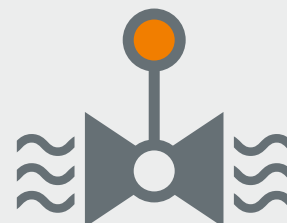


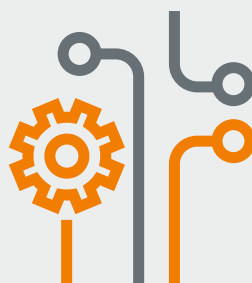
# The complete product range.



Actuators



Valves



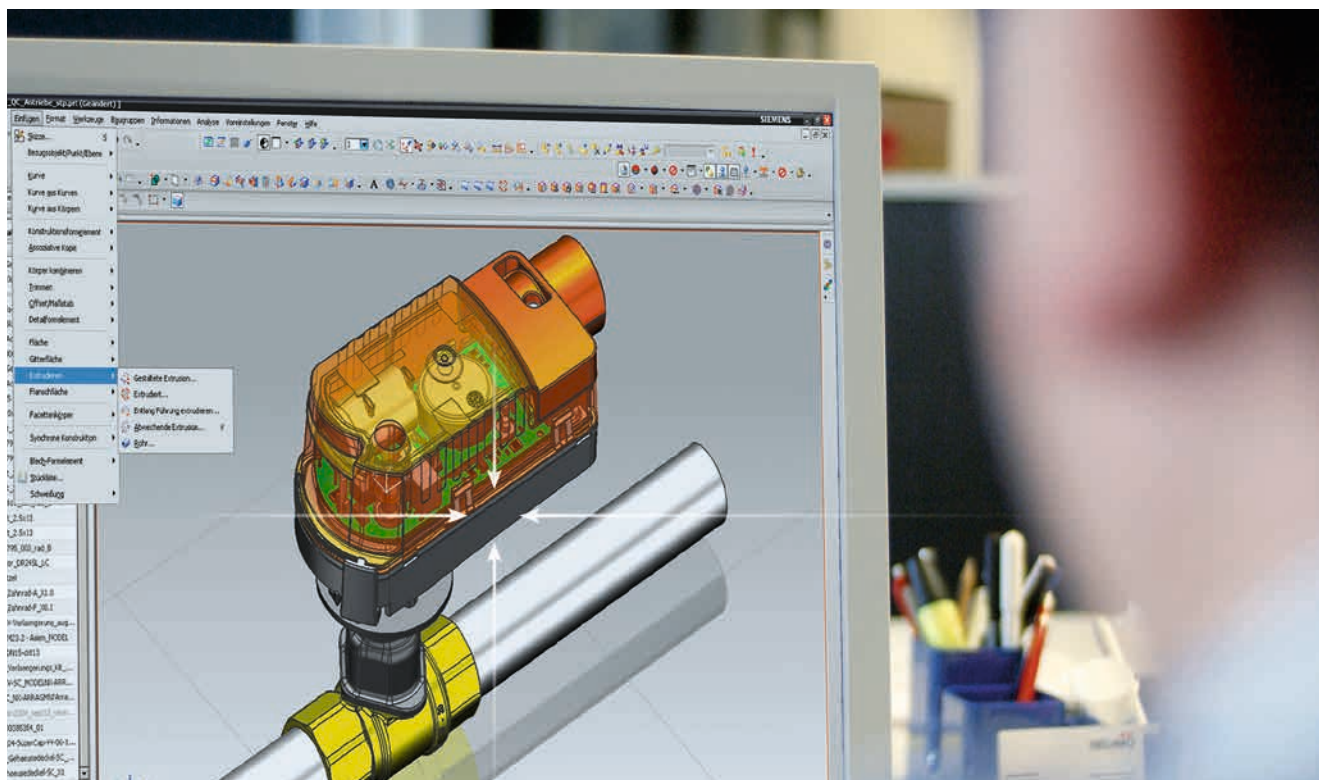
Systems



Retrofit

Edition 2017

# Comfort, efficiency, economic viability.



Around the globe, electric actuators and motorised valve solutions from Belimo help to deliver improved comfort, safety and energy efficiency – for example in buildings, research and production facilities, ships and public transport.

## Perfectly suited to any application

As a leading global supplier, Belimo has the perfect motorisation and valve solution for initial or replacement equipment for any application. The company's decades of experience and specialised know-how guarantee maximum reliability.

