



Product Overview

Data Center Cooling Solutions



Discover the Advantages
www.belimo.com/datacenters



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Control Valves

Optimal Flow Control Solutions

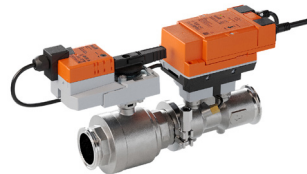
Belimo offers a complete range of innovative pressure dependent and pressure independent valves to meet your system's needs. In data center applications, common pressure dependent valves include characterized control valves (CCVs) and butterfly valves, while pressure independent options typically include the Energy Valve and electronic pressure independent valves (EPIVs). Control valves are available in sizes ranging from ½" to 30", supporting applications from individual racks to large-scale central plant systems.

Belimo Energy Valve™

The Energy Valve combines pressure independent control with advanced analytics to optimize cooling performance. It continuously monitors flow, temperature, and energy consumption—enabling real-time adjustments that reduce energy waste and ensure consistent cooling under all load conditions. Its comprehensive performance data improves system transparency, enabling informed decisions and more efficient energy management.

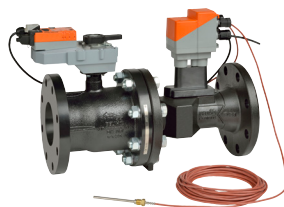


2-way NPT

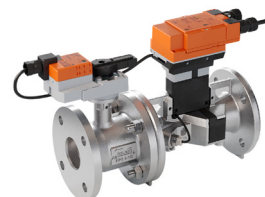


2-way Tri-clamp stainless steel*

* Only 2" version available in stainless steel



2-way flanged ANSI 125, 250



2-way flanged ANSI 150 2.5" stainless steel

Features

- Differential pressure control mode enables the valve to adjust fluid flow to match real-time thermal demand at the rack level, optimizing cooling efficiency under dynamic IT loads and maintaining a constant differential pressure during hot swaps
- Built-in data logger captures the energy, flow, and operational data for further system optimization, efficiency, and visibility
- Setpoints and parameters can be updated as requirements change
- Power control allows for controlling to a power setpoint, resulting in a linear response making valve pressure and temperature independent
- The new stainless steel Belimo Energy Valve features 316-grade stainless steel and OCP-compliant wetted materials, delivering enhanced corrosion resistance and reliability in critical systems
- Non-wireless (-NW) options are available for environments where NFC use is restricted for security reasons

Applications

- Direct-to-chip
- Air handling units
- CRAH (Computer Room Air Handling) unit
- Central plant heat exchanger
- Chiller & heat pump monitoring
- CDU (Coolant Distribution Unit)
- RDHx (Rear Door Heat Exchanger)
- Immersion cooling
- Fan walls

Electronic Pressure Independent Valves (EPIV)

The Belimo EPIV delivers precise flow control and automatic hydronic balancing, regardless of system pressure fluctuations. Ideal for dynamic data center environments, it ensures stable thermal performance, reduces commissioning time, and supports energy-efficient operation across all cooling loads.



2-way NPT (Gen 4)



2-way flanged (Gen 4)

Features

- Control modes — flow and position
- Glycol compensation for accurate flow measurement
- True flow, position, glycol concentration, and fluid temperature feedback
- Dynamic balancing

Applications

- Direct-to-chip
- CDU
- Air handling units
- CRAH
- RDHx
- Immersion cooling
- Fan walls

Characterized Control Valves (CCV)

Compact and robust, Belimo's 2- and 3-way CCVs are designed for high-performance cooling applications. Featuring characterizing discs and energy-efficient rotary actuators, they deliver accurate modulation and tight shutoff—ensuring reliable operation.



