



The complete  
product range



**Small Devices, Big Impact.**

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**BELIMO**<sup>®</sup>

# Small devices, big impact.



CESIM is the Belimo-method to innovate building technology with sensors, valves, and actuators. As a member of the UN Global Compact, Belimo is an active stakeholder contributing to the Sustainable Development Goals (SDG) directly. By incorporating the UN Global Compact principles into strategies, policies, and procedures, Belimo is not only upholding their basic responsibilities to people and the planet, but also setting the stage for long-term success of our industry.

CESIM ensures that the “small” Belimo devices have a big impact on Comfort, Energy Efficiency, Safety, Installation, and Maintenance.

## **Comfort – Innovations Redefining Comfort**

Belimo’s devices provide a precision controlled, comfortable room environment that is essential for the wellbeing and productivity of people.

Heating and cooling components in the central plant, air handling units, and secondary air treatment for the room are fitted with sensors, damper actuators, and control valves which are networked with each other for the best sense of well-being in rooms. Our intelligent HVAC components deliver excellent air quality for the highest level of room comfort.

## **Energy Efficiency – Energy Efficiency Delivered**

Buildings are responsible for around 40% of global CO<sub>2</sub> emissions. The smart control of heating, cooling, and ventilation loads has a big impact on the energy efficiency of buildings. Belimo sets the standard for energy efficient solutions such as low power consumption actuators, the Belimo Energy Valve™, and ball valve technology.

With optimised and intelligent building control, we can protect the environment and our resources in a sustainable manner. Reducing energy consumption in buildings through increased energy efficiency will provide a significant contribution to stop the rise in global temperatures.

## **Safety – Uncompromised Safety**

Belimo safety actuators save lives and help to minimise damage to buildings and tangible assets. Reliability that has been specially designed for fire and smoke dampers. Furthermore, a complete range of actuators with a fail-safe function and fast running actuators increases safety by preventing hazardous situations.

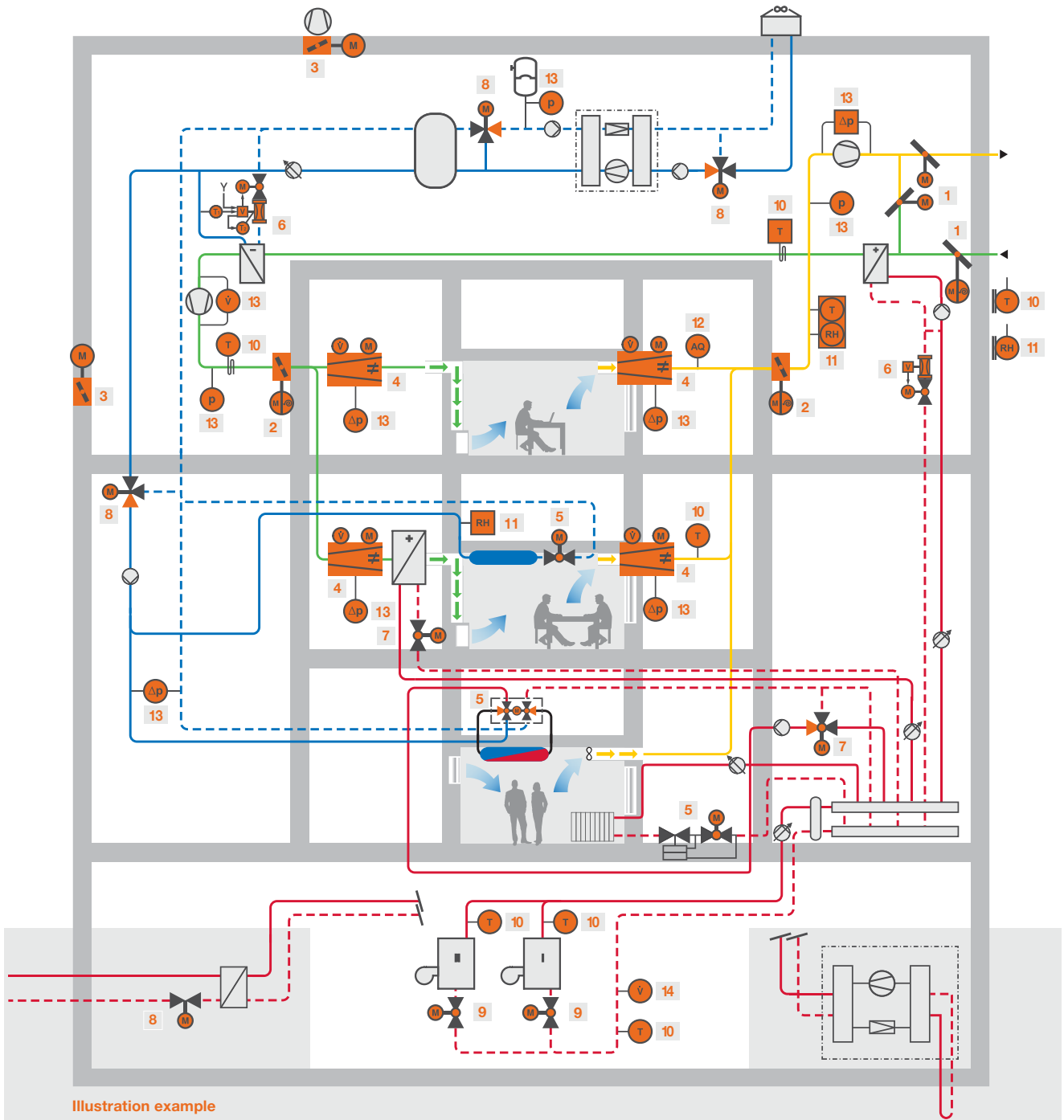
## **Installation – Experience installation Ease**

Ease of installation and fast commissioning save time. The unique tool-free enclosures of sensors or devices that allow paperless smartphone commissioning are two examples that have a big impact on reducing installation time. Belimo offers the most comprehensive product ranges, including retrofit applications, with fast delivery to the desired location.

## **Maintenance – Lasting Performance, Backed by World Class Support**

Low maintenance and good customer service have a big impact on building operations. Belimo’s devices are famous for their long lifetime and unique 5-year warranty. To achieve optimal building performance, Belimo’s innovative solutions can provide real-time monitoring and transparency.