## Innovation ensures a competitive edge

Because Belimo isn't happy to rest on its laurels, the company invests more than others in research and development. This produces new gearbox shapes for smaller actuators but also efficient room and apartment ventilation systems, pioneering valve technologies and resource-saving networking solutions.

## Energy and cost savings

Intelligent actuator controls, air bubble tight valves with integrated electronic and web-based monitoring and analysis tools as well as compact ZoneTight™ valves – actuator and valve solutions from Belimo are key elements in the energy-optimised operation of HVAC systems.

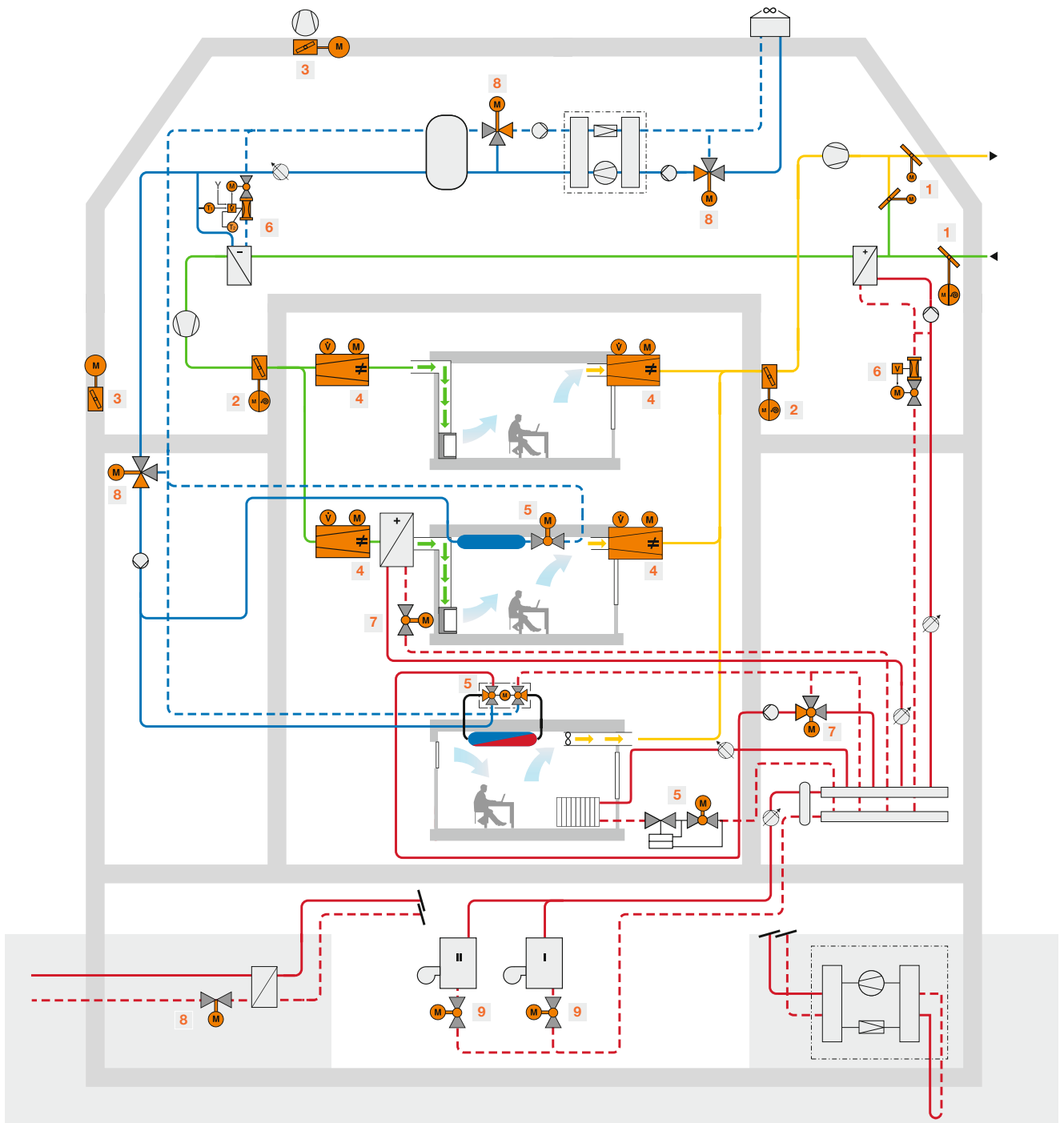
## Efficient planning and installation

Actuator solutions from Belimo are all based on a consistent installation and operating philosophy. This improves safety and simplifies the planning, installation, commissioning and maintenance of the systems.