2-way NPT
3-way NPT



2-way stainless steel*
* Only 2" version available in stainless steel



2-way flanged ANSI 125 & 250

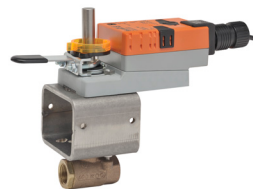
Features

- 0% leakage
- High close-off capabilities
- Quick running actuators available (7 second stroke time)

Applications

- Direct-to-chip
- Air handling units
- Fan coil units
- CDU
- RDHx
- Fan walls
- TCS loop isolation

Industrial Ball Valves



2-way NPT VS & VSS

Features

- Rated for open end service
- Stainless steel option available
- ANSI Class VI in accordance with ANSI/FCI 70-2

Applications

- Can be used as a drain valve for chilled water system

V Ball Valves



2-way flanged

Features

- Flanged ANSI 150 pressure dependent valves for controlling the flow of chilled water
- ANSI Class IV in accordance with ANSI/FCI 70-2
- On/off, floating point, or modulating

Applications

- Can be used as a drain valve for chilled water system

Butterfly Valves

Belimo butterfly valves offer high-capacity flow control for large-scale systems. Available in 2-way and 3-way configurations in sizes from 2" to 30", they are engineered for reliability and efficiency. Their compact design, bubble tight seal, and seamless actuator integration make them ideal for critical plant infrastructure.



2-way resilient seat
3-way resilient seat



2-way grooved (VIC)*
* Stainless steel available upon request



2-way stainless steel*
* 2", 2.5", 4", 6", 8" versions available in stainless steel



2-way high performance ANSI 150
3-way high performance ANSI 150



2-way high performance ANSI 300
3-way high performance ANSI 300

Features

- 0% leakage
- High close-off pressures
- Wide range of sizes available
- NEMA 4 options available for outdoor applications
- Stainless steel disc and stem

Applications

- Controls flow of chilled water and glycol mixes
- Ideal for isolation, primary bypass flow control, cooling tower isolation, large air handler coil control, process control heat exchanger applications
- TCS loop shutoff and bypass
- Central plant
- Headers
- Facility water and TCS loop isolation

Damper Actuators

Belimo damper actuators, with torque ratings from 9 to 1400 in-lbs, provide dependable airflow control for a wide range of ventilation applications. Their low power consumption and direct shaft mounting simplify installation and reduce energy use.

Non Fail-Safe



Rotary:
PM (1400 in-lb / 160 Nm)
GM (360 in-lb / 40 Nm)
AM (180 in-lb / 20 Nm)
NM (90 in-lb / 10 Nm)
LM (45 in-lb / 5 Nm)
CM (18 in-lb / 2 Nm)
UM (9 in-lb / 1 Nm)



Features

- Wide range of energy-efficient torque options for the perfect fit
- Quick running series available
- Multiple control options available for any solution
- Fail-in-place feature in the event of a power loss

Applications

- CRAH
- Fan walls
- Outside air modulation
- Generators (combustion air)

Fail-Safe



Mechanical:

EF (270 in-lb / 30 Nm)
 AF (180 in-lb / 20 Nm)
 NF (90 in-lb / 10 Nm)
 LF (35 in-lb / 4 Nm)
 TF (22 in-lb / 2.5 Nm)



Features

- Wide range of energy-efficient torque options for the perfect fit
- Outdoor protection available up to NEMA 4X
- Multiple control options available for any solution

Applications

- Backup generators, damper walls, and other applications where damper control is needed with a defined fail-safe requirement



Electronic:

PK (1400 in-lb / 160 Nm)
 GK (360 in-lb / 40 Nm)
 NK (54 in-lb / 6 Nm)
 AHK (100 lbf / 450 N)



Features

- Wide range of energy-efficient torque options for the perfect fit
- NK series are quick running (4 sec actuation)
- Power fail delay feature on MFT models allows programmable 0...10 sec delay to prevent immediate fail-safe action in brownout conditions
- Multiple control options available for any solution

Applications

- Backup generators, damper walls, and other applications where damper control is needed with a defined fail-safe requirement

Fire and Smoke Control

Belimo fire and smoke damper actuators are critical safety components in data center design. Integrated with detection systems, they control dampers to contain fire and smoke, protecting equipment and personnel. Built for reliability and compliance, they ensure fast, fail-safe operation in emergencies.