# Everything under one roof.



## Air

- 1 Air damper actuators
- 2 Fire damper actuators
- 3 Smoke control damper actuators
- 4 VAV-Compact/VAV-Universal

## Water

- 5 Zone valves
- 6 Pressure-independent control valves
- 7 Characterised control valves
- 8 Globe valves
- 9 Butterfly valves

## Sensors

- 10 Temperature sensors
- 11 Humidity sensors
- 12 Air quality sensors
- 13 Pressure sensor range
- 14 Flow sensors



Fan



Air heater



Air cooler



Boiler



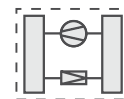
Pump



Variable speed pump



Heat exchanger



Chiller / heat pump



Cold water reservoir



Transfer station

# Actuator, valve and sensor solutions.



## Ventilation Applications

### Air treatment, distribution, control and feedback

The world's most comprehensive range of actuator solutions for air dampers of up to 8 m<sup>2</sup> includes rotary and linear actuators with a wide range of motorisation levels and actuating times. The actuators cover almost all motorisation requirements for the control of air flows in air-conditioning plants, from treatment and distribution to feedback and retreatment. The product range also includes special actuators for indoor and outdoor use in extreme conditions. As a perfect complement to the actuators, Belimo offers a comprehensive range of sensors for measuring air temperature and humidity as well as air quality. Differential pressure sensors guarantee an accurate filter monitoring to optimally plan the service calls in advance.



## Water applications

### Efficient operation of heating and cooling circuits

In addition to motorised butterfly valves and globe valves, Belimo supplies unique, air-bubble tight characterised control valves for the precise control of heating and cooling circuits without energy loss. Pressure-independent characterised control valves always ensure the correct amount of water thanks to permanent dynamic balancing, even if there are differential pressure changes and during partial load operation. The forward-looking, multifunctional Belimo Energy Valve™ with integrated logic allows energy flows to be monitored and optimised. The integrated Delta-T Manager ensures that the differential temperature does not fall below defined values and that the heat exchanger is always run in the energy-efficient range. The new range of Belimo Energy Valve™ and Thermal Energy Meter certified EN 1434/MID integrates energy metering, energy control and IoT-enabled billing in one device. It offers seamless and direct integration to the BMS or IoT-based monitoring platform. Tight-sealing valves of the Belimo ZoneTight™ product range are the ideal solution for energy-saving, unproblematic room and zone control in tight spaces.



## Retrofit applications

### Giving new verve to old systems

For renovations in existing constructions and replacements for older actuators on air dampers, globe valves and rotary valves, Belimo supplies a comprehensive product range of special Retrofit motorisation solutions. Their parameters can be set precisely on site to the prevailing requirements. Retrofit globe and rotary actuators can be mounted practically on all common valve makes with only a few steps. Handy VAV-Retrofit kits with controllers, actuators and pick-up devices are available for replacing defective or pneumatic VAV devices. To easily determine the right replacement actuators, Belimo has developed a Retrofit tool which determines the suitable actuator using different parameters. The tool can be used everywhere – on site or in the office.

About the Retrofit tool:



# For every field of application.



## Safety solutions

### Protecting life and material assets from fire and smoke

Fires represent the greatest potential threat to people and tangible assets in buildings. Efficient fire protection saves lives in case of emergency, helps minimise property damage and secures the continued operation of companies. The best protection against the spread of fire and smoke through the ductwork is provided by motorised fire dampers to form fire compartments. Smoke control systems with motorised smoke control dampers ensure smoke-free escape and rescue routes.



## System protection

### Avoiding damage in the event of interruptions to operation

Fail-safe actuators protect valuable systems from damage caused by ice, water and steam. Particularly in the event of a power supply voltage failure, this actuator product range moves the dampers to the predefined fail-safe position. Depending on the actuator, short power failures can be bridged for up to 10 seconds and the fail-safe positions can be individually defined. Unnecessary failures and convenience impairments are thereby avoided.



## Bus and system integration

### Monitoring and controlling systems from a central location

Belimo actuators can be easily integrated into intelligent building management systems. Actuators with an integrated BACnet, Modbus and KNX interface are available for direct connections. MP actuators can be used to combine up to eight different control elements into one MP-Bus section and connect to virtually any supervisory system with greatly reduced wiring costs. Different adjustment and service tools as well as the Belimo Cloud make commissioning, monitoring and optimisation easier.



## Room and system solutions

### Ensuring individual comfort and saving energy

Used in offices, public buildings, production halls, commercial premises or sensitive operating areas, volumetric flow controllers, actuators and sensors ensure an optimum room climate while consuming minimal levels of energy. They can be used as ZoneEase™, VAV-Compact or VAV-Universal devices. Special, ZoneEase™ and compact VAV control units are available for distribution boxes used in controlled residential ventilation.



# Ventilation Applications

## Rotary actuators without fail-safe function

Product range	Types/performance classes	Specifications	Applications
	Standard actuators: <ul style="list-style-type: none"> <li>• LM (5 Nm)</li> <li>• NM (10 Nm)</li> <li>• SM (20 Nm)</li> <li>• GM (40 Nm)</li> <li>• PM (160 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• With integrated auxiliary switch or potentiometer</li> <li>• Identical accessories for all types</li> <li>• Connection: Cable (IP54) or terminals (IP20 or IP54)</li> <li>• IP66/67 (PM...)</li> <li>• NFC (PM...)</li> </ul>	Motorisation of air dampers without fail-safe function
	Compact actuators: <ul style="list-style-type: none"> <li>• CM (2 Nm)</li> <li>• CM..G (2 Nm, IP66)</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanical angle of rotation limitation 0...287.5°</li> <li>• Rotation without limits</li> <li>• Magnetic gearing disengagement</li> </ul>	Motorisation of air dampers without fail-safe function up to 0.4 m <sup>2</sup> in residential ventilation systems, underfloor air handling units, decentralised sill ventilation units, etc.

