

# Variable speed actuators prolong penstock lifetime

Thames Water Beckton Sewage Treatment Works, London, United Kingdom

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## AR26001 | AUMA APPLICATION REPORT



AUMA's high-performance SAV variable speed electric actuators have been installed as part of an upgrade to coarse screen outlets at Thames Water's Beckton Sewage Treatment Works in the east London borough of Newham.

The new actuators help to preserve the operability of 12 large penstocks by reducing mechanical stress, while also enabling reliable and efficient process control.

Built in 1864 and extending over 100 ha (250 acres), Beckton STW is one of the largest sewage treatment works in Europe, serving a large portion of London north of the River Thames. The upgrade to the plant's coarse screen outlets included replacing 12 life-expired single speed actuators with AUMA SAV multi-turn, variable speed actuators. AUMA also supplied new gearboxes, spindle bellows covers, electrical isolators, emergency stops, and local cable trays and supports.

### SOFT START AND SOFT STOP REDUCE MECHANICAL STRESS

This project required adopting a "sympathetic" approach to working with the existing penstocks. AUMA recommended replacing the old single speed actuators with new, variable speed actuators. Variable speed technology allows the actuator motor to run at the optimum speed at each moment of the penstock's opening or closing process. This allows the heavy penstocks to be operated gently, with soft starts and stops, thus reducing mechanical shocks whilst still being able to operate at higher speeds over the long travel to reduce operation time. For ease of operation, new emergency stop buttons were also added to the system.

### AUTOMATIC SPINDLE LUBRICATION SAVES TIME AND COST

All the new SAV variable speed actuators are fitted with individual automatic greasing cartridges mounted on the thrust bases. On each penstock, a single grease cartridge lubricates both the bearings and the penstock stem. The grease cartridges are set to provide a timed release that extends the service life of the entire system.

### FUTURE-PROOF WITH PROFIBUS

Actuator controls include standard parallel controls with 24 V DC commands and 4–20 mA signals for position feedback. In addition, the actuators were fitted with Profibus interfaces. Although these are currently unused, the actuators will require no hardware or software changes to upgrade to Profibus control in the future.

On project completion, all 12 penstocks and the new emergency stop system were fully tested and deployed. Site operatives are now able to work more efficiently, while Beckton STW is set to meet the challenges of the future.



WATER

### APPLICATION

Wastewater treatment

### AUMA SOLUTION

- > Retrofit | Replacement
- > SAR variable speed actuators with intelligent ACV 01.2 actuator controls
- > GST multi-turn gearboxes
- > Emergency stops and other equipment
- > Automatic spindle lubrication
- > Project management & on-site service

### CUSTOMER BENEFITS

- > Prolonged asset service life
- > Ease of operation
- > Enhanced reliability and efficiency
- > Ready for future upgrade to Profibus

"Throughout the project we received invaluable support and technical advice from the team at AUMA. In addition, clear communication between AUMA, Thames Water, crane operators and scaffolders meant the installation was completed one day ahead of schedule and caused no disruption to the onsite processes for Thames Water."  
**Mathew Driscoll**  
Thames Water

Project responsibility:  
AUMA Actuators Ltd.,  
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