## Quality and service

Actuators from Belimo are checked individually before delivery. This ensures their proverbial Swiss quality with a 5-year warranty. Belimo provides competent on-site consultancy, fast deliveries and comprehensive support as standard.

# Everything under one roof.



Example illustration


- |   |  |
|---|--|
| <p><b>Air</b></p> <ul style="list-style-type: none"> <li>1 Air damper actuators</li> <li>2 Fire damper actuators</li> <li>3 Smoke control actuators</li> <li>4 VAV-Compact/VAV-Universal</li> </ul> | <p><b>Water</b></p> <ul style="list-style-type: none"> <li>5 Zone valves</li> <li>6 Pressure-independent characterised control valves</li> <li>7 Characterised control valves</li> <li>8 Globe valves</li> <li>9 Butterfly valves</li> </ul> |
|---|--|






# Room and system solutions


## VAV-Compact controllers<sup>1)</sup>

Product range	Types / performance classes	Specifications	Applications
	Rotary actuators: <ul style="list-style-type: none"> <li>• LMV (5 Nm)</li> <li>• NMV (10 Nm)</li> <li>• SMV (20 Nm)</li> </ul> Linear actuator: <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 or smart phone</li> <li>• Commissioning by means of PC-Tool, including trend function</li> <li>• Integration in MP-Bus®, Modbus, KNX® or LonWorks® networks</li> </ul>	Control of VAV and CAV units for volumetric flow systems in buildings


## CMV system for living space solutions<sup>2)</sup>

Product range	Types / nominal diameters	Specifications	Applications
	<ul style="list-style-type: none"> <li>• CMV-100-MP (DN 100)</li> <li>• CMV-125-MP (DN 125)</li> <li>• CMV-150-MP (DN 150)</li> <li>• CMV-160-MP (DN 160)</li> </ul>	<ul style="list-style-type: none"> <li>• Compact unit with sensor, controller, actuator and damper blade</li> <li>• On-site operation with ZTH EU or PC-Tool</li> <li>• Integration in MP-Bus® networks</li> </ul>	Only for use in controlled residential ventilation applications


## VAV-Universal solutions<sup>1)</sup>

Product range	Types / performance classes	Specifications	Applications
	VAV-Universal controller: <ul style="list-style-type: none"> <li>• VRD3 with integrated sensor</li> <li>• VRP with external sensor</li> <li>• VRP-M with external sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Plug connections between sensor, controller and actuator</li> <li>• Wide array of periphery devices</li> <li>• Integration in MP-Bus® networks</li> </ul>	<ul style="list-style-type: none"> <li>• Control of VAV and CAV units in buildings</li> <li>• VAV laboratory applications</li> <li>• Pressure or volumetric flow</li> </ul>
	Pressure sensor: <ul style="list-style-type: none"> <li>• VFP (static 0...500 Pa)</li> <li>• VFD3 (dynamic 0...500 Pa)</li> </ul>	<ul style="list-style-type: none"> <li>• Plug connection</li> </ul>	<ul style="list-style-type: none"> <li>• For severely contaminated air or aggressive gases</li> <li>• Indoor air and comfort applications</li> </ul>
	Actuators: <ul style="list-style-type: none"> <li>• LM/NM/SM (5...20 Nm)</li> <li>• LMQ/NMQ (rapid-running 4/8 Nm)</li> <li>• LF/SF (spring-return 4/20 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

## Fan control

Product range	Types	Specifications	Applications
	<ul style="list-style-type: none"> <li>• COU24-A-MP</li> </ul>	<ul style="list-style-type: none"> <li>• MP-Bus® connection for VAV-Compact, VRP-M</li> <li>• 0...10 V FU output signal</li> <li>• Cascading</li> </ul>	System solution for energy-efficient control of frequency converter-controlled fans in VAV / CAV systems

## Room controller system solutions

Product range	Types / performance classes	Specifications	Applications
	Controllers: <ul style="list-style-type: none"> <li>• CR24 (room controller)</li> <li>• CRA24 (residential controller)</li> <li>• CRK24 (controller for 6-way characterised control valve)</li> </ul> Positioners: <ul style="list-style-type: none"> <li>• CRP24</li> </ul>	<ul style="list-style-type: none"> <li>• Complete solution</li> <li>• Energy-efficient (eu.bac-certified)</li> <li>• Tool plug on the unit</li> </ul>	<ul style="list-style-type: none"> <li>• Individual room controls in comfort zone</li> <li>• Setpoint specification</li> </ul>

<sup>1)</sup> Deliveries exclusively to manufacturers of volumetric flow units (except for communication and control units).