FSAF*A (180 in-lb)
FSAFB (180 in-lb)
FSNF (70 in-lb)
FSLF (30 in-lb)
FSTF (18 in-lb)



Features

- UL 555(S) Listed with major damper manufacturers
- UL 2043
- Lowest power consumption life safety actuators available in the market

Applications

- Electronic actuation of life safety dampers
- IBC chapters 7; Containment and chapter 9; Active Protection
- Life safety and emergency response



FSKN

Features

- Inaccessible dampers can be easily inspected
- Test your entire building or campus in minutes
- BTL-certified (BACnet MS/TP)

Applications

- Remote testing of life safety dampers as per NFPA 80 and 105
- The industry's first remote testing module for life safety actuators

Sensors and Meters

Belimo sensors and thermal energy meters deliver accurate, real-time data for smarter system management. They are designed for seamless integration with building automation systems and support proactive maintenance and energy optimization. Belimo sensors measure temperature, humidity, pressure, CO₂, and VOCs in duct, pipe, and room environments while thermal energy meters measure flow and energy in fluid-based systems. Belimo liquid sensors are suitable for both water and water-glycol media.

Liquid Pressure Sensors



22WDP

Features

- Differential pressure up to 100 psi
- 0...10 V or 4...20 mA output
- Wetted parts: stainless steel 1.4301, ceramic
- Accessories: mounting plate, pipe connectors, manifold

Applications

- Rack-level differential pressure monitoring to automatically adjust fluid flow during hot swaps or maintenance



22PDP*

* The 22PDP is currently not approved for use for differential pressure in direct-to-chip applications. For single phase direct-to-chip cooling solutions, please visit belimo.com/datacenters.

Features

- Differential pressure up to 250 psi
- Remote transducers
- Wetted parts: stainless steel 17-4PH and 304
- Accessories: cable extensions, manifold
- LCD backlight display
- 0...10 V or 4...20 mA output

Applications

- Differential pressure between the supply and return lines of a chiller



22WP

Features

- Static pressure up to 580 psi
- 0...10 V or 4...20 mA output
- Wetted parts: stainless steel 1.4301

Applications

- Head pressure measurement for a chiller

Condensation/Leak Sensors



Condensation:
22HH-50
22HH-500X

Features

- Red/green LED for detection status
- Pipe mount or remote sensing

Applications

- For detecting condensation risk in hot aisle containment areas
- With relay contact for connection to controller and display systems or for series connection with cooling valve to interrupt flow directly at the onset of condensation



Leak:
22HL-505
22HL-520

Features

- 5 meter and 20 meter rope attachments available
- Red/green LED for water detection status
- Floor, pan or pipe mounted

Applications

- For detection of liquid leakage
- Designed for alarm, control and monitoring applications for preventing unintended ingress of water, especially in the white space
- With relay contact for connection to controller and display systems
- Series connection with the valve to interrupt the water flow directly when the liquid leakage begins



Leak:
22HL-50
22HL-502

Thermal Energy Meters



22PE

Features

- Patented glycol compensation algorithm automatically selects the glycol concentration, ensuring reliable performance and eliminating manual input and inaccuracies
- Ultrasonic flow measurement
- $\pm 2\%$ flow accuracy
- BTU metering
- On board NIST certificate

Applications

- Used in direct-to-chip cooling, chilled-water systems, and energy metering applications

Flow Sensors



Pipe: 22PF



Pipe: 22PF

Features

- Ultrasonic flow measurement
- Glycol compensation
- $\pm 2\%$ flow accuracy
- Vertical or horizontal in-line mounting on pipes
- NEMA 4 enclosure options for outdoor applications

Applications

- Provides precise fluid measurement in direct-to-chip applications and other cooling systems such as AHU coils
- CDUs
- Glycol monitoring

Differential Pressure Sensors (Duct and Switch)



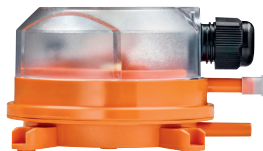
Duct:
dPA

Features

- Freely scalable measuring ranges and analog outputs
- BACnet, Modbus and MP-Bus communication protocols
- UL Listed
- Can be mounted on either upstream or downstream, measuring airflow before the filter (air entering the filter) or after the filter
- Detachable DIN rail mounting plate

Applications

- Differential pressure sensors are effective for measuring airflow in front of and behind air filters
- If room pressure exceeds set limits, the sensor triggers an alarm to prevent contamination or maintain sterile conditions



Switch:
01APS

Features

- Output signal — SPDT
- Setpoint range adjustable
- NEMA 13 / IP54
- Can be fastened directly to the duct, heater, or panel as long as the mounting surface has minimal or no vibration