## Linear actuators without fail-safe function

Product range	Types/performance classes	Specifications	Applications
	Standard actuators: <ul style="list-style-type: none"> <li>• LH (150 N)</li> <li>• SH (450 N)</li> </ul>	<ul style="list-style-type: none"> <li>• Gear rod lengths 60, 100, 200 and 300 mm</li> <li>• Mechanical stroke limitation every 20 mm</li> </ul>	Motorisation of final controlling elements with linear movements up to 300 mm for swirl outlets, long-range nozzles, mixing units, cabin units, VAV units, etc.
	Compact actuator: <ul style="list-style-type: none"> <li>• CH (125 N)</li> </ul>	<ul style="list-style-type: none"> <li>• Gear rod lengths 60 and 100 mm</li> <li>• Mechanical stroke limitation every 20 mm</li> <li>• Direction of stroke can be selected</li> <li>• Gearbox can be rotated by 90°</li> </ul>	Motorisation of air dampers without fail-safe function up to 0.8 m <sup>2</sup> in residential ventilation systems, swirl outlets, long range nozzles, mixing units, etc.


## Full-rotation actuators without fail-safe function

Product range	Types/performance classes	Specifications	Applications
	<ul style="list-style-type: none"> <li>• LU (3 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanical angle of rotation limitation up to 330°</li> <li>• Electronic angle of rotation limitation up to 1800°</li> <li>• Rotation without limits</li> </ul>	Motorisation of final controlling elements with rotary movement >90° and VAV units, replacement for KMU


## Very fast running actuators without fail-safe function

Product range	Types/performance classes	Specifications	Applications
	Rotary actuators: <ul style="list-style-type: none"> <li>• LMQ (4 Nm)</li> <li>• NMQ (8 Nm)</li> <li>• SMQ (16 Nm)</li> <li>• NMD (8 Nm)</li> <li>• SMD (16 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Identical accessories for all types</li> <li>• Very fast running times starting from 2.5s/90°</li> </ul>	Motorisation of air dampers without fail-safe function up to 3.2 m <sup>2</sup> for industrial suction plants, laboratories, painting and welding plants, etc.
	Linear actuators: <ul style="list-style-type: none"> <li>• LHQ (100 N)</li> <li>• SHQ (200 N)</li> </ul>	<ul style="list-style-type: none"> <li>• Gear rod length 100 mm</li> <li>• Mechanical stroke limitation every 20 mm</li> <li>• Running times starting from 3.5 s/100 mm</li> </ul>	Motorisation of final controlling elements and slide valves with linear movement up to 100 mm for wood boilers, mixing units, tilt windows, etc.

## RobustLine rotary actuators with and without fail-safe function for extreme conditions (IP66/67)

Product range	Types / performance classes	Specifications	Applications
	<ul style="list-style-type: none"> <li>NM..P (10 Nm)</li> <li>SM..P (20 Nm)</li> <li>NKQ..P (6 Nm, motor running time 4 s)</li> </ul>	<ul style="list-style-type: none"> <li>IP66/67, UV protection, corrosion-resistant</li> <li>Integrated auxiliary switch or potentiometer</li> </ul> <p>Optional for ambient temperatures down to -40 °C:</p> <ul style="list-style-type: none"> <li>Heating with humidistat</li> <li>Heating with thermostat</li> </ul>	<p>Motorisation of air dampers with and without fail-safe function up to 4 m<sup>2</sup> in particularly exposed positions:</p> <ul style="list-style-type: none"> <li>Protection against aggressive gases, moisture, humidity, high dust and contamination levels</li> <li>General outdoor applications, kiln drying plants, agriculture, swimming pool installations, greenhouses, etc.</li> </ul>

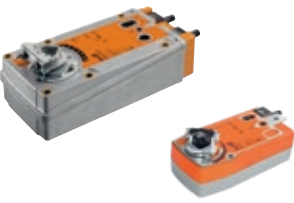
## Rotary actuators with and without fail-safe function for outdoor applications (IP66/67, NEMA 4X)

Product range	Types / performance classes	Specifications	Applications
	<ul style="list-style-type: none"> <li>GM..G (40 Nm)</li> <li>SMQ..G (16 Nm, motor running time 7 s)</li> <li>NF..G (10 Nm)</li> <li>SF..G (20 Nm)</li> <li>GK..G (40 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>IP66/67, NEMA 4X, UV protection</li> <li>Integrated auxiliary switch or potentiometer</li> </ul> <p>Optional for ambient temperatures down to -40 °C:</p> <ul style="list-style-type: none"> <li>Heating with humidistat</li> <li>Heating with thermostat</li> </ul>	<p>Motorisation of air dampers with and without fail-safe function up to 8 m<sup>2</sup>:</p> <ul style="list-style-type: none"> <li>Protection against moisture, humidity, high dust and contamination levels</li> <li>General outdoor applications, greenhouses, etc.</li> <li>Rooftop ventilation plant rooms</li> </ul>




# System protection

## Rotary actuators with mechanical fail-safe function (spring package)

Product range	Types / performance classes	Specifications	Applications
	<ul style="list-style-type: none"> <li>TF (2 Nm)</li> <li>LF (4 Nm)</li> <li>NF (10 Nm)*</li> <li>SF (20 Nm)*</li> <li>EF (30 Nm)*</li> </ul> <p>* optional with 2 integrated auxiliary switches</p>	<ul style="list-style-type: none"> <li>Automatic closing function in &lt;20 s in the event of electricity interruption</li> <li>Manual override</li> </ul>	<p>Motorisation of air dampers with fail-safe function up to 6 m<sup>2</sup></p>


## Rotary and linear actuators with fail-safe function

Product range	Types / performance classes	Specifications	Applications
	<p>Rotary actuators with fail-safe function:</p> <ul style="list-style-type: none"> <li>NKQ (6 Nm, running time 4 s)</li> <li>GK (40 Nm, running time 150 s)</li> <li>PK (160 Nm, running time 35 s)</li> </ul> <p>Linear actuators with fail-safe function:</p> <ul style="list-style-type: none"> <li>LHK (150 N, 100 mm stroke, running time 120 s)</li> <li>SHK (450 N, 100 mm stroke, running time 120 s)</li> </ul> <p>Compact actuators with fail-safe function:</p> <ul style="list-style-type: none"> <li>CM24K (2 Nm)</li> <li>SKM230A (energy storage module)</li> </ul>	<ul style="list-style-type: none"> <li>Integrated energy storage; actuator moves into predefined emergency setting position in &lt;35 s (NKQ: 4 s) in the event of electricity interruption POP (Power Off Position)</li> <li>Bridging of electricity interruptions of up to 10 s</li> <li>Emergency setting position adjustable between 0...100%</li> </ul> <p>• Energy storage module: moves 2 CM actuators into emergency setting position in &lt;15 s in the event of electricity interruption</p>	<p>Motorisation of air dampers with fail-safe function</p> <p>Motorisation of air dampers up to 0.4 m<sup>2</sup>. Particularly suitable in decentralised air handling units, residential ventilation systems and with extremely limited space conditions.</p>