<sup>2)</sup> Deliveries exclusively to manufacturers of apparatus in residential ventilation.



# Actuator and valve solutions.



## **General air solutions:**

### **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, linear and full-rotation actuators with a wide range of motorisation levels and actuating times. The actuators cover almost all power requirements for the control of air flows in air-conditioning plants, from treatment and distribution to feedback and retreatment. The range also includes special actuators for indoor and outdoor use in extreme conditions and platforms for the implementation of individual actuator solutions by OEMs.



## **Water solutions:**

### **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. Thanks to permanent dynamic balancing, pressure-independent characterised control valves ensure the correct amount of water at all times; even in the case of changes in differential pressure and during partial load operation. The forward-looking 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. In limited-space installation situations, the zero-leaking valves from the Belimo ZoneTight™ product family are the ideal solution for energy-saving smooth room and zone control.



## **Retrofit applications:**

### **Giving new verve to old systems.**

For renovations in existing construction 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. The Retrofit globe valve and rotary actuators can be mounted on practically all conventional makes of valve in just a few steps. Handy VAV-Retrofit kits with controllers or actuators, pick-up devices and sensors are available for replacing defective or pneumatic VAV devices. In order to determine the right replacement actuators with ease, Belimo has developed a Retrofit app, which determines the right actuator on the basis of a wide range of parameters. The app can be used anywhere – on site or in the office.

# 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 air ducts is provided by the motorised fire dampers to form fire compartments. Mechanical smoke extraction systems with motorised smoke control dampers ensure low smoke levels in escape and rescue routes.



## **System protection:**

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

Actuators with an emergency control function protect the systems from damage caused by ice, water and steam. In mechanical emergency control actuators, the integrated spring package is triggered automatically and the damper closed in the event of electricity interruption. The SuperCap actuators with electrical emergency control function can bridge short voltage failures lasting up to 10 seconds and the emergency control positions can be defined individually. Unnecessary downtimes and inconvenience 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 LON, KNX, Modbus and BACnet interface are available for direct connections. MP actuators can be used to combine up to eight different final controlling elements into one MP-Bus<sup>®</sup> section and connect to virtually any supervisory system with greatly reduced wiring costs. Various adjustment and service tools simplify commissioning and monitoring.



## **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 VAV-Compact or VAV-Universal devices. Special, compact VAV control units are available for distribution boxes used in controlled residential ventilation. Eu.bac-certified room and residential controllers and Fan Optimiser system solutions improve comfort levels and reduce energy consumption.






# 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>• 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
	Communication and power supply units: <ul style="list-style-type: none"> <li>• BKN230-24</li> <li>• BKN230-24LON</li> <li>• BKN230-24MP</li> <li>• BKN230-24-C-MP</li> <li>• BKN230-24-MOD</li> <li>• BKN230-MOD</li> </ul>	<ul style="list-style-type: none"> <li>• Sockets for actuator</li> <li>• Status LED</li> <li>• Connection for additional smoke detector</li> <li>• Watchdog function</li> </ul>	Control and monitoring of various protocols: <ul style="list-style-type: none"> <li>• 2-wire bus line</li> <li>• Belimo MP-Bus®</li> <li>• Modbus</li> <li>• LonWorks®</li> </ul>
	Gateways: <ul style="list-style-type: none"> <li>• UK24MOD</li> <li>• UK24BAC</li> </ul>	<ul style="list-style-type: none"> <li>• Up to 8 dampers per gateway</li> <li>• Fault message</li> </ul>	<ul style="list-style-type: none"> <li>• Interface to BACnet MS/TP or to Modbus RTU</li> </ul>
	Communication and control units: <ul style="list-style-type: none"> <li>• BKS24-1B</li> <li>• BKS24-9A</li> </ul>	<ul style="list-style-type: none"> <li>• Permanent monitoring of power supply and damper position</li> <li>• Status LEDs               <ul style="list-style-type: none"> <li>– Open</li> <li>– Closed</li> <li>– Fault</li> </ul> </li> </ul>	Connection of 1 and up to 9 dampers: <ul style="list-style-type: none"> <li>• Star-shaped wiring</li> <li>• 2-wire bus line</li> <li>• Interface to building management system</li> <li>• Function test of fire protection actuators</li> </ul>

