

Conserving Valuable Resources

Applications
Heat Generation

BELIMO

Preface

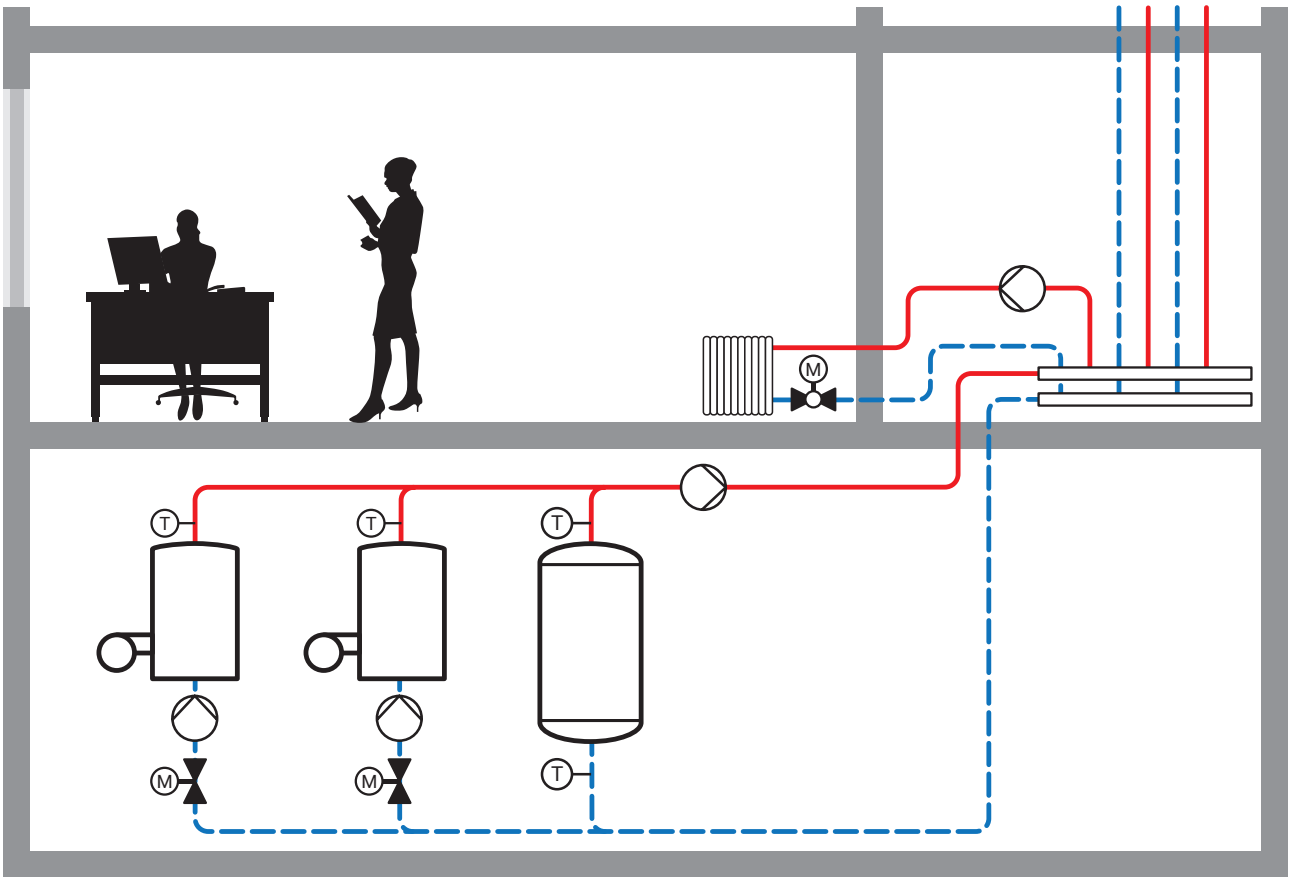
Thank you for your interest in our products. In this brochure you will find information regarding the planning of different heat generation systems. Of course, our recommendations and useful notes do not replace the individual system planning and design of hydronic components. As a rule, planning an application should always be done in coordination with the manufacturers of boilers, heat pumps and pumps.

All chapters are structured as follows:

- Hydraulic diagram
- Application description
- Bill of material
- Belimo – features and advantages

You can find summarised tender texts starting from page 48.

The diagram shows an example of a heat generation system in a building.



Characterised control valve – proven millions of times over

As a result of their spherical design, the ball valves – which have already proven themselves a million times over – are air bubble-tight, thus helping to avoid energy losses. The characterised disk additionally ensures excellent control stability throughout the entire flow range



Globe valve actuators – revolutionary and versatile

Globe valves are the proven and trusted solution for heat generation applications. The globe valve actuators from Belimo with their universal actuator concept ensure optimum and robust motorisation. They are the ideal complement to our characterised control valves, even when it comes to high temperatures, pressure classes, flow rates and linear control characteristics.



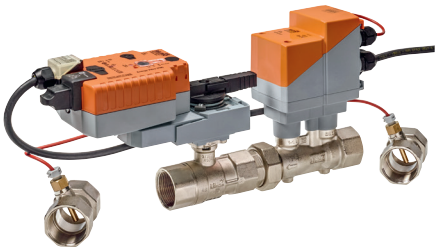
Butterfly valves and actuators – efficient and also reliable

Belimo actuators and butterfly valves have been specially developed for HVAC applications and are perfectly coordinated. This means that they are maintenance-free over their entire lifecycle. All butterfly valve-actuator combinations with PR actuators are equipped with NFC and enable rapid commissioning and parametrisation via your smartphone.



Belimo Energy Valve™ – powerful and available in the IoT

The new Belimo Energy Valve™ has not only been improved, it has also become more intelligent. In addition to measuring, controlling, balancing and isolating, the energy monitoring feature is now also fully integrated in the Belimo Cloud.



Sensors – precise and easy to operate

The sensors from Belimo meet the highest quality and reliability requirements. Using innovative technology, simple installation and seamless compatibility with all essential building automation systems is guaranteed. Installation and commissioning only take a few steps thanks to the clever design.



Product comparison between Belimo characterised control valves, globe valves and butterfly valves

2-way product comparison







	2-way open/close and characterised control valve	2-way globe valve	2-way open/close and control butterfly valve
Applications	DN 15...50[1)] DN 15...150[2)]	DN 15...250	DN 25...700
	For open and closed water circuits	For open and closed water circuits	For open and closed water circuits
Flexibility	- Extensive selection of actuators - Compact solutions - Adjustable running time, 2.5...150 s - Control: 0.5...10 V, 2...10 V, 4...20 mA, communicative - IP40...IP67 degree of protection - Fail-safe	- Extensive selection of actuators - Compact solutions - Temperature range of 5...200°C - Adjustable running time, 35...150 s - Control: 0.5...10 V, 2...10 V, 4...20 mA, communicative - Degree of protection IP54 - Fail-safe	- Universal power supply 24...230 V[3)] - Adjustable running time, 30...120 s[3)] - Control: 0.5...10 V, 2...10 V, 4...20 mA, communicative[3)] - IP54...IP66/67 degree of protection
Installation	Take note of the direction of flow when installing in the pipeline	Take note of the direction of flow when installing in the pipeline	Any direction of flow and any installation in the pipeline
Commissioning	With position indication	With position indicator	With position indicator
			Fast and simple commissioning with the Belimo Assistant App[3)]
Communication	Belimo MP-Bus, DN 15...150 BACnet MS/TP, DN 15...50 Modbus RTU, DN 15...50 KNX, DN 15...50	Belimo MP-Bus, DN 15...150 BACnet MS/TP, DN 15...100 Modbus RTU, DN 15...100	Belimo MP-Bus, DN 25...300 BACnet MS/TP, DN 25...300 Modbus RTU, DN 25...300
Energy efficiency	Leakage: leakage rate A, air bubble-tight (EN 12266-1)	Leakage: 0.05 % of k_{vs}	Leakage: leakage rate A, tight (EN 12266-1)

1) Open/close ball valves
2) Characterised control valves
3) Motorisation with PR actuator

3-way product comparison



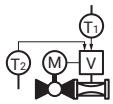




	3-way changeover and characterised control valve	3-way globe valve	3-way changeover and control butterfly valve
Applications	DN 15...50	DN 15...250	DN 150...300
	For open and closed water circuits	For open and closed water circuits	For open and closed water circuits
Flexibility	- Extensive selection of actuators - Compact solutions - Adjustable running time, 2.5...150 s - Control: 0.5...10 V, 2...10 V, 4...20 mA, communicative - IP40...IP67 degree of protection - Fail-safe	- Extensive selection of actuators - Compact solutions - Temperature range of 5...200°C - Adjustable running time, 35...150 s - Control: 0.5...10 V, 2...10 V, 4...20 mA, communicative - Degree of protection IP54 - Fail-safe	- Universal power supply 24...230 V[3)] - Adjustable running time, 30...120 s[3)] - Control: 0.5...10 V, 2...10 V, 4...20 mA, communicative[3)] - IP54...IP66/67 degree of protection
Mounting	Take note of the direction of flow when installing in the pipeline	Take note of the direction of flow when installing in the pipeline	Any direction of flow and any installation in the pipeline
Commissioning	With position indicator	With position indicator	With position indicator
			Fast and simple commissioning with the Belimo Assistant App[3)]
Communication	Belimo MP-Bus, DN 15...150 BACnet MS/TP, DN 15...50 Modbus RTU, DN 15...50 KNX, DN 15...50	Belimo MP-Bus, DN 15...150 BACnet MS/TP, DN 15...100 Modbus RTU, DN 15...100	Belimo MP-Bus, DN 25...300 BACnet MS/TP, DN 25...300 Modbus RTU, DN 25...300
Energy efficiency	Leakage on the control path: leakage rate A, air-bubble tight (EN 12266-1) Leakage in the bypass: leakage class I (EN 1349 and EN 60534-4) 1...2% of k_{vs} value in relation to the largest value within the DN	Leakage: 0.05 % of k_{vs}	Leakage in control and bypass path: leakage rate A, tight (EN 12266-1)

Captions

Water products

	Manual 2-way open/close butterfly valve		2-way open/close butterfly valve / 2-way globe valve
	Belimo Energy Valve™		3-way globe valve
	Pressure-independent 2-way globe valve		Changeover ball valve with L-bore
	2-way characterised control valve Open/close ball valve		3-way characterised control valve / changeover ball valve with T-bore

Sensors

	Temperature sensor		Differential pressure sensor
	Pressure sensor		

Additional components

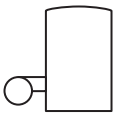
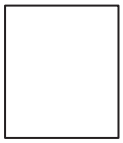
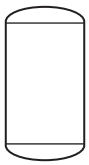
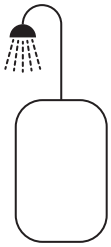
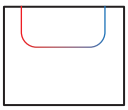
	Pump		Heat consumers
	Boiler / condensing boiler		Heat pump
	Buffer storage tank		Heat exchanger
	Hot-water tank		Solar collectors
	Earth probe field		Strainer