# Water applications



## Zone Valve

Product range	Valves	Actuators	Applications
	Internal thread: <ul style="list-style-type: none"> <li>• RB2.. (2-way zone valve)</li> <li>• RB3.. (3-way zone valve)</li> <li>• Z..S-..</li> </ul>	<ul style="list-style-type: none"> <li>• Standard Rotary Actuators: FRU..</li> <li>• Fail-Safe Rotary Actuators: Z..S-..</li> </ul>	<ul style="list-style-type: none"> <li>• For cold and hot water system and fan coil application</li> <li>• Water temperature range: RB: 5°C...100°C Z..S-.. : 0°C...93°C</li> </ul>

## Belimo ZoneTight™

Product range	Valves	Actuators	Applications
	Internal thread (QCV): <ul style="list-style-type: none"> <li>• C2..Q-.. (2-way, characterised control valve)</li> <li>• C3..Q-.. (3-way, change-over ball valve)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: CQ24A (-SR/-MPL), CQ230A</li> <li>• With fail-safe function: CQK24A (-SR) TQF24, TQF230A</li> <li>• Fast runners: CQC230A, CQD230A</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameter DN 15 / 20 / (25)</li> <li>• PN25</li> <li>• Fan coils</li> <li>• Cooling ceilings</li> <li>• Zone air heaters / air coolers</li> <li>• Floor heaters</li> <li>• Radiators</li> </ul>
Internal thread (PIQCV): <ul style="list-style-type: none"> <li>• C2..QP(T)-.. (2-way, pressure-independent zone valve)</li> </ul>	Pressure Independent Flow Limiter Valve PIFLV™: <ul style="list-style-type: none"> <li>• C2..QFL-.. (2-way, pressure-independent zone valve)</li> <li>• R2..FL-.. (2-way, pressure-independent zone valve)</li> </ul>		
Rotary actuators: CQ24A, CQ230A LR series <ul style="list-style-type: none"> <li>• With fail-safe function: CQK24A TQF24, TQF230, L(R)F series</li> <li>• Fast runners CQC230A, CQD230A LRQ series</li> </ul>			

## Pressure-independent characterised control valves


Product range	Valves	Actuators	Applications
	Internal thread (Belimo Energy Valve™): <ul style="list-style-type: none"> <li>• EV..R2+BAC<sup>1)</sup> (2-way, DN 15..50)</li> <li>• EV..R2+KBAC<sup>1)</sup> (2-way, DN 15..50)</li> <li>• EV..R2+MID<sup>1)</sup> (2-way, DN 15..50)</li> <li>• EV..R+BAC (2-way, DN 15..50)</li> <li>• EV..R+KBAC (2-way, DN 15..50)</li> </ul>	<ul style="list-style-type: none"> <li>• Actuator with monitoring and recording function integrated</li> <li>• Electronic flow measurement</li> <li>• Permanent hydraulic balancing</li> <li>• Delta-T manager</li> <li>• Power control</li> <li>• With fail-safe function: +KBAC</li> <li>• Connection to Belimo Cloud</li> <li>• With MID certified: +MID</li> </ul>	Balancing, measuring, controlling, shutting and energy monitoring: <ul style="list-style-type: none"> <li>• Flow <math>V_{max}</math> 0.11...45 l/s</li> <li>• Nominal diameters DN 15...150</li> <li>• PN25 / DN 15...50</li> <li>• PN16 / DN 65...150</li> <li>• Billing: +MID</li> </ul>
	Flange (Belimo Energy Valve™): <ul style="list-style-type: none"> <li>• EV..F+BAC (2-way, DN 65...150)</li> <li>• EV..F+KBAC (2-way, DN 65...150)</li> </ul>		
	Internal thread (EPIV): <ul style="list-style-type: none"> <li>• EP..R2+BAC<sup>2)</sup> (2-way, DN 15..50)</li> <li>• EP..R2+KBAC<sup>2)</sup> (2-way, DN 15..50)</li> <li>• EP..R+MP (2-way, DN 15..50)</li> <li>• EP..R+KMP (2-way, DN 15..50)</li> <li>• EP..R+MOD</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated actuator</li> <li>• Electronic flow measurement</li> <li>• Permanent hydraulic balancing</li> <li>• With fail-safe function: KMP</li> </ul>	Balancing, measuring, controlling and shutting with a single valve unit: <ul style="list-style-type: none"> <li>• Flow <math>V_{max}</math> 0.11...45 l/s</li> <li>• Nominal diameters DN 15...150</li> <li>• PN25 / DN 15...50</li> <li>• PN16 / DN 65...150</li> </ul>
	Flange (EPIV): <ul style="list-style-type: none"> <li>• EP..F+MP (2-way, DN 65...150)</li> <li>• EP..F+KMP (2-way, DN 65...150)</li> <li>• EP..F+MOD (2-way, DN 65...150)</li> </ul>		

<sup>1)</sup> Available on Q3 2021.


<sup>2)</sup> Available on Q1 2022.