## Motorisation solutions for smoke control dampers

Product range	Types	Specifications	Applications
	Actuators <sup>1)</sup> : <ul style="list-style-type: none"> <li>• BLE (15 Nm)</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</li> </ul>	Motorisation of smoke control dampers in mechanical smoke extraction systems
	Communication and power supply unit: <ul style="list-style-type: none"> <li>• BKNE230-24</li> </ul>	<ul style="list-style-type: none"> <li>• Sockets for actuator</li> <li>• Status LED</li> <li>• Command memory</li> </ul>	Control and monitoring: <ul style="list-style-type: none"> <li>• 2-wire bus line</li> <li>• Local power supply AC 230V</li> </ul>
	Communication and control unit: <ul style="list-style-type: none"> <li>• BKSE24-6</li> </ul>	<ul style="list-style-type: none"> <li>• Permanent monitoring of the power supply and damper positions</li> <li>• Status LEDs               <ul style="list-style-type: none"> <li>– Open</li> <li>– Closed</li> <li>– Fault</li> </ul> </li> </ul>	Connection of up to 6 dampers: <ul style="list-style-type: none"> <li>• Star-shaped wiring</li> <li>• 2-wire bus line</li> <li>• Interface to building management system and fire alarm system</li> <li>• Function test of the smoke control actuators</li> </ul>




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







# General air solutions


## Rotary actuators without emergency control function

Product range	Types / performance classes	Specifications	Applications
	Standard actuators: <ul style="list-style-type: none"> <li>• TMC (2 Nm)</li> <li>• LM (5 Nm)</li> <li>• NM (10 Nm)</li> <li>• SM (20 Nm)</li> <li>• GM (40 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> </ul>	Motorisation of air dampers without emergency control function up to 8 m <sup>2</sup>
	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 emergency control function up to 0.4 m <sup>2</sup> in residential ventilation systems, underfloor air handling units, decentralised sill ventilation units, etc.
	Compact actuator with integrated damper blade: <ul style="list-style-type: none"> <li>• CM..D (2 Nm)</li> </ul>	<ul style="list-style-type: none"> <li>• Damper diameter 100, 125, 150 and 160 mm</li> <li>• Air tight in accordance with DIN EN 1751, Classes 3 and 2</li> <li>• Sound power level ≤35 dB(A)</li> <li>• Useable up to 1000 Pa max.</li> <li>• Running time 58 s/70°</li> </ul>	Motorisation of round air dampers without emergency control function up to DN 160 in residential ventilation systems, air distribution systems, after-flows, facade units, etc.

## Linear actuators without emergency control 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 emergency control 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 emergency control 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 emergency control 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>• 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 2.5 s/90°</li> </ul>	Motorisation of air dampers without emergency control 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 emergency control 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>	Motorisation of air dampers with and without emergency control function up to 4 m <sup>2</sup> in particularly exposed positions: <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 emergency control function for outdoor applications (IP66/NEMA4)

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> <p>Emergency control function: * mechanical ** electrical</p>	<ul style="list-style-type: none"> <li>• IP66/NEMA4, 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>	Motorisation of air dampers with and without emergency control function up to 8 m <sup>2</sup> : <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>



### Rotary actuators with mechanical emergency control 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 emergency control function up to 6 m<sup>2</sup></p>

### Rotary and linear actuators with controlled electrical emergency control function (SuperCap)

Product range	Types/performance classes	Specifications	Applications
	<p>Rotary actuators with emergency control 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> </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>Motorisation of air dampers with emergency control function up to 8 m<sup>2</sup></p>
	<p>Linear actuators with emergency control 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 emergency control function:</p> <ul style="list-style-type: none"> <li>• CM24K (2 Nm)</li> <li>• SKM230A (energy storage module)</li> </ul>		