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1

Boiler sequential control

Typical shut-off application with several boilers

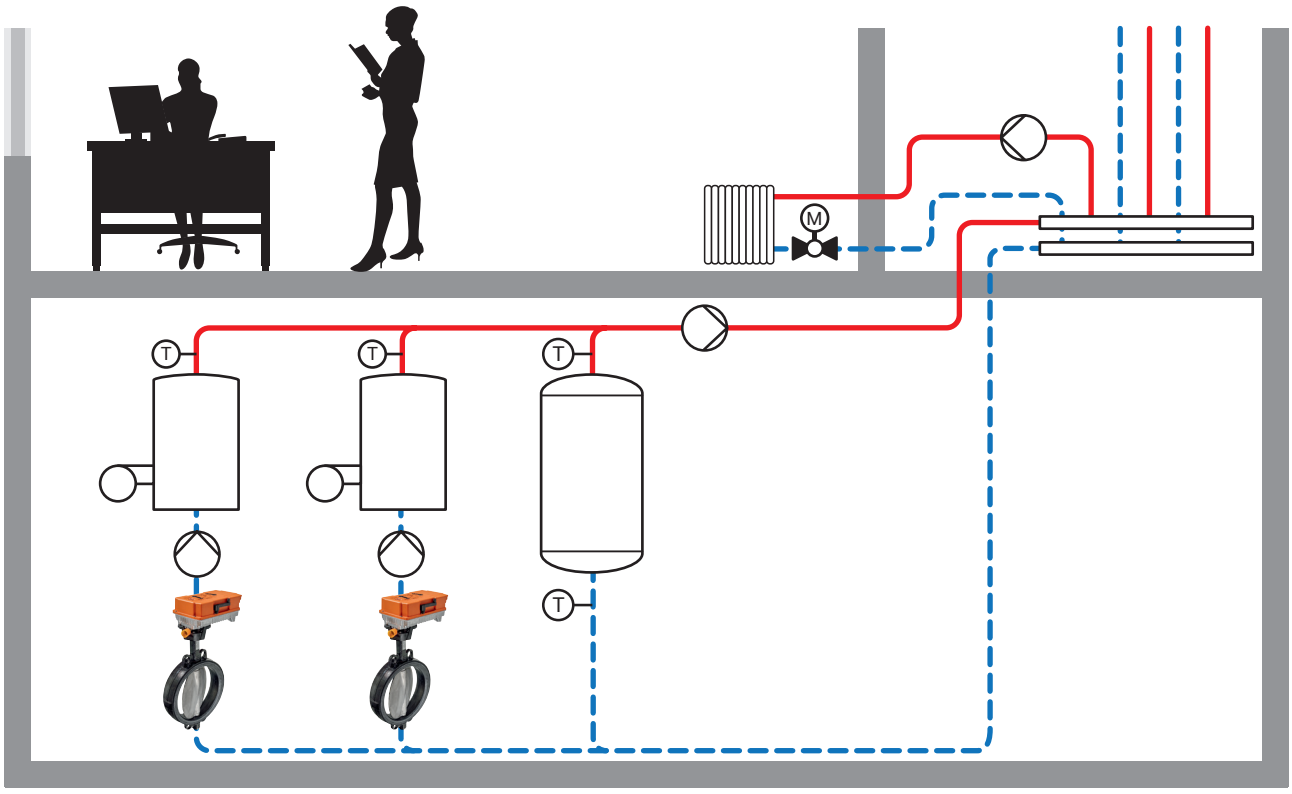
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Application description

Bill of material 13

Belimo – features and advantages



Boiler sequential control

Hydraulics diagram

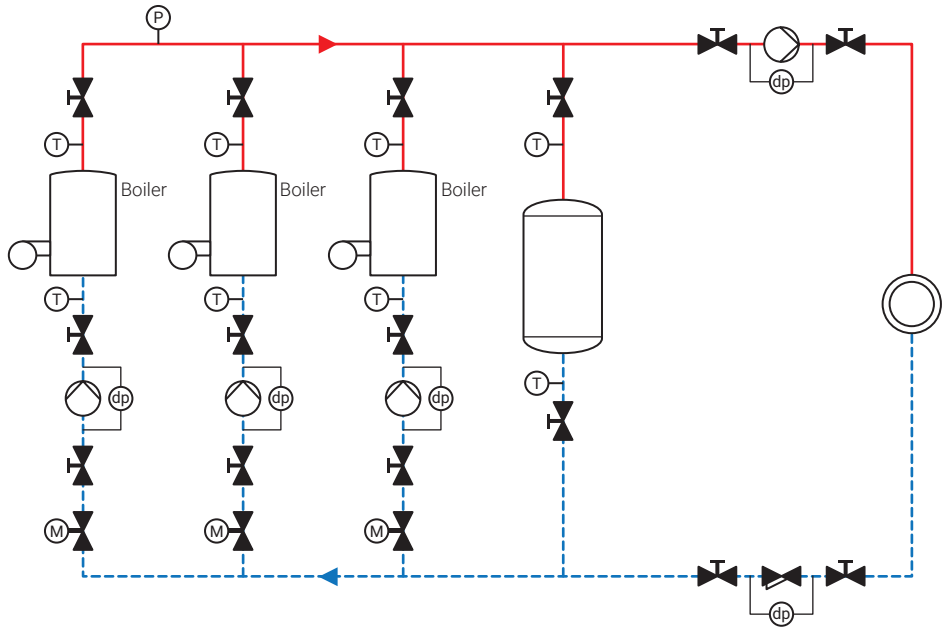


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

- One, two or three boilers are in operation, depending on heat requirements
- Boiler shut-off is mandatory for multi-boiler systems in many countries
- Manual open-close butterfly valves with worm gears shut off the pumps, buffer storage tank, heat generators and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the operative function of the pumps
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system
- In most cases, the volumetric flows of the generator (boiler) and consumer (usually in partial-load range) will vary, meaning that a buffer storage tank or hydraulic separator is used for the required load equalisation

Bill of material

	Belimo type	Description	Quantity	Costs
Alternative 1				
	D6..N(L) + SR..A-5 GR..A-5 DR.. or D6..W(L) + PR..	Open/close butterfly valve, wafer or lug type, DN 25...300 with open/close rotary actuator 20...160 Nm	3	
Alternative 2				
	R2../ R4../ R6.. + LR..A NR..A SR..A	Open/close ball valve, internal thread, external thread, flange, DN 15...50 with open/close rotary actuator 5...20 Nm	3	
Same as alternative 1 and 2				
	D6..N(L) + ZD6N-S..	Manual open-close butterfly valve, wafer or lug type with worm gear, DN ...	15	
	01DT-.. or 22DT-..	Temperature sensor	8	
	22WDP-..	Differential pressure sensor	5	
	22WP-..	Static pressure sensor	1	

Belimo – features and advantages

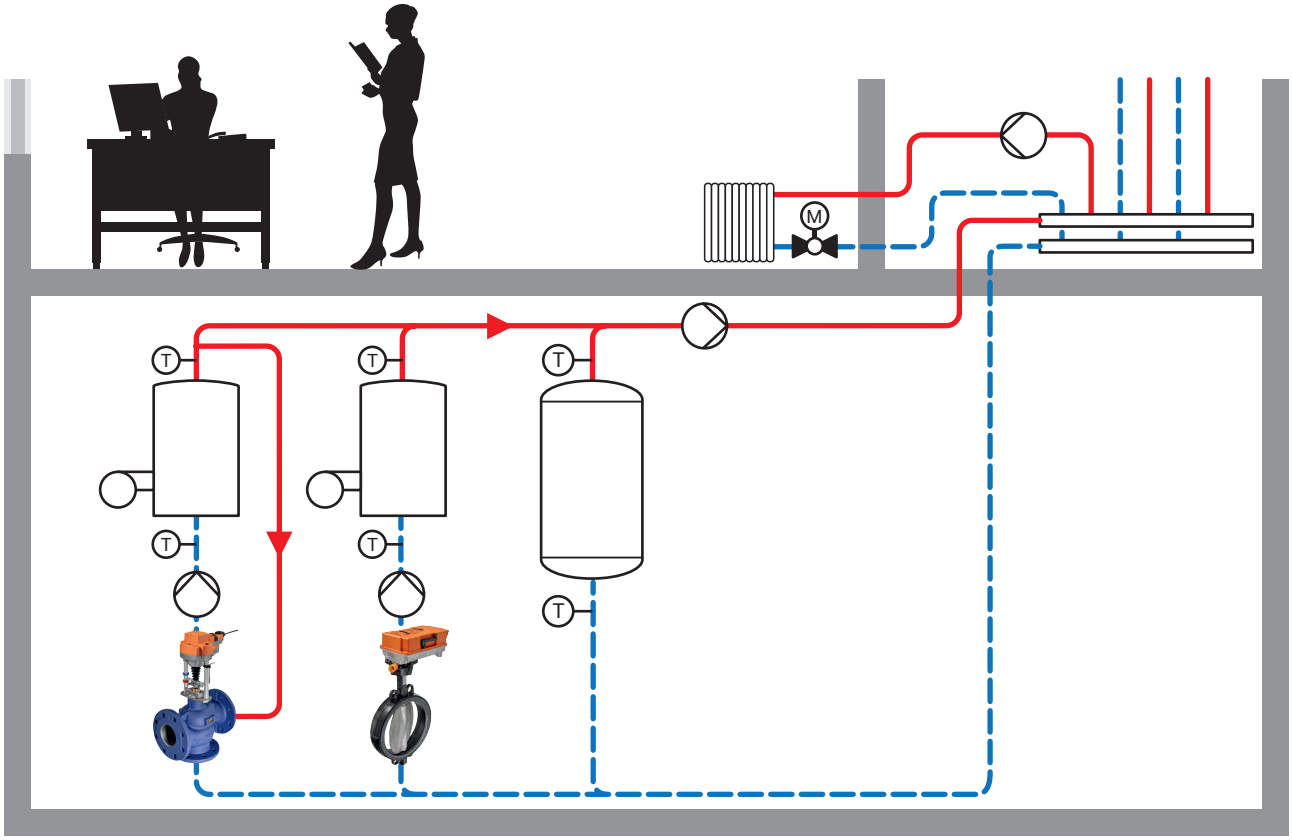
Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1) for ball valves and butterfly valves	No activation with zero load No energy loss with zero load
Low height and weight of actuator	Quick and easy installation
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP66 degree of protection	Simple and wide selection of actuators
Self-cleaning ball valve	Outstanding resistance to contamination
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

2

Return temperature maintenance

Typical control application with a 3-way control valve

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Return temperature maintenance

Hydraulic diagram

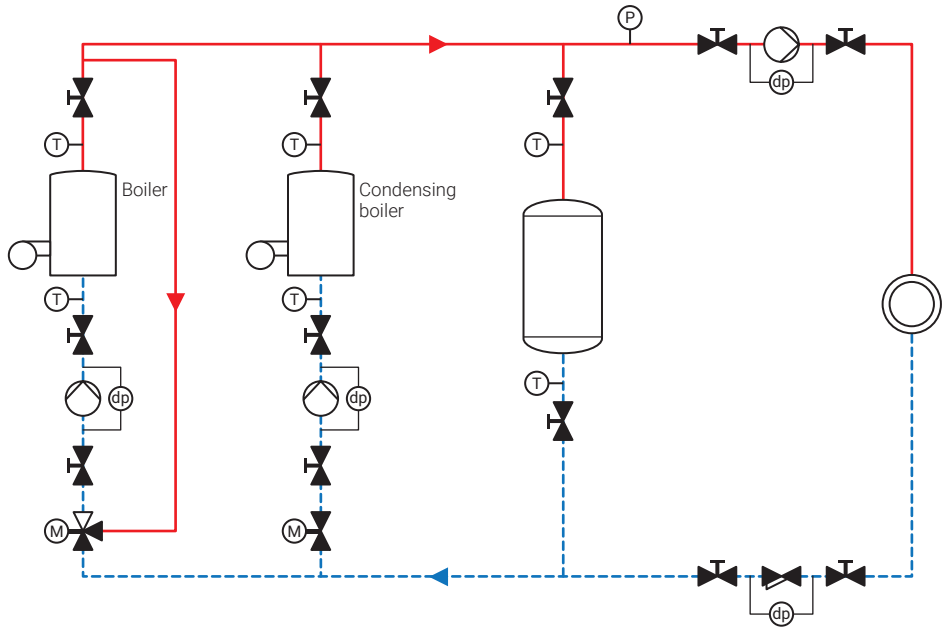


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

This application is frequently used when existing systems are retrofitted or upgraded with a boiler (e.g. biomass boiler).