Applications

- Designed to sense the difference in pressure between two different points or sources connected to a sensing diaphragm
- An action is triggered (such as turning on or off a pump, fan, or alarm) when a specific pressure threshold is reached

Temperature Sensors



Outdoor Air:
01UT
22UT

Features

- NEMA 4X / IP65
- UL Listed

Applications

- Active sensor (0...10 V) for measuring the relative or absolute humidity and temperature in outdoor areas
- Instead of the humidity signal, the enthalpy or the dewpoint can be selected as an output signal



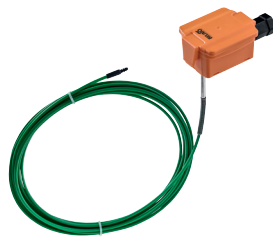
Duct Immersion:
01DT
22DT

Features

- Thermowell for liquid applications
- Probe lengths 2", 4", 6", 8", 12", 18"
- NEMA 4X / IP65
- UL Listed

Applications

- Designed for both duct and pipe applications
- Used for monitoring and maintaining the water temperature in a chilled water system
- Used for temperature monitoring in direct-to-chip cooling applications



Duct Averaging:
01MT
22MT

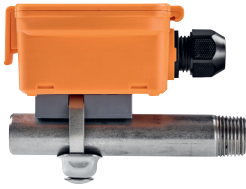
Features

- Continuous sensing element
- Probe length 10, 20, or 50 ft.
- NEMA 4X / IP65
- UL Listed

Applications

- Designed to be mounted horizontally or vertically across large coils in air handling units or fan coil units
- These individual thermistors are wired together in a series/parallel configuration to provide a single average temperature resistive signal to the building automation system

Temperature Sensors



Clamp-On:

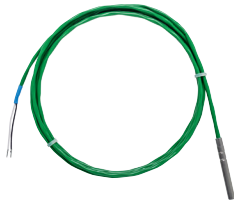
01ST
01HT
22HT

Features

- Multiple passive outputs
- Surface contact temperature sensing probe
- -30...195°F [-35...90°C] measuring range temperature

Applications

- Can be attached directly to the outside of the pipes using their adjustable pipe clamp
- Given their design, these sensors ensure fast response and accurate temperature readings of the water flowing inside the pipe without needing to penetrate the pipe itself



Cable:

01CT
22CT

Features

- Multiple passive outputs
- 2...8" stainless steel probe lengths
- 6.5' cable length
- -40...300°F [-40...150°C] measuring range temperature

Applications

- Used as a duct temperature sensor with a mounting flange or as an immersion temperature sensor in combination with an immersion sleeve for air handling units, cooling pipes or coils



Low Temperature

Detection:

01DTS

Features

- Low limit temperature detection switch
- Setpoint range 14...54°F [-10...12°C]
- NEMA 4 / IP65

Applications

- Used on different types of HVAC systems, the water coil freeze stat prevents freon-to-liquid heat exchangers (liquid coils) from freezing
- Typically placed on the supply air side of the coil, it shuts down the flow of outside air to a mixing box when the temperature reaches a predetermined setpoint

Humidity Sensors



Outdoor:
22UTH

Features

- Outdoor sensor humidity / temperature
- Measuring ranges field selectable
- NEMA 4X / IP65
- UL Listed

Applications

- Active sensor (0...10 V) for measuring the relative or absolute humidity and temperature in outdoor areas
- Instead of the humidity signal, the enthalpy or the dewpoint can be selected as an output signal



Duct:
22DTH

Features

- Duct sensor humidity / temperature
- Measuring ranges field selectable
- NEMA 4X / IP65
- UL Listed

Applications

- Specifically designed to measure one or a combination of humidity, temperature, enthalpy, dew point, and absolute humidity
- Users can select appropriate measurement ranges based on their specific requirements
- These sensors are usually placed in the ductwork and directly measure the air temperature inside

Air Quality Sensors



Duct:
22DC
22DTC
22DTM
22DCV
22DCM
22DCK

Features

- Combined duct mounted air quality sensors for CO₂, VOC, temperature, and humidity
- Dual channel
- NEMA 4X / IP65
- UL Listed