## Characterised control valves

Product range	Valves	Actuators	Applications
	Internal thread: <ul style="list-style-type: none"> <li>• R2..-S.. (2-way)</li> <li>• R3..-S.. (3-way)</li> </ul> Flange: <ul style="list-style-type: none"> <li>• R6..AO.. (2-way/PN6)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: TR, LR, NR, SR series</li> <li>• With fail-safe function: TRF, LRF, NRF, SRF series</li> <li>• Very fast running actuators: LRQ, NRQ, SRQ series</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• PN40 (DN15..25)</li> <li>• PN25 (DN32..50)</li> </ul>
	Flange: <ul style="list-style-type: none"> <li>• R6..AO (2-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: SR..5, GR..7 series</li> <li>• With fail-safe function: SRF...-5, GRK...-7 series</li> <li>• Fast runners: SR..Q..AX...-5 (DN65)</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 65...150</li> <li>• PN16</li> </ul>


## Control, shut-off and change-over valves for outdoor applications

Product range	Valves	Actuators	Applications
	Internal thread: <ul style="list-style-type: none"> <li>• R2.. (2-way)</li> <li>• R3.. (3-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: SR..P series IP66/67</li> </ul>	Cold and hot water, applications in IP66/67 environment: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• PN40 (DN15..25)</li> <li>• PN25 (DN32..50)</li> </ul>


## Shut-off and change-over valves

Product range	Valves	Actuators	Applications
	Internal thread: <ul style="list-style-type: none"> <li>• R2.. (2-way)</li> <li>• R3.. (3-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: TR, LR, NR, SR series</li> <li>• With fail-safe function: TRF, LRF, NRF, SRF series</li> </ul>	Cold and hot water, shut-off and changeover function: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• PN40 (DN15..25)</li> <li>• PN25 (DN32..50)</li> </ul> Shutting cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> </ul>

## Butterfly Valves

Product range	Valves	Actuators	Applications
	Flange PN6/10/16: <ul style="list-style-type: none"> <li>• D6..N (2-way)</li> <li>• D6..NL (2-way)</li> <li>• D6..W (2-way)</li> <li>• D6..WL (2-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: SR-5, SR..P-5, GR-5, DR-5, DR-7, PR, SY series</li> <li>• With fail-safe function: SRF-5, GRK-5, DRK, PRK series</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 25...600</li> </ul>

## Globe valves

Product range	Valves	Actuators	Applications
	Internal thread: <ul style="list-style-type: none"> <li>• H2..S-.. (2-way)</li> <li>• H3..S-.. (3-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Standard globe valve actuators: NV..A, SV..A (20 mm), EV..A, RV..A (40 mm)</li> <li>• Globe valve actuators with fail-safe function: NVK..A, SVK..A (20 mm), AVK..A (32 mm), EVK..A (40 mm)</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• PN25</li> </ul>
	Flange: <ul style="list-style-type: none"> <li>• H6..SP-.. (2-way)</li> <li>• H7..D-../ H7..S-.. (3-way)</li> </ul>		Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 65...250</li> <li>• PN16</li> </ul>



# Sensor applications


## Temperature

Product range	Types	Specifications	Applications
	Outdoor: <ul style="list-style-type: none"> <li>• 01UT</li> <li>• 22UT</li> </ul>	<ul style="list-style-type: none"> <li>• -35...50 °C</li> <li>• -50...50 °C</li> </ul>	<ul style="list-style-type: none"> <li>• Outdoor temperature sensor</li> <li>• Room temperature sensor with NEMA 4X/IP65 protection</li> </ul>
	Duct / Immersion: <ul style="list-style-type: none"> <li>• 01DT</li> <li>• 22DT</li> <li>• 01PT</li> </ul>	<ul style="list-style-type: none"> <li>• Sensor dependent</li> <li>• 0...+160 °C</li> <li>• Sensor dependent</li> </ul>	<ul style="list-style-type: none"> <li>• Duct temperature sensor</li> <li>• Immersion temperature sensor; compression fitting or thermowell required</li> </ul>
	Duct mean value: <ul style="list-style-type: none"> <li>• 01MT</li> <li>• 22MT</li> </ul>	<ul style="list-style-type: none"> <li>• -35...70 °C</li> <li>• -20...80 °C</li> </ul>	Duct temperature mean value sensor for air conditioning systems or larger ducts with layer formation
	Pipe contact: <ul style="list-style-type: none"> <li>• 01ST</li> <li>• 01HT</li> <li>• 22HT</li> </ul>	<ul style="list-style-type: none"> <li>• -35...100 °C</li> <li>• -35...90 °C</li> <li>• 0...100 °C</li> </ul>	Clamp-on temperature sensors for heating systems and solar collectors, passive and active
	Cable: <ul style="list-style-type: none"> <li>• 01CT</li> <li>• 22CT</li> </ul>	<ul style="list-style-type: none"> <li>• -35...100 °C</li> <li>• 0...160 °C</li> </ul>	Cable temperature sensor, passive and active
	Frost monitor: <ul style="list-style-type: none"> <li>• 01ATS</li> <li>• 20DTS</li> </ul>	<ul style="list-style-type: none"> <li>• Output: switch</li> <li>• Capillary tube length 3 m / 6 m</li> <li>• Modulating output: 0...10V</li> <li>• Output: switch</li> <li>• Capillary tube length 2 m / 6 m</li> </ul>	Reliable frost detection for air handling units after the heater battery
	Temperature monitor <ul style="list-style-type: none"> <li>• 01HT-....A</li> </ul>	<ul style="list-style-type: none"> <li>• 30...90 °C</li> <li>• Probe length: 1 m</li> <li>• Automatic resetting</li> </ul>	Monitoring of heat generation systems, underfloor heating or other HVAC applications, various types of installation possible


## Air quality

Product range	Types	Specifications	Applications
	Duct: <ul style="list-style-type: none"> <li>• 22DC</li> <li>• 22DTC</li> <li>• 22DTM</li> <li>• 22DCV</li> <li>• 22DCM</li> <li>• 22DCK</li> </ul>	<ul style="list-style-type: none"> <li>• CO<sub>2</sub>: 0...2000 ppm</li> <li>• CO<sub>2</sub>: 0...2000 ppm, Temp.: 0...+50 °C</li> <li>• CO<sub>2</sub>: 0...2000 ppm, rH: 0...100%, Temp.: 0...50 °C</li> <li>• CO<sub>2</sub>: 0...2000 ppm, VOC: 0...100%</li> <li>• CO<sub>2</sub>: 0...2000 ppm, VOC: 0...100%, Temp.: 0...50 °C</li> <li>• CO<sub>2</sub>: 0...2000 ppm, VOC: 0...100%, Temp.: 0...50 °C</li> </ul>	Duct sensor for the measurement of air quality <ul style="list-style-type: none"> <li>• Option: with integrated temperature and humidity sensor</li> </ul>


## Thermo energy meter

Product range	Types	Specifications	Applications
	Thermo energy meter: <ul style="list-style-type: none"> <li>• 22PEM-1U...</li> <li>• 22PE-1U...</li> </ul>	<ul style="list-style-type: none"> <li>• 1.5...15 m<sup>3</sup>/h</li> <li>• 1.5...22.7 m<sup>3</sup>/h</li> </ul>	Energy Measurement