Boiler with return temperature maintenance:

- 3-way control valve mixes part of the (hotter) in-flow fluid with the (colder) return fluid
- The minimum temperature required for operating the heating system can thereby be quickly attained
- A return temperature maintenance prevents corrosive pitting and stress cracks in the boiler due to condensation

Condensing boiler without return temperature maintenance:

- Condensing boilers in corrosion-resistant material utilise condensation heat
- The lower the return temperature, the more moisture condenses in the boiler and the greater the additional heat gain
- A return temperature maintenance would be counterproductive in this scenario

General:

- Manual open/close butterfly valves with worm gears shut off the pumps, buffer storage tank, heat generators and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the pump function
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system
- In most cases, the volumetric flows of the generator and consumer will vary, meaning that a buffer storage tank or hydraulic separator is used for the required load equalisation

Bill of material

	Belimo type	Description	Quantity	Costs
Isolation valve alternative 1				
	D6..N(L) + SR..A-5 GR..A-5 DR.. or D6..W(L) + PR..	Open/close butterfly valve, wafer or lug type, DN 25...300 with open/close rotary actuator 20...160 Nm	1	
Isolation valve alternative 2				
	R2../ R4../ R6.. + LR..A NR..A SR..A	Open/close ball valve, internal thread, external thread, flange, DN 15...50 with open/close rotary actuator 5...20 Nm	1	
3-way control valve alternative 1				
	H5../ H7.. + LV.. NV.. EV..	3-way globe valve, external thread, DN 15...50, flange, DN 15...150 with globe valve actuators 500...2500 N	1	
3-way control valve alternative 2				
	R3../ R5../ R7.. + LR..A NR..A SR..A	3-way characterised control valve, internal thread, external thread, flange, DN 15...50 with rotary actuator 5...20 Nm	1	
Same as alternative 1 and 2				
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	12	
	01DT-.. or 22DT-..	Temperature sensor	6	
	22WDP-..	Differential pressure sensor	4	
	22WP-..	Static pressure sensor	1	

Belimo – features and advantages

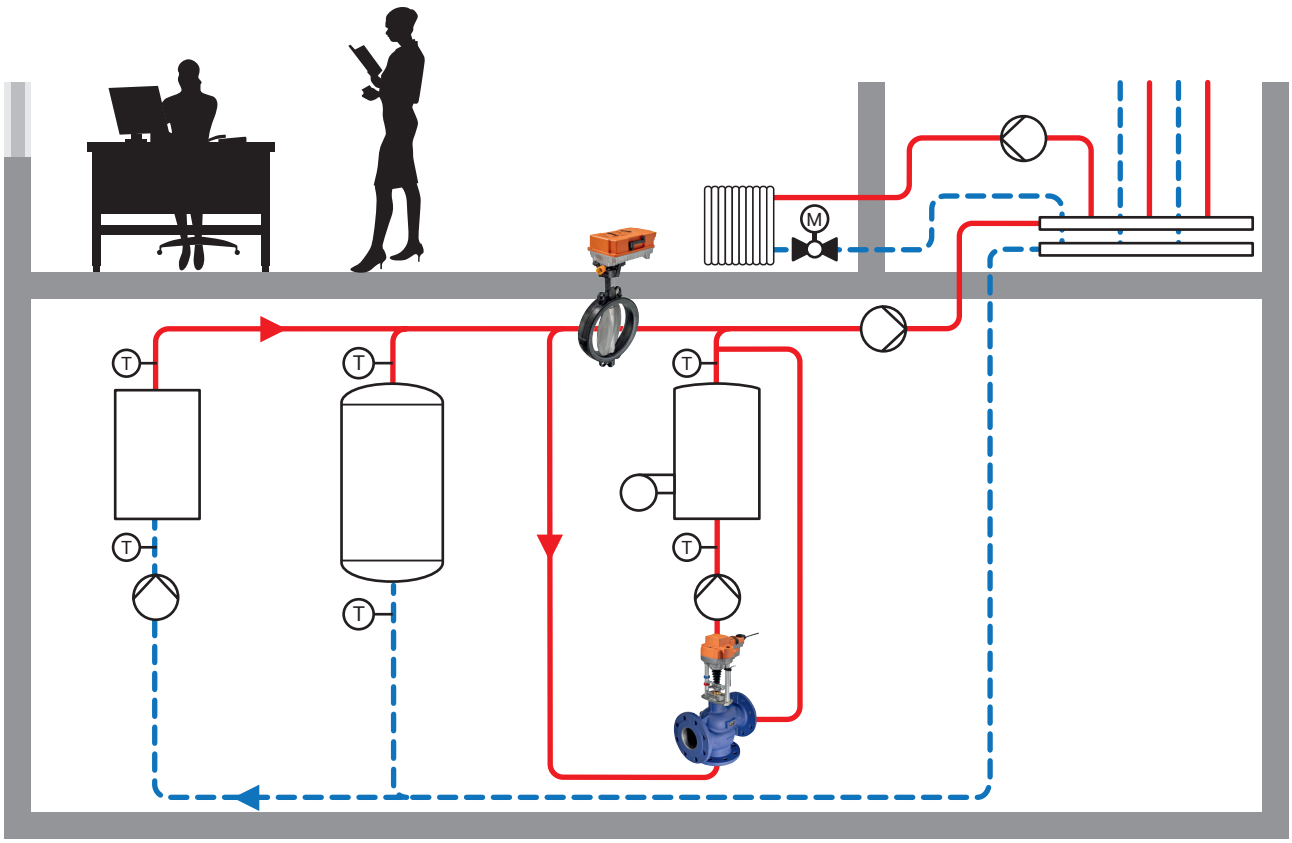
Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1) for characterised control valves and butterfly valves	No activation with zero load No energy loss with zero load
Low height and weight of actuator	Quick and easy installation
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP66 degree of protection	Simple and wide selection of actuators
Equal-percentage characteristic curve without input step	Can be controlled perfectly, even in the lowest partial load range
Self-cleaning ball valve	Outstanding resistance to contamination
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

3

Heat pump with additional boiler for peak loads

Combined shut-off and control application with several heat generators

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Heat pump with additional boiler for peak loads

Hydraulics diagram

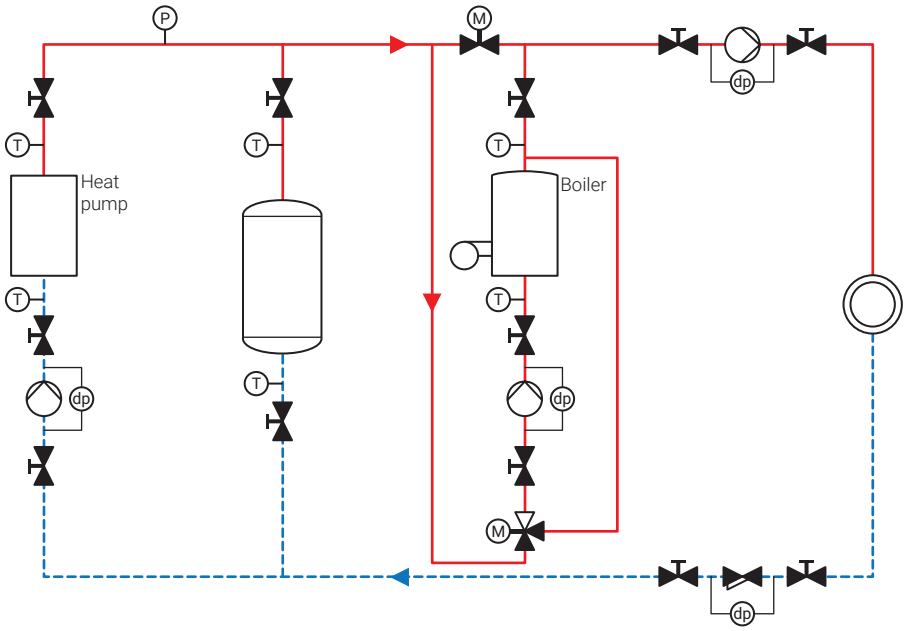


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

This application is used when specific situations (e.g. an extremely cold winter day) there is a higher heat demand than can be provided by a heat pump.

Heat pump:

- A heat pump assumes the base load of the heat output and is supplemented by a boiler to cover peak loads
- In partial-load operation, the heat pump frequently provides a heat output that exceeds actual demand
- Instead of continually switching the heat pump on and off, a buffer storage tank is filled during the operating time
- A buffer storage tank also facilitates hydraulic decoupling of components

Boiler with return temperature maintenance:

- A 3-way control valve mixes part of the (hotter) in-flow fluid with the (colder) return fluid
- The minimum temperature required for operating the heating system can thereby be quickly attained
- A return temperature maintenance prevents corrosive pitting and stress cracks in the boiler due to condensation

General:

- Manual open/close butterfly valves with worm gears shut off the pumps, buffer storage tank, heat generators and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the pump function
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system

Bill of material

	Belimo type	Description	Quantity	Costs
3-way control valve alternative 1				
	H5../ H7.. + LV.. NV.. EV..	3-way globe valve, external thread, DN 15...50, flange, DN 15...150 with globe valve actuators 500...2500 N	1	
3-way control valve alternative 2				
	R3../ R5../ R7.. + LR..A NR..A SR..A	3-way characterised control valve, internal thread, external thread, flange, DN 15...50 with rotary actuator 5...20 Nm	1	
Same as alternative 1 and 2				
	D6..N(L) + SR..A-5 GR..A-5 DR.. or D6..W(L) + PR..	Open/close butterfly valve, wafer or lug type, DN 25...300 with open/close rotary actuator 20...160 Nm	1	
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	12	
	01DT-.. or 22DT-..	Temperature sensor	6	
	22WDP-..	Differential pressure sensor	4	
	22WP-..	Static pressure sensor	1	

Belimo – features and advantages

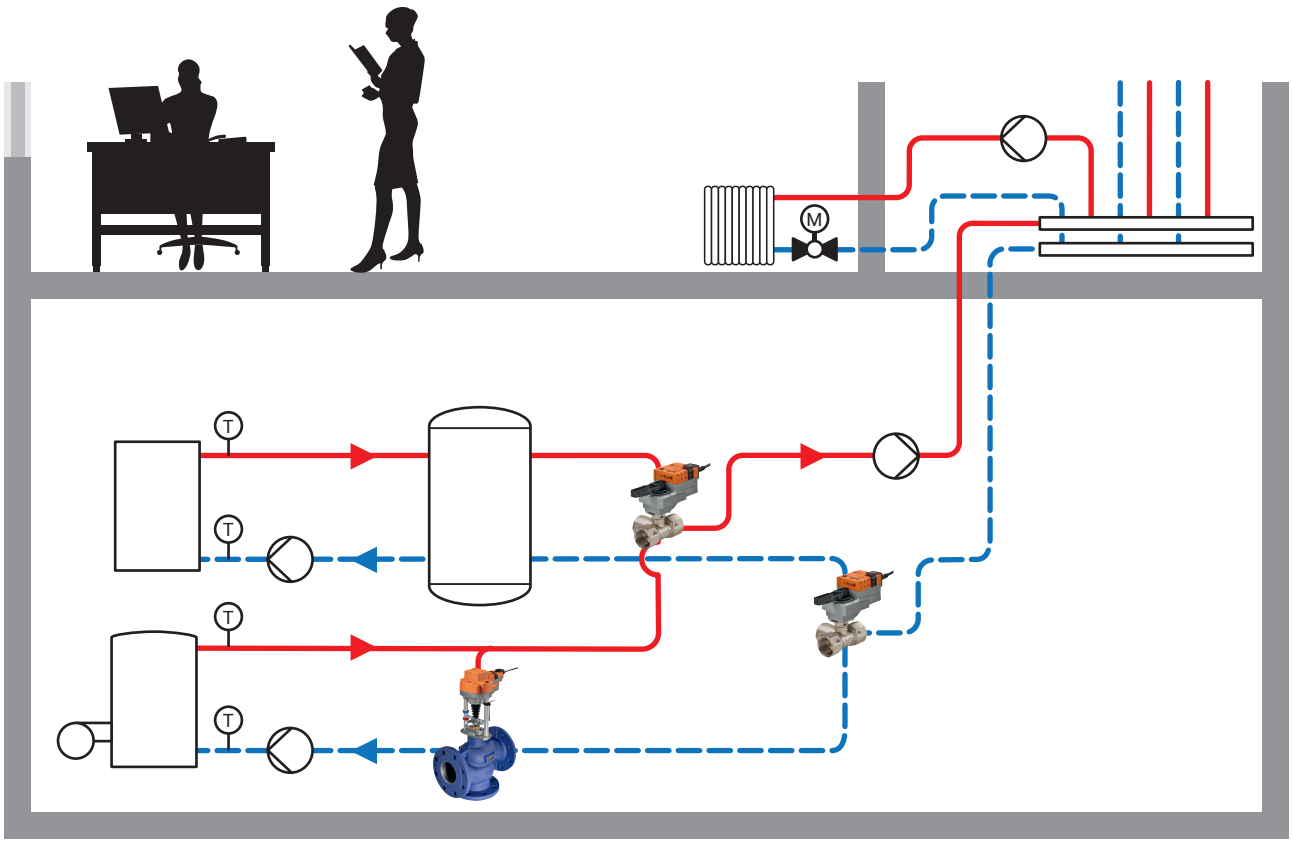
Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1) for characterised control valves and butterfly valves	No activation with zero load No energy loss with zero load
Low height and weight of actuator	Quick and easy installation
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP66 degree of protection	Simple and wide selection of actuators
Equal-percentage characteristic curve without input step	Can be controlled perfectly, even in the lowest partial load range
Self-cleaning ball valve	Outstanding resistance to contamination
Maintenance-free and 5-year guarantee	Reliable product with full Support from Belimo
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