# Water solutions

## 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 emergency control function: CQK24A (-SR)</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>Nominal diameter DN 15/20/ (25)</li> <li>Permissible pressure 1600 kPa</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>		
	Internal thread: <ul style="list-style-type: none"> <li>R30...-...-B2 (6-way, characterised control valve)</li> </ul>	<ul style="list-style-type: none"> <li>Integrated actuator</li> <li>Electronic flow measurement</li> <li>Permanent hydraulic balancing</li> </ul>	
	Internal thread (6-way EPIV): <ul style="list-style-type: none"> <li>EP..R-R6+BAC</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..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 electrical emergency control function: KBAC</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>Permissible pressure 1600 kPa</li> </ul>
	Flange (Belimo Energy Valve™): <ul style="list-style-type: none"> <li>P6..W..EV-BAC (2-way, DN 65..150)</li> <li>P6..W..EV-KBAC (2-way, DN 65..150)</li> </ul>		
	Internal thread (EPIV): <ul style="list-style-type: none"> <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>	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>Permissible pressure 1600 kPa</li> </ul>	
	Flange (EPIV): <ul style="list-style-type: none"> <li>P6..W..E-MP (2-way, DN 65..150)</li> <li>P6..W..E-KMP (2-way, DN 65..150)</li> <li>P6..W..E-MOD</li> </ul>		



### 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>	<ul style="list-style-type: none"> <li>• Rotary actuators: TR, LR, NR, SR series</li> <li>• With emergency control function: TRF, LRF, NRF(D), SRF series</li> <li>• Fast runners: TRC, LRC, NRC, SRC series</li> <li>• Very fast running actuators: LRQ, NRQ, SRQ series</li> <li>• KR.. to DN 20</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• Permissible pressure 1600 kPa</li> </ul>
	External thread: <ul style="list-style-type: none"> <li>• R4.. (2-way)</li> <li>• R5.. (3-way)</li> </ul>		Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 10...50</li> <li>• Permissible pressure 1600 kPa</li> </ul>
	External thread (high temperatures): <ul style="list-style-type: none"> <li>• R4..D (2-way)</li> </ul>		District heating, cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 10...20</li> <li>• Permissible pressure 1600 kPa</li> </ul>
	Flange: <ul style="list-style-type: none"> <li>• R6..R.. (2-way / PN6)</li> <li>• R7..R.. (3-way / PN6)</li> </ul>		Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• Permissible pressure 600 kPa</li> </ul>
	Flange: <ul style="list-style-type: none"> <li>• R6..W..-S8 (2-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: SR-5, GR-5 series</li> <li>• With emergency control function: SRF-5, GRK-5 series</li> <li>• Fast runners: SRC-5, GRC-5 series</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 65...150</li> <li>• Permissible pressure 1600 kPa</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>• Permissible pressure 1600 kPa</li> </ul>
External thread: <ul style="list-style-type: none"> <li>• R4.. (2-way)</li> <li>• R5.. (3-way)</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..(BL) (3-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators: TR, LR, NR, SR series</li> <li>• With emergency control function: TRF, LRF, NRF(D), 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>• Permissible pressure 1600 kPa</li> </ul>
	External thread: <ul style="list-style-type: none"> <li>• R4.. (2-way)</li> <li>• R5.. (3-way)</li> </ul>		



## Potable water valves

Product range	Valves	Actuators	Applications
	<ul style="list-style-type: none"> <li>• EXT-R2 (2-way)</li> <li>• DVGW, ACS, WRAS certified</li> </ul>	<ul style="list-style-type: none"> <li>• Rotary actuators NR, SR, GR series</li> <li>• With emergency control function: NRF, SRF, GRK series</li> </ul>	Potable water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• Permissible pressure 1000 kPa</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 emergency control function: SRF-5, GRK-5, DRK, PRK series</li> </ul> Optional: <ul style="list-style-type: none"> <li>• Heating with humidistat / thermostat</li> <li>• Integrated auxiliary switch or potentiometer</li> </ul>	Shutting cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 25...700</li> </ul>

