

More Belimo highlights:

Ideas for the whole field of HVAC actuators

(Module 1: Introduction)

When anyone says “Belimo” they are usually referring to the actuators that operate the dampers and valves used in heating, ventilating and air-conditioning systems. And equating the two is not really so far from the truth because, for more than 25 years, the company that bears that famous name has been a constant pacesetter when it comes to establishing world standards in the HVAC industry. The latest developments to come out of Belimo’s stable are once again putting real ideas into proper perspective for the experts in the field when it comes to the planning and execution of functional, economic and safe HVAC actuator solutions.

When Belimo produced the first direct-coupled damper motor in 1975 it triggered a major revolution. Not only was the device extremely space-saving but it was also easier to install and cheaper than the usual devices that were being used to operate air control dampers at that time. No wonder then that the new principle quickly developed into the “state-of-the-art” for the whole industry in only a few years. A presence in over 50 countries of the world, strong and efficient customer-based service and the widest possible range of products of any comparable manufacturer have raised Belimo – the highly innovative company with headquarters in Wetzikon near Zürich in Switzerland – to its present position of undisputed world market-leader in this specialised field.

(Module 2: MFT-Bus)

Intelligent actuators with a bus link

As with all innovations from Belimo the primary basic idea behind the development of Multi-Function-Technology (MFT) is to make things simpler. From 2002 onwards there will be MFT types available in almost all the company’s ranges of actuators for air and water applications. Their digital control system will allow each actuator in a system to be set up individually – either before they leave the factory or by means of a parameter assignment device or PC on the customer’s premises or on-site. Parameters that have been assigned to existing devices can be copied using the “Copy-Paste” method and passed on to other MFT actuators. The whole thing

makes so much good sense for planners, system contractors and service engineers. Instead of having to evaluate and purchase a specific actuator for each different application it is now sufficient to have just a few basic types of MFT devices to satisfy almost every need.

Doing their normal daily job in the systems in which they have been installed offers MFT actuators yet another opportunity to demonstrate their many outstanding advantages. When they are linked to a control centre they can not only be controlled and operated from there but can also monitor themselves and their dampers as well as providing feedback messages on status and possible defects. They also have a bus capability. Up to 8 different damper actuators and valve actuators can be connected to the MP-Bus that is incorporated into the unit and then be linked over an interface with an MP-Bus capability or through a Belimo UK24LON universal interface unit to a LON[®] bus system. This solution offers not just greater functionality but is also extremely cost-effective – partly because the wiring system is very simple and partly because an analogue or digital sensor or switch for each actuator can be incorporated into the bus at the same time.

Fig. 1: MFT-Bus

(Module 3: Fire protection)

Keeping safety up-to-date

Ever since it was founded the Belimo company has had the words “Safety and Comfort in Air-conditioned Buildings” written on its flags. It was also the first manufacturer to start offering special spring-return actuators for fire protection.

In order to prevent flames and smoke from a fire spreading into the ventilation system of a building, special fire protection dampers are installed in the ventilation ducting where it passes through fire walls. In the event of an emergency the dampers must close automatically and remain tightly sealed. Motorized fire dampers are “state of the art” now. They can also be linked to smoke detectors so that they can be closed very much sooner – as soon as smoke starts forming.

Motorized operation also makes monitoring and the essential, legally-prescribed functional checks much easier. Whereas, with manual dampers, test-closings can only be performed locally because of the fusible links and the spring pre-tensioning – and they are time-consuming too – motorized fire protection dampers can be triggered from a central point at any time and then be run back to their safe position afterwards. The Belimo SBS-Control system also provides continuous monitoring.

Not only does it signal any faults that might occur but also permits the simple connection of up to 9 fire protection dampers to a master control centre.

This year Belimo plans to introduce new, bus-capability fire protection actuators called BF-TOP LINE. The actuators will have digital intelligence which will allow them to be linked very easily to a LON[®] bus system so that they can be integrated into almost any kind of system. Bus solutions bring about an enormous reduction in the amount of cabling and wiring required, which not only cuts costs but also improves safety still further because electric cable and wire releases large quantities of poisonous gases when exposed to fire.