4

Changeover between different heat generators

Changeover application between a heat pump and an alternative boiler

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Changeover between different heat generators

Hydraulics diagram

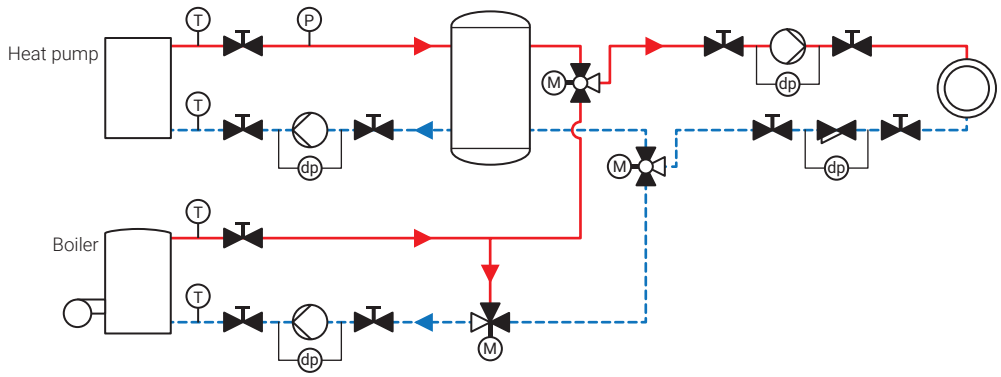


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

Primary heat generator is safeguarded by the heat pump. If the heat output of the heat pump is insufficient or a malfunction occurs, the system changes over to the boiler as the heat generator.

Heat pump:

- The 3-way changeover ball with L-bore valve changes over to the boiler if required
- A buffer storage tank is filled with excess heat output while facilitating hydraulic decoupling of the components

Boiler with return temperature maintenance:

- A 3-way control valve mixes part of the (hotter) in-flow fluid with the (colder) return fluid
- The minimum temperature required for operating the heating system can thereby be quickly attained
- A return temperature maintenance prevents corrosive pitting and stress cracks in the boiler due to condensation

General:

- Manual open/close butterfly valves with worm gears shut off the pumps, buffer storage tank, heat generators and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the operative function of the pumps
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system

Bill of material

	Belimo type	Description	Quantity	Costs
3-way control valve alternative 1				
	H5../ H7.. + LV.. NV.. EV..	3-way globe valve, external thread, DN 15...50, flange, DN 15...150 with globe valve actuators 500...2500 N	1	
3-way control valve alternative 2				
	R3../ R5../ R7.. + LR..A NR..A SR..A	3-way characterised control valve, internal thread, external thread, flange, DN 15...50 with rotary actuator 5...20 Nm	1	
Same as alternative 1 and 2				
	R3..BL.. + LR..A NR..A SR..A	Changeover ball valve with L-bore, internal thread, DN 15...50 with rotary actuator 5...20 Nm	2	
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	10	
	01DT-.. or 22DT-..	Temperature sensor	4	
	22WDP-..	Differential pressure sensor	4	
	22WP-..	Static pressure sensor	1	

Belimo – features and advantages

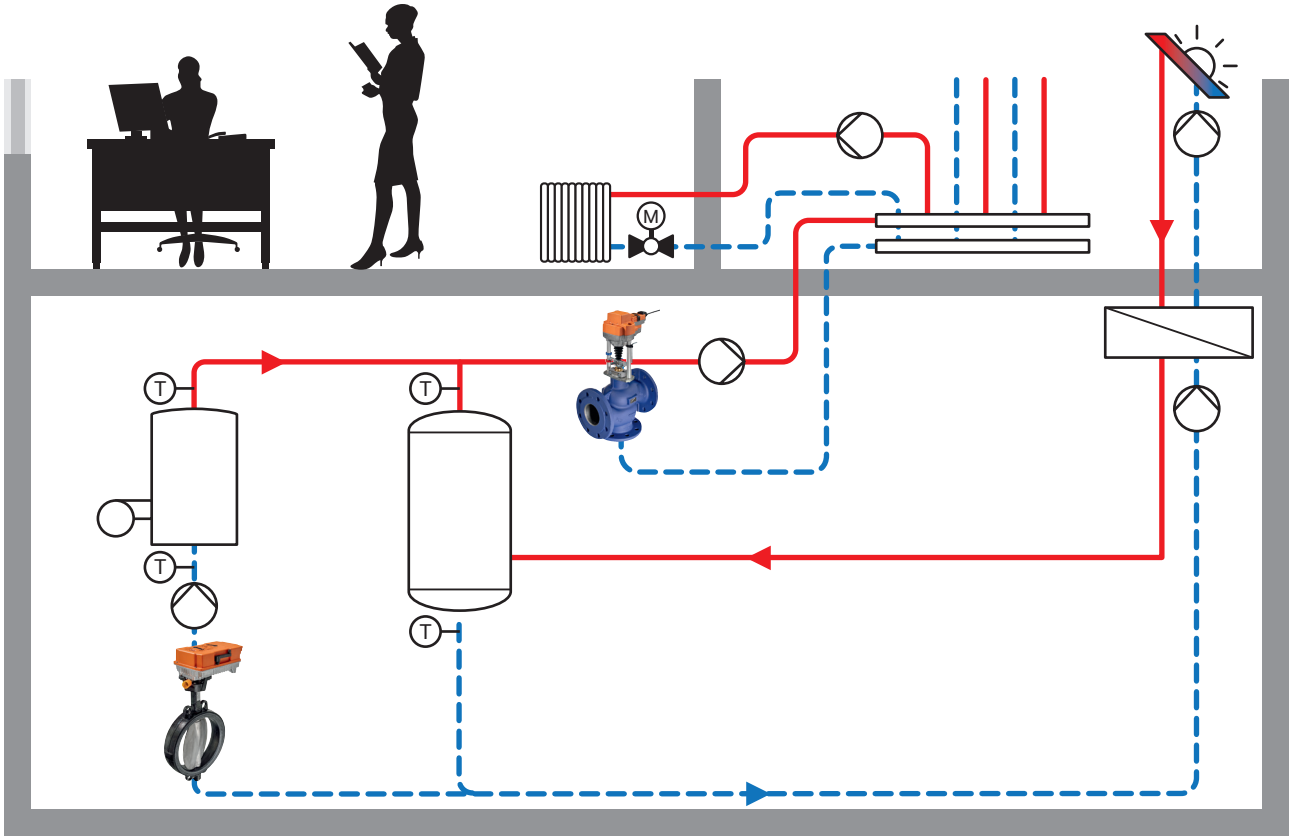
Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1) for characterised control valves and butterfly valves	No activation with zero load No energy loss with zero load
Low height and weight of actuator	Quick and easy installation
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP66 degree of protection	Simple and wide selection of actuators
Equal-percentage characteristic curve without input step	Can be controlled perfectly, even in the lowest partial load range
Self-cleaning ball valve	Outstanding resistance to contamination
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

5

Condensing boiler in combination with a thermal solar system

Changeover application with a solar system

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Condensing boiler in combination with a thermal solar system

Hydraulics diagram

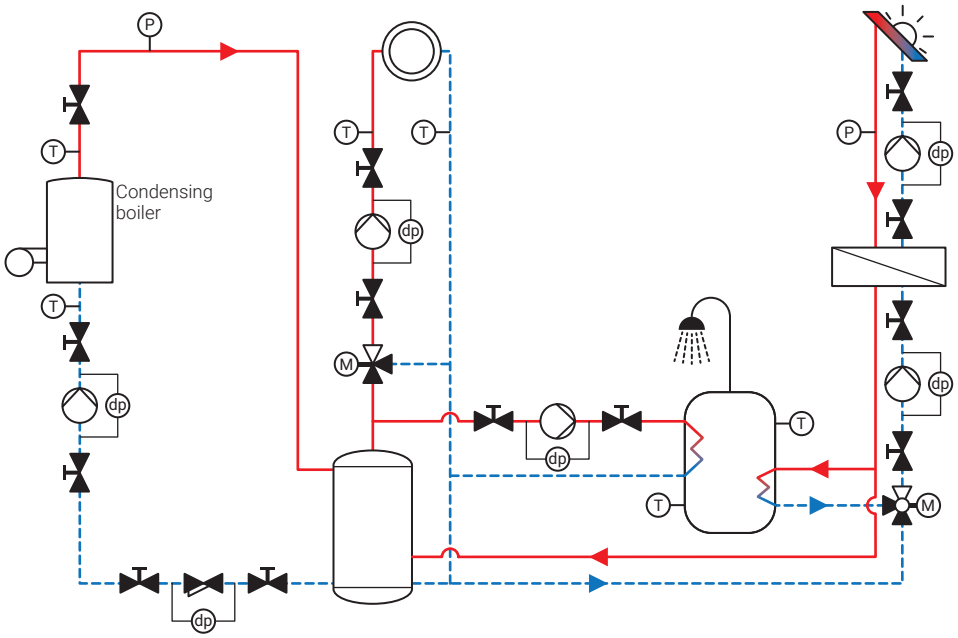


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

This application combines a thermal solar system with a condensing boiler. In the summer, for example, only the thermal solar system is used for hot water. In the winter, the condensing boiler is operated to provide the thermal energy required for heating and hot water.

Condensing boiler:

- Condensing boilers in corrosion-resistant material utilise condensation heat
- The lower the return temperature, the more moisture condenses in the boiler and the greater the additional heat gain

Supply temperature control:

- The 3-way control valve regulates the in-flow temperature to the consumer by blending in return fluid (e.g. weather controlled)

Thermal solar system:

- The 3-way changeover ball with T-bore ensures that the water heated by the thermal solar system is channeled into the hot water supply or the buffer storage tank
- The buffer storage tank also facilitates hydraulic decoupling of components
- The thermal solar system uses glycol to prevent freezing
- A heat exchanger separates the part of the thermal solar system that contains glycol from the hot water tank or buffer storage tank

General:

- Manual open/close butterfly valves with worm gears shut off the pumps, buffer storage tank, heat generators and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the operative function of the pumps
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system

Bill of material

	Belimo type	Description	Quantity	Costs
3-way control valve alternative 1				
	H5../ H7.. + LV.. NV.. EV..	3-way globe valve, external thread, DN 15...50, flange, DN 15...150 with globe valve actuators 500...2500 N	1	
3-way control valve alternative 2				
	R3../ R5../ R7.. + LR..A NR..A SR..A	3-way characterised control valve, internal thread, external thread, flange, DN 15...50 with rotary actuator 5...20 Nm	1	
Same as alternative 1 and 2				
	R3../ R5../ R7.. + LR..A NR..A SR..A	Changeover ball valve with T-bore, internal thread, external thread, flange, DN 15...50 with rotary actuator 5...20 Nm	1	
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	13	
	01DT-.. or 22DT-..	Temperature sensor	6	
	22WDP-..	Differential pressure sensor	6	
	22WP-..	Static pressure sensor	2	