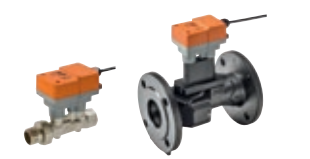
## Humidity

Product range	Types	Specifications	Applications
	Outdoor: <ul style="list-style-type: none"> <li>• 22UTH</li> </ul>	<ul style="list-style-type: none"> <li>• 0...100% RH/-20...80 °C</li> </ul>	<ul style="list-style-type: none"> <li>• Outdoor humidity/temperature sensor</li> <li>• Room humidity/temperature sensor with NEMA 4X/IP65 protection</li> <li>• Option: weather protection</li> </ul>
	Duct: <ul style="list-style-type: none"> <li>• 22DTH</li> </ul>	<ul style="list-style-type: none"> <li>• 0...100% RH/-20...80 °C</li> </ul>	Duct humidity/temperature sensor
	Condensation: <ul style="list-style-type: none"> <li>• 22HH</li> </ul>		Condensation sensor <ul style="list-style-type: none"> <li>• Option: external sensor</li> </ul>
	Duct humidistat: <ul style="list-style-type: none"> <li>• 01DH</li> </ul>	<ul style="list-style-type: none"> <li>• 15...95 % RH</li> <li>• Adjustable switch range</li> </ul>	Duct humidistat

## Pressure


Product range	Types	Specifications	Applications
	Duct: <ul style="list-style-type: none"> <li>• 22ADP</li> </ul>	<ul style="list-style-type: none"> <li>• 250 Pa</li> <li>• 2500 Pa</li> <li>• 7000 Pa</li> </ul>	Differential pressure sensor air
	Duct: <ul style="list-style-type: none"> <li>• 01APS</li> </ul>	<ul style="list-style-type: none"> <li>• 20...300 Pa</li> <li>• 50...500 Pa</li> <li>• 200...1000 Pa</li> <li>• 500...2500 Pa</li> <li>• 1000...5000 Pa</li> </ul>	Duct differential pressure switch air
	Pipe: <ul style="list-style-type: none"> <li>• 22WP</li> <li>• 22WDP</li> </ul>	<ul style="list-style-type: none"> <li>• 4, 6, 10, 16 bar</li> <li>• 1, 2.5, 4, 6 bar</li> </ul>	Pressure and differential pressure sensor for water and refrigerant

## Flow

Product range	Types	Specifications	Applications
	Flow types: <ul style="list-style-type: none"> <li>• FM...R-SZ (DN 15...50)</li> <li>• FM...F-SZ (DN 65...150)</li> <li>• 22PF...-1U<sup>1)</sup> (DN 15...50)</li> </ul>	<ul style="list-style-type: none"> <li>• 0.42...5.76 l/s</li> <li>• 9.60...54.00 l/s</li> </ul>	<ul style="list-style-type: none"> <li>• Flow sensor water</li> <li>• Pipe connection: DN 15...50 with thread DN 65...150 with flange</li> <li>• 22PF-1U... with BACnet/Modbus</li> </ul>

<sup>2)</sup> Available on Q1 2022.


## Room units

Product range	Types	Specifications	Applications
	Room sensors: <ul style="list-style-type: none"> <li>• 01RT</li> <li>• 22RT</li> </ul>	<ul style="list-style-type: none"> <li>• Temp. 0...50°C</li> <li>• CO<sub>2</sub> 0...2000 ppm</li> <li>• RH 5...100%</li> <li>• Temp. 0...50°C</li> </ul>	<ul style="list-style-type: none"> <li>• Room temperature measurement</li> <li>• Room CO<sub>2</sub>, humidity and temperature measurement</li> </ul>
	Room operating unit: <ul style="list-style-type: none"> <li>• P-01RT</li> </ul>	<ul style="list-style-type: none"> <li>• Temp. 0...50°C</li> </ul>	Room temperature measurement incl. setpoint adjuster




# Retrofit applications

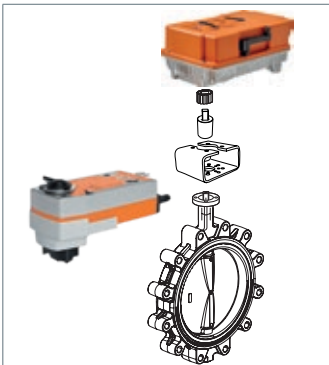
## Retrofit general air solutions: actuators without fail-safe function

Product range	Types/performance classes	Specifications	Applications
	<ul style="list-style-type: none"> <li>LM24A-MP-TP (5 Nm)</li> <li>NM24A-MP-TP (10 Nm)</li> <li>SM24A-MP-TP (20 Nm)</li> <li>GM24A-MP-TP (40 Nm)</li> <li>SM24A-R9 (20 Nm, 0...135 Ω)</li> <li>SM24A-PC (20 Nm, 0...20V phase-cut signal)</li> <li>SM24A-MA (20 Nm, 4...20 mA)</li> <li>LH24A-MP60-TP</li> <li>LH24A-MP100-TP</li> <li>LH24A-MP200-TP</li> <li>LH24A-MP300-TP</li> </ul>	<ul style="list-style-type: none"> <li>Freely parameterisable and optimally adjustable for matching the application</li> <li>Identical accessories such as auxiliary switches and potentiometers for all rotary actuators</li> <li>Identical accessories such as rotary support and coupling pieces for all linear actuators</li> <li>TP (terminal protected) connection: terminals IP54</li> </ul>	<p>Replacement of the motorisation of air dampers and slide valves without fail-safe function up to 8 m<sup>2</sup></p>


## Retrofit water solutions: globe valve actuators

Product range	Valves	Actuators	Applications
	<p>For globe valves from various manufacturers</p>	<p>Globe valve actuators with universal valve adapter:</p> <ul style="list-style-type: none"> <li>NV..A..-RE (1000 N, 20 mm)</li> <li>SV..A..-RE (1500 N, 20 mm)</li> <li>SVL..A..-RE (1500 N, 50 mm)</li> <li>AVK..A..-RE (2000 N, 32 mm)</li> <li>EV..A..-RE (2500 N, 50 mm)</li> <li>RV..A..-RE (4500 N, 50 mm)</li> </ul> <p>Short stroke actuators with adapter for Siemens or Cazzaniga short stroke globe valves:</p> <ul style="list-style-type: none"> <li>NRDVX.. (500 N, 5.5 mm)</li> </ul>	<ul style="list-style-type: none"> <li>Motorisation of globe valves with nominal diameters</li> <li>DN 15...250</li> </ul>