Applications

- Specifically designed to measure one or a combination of temperature, humidity, CO₂, VOCs or CO₂/VOC mixes
- These sensors provide real-time data on IAQ indicators, allowing stakeholders to monitor and manage air quality effectively
- Users can select appropriate measurement ranges based on their specific requirements
- Usually placed in the ductwork and directly measure the air temperature inside
- Preventing static conditions for hardware
- Protecting equipment from particulates

Room Sensors



Active:
22RT
22RTH
22RTM

Features

- Dual channel
- Relative humidity, dew point, room temperature measuring
- Pressure compensation
- Temperature compensation
- 3 analog inputs allow for multiple points to be controlled via BMS

Applications

- Condensation and temperature monitoring and alarming



Passive:
01RT
P-01RT

Features

- Collected data is transmitted to the controller via a passive temperature output
- Setpoint adjustment dial
- Manual override button
- Output signal NTC20k, NTC10k3, NTC10k2 or Pt1000

Applications

- Used to monitor room temperatures



EXT-RT

Features

- Blank stainless steel wall plate that incorporates a precision temperature sensor
- Output signal NTC20k, NTC10k3, NTC10k2 or Pt1000

Applications

- Flush mounted directly to an electrical box or to a wall
- Used to monitor room temperatures

Gas Monitoring Devices

Ventilation on demand

Our gas monitors are factory calibrated and can measure up to two different gases simultaneously. Monitors can connect to a network to detect refrigerant, hydrogen, and other gases, with or without a central controller.

Gas Monitoring



22G04-5..
22G05-5..
22G06-5..
22G08-5..
22G16-5..
22G17-5..
22G22-5..
22G23-5..
22G02-5..
22G14-5..
22G0214-5..

Features

- Can monitor up to two different gases simultaneously
- Belimo gas monitors detect CO, NO₂, CO₂, NH₃, CH₄, C₃H₈, H₂, H₂S, CL₂, O₂, refrigerants
- Select models provide direct control through analog outputs and relays, and integration into a BMS through BACnet MS/TP
- Sensor modules are hot-swappable

Applications

- Refrigerant monitoring in pumped two-phase direct-to-chip applications
- Hydrogen monitoring for battery storage
- Gas monitoring for emergency generators
- Gas monitoring for indoor spaces that have chillers

Accessories



Communication
Modules:
C-22G-5..

Features

- Audible and visual alarms
- CAN bus communication, allowing for standalone operation and networking of up to 32 devices
- Select models feature relays and analog outputs to control ventilation directly, as well as BACnet MS/TP allowing for integration into a BMS

Applications

- Gas detection systems that require control from one or multiple centralized locations, and/or gas detection systems that want the ability to view the entire system in a remote location (ex: office space, facility manager office, etc.)
- Communication modules also allow the entire gas monitoring system (all individual gas monitors, their gas levels, and their alarm level statuses) to be viewed through the communication module



Relay Unit:
C-22G-50

Features

- 4 relays with visual alarms
- Wired via daisy chain
- 5-year warranty

Applications

- Gas detection systems that require control from one or multiple centralized locations



High-Low Kit:
A-22G-A14

Features

- Enclosure for remote mounting a sensor module
- Interface connector to plug into an existing gas monitor
- 7' (2 m) plug-in data cable [Type RJ45] that interconnects the two

Applications

- Remote enclosures are used to remotely mount a sensor module at a different elevation than the gas monitor

For all gas monitoring accessories, please see the Product Guide and Price List on the Belimo website. ETL 61010-1 certification is provided for communication modules (C-22G-5..).

All Inclusive

At Belimo, we continually invest in new technologies that increase customer value by improving occupant comfort, energy efficiency, simplified installation, and maintenance-free operation. Our sales team is available to consult and provide insight and advice on how to achieve the best solution to help increase your system performance.

Belimo will continue to focus on providing you with exceptional product availability, fast delivery times, and world-class customer service and technical support. We remain dedicated to improving our standards and delivering the highest possible value.

Whatever your application, our global network of support experts is on hand and ready to assist.



5-year warranty



On site around the globe



Tested quality



Short delivery times



Comprehensive support



Belimo Americas

USA, Canada, Brazil, Latin America, and the Caribbean
www.belimo.com/datacenters