Fig. 2: Fire protection

(Module 4: Smoke extraction)

Efficient smoke extraction improves occupant safety

In all major fire catastrophes that have occurred over the past ten years the main cause of death has always been smoke and fumes. This is why increasing numbers of complex, high-occupancy buildings such as tower blocks, shopping centres, hospitals, residential care homes, etc. are being equipped with special, system-controlled smoke and heat extraction systems. A sophisticated arrangement of dampers works in conjunction with fans to remove smoke and any hot, poisonous fumes as effectively as possible and then to replace them with fresh air. As a result, escape routes are kept free in an emergency and the fire brigade and other rescuers can have access to the problem areas for very much longer.

Smoke extraction dampers in particular make exceptionally severe demands on the motorized actuators that operate them. Belimo smoke extraction actuators are able to satisfy those demands by having a strong steel construction and two safe position (OPEN and CLOSED). They also possess the fast running times that are specified and high output-torque and holding-torque ratings. By means of the SBSE-Control system of communication and control that has been designed specifically for smoke extraction, up to 6 smoke extraction dampers can be controlled and monitored, as well as being linked to a master control system. The SBSE-Control system also provides continuous monitoring of the power supply and immediately signals any faults to the control centre.

Fig. 3: Smoke extraction system

(Module 5: VAV-Compact)

More comfort from less energy

Comfortable air conditions in a room promotes a feeling of well-being in the occupants and also has a positive effect on their working performance. Belimo air volume control systems - comprising damper actuator, sensor and controller - allows the air supply and return for each individual room to be controlled cost-effectively and individually, as well as helping to reduce energy consumption.

The latest generation of VAV-Compact actuators NMV-D2M combines all these components in a single compact unit which is also equipped with intelligent actuator control (MFT Multi-Function-Technology) and the MP-Bus system. It allows the devices to be set up precisely to suit the needs of the installation and the temperature sensors, switches, etc. to be integrated cost-effectively into the room air control system or a LON[®] bus system. One particularly smart detail is the new diagnostic socket which enables the direct connection of various Belimo parameter assignment tools (the MFT-H manual device or the Notebook) so that the equipment can be tested and readjusted if necessary.

Fig. 4: VAV-Compact

(Module 6: Valve solutions)

Innovative solutions for HVAC valves

Belimo has been offering motorized valves for ventilation and heating systems for several years. These new products are yet another way in which investors and operators are able to cut costs:

- Thanks to its unique characterizing disk the revolutionary control ball valve is able to offer the same excellent control characteristics as the much larger and more expensive globe valve. Its compact construction also means that it takes up less space and can be installed more easily and more quickly.
- The bus-capability valve actuators with intelligent control optimise the operation of conventional globe valves. They are offered together with a carefully-selected range of high-quality valves as ready-to-install units.
- The new SuperCompact control valve possesses not only first-class control characteristics, thanks to its very advanced method of motorized operation, but also saves a substantial amount of space compared with conventional globe valves, as well as being considerably lighter.

- Belimo valve actuators with intelligent actuator control are also available for retrofitting. By means of special brackets they can be mounted both cheaply and quickly on existing valves of various leading makes.

Fig. 5: Control ball valve

Fig. 6: VAV-Compact control valve

(Module 7: Service and digital media)

Together to the top

Belimo's principal corporate "vision" gives rise to a clearly formulated aim which lays down that customers should receive maximum benefit through top-class technology, service and consultancy. It is an approach that brings success to both sides of the equation as well as allowing the two parties to share the climb towards new peaks of achievement.

In addition to leadership in innovation this approach demands from Belimo real proximity to the market combined with an extensive system of consultancy and information. Consequently, the company's new digital catalogue on CD-ROM and the Internet has allowed it to pass yet another major milestone - thanks to a simple but highly effective navigation system it is possible to call up any amount of technical data on any product in several languages (in pdf file format) both simply and quickly. Design aids and an electronic shopping basket facilitate evaluation and ordering. A ground-breaking E-Business solution is also currently under development. Through this very substantial investment in the area of electronic communications Belimo is showing that it is in the business of opening the eyes of all its customers, at whatever level, to exciting new perspectives on the process of planning and executing HVAC actuator solutions.