## Retrofit water solutions: rotary valve actuators

Product range	Valves	Actuators	Applications
	<p>For rotary valves from various manufacturers:</p> <ul style="list-style-type: none"> <li>Ball valves</li> <li>Butterfly valves</li> <li>Mixing valves</li> </ul> <p>A check must be made of the required torque</p>	<ul style="list-style-type: none"> <li>Rotary actuators HT..., SR...-R, GR...-R, DR...-R, PR (up to 160 Nm) with adapter (square, flat head, wedge etc.)</li> <li>With fail-safe function: SRF-R and GRK-R, PRK (up to 160 Nm) with adapter (square, flat head, wedge)</li> <li>SY rotary actuator with adapter: 400...3500 Nm</li> </ul>	<p>Motorisation of mixing valves and valves with:</p> <ul style="list-style-type: none"> <li>Interface ISO 5211: F03/F04/F05/F07 or F10</li> <li>Up to nominal diameter DN 600: upon request</li> </ul>



## Retrofit VAV

Product range	Types	Specifications	Applications
	<ul style="list-style-type: none"> <li>Set with VAV-Compact</li> <li>Set with VAV-Universal</li> </ul>	<p>Set solution for round VAV units with differential pressure sensor and complete installation set</p>	<p>Replacement of VAV actuator and control components with small and medium conversions</p>




# Safety Solutions

## Motorisation solutions for fire and smoke protection dampers

Product range	Types	Specifications	Applications
	Actuators <sup>1)</sup> : <ul style="list-style-type: none"> <li>• BFL (4/3 Nm)</li> <li>• BFN (9/7 Nm)</li> <li>• BFG (11/8.5 Nm)</li> <li>• BF (18/12 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Steel gearbox with Safety Position Lock™ function</li> <li>• Form fit</li> <li>• 2 auxiliary switches</li> <li>• Halogen-free cables</li> <li>• Low current consumption in stand-by</li> <li>• Thermoelectric tripping device (function-protected)</li> <li>• Fulfils specific requirements from EN 15650</li> </ul>	Motorisation of fire and smoke protection dampers
	Actuators <sup>1)</sup> : <ul style="list-style-type: none"> <li>• FSTF (2 Nm)</li> <li>• FSLF (3.5 Nm)</li> <li>• FSNF (8 Nm)</li> <li>• FSAFA (20 Nm)</li> <li>• FSAFB (20 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Fulfils specific requirements from UL555 and UL555S</li> <li>• Thermoelectric tripping device (Optional)</li> <li>• Overload Protection</li> <li>• Low power consumption life safety actuator</li> <li>• ISO 9001 Certified Quality Control</li> <li>• 2 SPST switches</li> </ul>	Motorisation of fire and smoke protection dampers

## Motorisation solutions for smoke control dampers

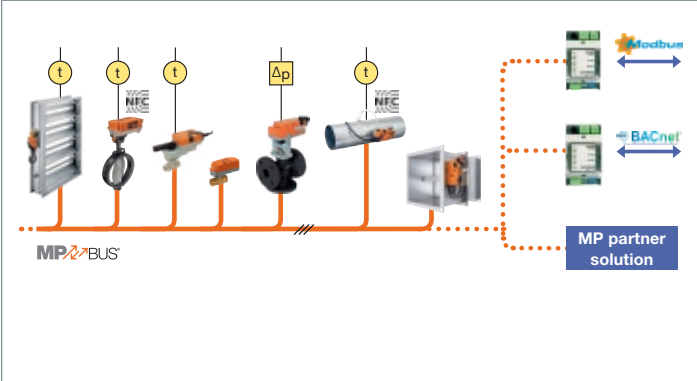
Product range	Types	Specifications	Applications
	Actuators <sup>1)</sup> : <ul style="list-style-type: none"> <li>• BEN (15 Nm)</li> <li>• BEE (25Nm)</li> <li>• BE (40 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Steel gearbox, form fit</li> <li>• 2 auxiliary switches</li> <li>• Halogen-free cables</li> <li>• Low current consumption in stand-by</li> <li>• 1-wire and 2-wire control</li> <li>• High holding torque</li> <li>• Fulfils specific requirements from EN 12101-8, EN 1366-10, EN 13501-4</li> <li>• Safety Position Lock™</li> </ul>	Motorisation of smoke control dampers in mechanical smoke extraction systems

<sup>1)</sup> The fire damper actuators and smoke control actuators are supplied exclusively to damper manufacturers.

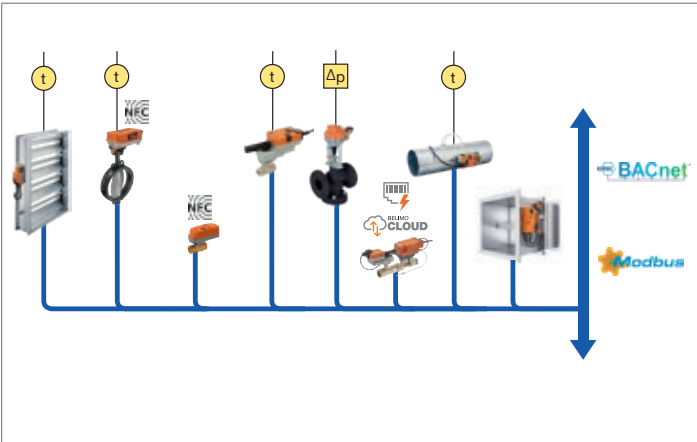


# Bus and system integration

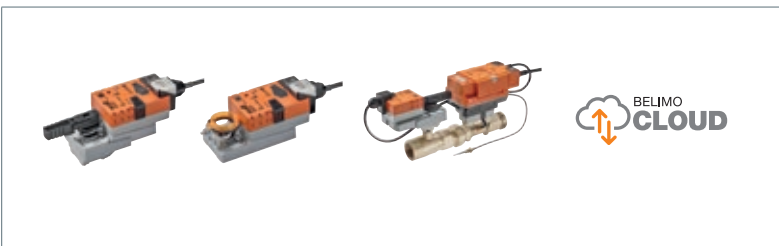
## Belimo MP-Bus

Product range	Applications
	<ul style="list-style-type: none"> <li>• Master-slave system, specially developed by Belimo for HVAC actuators and sensors</li> <li>• Up to 8 different control elements can be combined and together connected to a supervisory field bus system (BACnet, Modbus etc.)</li> <li>• One sensor can be connected per actuator</li> <li>• Either the Belimo gateways (UK24BAC, UK24MOD) or gateways and DDC controllers from other manufacturers can be used as the MP master</li> </ul>