Belimo – features and advantages

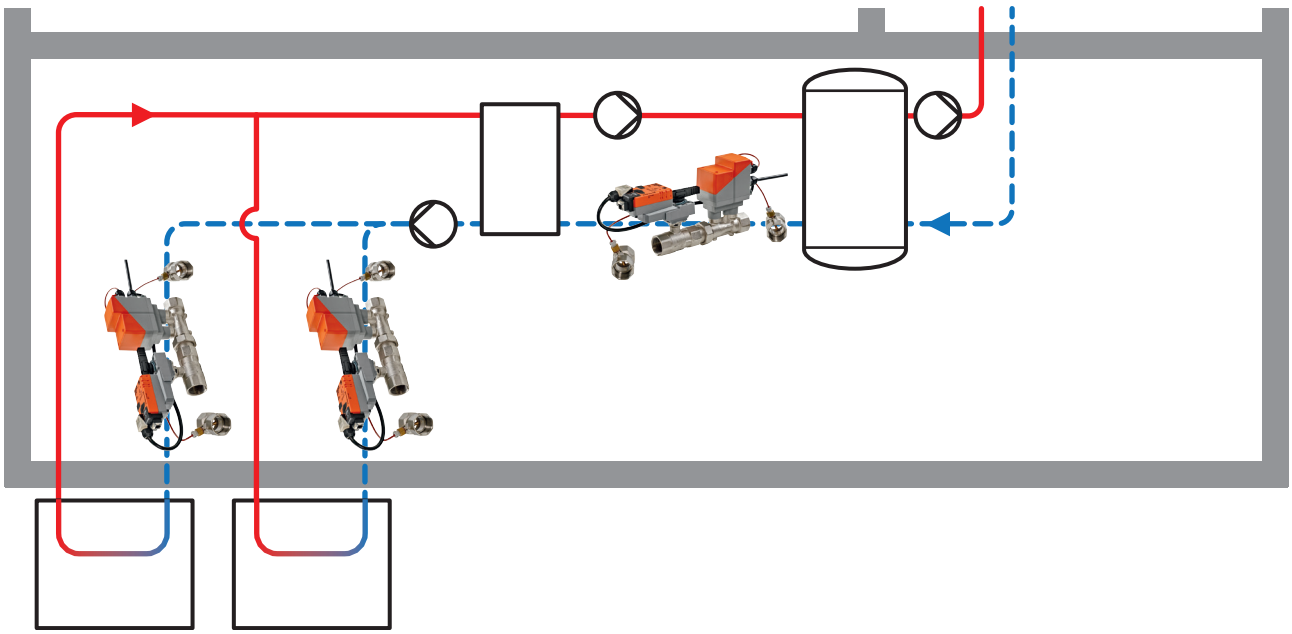
Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1) for characterised control valves and butterfly valves	No activation with zero load No energy loss with zero load
Low height and weight of actuator	Quick and easy installation
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP66 degree of protection	Simple and wide selection of actuators
Equal-percentage characteristic curve without input step	Can be controlled perfectly, even in the lowest partial load range
Self-cleaning ball valve	Outstanding resistance to contamination
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

6

Hydronic balancing and monitoring of earth probes

Control application with monitoring function

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Hydronic balancing and monitoring of earth probes

Hydraulics diagram

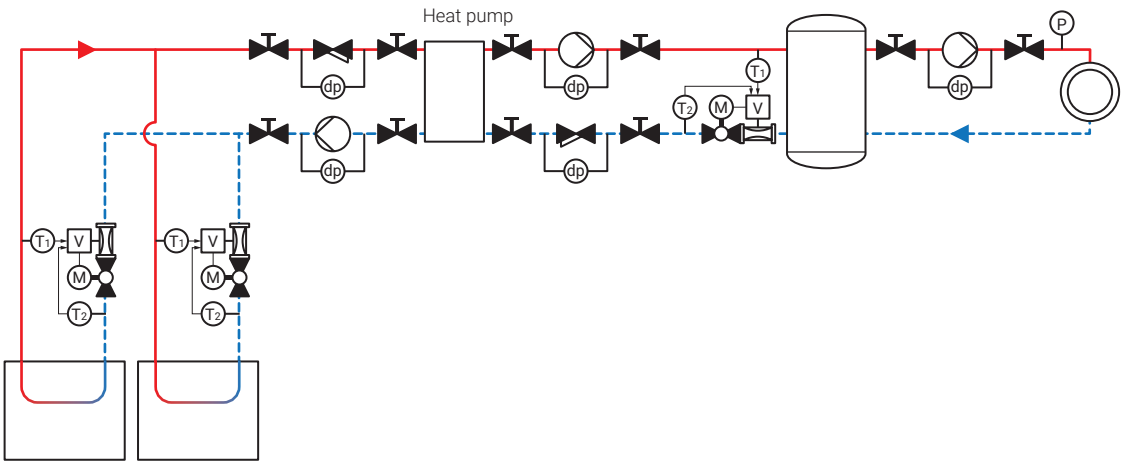


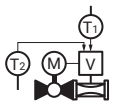
Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

- Thanks to dynamic balancing, the Belimo Energy Valve™ safeguards the correct amount of water and energy on the heat-generation side at all times
- By leveraging the data supplied by the Belimo Energy Valve™, it is possible to determine at an early stage whether an earth probe field no longer provides the required power (monitoring)
- Heat pumps that use the ground as a source of energy must have a refrigerant in their lines to prevent the heat transfer fluid from freezing
- The Belimo Energy Valve™ can perform glycol monitoring (optional)
- The Belimo Energy Valve™ can be installed in separate earth probe fields to capture the power of the fields and define a corresponding control value for the heat pump
- This allows the heat pump to optimally modulate as well as prevents the pump from frequently starting and stopping
- Manual open/close butterfly valves with worm gears shut off the pumps, strainers and heat generators during commissioning or maintenance

- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the pump function
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system

Bill of material

	Belimo type	Description	Quantity	Costs
	EV.. + BAC(1)	Electronic pressure-independent characterised control valve with energy monitoring (Belimo Energy Valve™), internal thread DN 15...50, flange DN 65...150	3	
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	10	
	22WDP-..	Differential pressure sensor	5	
	22WP-..	Static pressure sensor	1	

Belimo – features and advantages

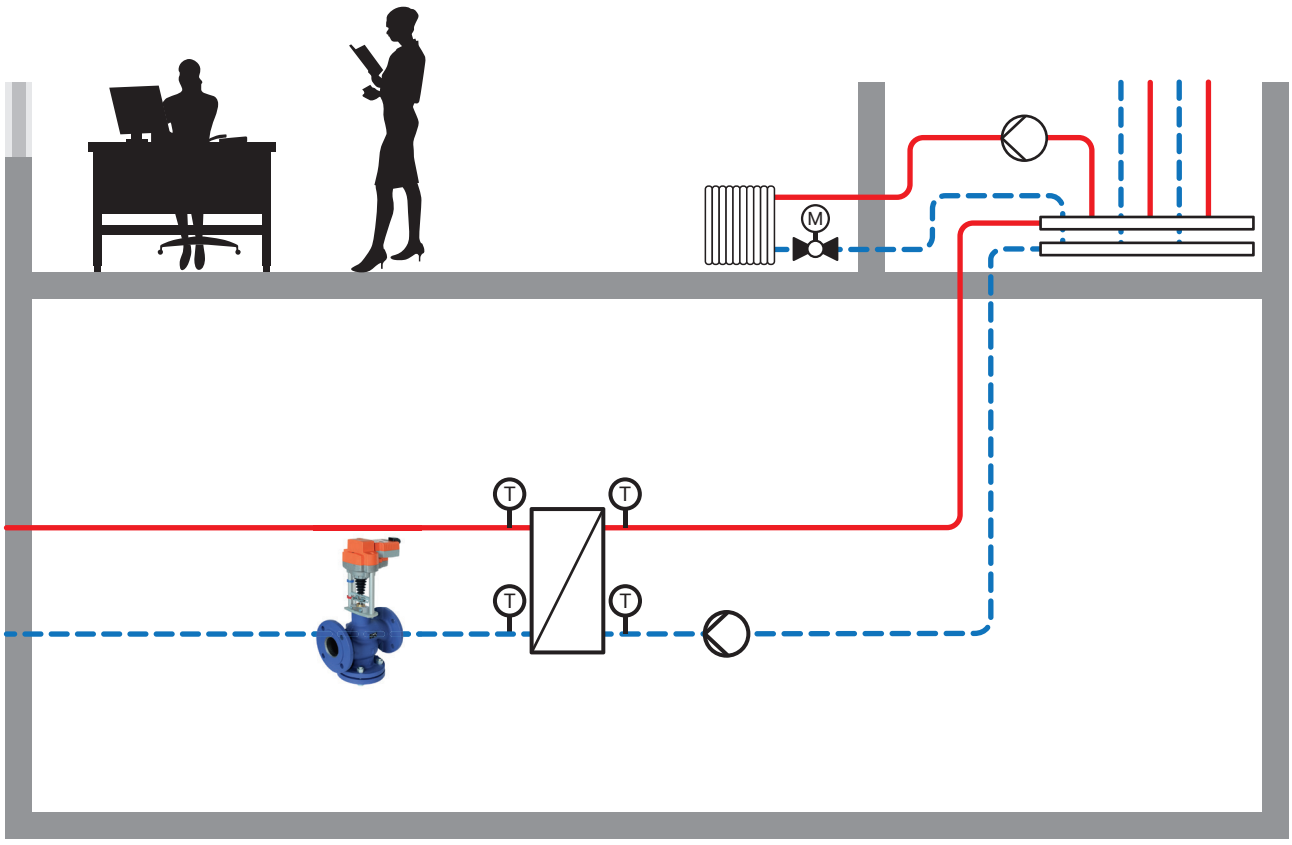
Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1)	No activation with zero load No energy loss with zero load
Simple design for maximum volumetric flow	Time-saving and simple valve selection
All-in-one solution	5 Functions: Measuring, controlling, dynamic balancing, isolating and monitoring
Pressure-independent flow rate due to dynamic balancing	Extremely simplified design and commissioning Ensuring that the correct amount of water is provided in the event of differential pressure changes and partial load operation. Excellent control stability across the entire flow range
Flow measurement	Real-time information water quantity
Power control	Operation independent of temperature and differential pressure
Self-cleaning ball valve	Outstanding resistance to contamination
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

7

Local heating

Control application for local heat generation

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Local heating

Hydraulics diagram

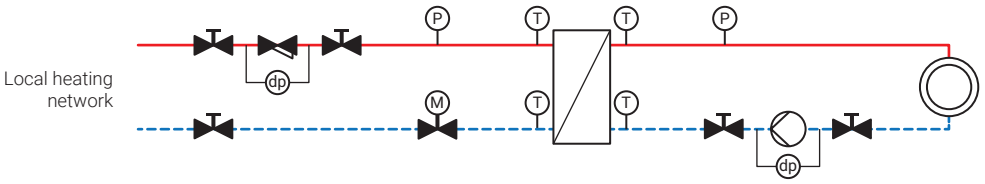
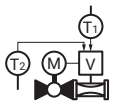


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

- A local heating network is a central system that generates heat energy and distributes it to various buildings via a distribution network
- The local heating network is shorter than 1 kilometre
- The differential pressures lie within a range of 1...4 bar
- Valves of PN16 pressure class are usually used
- The fluid temperatures are below 120°C (warm water)
- The control valve on the primary side controls the desired temperature, depending on the heat demand of the heat consumers on the secondary side
- The control valve can be designed as a Belimo Energy Valve™, which ensures pressure-independent operation of the primary circuit and additionally enables energy monitoring
- The control valve can be optionally designed with a fail-safe to implement protection against scalding on the consumer side
- Manual open/close butterfly valves with worm gears shut off the pumps and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the pump function
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- Static pressure sensors register the system pressure and detect a leakage in the system

Bill of material

	Belimo type	Description	Quantity	Costs
2-way control valve alternative 1				
	H4../ H6.. + LV.. NV.. EV..	2-way globe valve, external thread, DN 15...50, flange, DN 15...DN 150 with globe valve actuators 500...2500 N for use with hot water to 120°C	1	
2-way control valve alternative 2				
	R2../ R4../ R6.. + LR..A NR..A SR..A GR..A	2-way characterised control valve, internal thread, external thread, flange, DN 15...150 with rotary actuator 5...40 Nm for use with hot water of up to 120°C / R4.. and R6.. up to 100°C	1	
2-way control valve alternative 3				
	EV.. + (K)BAC(1)	Electronic pressure-independent characterised control valve with energy monitoring (Belimo Energy Valve™), internal thread DN 15...50, flange DN 65...150 Optionally available with fail-safe	1	
Same with alternatives 1 to 3				
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	5	
	01DT-.. or 22DT-..	Temperature sensor	4	
	22WDP-..	Differential pressure sensor	2	
	22WP-..	Static pressure sensor	2	

