



Retrofit of over 700 globe valve actuators in Fortum's district heating substations

Convenient modernisation to achieve highest reliability and safety

Fortum Power & Heat is a leading clean-energy company that provides electricity, heating and cooling as well as smart solutions to improve resource efficiency. Having produced 28 TWh in 2016, Fortum is one of the largest heat producers globally. In Poland, one of the core markets, Fortum runs over 800 km of district heating networks that serve around 360 000 households. In Wrocław alone, the largest city of western Poland, there are approximately 520 km with 5 200 district heating substations in operation of which 3 500 are owned by Fortum. In 2014, the decision was made to start modernising these substations. Aiming for highest reliability, Fortum chose retrofit globe valve actuators with electrical emergency control function (SuperCap) from Belimo.

Building type	District heating substations
Project type	Renovation / retrofit
Trade	HVAC
Products	> 700 retrofit globe valve actuators

Updating over 350 district heating substations

Each of the 3 500 substations contains one actuator for potable water and one for the heating. An increasing number of these actuators were causing problems as they were nearing the end of their lifecycle. In 2014, the time was right to start updating the problematic parts. Tomasz Artyszuk, District Heating Manager at Fortum for over 10 years and with more than 20 years of HVAC experience, took the opportunity to invest in advanced technology, ensuring safe operation for many years to come. He drew up the plan to upgrade over 350 district heating substations in Wrocław within two years, with the aim to replace around 50 old actuators every successive year. Tomasz trusted Belimo with this project because of the high reliability and 5-year warranty, which he had come to appreciate over the years.

Project requirements

- Highest reliability and a safe operation were made top priority
- Installation of the new actuators should be possible without adjustments to the existing valves
- One unified solution suitable for all substations should be defined

Flexible solution from Belimo

The NVKC24A-MP-RE globe valve actuator from Belimo incorporates a simple and clever concept. Equipped with the revolutionary universal valve stem and valve neck adapters, it is suitable for use with virtually any existing globe valve. The installation is simple and quick, without the need of any additional adaptations. This enabled Fortum to replace worn-out actuators of several different manufacturers with the same actuator from Belimo. Where required, small parameter adjustments were done using the convenient service tool ZTH EU from Belimo, for example to switch the control signal between 0.5...10 V and 2...10 V. Furthermore, the compact actuator was equipped with SuperCaps, which are light and fast capacitors serving as electrical emergency control in case of a power failure. The SuperCap function ensures that the actuator automatically takes on a presettable emergency position, producing a fixed

flow rate after a short setting time. This ensures compliance with the maximum potable water temperature to protect the users.

Investing in the future pays off

- High reliability thanks to the actuator technology based on the tried and tested rotary actuators from Belimo
- Easy replacement of various existing actuators due to the universal valve stem and valve neck adaption for third-party valves
- Increased safety at lower costs with the SuperCap emergency control function, providing high and constant performance at low energy consumption
- Minimal, simplified maintenance by having one long-lasting solution suitable for all district heating substations



One of the heating stations equipped with globe valve actuators from Belimo

High expectations of reliability fulfilled

Tomasz Artyszuk, District Heating Manager at Fortum in Wrocław, is very satisfied with the solution from Belimo: "We made good experiences with the actuators NVKC24A-MP-RE. We have been using them for three years now and we benefit from the upgrade to these devices." Having in mind that high reliability was given top priority at the beginning of this project, he adds: "The most important thing is: three years of virtually failure-free operation. The failure rate in three years of use was the lowest we have ever had for the total of 3 500 owned heating substations."

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BELIMO Automation AG, Brunnenbachstrasse 1, CH-8340 Hinwil
Tel. +41 (0)43 843 61 11, Fax +41 (0)43 843 62 68, info@belimo.ch

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