applications. The integrated patented logic for temperature and glycol compensation eliminates the need for manual calibration. Additionally, the measured glycol content can be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

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

	Nominal diameter DN	Adjustable flow $V_{\max}$ [l/s]	Adjustable flow $V_{\max}$ [l/min]	Adjustable flow $V_{\max}$ [m³/h]
	65...150	2.4...45	144...2700	8.64...162

Fluid temperature: -10...120 °C
System pressure (p_s): 1600 kPa



Our proven Belimo Energy Valve™ is also available in DN 15...50 as a 2-way and 3-way solution. Now with Thermal Energy Meter (see separate brochure).

All inclusive.

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 world-wide 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.



5-year warranty



On site around the globe



Complete product range



Tested quality



Short delivery times



Comprehensive support



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