7

Belimo – features and advantages

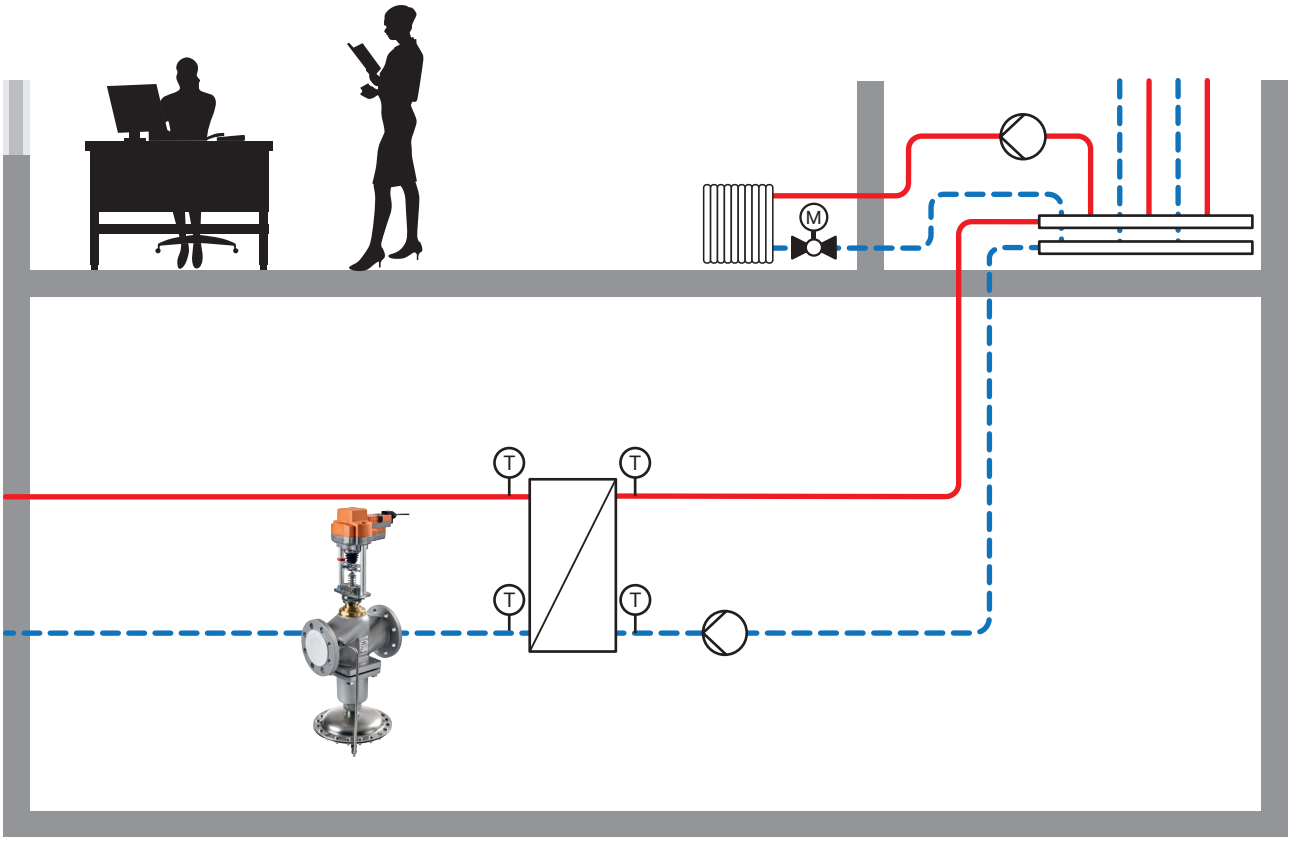
Features	Advantages
Valves and actuators	
High fluid temperatures for globe valves	Can be used with hot water
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP65 degree of protection	Simple and wide selection of actuators
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Belimo Energy Valve™	
All-in-one solution	5 Functions: Measuring, controlling, dynamic balancing, isolating and monitoring
Pressure-independent flow rate due to dynamic balancing	Extremely simplified commissioning Ensuring that the correct amount of water is provided in the event of differential pressure changes and partial load operation Excellent control stability across the entire flow range
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

8

District heating

Control application for district heat generation

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District heating

Hydraulics diagram

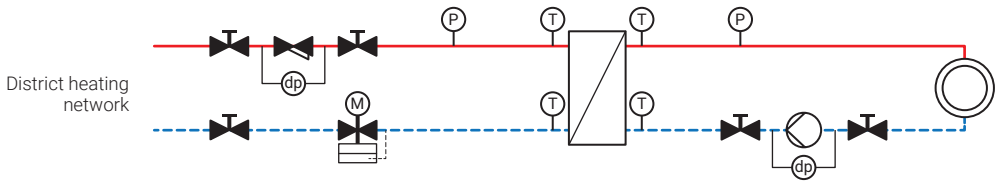


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

- A district heating network is a central system that generates heat energy and distributes it to various buildings via a distribution network
- The district heating network is between 1 and 10 kilometres long
- The differential pressures may be up to 15 bar
- Valves of PN16 or PN25 pressure class are usually used
- The fluid temperatures are usually above 120°C (hot water)
- A differential pressure controller reduces the high differential pressure on the primary side (district heating network)
- Depending on the heat demand of the heat consumer on the secondary side, the control valve on the primary side controls the desired temperature
- The control valve can be optionally designed with a fail-safe to implement protection against scalding on the consumer side
- Manual open/close butterfly valves with worm gears shut off the pumps and strainers during commissioning or maintenance
- Temperature sensors measure the flow and return temperatures
- Differential pressure sensors monitor the pump function
- A differential pressure sensor allows a statement to be made on the contamination of the strainer
- A static pressure sensor registers the system pressure and detects a leakage in the system

Bill of material

	Belimo type	Description	Quantity	Costs
	EXT-H6..P-.. + LV.. NV.. EV..	2-way pressure-independent globe valve, flange, DN 15...125 with globe valve actuators 500...2500 N for use with hot water of up to 150°C	1	
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	5	
	01DT-.. or 22DT-..	Temperature sensor	4	
	22WDP-..	Differential Pressure Sensor	2	
	22WP-..	Static pressure sensor	2	

Belimo – features and advantages

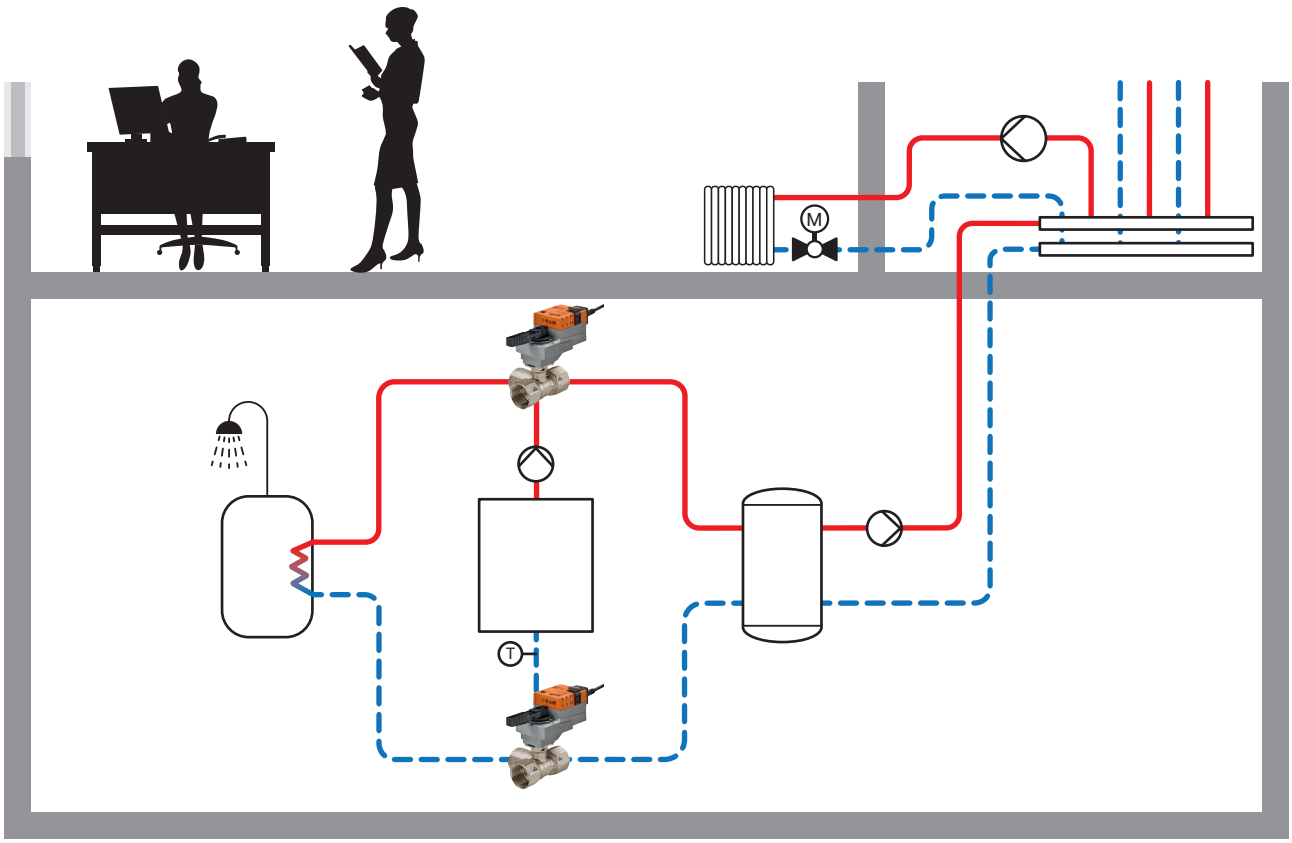
Features	Advantages
Valves and actuators	
High fluid temperatures with globe valves	Can be used with hot water
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP65 degree of protection	Simple and wide selection of actuators
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation

9

Heat pumps for heating, cooling and water heating

Changeover application between heating and cooling

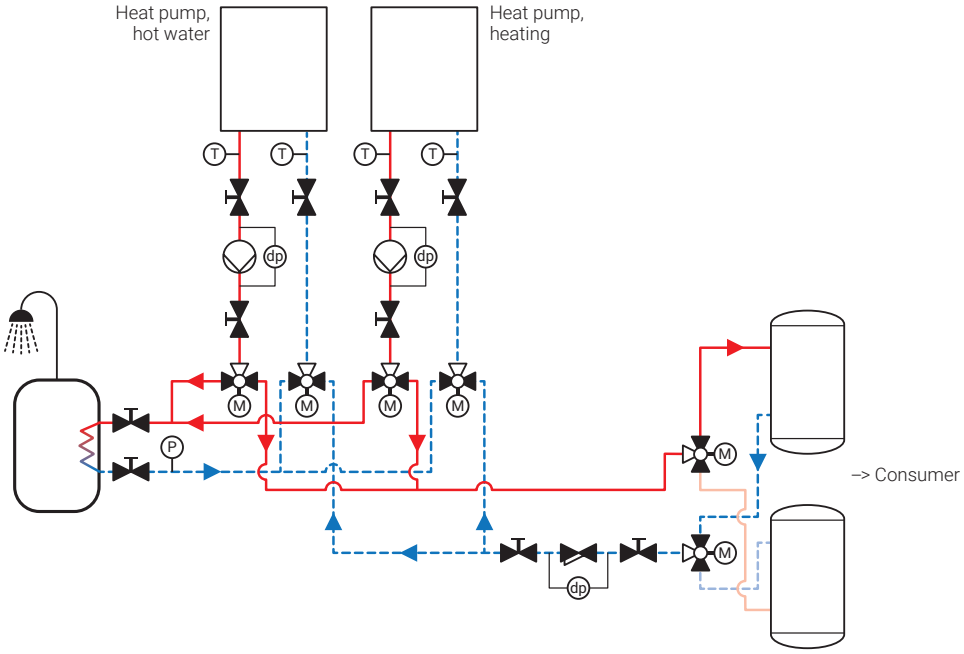
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Heat pumps for heating, cooling and water heating

Hydraulics diagram

Application 1 – Winter operation – Heating and hot water:



Application 2 – Summer operation – Cooling and hot water:

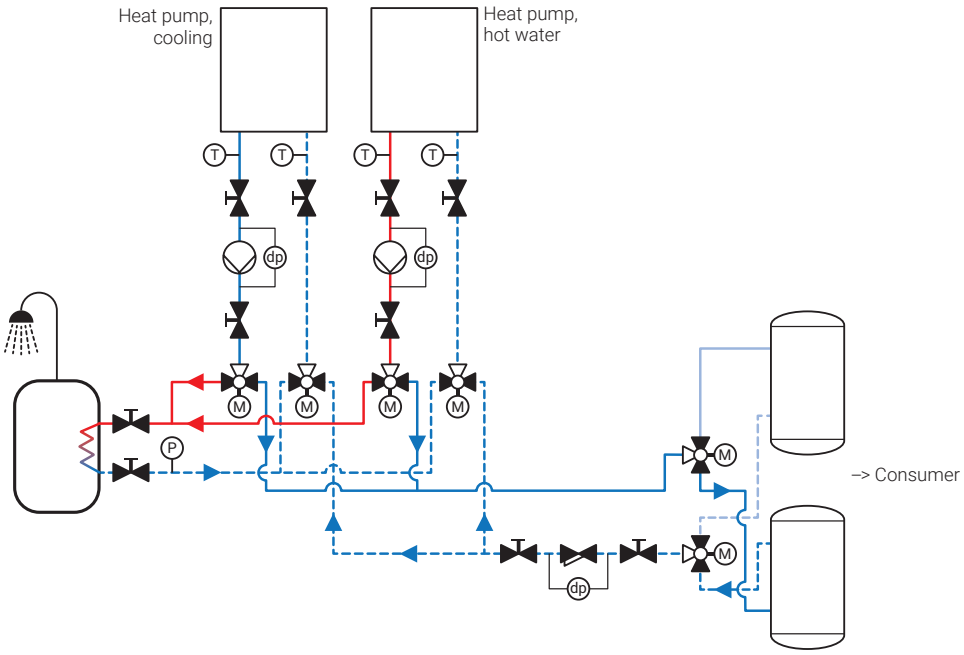


Illustration example
Any components additionally required, such as expansion vessels, check valves or safety valves etc., are not shown

Application description

This application is versatile and uses two heat pumps for heating, cooling and providing hot water. This installation generally favours smaller nominal diameters such that the changeover ball valve with L-bore is the ideal product for this application.