## BACnet and Modbus

Product range	Applications
	<p><b>BACnet/Modbus actuators</b></p> <ul style="list-style-type: none"> <li>• Actuators with an RS485 interface can be connected directly to BACnet MS/TP or Modbus RTU</li> <li>• Actuators with Ethernet interface can be connected directly to BACnet IP or Modbus TCP. At the same time a connection with the Belimo Cloud is possible</li> <li>• The analogue control can be monitored and overridden via Bus in hybrid operation</li> <li>• Sensor can be connected to the actuator</li> <li>• EV...R2+... support Power over Ethernet (PoE)</li> </ul>

## IoT, Belimo Cloud



Product range	Applications
	<ul style="list-style-type: none"> <li>• Actuators with Ethernet interface can optionally exchange operating and setting data with Belimo Cloud</li> <li>• The monitoring and optimisation of the devices is made through a central access point</li> <li>• Open Client-API for the connection to specific Cloud solutions</li> </ul>

## Setting and service tools for parametrisable and communicative actuators and volumetric flow controllers


Type	Type	Type	Specifications
PC-Tool MFT-P 	Service tool ZTH EU / ZTH AP 	Smartphone App 	<ul style="list-style-type: none"> <li>• The right tool for every job</li> <li>• PC-Tool for convenient parametrisation, commissioning and maintenance of actuators and bus networks</li> <li>• Efficient setting of parameters with service tool ZTH EU / ZTH AP</li> <li>• Parametrisation of actuators with smartphone app, even when deenergised</li> </ul>

# Room and system solutions


## Room controller system solutions - VAV set

Product range	Types / performance classes	Specifications	Applications
	<p>VAV Controller:</p> <ul style="list-style-type: none"> <li>• LMV-BAC</li> </ul> <p>Room Unit/ Sensor:</p> <ul style="list-style-type: none"> <li>• ZE-SET</li> </ul>	<ul style="list-style-type: none"> <li>• NFC interface</li> <li>• Support Belimo Cloud</li> <li>• BACnet MS/TP</li> <li>• With AI for CO2 sensor</li> <li>• Standardized Control Application</li> </ul>	Design for CAV or VAV room control application
	<p>VAV Controller:</p> <ul style="list-style-type: none"> <li>• T24 controller</li> </ul> <p>Room Unit/ Sensor:</p> <ul style="list-style-type: none"> <li>• T24-MP</li> <li>• TG-R10000 (Optional)</li> </ul>	<ul style="list-style-type: none"> <li>• LCD display: blue backlight and built-in diagnostic socket RJ12</li> <li>• Built-in NTC type sensor</li> <li>• BACnet® / VAV Set</li> </ul>	Designed for VAV room control application, connect with open IP address directly.


## VAV-Compact controllers

Product range	Types / performance classes	Specifications	Applications
	<p>Rotary actuators:</p> <ul style="list-style-type: none"> <li>• LMV (5 Nm)</li> <li>• NMV (10 Nm)</li> <li>• SMV (20 Nm)</li> </ul> <p>Linear actuator:</p> <ul style="list-style-type: none"> <li>• LHV (150 N)</li> </ul>	<ul style="list-style-type: none"> <li>• Compact unit with sensor, controller and actuator</li> <li>• On-site operation with ZTH EU / ZTH AP or smartphone</li> <li>• Commissioning by means of PC-Tool, including trend function</li> <li>• Integration in MP-Bus®, BACnet, Modbus networks</li> </ul>	Control of VAV and CAV units for volumetric flow systems in buildings

## VAV-Universal solutions

Product range	Types / performance classes	Specifications	Applications
	<p>VAV-Universal controller:</p> <ul style="list-style-type: none"> <li>• VRU-D3-BAC with flow sensor 0...500 Pa</li> <li>• VRU-M1-BAC with diaphragm sensor 0...600 Pa</li> <li>• VRU-M1R-BAC with diaphragm sensor -75...75 Pa</li> </ul>	<ul style="list-style-type: none"> <li>• Controller with integrated sensor</li> <li>• Plug connection between the controller and actuator</li> <li>• Conventional control 0...10 V / 2...10 V</li> <li>• Integration in MP-Bus, BACnet or Modbus networks</li> </ul>	<ul style="list-style-type: none"> <li>• Volumetric flow VAV/CAV</li> <li>• Volumetric flow summation</li> <li>• Duct and room pressure</li> </ul>
	<p>Actuators:</p> <ul style="list-style-type: none"> <li>• LM/NM/SM24A-VST (5...20 Nm)</li> <li>• LMQ/NMQ24A-VST (very fast running actuator 4/8 Nm)</li> <li>• LF/NF/SF24A-VST (fail-safe 4/10/20 Nm)</li> <li>• NKQ24A-VST (fail-safe 6 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Plug connection</li> <li>• Running times starting from 2.5 s</li> </ul>	Use with VAV-Universal controller

## Room controller system solutions

Product range	Types / performance classes	Specifications	Applications
	<p>Room Unit:</p> <ul style="list-style-type: none"> <li>• EXT-T24-D201</li> <li>• CR24-B1/B2/B3/B2E</li> <li>• T24A1T</li> </ul> <p>Room Sensor:</p> <ul style="list-style-type: none"> <li>• TG-K340B</li> <li>• TG-A130B</li> </ul>	<ul style="list-style-type: none"> <li>• Modulating / on-off control</li> <li>• LCD display</li> </ul>	Single duct temperature control

# 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 worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

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



5-year warranty



On site around the globe



Complete product range



Tested quality



Short delivery times



Comprehensive support