## Globe valves

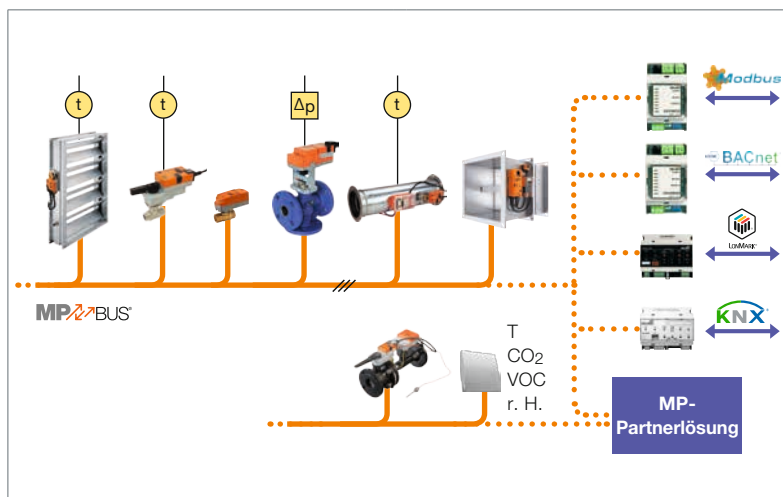
Product range	Valves	Actuators	Applications	
 	External thread: <ul style="list-style-type: none"> <li>• H4..B (2-way)</li> <li>• H5..B (3-way)</li> </ul>	<ul style="list-style-type: none"> <li>• Standard globe valve actuators: LV..A (15 mm), NV..A, SV..A (20 mm), EV..A, RV..A (40 mm)</li> <li>• Globe valve actuators with emergency control function: NVK..A, SVK..A (20 mm), AVK..A (32 mm), NVFT (20 mm, TÜV certification)</li> <li>• Fast runners: LVC..A (15 mm), NVC..A, SVC..A (20 mm), EVC..A (40 mm)</li> <li>• Long stroke actuators: GV (65 mm)</li> </ul>	Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...50</li> <li>• Permissible pressure 1600 kPa</li> </ul>	
	Flange: <ul style="list-style-type: none"> <li>• H6..N/H7..N (2-way and 3-way/PN16)</li> <li>• H6..S(P) (2-way/PN16) for hot water and steam</li> <li>• H6..W/H7..W (2-way and 3-way/PN16), DN 200/250</li> </ul>			Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...250</li> <li>• Permissible pressure 1600 kPa</li> </ul>
	Additional flange versions: <ul style="list-style-type: none"> <li>• H..R (2-way and 3-way/PN6)</li> <li>• H..X.. (2-way and 3-way/PN25)</li> <li>• H..Y.. (3-way/PN40)</li> </ul>			Cold and hot water: <ul style="list-style-type: none"> <li>• Nominal diameters DN 15...100</li> <li>• Permissible pressure 600 kPa</li> <li>• Permissible pressure 2500 kPa</li> <li>• Permissible pressure 4000 kPa</li> </ul>



# Bus and system integration

## Belimo MP-Bus®

### Product range

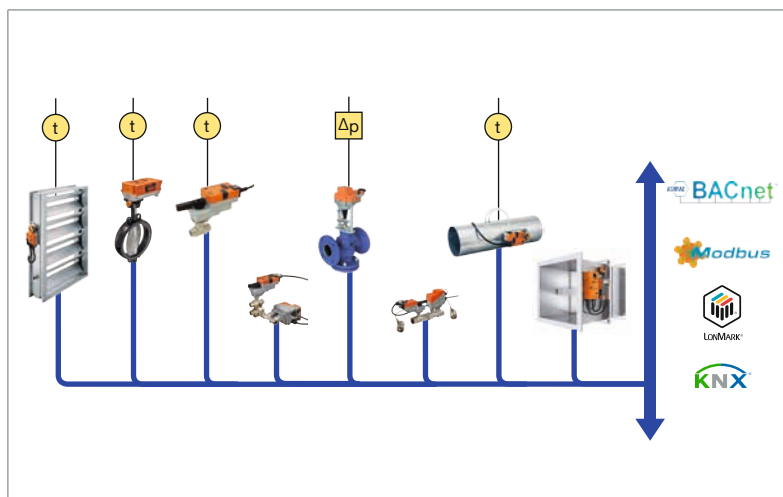


### Applications

- Master-slave system, specially developed by Belimo for HVAC actuators and sensors
- Up to 8 different final controlling elements (dampers, valves, VAV controllers) can be combined and together connected to a supervisory field bus system (LONWORKS®, BACnet, KNX, Ethernet TCP/IP, Modbus RTU, Profibus, etc.)
- Either the Belimo gateways (UK24LON, UK24EIB, UK24MOD, UK24BAC) or gateways and DDC controllers from other manufacturers with an MP interface can be used as the MP master
- One sensor can be connected per actuator

## Modbus RTU, LonWORKS®, KNX® and BACnet®

### Product range



### Applications

#### BACnet actuators

- Actuators can be connected directly to BACnet MS/TP and/or BACnet IP

#### Modbus actuators

- Actuators can be connected directly to Modbus RTU (RS485)
- One sensor can be connected per actuator

#### LON actuators

- LONMARK®-certified actuators with integrated FTT-10A transceiver
- One sensor can be connected per actuator

#### KNX actuators

- Actuators can be connected directly to KNX (S-Mode)
- One sensor can be connected per actuator