Fig. 7: CD Catalogue

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Fig. PR02L_1: MFT-Bus

Belimo MFT actuators can be linked into higher-level bus systems very easily and cheaply



Fig 2 PR02L_2: Fire protection

Belimo motorized fire dampers and actuators improve safety in air-conditioned buildings



Bild PR02L_3: Entrauchung

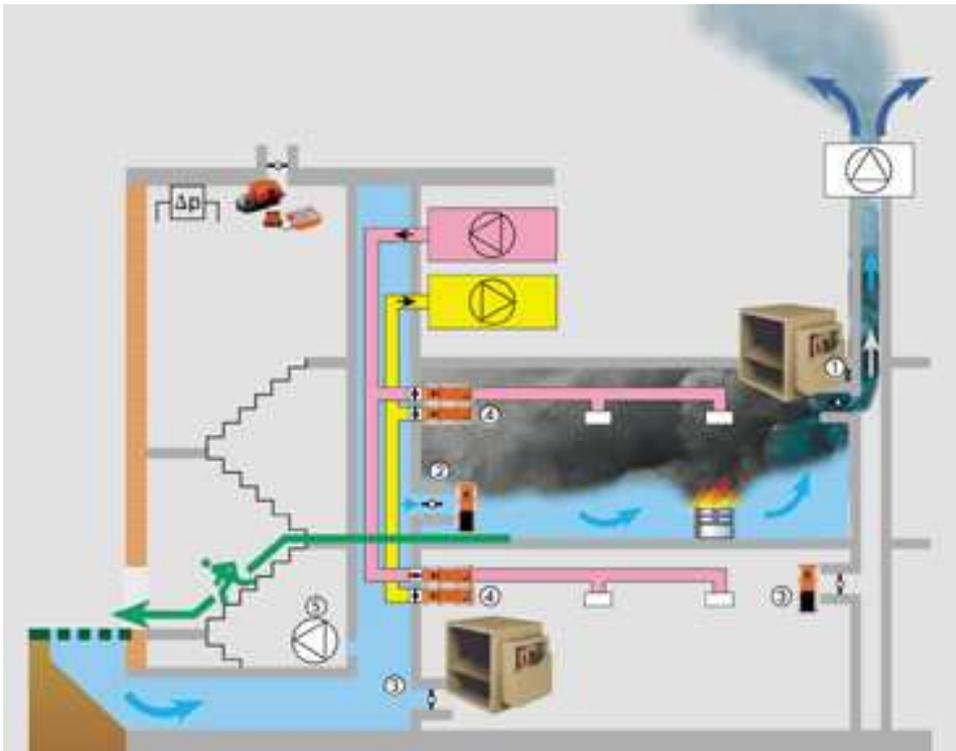


Fig. PR02L_3: Smoke extraction

Principle of the smoke and heat extraction system with motorized smoke dampers:

- (1) The smoke extraction damper is opened so that the fan can remove smoke and poisonous gases*
- (2) A second smoke extraction damper allows fresh air to flow in*
- (3) The smoke extraction dampers in the other rooms remain closed so that smoke and fumes cannot gain entry to them through the extraction ducting*
- (4) Motorized fire protection dampers prevent the spread of fire and smoke*
- (5) Positive pressure ventilation*

Fig. PR02L_4: VAV

The compact Type NMV-D2M VAV-Compact air volume controller showing its new diagnostic socket



Fig. PR02L_5: Regelkugelhahn

The revolutionary Belimo control ball valve with its unique characterizing disc producing an equal-percentage valve characteristic



Fig. PR02L_6: SuperCompact-Regelventil:
The extremely slim and lightweight Belimo SuperCompact control valve with intelligent linear actuator



Fig. PR02L_7: CD-Katalog
Belimo's new CD-ROM catalogue sets higher standards in the distribution of information to the HVAC industry