Application 1 – Winter operation – Heating and hot water:

- The left heat pump is used to provide hot water
- The right heat pump acts as a heat generator for heating purposes
- 3-way changeover ball valves with L-bore valves carry out changeover operations when the heat pumps are used for a different application (e.g. changeover between heating and cooling or between hot water preparation and heating)

Application 2 – Summer operation – Cooling and hot water:

- The left heat pump is used as a chiller
- The right heat pump is used to provide hot water
- The 3-way changeover ball valves with L-bore assume the same operative function as in application 1

Other applications are also possible with this installation. For example, both heat pumps could be used for dedicated cooling in the summer and dedicated heating in the winter.

Bill of material

	Belimo type	Description	Quantity	Costs
	R3..BL.. + LR..A NR..A SR..A	Changeover ball valve with L-bore, internal thread, DN 15...50 with rotary actuator 5...20 Nm	6	
	D6..N(L) + ZD6N-S..	Manual open/close butterfly valve, wafer or lug type with worm gear, DN ...	10	
	01DT-.. or 22DT-..	Temperature sensor	4	
	22WDP-..	Differential pressure sensor	3	
	22WP-..	Static pressure sensor	1	

Belimo – features and advantages

Features	Advantages
Valves and actuators	
Tightly-sealed valve with leakage rate A, tight (EN 12266-1) for ball valves and butterfly valves	No activation with zero load No energy loss with zero load
Low height and weight of actuator	Quick and easy installation
Actuators with 24 V or 230 V power supply, different running times, as well as actuators with IP54 and IP66 degree of protection	Simple and wide selection of actuators
Self-cleaning ball valve	Outstanding resistance to contamination
Maintenance-free and 5-year guarantee	Reliable product with full Belimo support
Sensors	
Robust housing with IP65 degree of protection	Simple selection and full flexibility for indoor and outdoor applications
Snap-in cover	Quick, easy and tool-free assembly
Spring-loaded terminal blocks	Quick installation and commissioning thanks to tool-free wiring and simple data point test
Mounting plate can be used as drilling template	Easy and faster installation



Belimo – applications
Chillers and cooling towers

Learn more about how to use 2-way and 3-way butterfly valves in chillers and cooling towers in the application brochure.

Tender texts

R2../ R4../ R6..

2-way open/close ball valve, 2-way characterised control valve

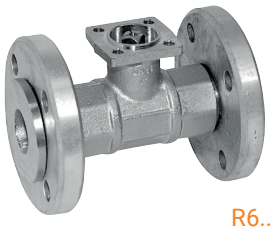
Fluid:	Water with glycol to max. 50% vol.
Connection:	Internal thread, external thread, flange
Nominal diameter:	DN 15...50
k_{vs}-values:	0.25...49 m^3/h
Fluid temperature:	-10°...120°C
Permissible operating pressure p_s:	600 kPa/1600 kPa
Leakage rate:	A, air-bubble tight (EN 12266-1)
Valve:	Brass nickel-plated
Closing element:	Stainless steel, chrome-plated brass
Sealing:	PTFE
Spindle:	Stainless steel, brass nickel-plated
Stem seal:	EPDM
Characterised disk:	TEFZEL
Make:	Belimo
Type:	R2../ R4../ R6..



R2..



R4..



R6..

R6..W..

2-way characterised control valve

Fluid:	Water with glycol to max. 50% vol.
Connection:	Flange
Nominal diameter:	DN 65-150
k_{vs}-values:	63...320 m^3/h
Fluid temperature:	-10°...120°C
Permissible operating pressure p_s:	1600 kPa
Leakage rate:	A, air-bubble tight (EN 12266-1)
Valve:	EN-GJL-250 (GG25)
Closing element:	Stainless steel
Sealing:	PTFE
Stem:	Stainless steel
Stem seal:	EPDM
Characterised disc:	Stainless steel
Make:	Belimo
Type:	R6..W..



R6..W..

R3../ R5../ R7..

3-way characterised control valve with integrated characterised disc for modulating control of cold and hot water, 3-way changeover ball valve with T-bore.

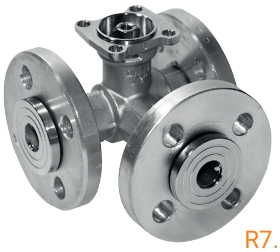
Fluid:	Water with glycol to max. 50% vol.
Connection:	Internal thread, external thread, flange
Nominal diameter:	DN 15...50
k_{vs}-values:	0.25...75 m^3/h
Fluid temperature:	-10°...120°C
Permissible operating pressure p_s:	600 kPa / 1600 kPa
Characteristic curve A-AB:	Equal percentage according to VDI/VDE 2178
Bypass B – AB: Linear	
Leakage rate control path A – AB:	A, air-bubble tight (EN 12266-1)
Bypass B – AB:	Approx. 1...2% of k_{vs}-value
Valve:	Brass nickel-plated
Closing element:	Stainless steel, chrome-plated brass
Sealing:	PTFE
Spindle:	Stainless steel, brass nickel-plated
Stem packing:	EPDM
Characterising disk:	TEFZEL
Make:	Belimo
Type:	R3../ R5../ R7..



R3..



R5..



R7..

10

R3..BL..

3-way changeover ball valve with L-bore for cold and hot water changeover functions.

Fluid:	Water with glycol to max. 50% vol.
Connection:	Internal thread
Nominal diameter:	DN 15...50
k_{vs}-values:	5.5...75 m^3/h
Fluid temperature:	-10°...100°C
Permissible operating pressure p_s:	1600 kPa
Direction of flow:	A – B, AB – B or B – A, B – AB
Leakage rate:	A, air-bubble tight (EN 12266-1)
Valve:	Brass nickel-plated
Closing element:	Chrome-plated brass
Sealing:	PTFE
Spindle:	Chrome-plated brass
Stem seal:	EPDM
Make:	Belimo
Type:	R3..BL..

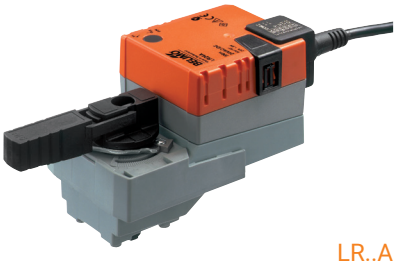


R3..BL..

LR..A

Rotary actuator for use up to nominal diameter DN 25. Direct mounting on the ball valve with one central screw. The assembly tool is integrated in the add-on position indication. The installation position in relation to the ball valve can be selected in 90° steps. Overload protected and without end switch, current reduction in rest position.

Torque:	5 Nm
Nominal voltage:	AC/DC 24 V, AC 230 V
Control:	Open/close, 3-point, modulating, MP-Bus, Modbus, BACnet, KNX
Power consumption:	
- Operation:	1.5 W...2.5 W
- Rest position:	0.2 W...1.3 W
Connection:	Cable or connecting terminals
	Manual override: with pushbutton
Running time:	2.5 s...150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	LR..A



LR..A

NR..A

Rotary actuator for use up to nominal diameter DN 40. Direct mounting on the ball valve with one central screw. The assembly tool is integrated in the add-on position indication. The installation position in relation to the ball valve can be selected in 90° steps. Overload protected and without end switch, current reduction in rest position.

Torque:	10 Nm
Nominal voltage:	AC/DC 24 V, AC 230 V
Control:	Open/close, 3-point, modulating, MP-Bus, Modbus, BACnet, KNX
Power consumption:	
- Operation:	2 W...3.5 W
- Rest position:	0.2 W...1.5 W
Connection:	Cable or connecting terminals
Manual override:	With pushbutton
Running time:	4 s...150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	NR..A

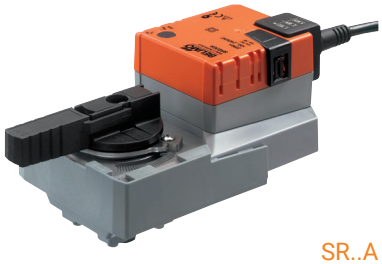


NR..A

SR..A

Rotary actuator for use up to nominal diameter DN 50. Direct mounting on the ball valve with one central screw. The assembly tool is integrated in the add-on position indication. The installation position in relation to the ball valve can be selected in 90° steps. Overload protected and without end switch, current reduction in rest position.

Torque:	20 Nm
Nominal voltage:	AC/DC 24 V, AC 230 V
Control:	Open/close, 3-point, modulating, MP-Bus, Modbus, BACnet
Power consumption:	
- Operation:	2.5 W...3.5 W
- Rest position:	0.2 W...1.25 W
Connection:	Cable or connecting terminals
Manual override:	With pushbutton
Running time:	7 s...150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	SR..A



SR..A

D6..W(L)/D6..N(L)

2-way butterfly valves with wafer type or lug type for open/close or control applications. For open and closed cold and warm water systems.

Fluid:	Water with glycol to max. 50% vol.
Nominal diameter:	DN 25...700
k_{vmax}:	50...42800 m^3/h (for open/close applications)
k_{vs}:	24...11760 m^3/h (for control applications)
Fluid temperature:	-20°...120°C
Permissible operating pressure p_s:	1600 kPa
Flow characteristic:	Equal percentage or linear characteristic curve (parametrisable on PR actuator using Belimo Assistant App)
Leakage rate:	A, leak-proof (EN 12266-1)
Angle of rotation:	90°
Valve:	EN-JS1030 (GGG 40), epoxy-powder coating
Closing element:	DIN/EN 1.4301 (stainless steel)
Seat:	EPDM
Stem:	DIN/EN 1.4005 (stainless steel)
Stem seal:	EPDM O-ring
Spindle bearing:	RPTFE
Make:	Belimo
Type:	D6..W(L); D6..N(L)

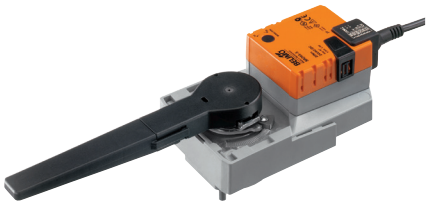


D6..W(L)

SR..A-5

Rotary actuator for adjusting 2-way characterised control valves DN 65...80 and butterfly valves (2-way) DN 25...65. Overload protected and without limit switch, current reduction in rest position.

Torque:	20 Nm
Nominal voltage:	AC/DC 24 V, AC 230 V
Control:	Open/close, 3-point, modulating
Power consumption:	
- Operation:	2.5 W
- Rest position:	0.4 W
Connection:	Cable 1 m, 3 x 0.75 mm^2
Manual override:	With pushbutton
Running time:	90 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	SR..A-5



SR..A-5

GR..A-5

Rotary actuator for adjusting 2-way characterised control valves DN 100...150 or butterfly valves DN 80. Overload protected and without limit switch, current reduction in rest position.

