Photo: Isabell Munck

SUCCES STORY GENO-HAUS, STUTTGART

Business as usual during energy-saving upgrades of induction units.

HVAC upgrades with zone valves from Belimo

Around 1,200 induction units have been replaced in the GENO-Haus building in Stuttgart and 2,342 QCV (Quick Compact Valve) tight-seal zone valves have been fitted into the cold water and hot water circuits in these units. The building, which was constructed in 1970, was converted on a storey-by-storey basis without interrupting business activities, and therefore there was only minimal disruption to the employees working in the building. The new induction units now control the Belimo water side characterised control valves. This system is significantly more efficient than the old solution that featured pneumatically operated air damper actuators, now only the heating and cooling energy that is actually required is provided.

TYPE OF BUILDING
Office building

PROJECT
Renovation

SECTOR
Heating, ventilation and air conditioning (HVAC)

PRODUCTS
Quick Compact Valves (QCV)

BELIMO

Requirements.

Initial situation

The reason for this upgrade were the two 40-year-old air handling units, which had a combined output of 110,000 m³/h. They needed to be replaced in order to comply with VDI (Association of German Engineers) Guideline 6022 and additionally fitted with a heat recovery system based on EnEV 2009 (German Energy Saving Ordinance). Two new energy-efficient units, each with a capacity of 39,000 m³/h, have therefore already been installed with a third to follow in 2015.

Project requirements

- The entire HVAC system is being converted from high-pressure induction to low-pressure induction.
- Only the cooling or heating energy that is actually required is supplied.
- The units will be converted on a storey-by-storey and zone-by-zone basis in the shortest period possible so as to avoid economic disadvantages for owners and tenants.

Belimo solution

GENO-Haus in Stuttgart decided on the QCV from the Belimo ZoneTight™ family based on its long-term leak-tightness, precise controllability and excellent energy balance. The new LTG induction units with needs-based ventilation (type HFVsf), like previous units, function in a four-line system. The variable and significantly reduced air volume of 30–50 m³/h is now, however, regulated via nozzles, which are adjusted by an electrical, space-saving linear actuator (CH 24-SX-R40) developed by Belimo specifically for this application. At the same time, the cold water and hot water intake is supplied precisely by the motorised, compact and energy-dense QCVs. High pressure losses and the mixing of hot and cold water are now a thing of the past in the GENO-Haus building. The new induction unit system now controls the water side Belimo characterised control valves. It is significantly more efficient than the old technology that featured pneumatically operated air damper actuators because now only the heating and cooling energy that is actually required is provided. The existing high-pressure induction could therefore be converted to low-pressure and new energy-efficient, frequency-controlled pumps now work in the background.

"When it comes to room climate, employee satisfaction is our top priority."

Dipl. Ing. Uwe Peters, Managing Director GENO-Haus Stuttgart GmbH & Co. KG

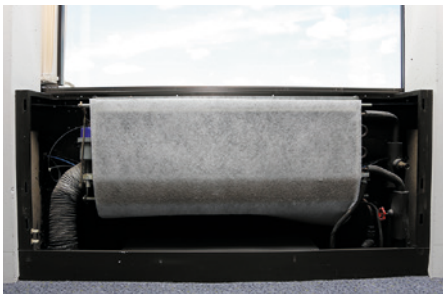
Result.

Customer benefit

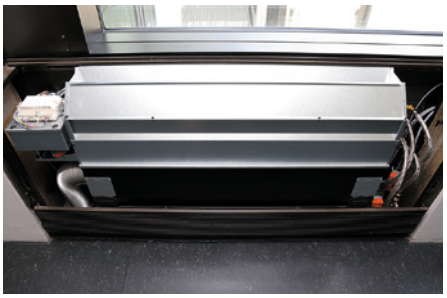
- Using seal-tight and wear-resistant QCVs means each room is only provided with the required heating and cooling energy and energy losses resulting from leakages are effectively and permanently prevented.
- The Belimo actuators not only allow the user to set the desired kvs precisely, but also reduce electrical energy consumption.
- The compressed air station which was previously required for pneumatic actuators can be dismantled and completely removed at a later date.
- Energy monitoring systems using the newly installed energy meters are already showing a significant reduction in the electrical, heating and cooling energy consumption.
- The employees have expressed a positive reaction to the improved room climate and increased comfort in the workplace.

Customer satisfaction

One year on, Dipl. Ing. Uwe Peters, Managing Director of GENO-Haus Stuttgart GmbH & Co. KG, confirmed that they made the right decision to use the quality products from Belimo: “When it comes to room climate, employee satisfaction is our top priority. So on this basis, the only logical choice was to fit the 1,171 induction units with Belimo actuators and characterised control valves. The actuators generate practically no noise while operating and feature excellent control accuracy. The ball lock is also very resistant, only uses power when changing state and supplies the required, adjustable kvs value for hydraulic balancing across the entire system. The excellent functional safety therefore reduces user complaints and, as a result, the operating expenses and costs.”



Old unit



New units regulated on the primary air side

New units regulated on the water side

All inclusive.

Belimo is the global market leader in the development, production, and sales of field devices for the energy-efficient control of heating, ventilation and air-conditioning systems. The focus of our core business is on damper actuators, control valves, sensors and meters.

Always focusing on customer 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

EN – 12.2024 – Subject to technical modifications

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