



BUTTERFLY VALVE ACTUATOR RETROFIT

## University of Oregon's Football Complex Runs at Maximum Efficiency

### Hatfield-Dowlin complex is committed to occupant comfort

Built in 2013, the University of Oregon's (UofO) Hatfield-Dowlin Complex in Eugene is one of the most advanced sports facilities in the world. The six-story, \$63 million building, donated by Nike founder (and Oregon alumnus) Phil Knight and his wife Penny, features 142,000 square feet of meeting space, locker rooms, offices, lounges, and auditoriums, along with a cafeteria and state-of-the-art football fitness center. Since the complex was commissioned, facilities personnel at UofO have been focused on continuously enhancing efficiency and improving occupant comfort by leveraging the latest and greatest building technologies. The most recent example of this occurred in the winter of 2017 with the installation of six Belimo PR Series butterfly valve actuators.

#### TYPE OF BUILDING

Sports Complex

#### PROJECT

Retrofit / Renovation

#### SECTOR

HVAC

#### PRODUCTS

Advanced Butterfly Valve Actuator

**BELIMO**<sup>®</sup>

# Actuator provides reliable integration of chilled water and waterside economizer

## Facility Overview and Initial Situation

The chilled water plant for the Hatfield-Dowlin sports complex features two 500-ton chillers and two cooling towers that provide chilled water to 10 air handling units that serve the 142,000 square foot facility. Depending on outside air temperature and cooling demand, the plant is capable of operating in different modes.

When outside air temperature is at or below 63°F, the complex utilizes a free cooling loop. In this mode, cooling is achieved through use of a waterside economizer in conjunction with cooling towers. When free cooling is not sufficient to meet demand, one or both of the chillers can be brought online. Switching between modes is achieved through the opening and closing of butterfly valves.

In 2015, two years after being commissioned, facilities personnel at the Hatfield-Dowlin complex began experiencing problems with the chilled water loop. A closer examination revealed that the actuators, which controlled the opening and closing of butterfly valves, were becoming stuck. In addition to providing reliable switching between cooling modes, the inoperable actuators resulted in inefficient plant operation, which increased energy consumption. To address this problem, the HVAC group at the sports complex turned to Belimo.

## Project Requirements

The main goal of the project centered on improving the reliability of the butterfly valves and reducing total energy consumption in the building. Specific requirements were as follows:

- Adopt a cutting-edge solution that would enable fast, efficient, and reliable switching between cooling modes
- Improve energy efficiency by optimizing waterside economizing in accordance with outside air temperature and building occupancy
- Improve occupant comfort



“In addition to improving butterfly valve operability and alleviating the problems we were having with our cooling system, the installation of Belimo PR Series actuators increased efficiency and enabled us to fulfill our goal of keeping the Hatfield-Dowlin complex on the cutting-edge of technology.”

**Nathan Talley, Football Operations HDC  
System Manager, University of Oregon**

## Belimo Solution

Belimo's solution for the Hatfield-Dowlin complex involved retrofitting six butterfly valves (two 6" valves and four 8" valves) with state-of-the-art PR series actuators. The next-generation PR actuators feature a self-adjusting design that guarantees reliable operation. The retrofit enabled quick and efficient switching between cooling modes in the HVAC plant. The functionality of the actuator's hand crank was also advantageous, as it allowed for manual cycling of the valves during installation.

"After discussing a number of possible options with Nathan Talley, the Football Operations HDC System Manager at the University of Oregon, we agreed to go ahead with the installation of the PR series actuators. The actuators proved to be an ideal solution, as they guaranteed reliable operation of butterfly valves and improved energy efficiency – both of which were key goals of the facility's HVAC team," said Hush Tahir, District Sales Manager at Belimo.

Installation and retrofit of the actuators was performed by Robert Lloyd Sheet Metal (RLSM) and was completed in less than a day. "The installation of the actuators was a straightforward process", said Eric Forbes, Service Technician at RLSM. "The wiring compartment in particular is a tremendous improvement."

## Customer Benefits

- Reliable operation through intelligent self-adjusting valve design – enabling fast and efficient switching between building modes so that cooling could be matched with outside air temperature and building occupancy
- Easy installation due to lower overall height and reduced weight of the actuator
- Quick programming adjustments to running time and provides fast diagnostics with Near Field Communication (NFC) actuator with a smartphone
- 80% energy saving with patented brushless DC motor technology reduces transformer and wiring costs



### PR ACTUATOR FEATURES

The most intelligent butterfly valve actuator on the market

- Near Field Communication (NFC) allows fast programming, commissioning and troubleshooting. Even when the actuator is not powered it can be programmed
- Intelligent self-adjusting end stops ensure an easy installation, less commissioning effort and adapts over the entire lifespan of the valve
- Manual override to desired valve position using detachable hand crank whether the actuator is off or powered on. Valve position is maintained until hand crank is removed

# Reliable actuators foster peace of mind



## Customer Satisfaction

"In addition to improving butterfly valve operability and alleviating the problems we were having with our cooling system, the installation of Belimo PR Series actuators increased efficiency and enabled us to fulfill our goal of keeping the Hatfield-Dowlin complex on the cutting-edge of technology. Belimo stood by us throughout the duration of the project to ensure that all of our needs were met. The actuators and valves have been in operation for three months without any issues. We look forward to building our relationship with Belimo in the coming years as we continue to seek out new technologies that enable us to optimize HVAC system performance and maintain our facility's state-of-the-art reputation." Nathan Talley, Football Operations HDC System Manager, University of Oregon



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