## Adjustment and service tools.

For parameterisable and communicative actuators and volumetric flow controllers

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



# Retrofit applications

## Retrofit general air solutions: actuators without emergency control 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...20 V 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 emergency control 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>	<p>Motorisation of globe valves with nominal diameters DN 15...150</p>

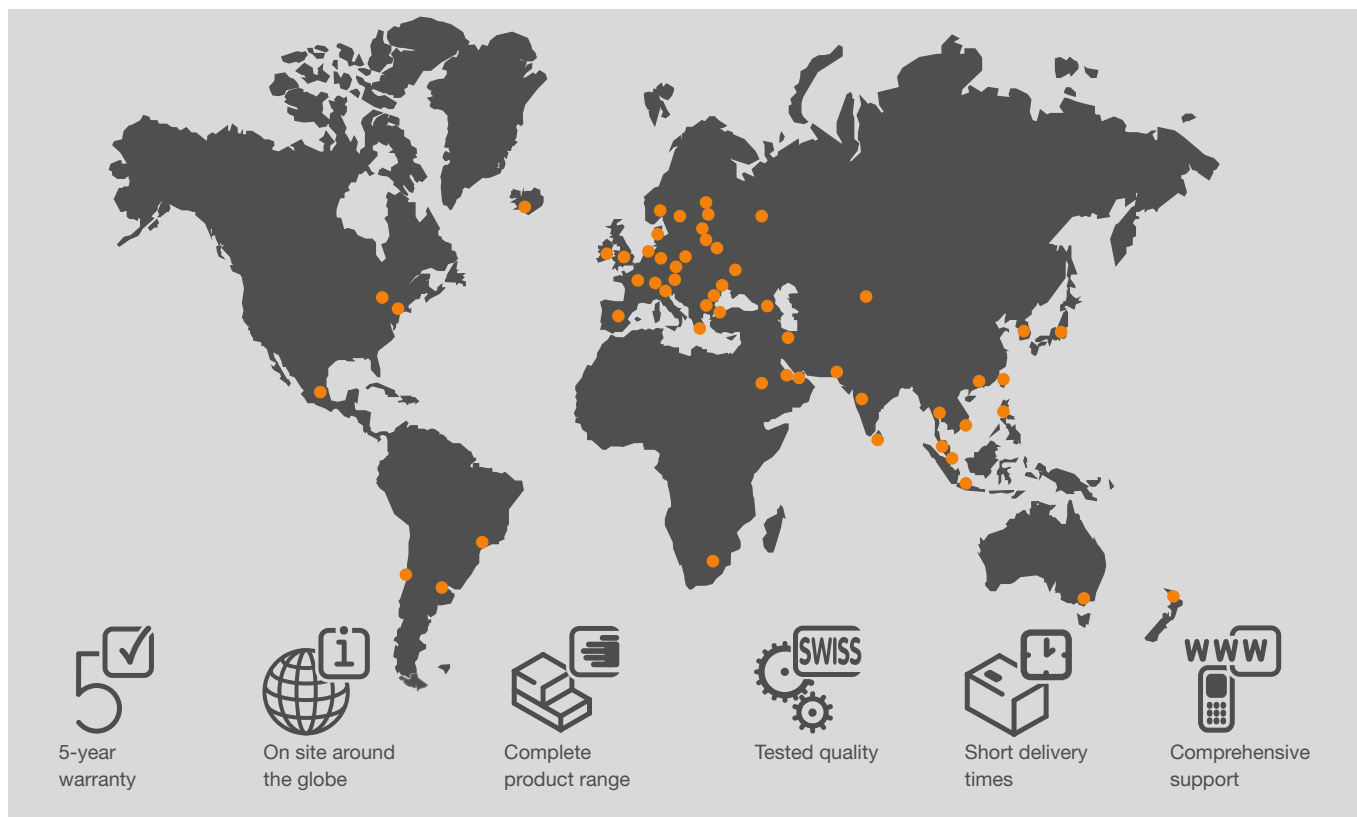
## Retrofit water solutions: rotary valve actuators

Product range	Valves	Actuators	Applications
	<p>For rotary valves from various manufacturers:</p> <ul style="list-style-type: none"> <li>Ball valves</li> <li>Open-close 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 90 Nm) with adapter (square, flat head, wedge etc.)</li> <li>With emergency control function: SRF-R and GRK-R, PRK (up to 40 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 700: 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>

# All-inclusive.



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