Torque:	40 Nm
Nominal voltage:	AC/DC 24 V, AC 230 V
Control:	Open/close or 3-point
Power consumption:	
- Operation:	2.5 W
- Rest position:	0.4 W
Connection:	Cable 1 m, 3 x 0.75 mm^2
Manual override:	With pushbutton
Running time:	150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	GR..A-5



GR..A-5

DR..

Rotary actuator for adjusting butterfly valves DN 100 and DN 125. Overload protected and without limit switch, current reduction in rest position.

Torque:	90 Nm
Nominal voltage:	AC/DC 24 V, AC 230 V
Control:	Open/close
Power consumption:	
- Operation:	5 W
- Rest position:	2 W
Connection:	cable 1 m, 3 x 0.75 mm^2
Manual override:	Gear disengagement, with pushbutton, can be locked
Running time:	150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	DR..



DR..

PR..

Rotary actuator 160 Nm. Overload protected, current reduction in rest position and smart heating. The PR actuator with Near Field Communication (NFC) allows easy commissioning, parametrisation and maintenance directly from a smartphone.

Torque:	160 Nm
Nominal voltage:	AC 24…240 V, DC 24…125 V
Control:	Open/close, 3-point, MP-Bus, BACnet MS/TP, Modbus RTU
Power consumption:	
- Operation:	20 W
- Rest position:	6 W
Connection:	Connecting terminals 2.5 mm^2
Auxiliary switch:	2 x SPDT, 1 x10° fixed / 1 x 85° (0…90° adjustable)
Manual override:	With hand crank, can be fixed in any position
Running time:	35 s (30…120 s adjustable)
Degree of protection:	IP66/IP67
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	PR..



PR..

H4..

2-way globe valve for modulating control of cold and hot water.

Fluid:	Water with glycol to max. 50% vol.
Connection:	External thread
Nominal diameter:	DN 15...50
k_{vs}-values:	0.63...40 m^3/h
Design:	Straight-through valve
Fluid temperature:	5°...120°C (-10°C with spindle heating)
Permissible operating pressure p_s:	1600 kPa
Leakage rate A – AB:	Max. 0.05% of k_{vs}-value
Characteristic curve A – AB:	Equal percentage
Closing point valve:	Top
Rangeability:	Sv >50
Stroke:	15 mm
Valve:	Red cast brass Rg5
Closing element:	Stainless steel
Seat:	Red cast brass Rg5
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	H4..



H4..

H6..R

2-way globe valve for modulating control of cold and hot water.

Fluid:	Water with glycol to max. 50% vol.
Connection:	Flange
Nominal diameter:	DN 15...100
k_{vs}-values:	0.63...145 m^3/h
Design:	Straight-through valve
Fluid temperature:	5°...120°C (-10°C with spindle heating)
Permissible operating pressure p_s:	600 kPa
Leakage rate A – AB:	Max. 0.05% of k_{vs}-value
Characteristic curve A – AB:	Equal-percentage
Closing point valve:	Top
Rangeability:	Sv >50
Valve:	GG25
Closing element:	Stainless steel
Seat:	GG25
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	H6..R



H6..R

H6..N

2-way globe valve for modulating control of cold and hot water.

Fluid:	Water with glycol to max. 50% vol.
Connection:	Flange
Nominal diameter:	DN 15...100
k_{vs}-values:	0.63...145 m^3/h
Design:	Straight-through valve
Fluid temperature:	5°...120°C (-10°C with spindle heating)
Permissible operating pressure p_s:	1600 kPa
Leakage rate A – AB:	Max. 0.05% of k_{vs}-value
Characteristic curve A – AB:	Equal-percentage
Closing point valve:	Top
Rangeability:	Sv >50
Valve:	GG25
Closing element:	Stainless steel
Seat:	GG25
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	H6..N



H6..N

EXT-H6..P-..

Pressure-independent 2-way globe valve for modulating control of hot water and steam.

Fluid:	Water with glycol to max. 50% vol.
Connection:	Flange
Nominal diameter:	DN 15...125
k_{vs}-values:	1.6...180 m^3/h
Design:	Straight-through valve
Fluid temperature:	5°...140°C
Permissible operating pressure p_s:	1600 kPa, 2500 kPa
Leakage rate A – AB:	Max. 0.07% of k_{vs}-value
Characteristic curve A – AB:	Equal percentage
Closing point valve:	Top
Rangeability:	Sv >100
Valve:	Grey cast iron
Closing element:	Stainless steel
Seat:	Stainless steel
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	EXT-H6..P-..



EXT-H6..P-..

H5..

3-way globe valve for modulating control of cold and hot water.

Fluid:	Water with glycol to max. 50% vol.
Connection:	External thread
Nominal diameter:	DN 15...50
k_{vs}-values:	0.63...40 m^3/h
Design:	Mixing valve
Fluid temperature:	5°...120°C
Permissible operating pressure p_s:	1600 kPa
Leakage rate A – AB:	Max. 0,05% of k_{vs}-value
Leakage rate for bypass B – AB:	Max. 1% of k_{vs}-value
Characteristic curve A – AB:	Equal percentage
Characteristic curve for bypass B-AB:	Linear
Closing point valve:	Top
Rangeability:	Sv >50
Valve:	Red cast brass Rg5
Closing element:	Stainless steel
Seat:	Red cast brass Rg5
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	H5..



H5..

H7..R

3-way globe valve for modulating control of cold and hot water.

Fluid:	Water with glycol to max. 50% vol.
Connection:	Flange
Nominal diameter:	DN 15...100
k_{vs}-values:	0.63...145 m^3/h
Design:	Straight-through valve
Fluid temperature:	5°...120°C (-10°C with spindle heating)
Permissible operating pressure p_s:	600 kPa
Leakage rate A – AB:	Max. 0.05% of k_{vs}-value
Leakage rate for bypass B – AB:	Max. 1% of k_{vs}-value
Characteristic curve A – AB:	Equal-percentage
Characteristic curve for bypass B-AB:	Linear
Closing point valve:	Top
Rangeability:	Sv >50
Valve:	GG25
Closing element:	Stainless steel
Seat:	GG25
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	H7..R



H7..R

H7..N

3-way globe valve for modulating control of cold and hot water.

Fluid:	Water with glycol to max. 50% vol.
Connection:	Flange
Nominal diameter:	DN 15...150
k_{vs}-values:	0.63...320 m^3/h
Design:	Straight-through valve
Fluid temperature:	5°...120°C (-10°C with spindle heating)
Permissible operating pressure p_s:	1600 kPa
Leakage rate A – AB:	Max. 0.05% of k_{vs}-value
Leakage rate for bypass B – AB:	Max. 1% of k_{vs}-value
Characteristic curve A – AB:	Equal-percentage
Characteristic curve for bypass B - AB:	Linear
Closing point valve:	Top
Rangeability:	Sv >50
Valve:	GG25
Closing element:	Stainless steel
Seat:	GG25
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Make:	Belimo
Type:	H7..N



H7..N

LV..

Globe valve actuator for 2-way and 3-way globe valves. Direction of stroke and closing point selectable. Overload protected and maintenance-free. Mechanical position indication and manual override (temporary, permanent).

Actuating force:	500 N
Nominal voltage:	AC 230 V, AC/DC 24 V
Control:	Modulating, MP-Bus, BACnet MS/TP; Modbus RTU, LON
Power consumption:	
- Operation:	1 W
- Rest position:	0.2 W
Connection:	Connecting terminals, cable 1 m
Position indication:	mechanical
Running time:	150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	LV..

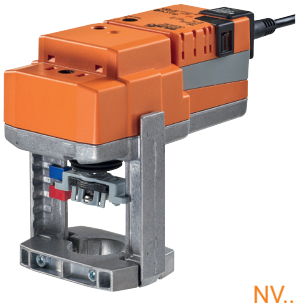


LV..

NV..

Globe valve actuator for 2-way and 3-way globe valves. Direction of stroke and closing point selectable. Overload protected and maintenance-free. Mechanical position indication and manual override (temporary, permanent).

Actuating force:	1000 N
Nominal voltage:	AC 230 V, AC/DC 24 V
Control:	Modulating, MP-Bus, BACnet MS/TP; Modbus RTU, LON
Power consumption:	
- Operation:	1.5 W
- Rest position:	0.5 W
Connection:	Connecting terminals, cable 1 m
Position indication:	mechanical
Running time:	150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	NV..



NV..

EV..

Globe valve actuator for 2-way and 3-way globe valves. Direction of stroke and closing point selectable. Overload protected and maintenance-free. Mechanical position indication and manual override (temporary, permanent).

Actuating force:	1000 N
Nominal voltage:	AC 230 V, AC/DC 24 V
Control:	Modulating, MP-Bus, BACnet MS/TP; Modbus RTU, LON
Power consumption:	
- Operation:	5.5 W
- Rest position:	1 W
Connection:	Connecting terminals, cable 1 m
Position indication:	mechanical
Running time:	150 s
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Make:	Belimo
Type:	EV..

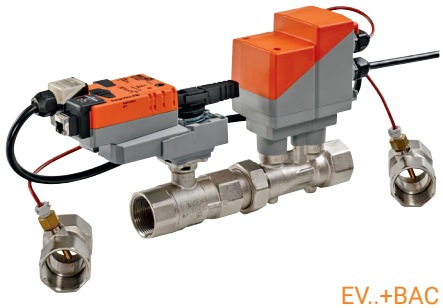


EV..

EV..+BAC

Characterised control valve with sensor-operated flow rate or power control, power and energy monitoring, 2-way internal thread, for modulating water-side control of air-handling and heating systems. Consisting of characterised control valve with actuator and measuring pipe with volumetric flow sensor and temperature sensors. Ethernet 10/100 Mbit/s, TCP/IP, integrated Web server, communication via BACnet IP, BACnet MS/TP, Modbus TCP, Modbus RTU and Belimo MP-Bus or conventional control. Parametrisation with integrated web server, parametrisable via ZTH-EU. Option to connect to the Belimo Cloud.

V'_{nom}:	21...2,700 l/min.
Flow V'_{max}:	6.3...2,700 l/min., adjustable (30...100 % of V'_{nom})
Nominal diameter:	DN 15...150
Torque:	5 Nm
Nominal voltage:	AC/DC 24 V, 50/60 Hz
Control:	BACnet IP, BACnet MS/TP, Modbus TCP, Modbus RTU, MP-Bus, conventional
Control signal Y:	0…10 V DC
Operating range:	DC 2...10 V, variable
Position feedback:	DC 2...10 V, variable
Power consumption:	
- Operation:	4...7 W
- Rest position:	3.7...5 W
Connection:	
Supply/control:	Cable 1 m
Control/Ethernet:	RJ45 connector socket
Manual override:	gear disengagement with pushbutton
Degree of protection:	IP54
EMC:	CE according to 2014/30/EU
Fluids:	Water with glycol up to max. 50% vol.
Fluid temperature:	-10°...120°C
Design:	Straight-through valve
Flow characteristic:	Equal percentage (VDI/VDE 2178) optimised in the opening range (can be switched to linear)
Leakage rate A:	A, air-bubble tight (EN 12266-1)
Connection:	Internal thread
Permissible operating pressure p_s:	1600 kPa
Housing:	nickel-plated brass body
Closing element:	Stainless steel
Ball seat:	PTFE, EPDM O-ring
Spindle:	Stainless steel
Sealing:	EPDM O-ring
Characterised disc:	TEFZEL
Make:	Belimo
Type:	EV..+BAC



EV..+BAC

All inclusive.

As a global market leader, Belimo develops innovative solutions for the regulation and control of heating, ventilation and air-conditioning systems. In doing so, actuators, valves, and sensors make up the core business.

With a consistent focus on customer value, we deliver more than just products. We offer you the complete product range of actuator and sensor solutions for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a 5-year guarantee. Our worldwide representatives in over 80 countries guarantee short delivery times and extensive support through the entire product life. Belimo does indeed include everything.

"Small" Belimo products have a major impact on comfort, energy efficiency, safety, installation, and maintenance. In short: small devices, big impact.

- 5-year guarantee
- On site around the globe
- Complete product range
- Tested quality
- Short delivery times
- Comprehensive support



EN – 2020 – Subject to technical modifications

BELIMO Automation AG
Brunnenbachstrasse 1, 8340 Hinwil, Switzerland
Phone + 41 43 843 61 11, info@belimo.ch, www.belimo.com

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