



The Rotork IQ electric actuators with IW gearboxes are controlling the inlet and outlet flow of raw water at the Eugene Sawyer Water Filtration Plant sand filter.

May 01, 2020 14:33 BST

## Rotork electric actuators installed to upgrade Chicago water purification plant

Hundreds of Rotork multi-turn and part-turn IQ electric actuators and gearboxes have been installed as part of a US water filtration plant upgrade.

The City of Chicago Department of Water Management specified over 300 Rotork intelligent IQ actuators combined with IW quarter-turn worm gearboxes and over 200 IQT part-turn actuators to replace water hydraulic cylinders at the Eugene Sawyer Water Purification Plant. Formally known as the South Water Purification Plant, the site was renamed in 2016 in honour of

Chicago's former mayor, Eugene Sawyer, and supplies drinking water to the population of Chicago.

The Rotork actuators will operate 12 to 30 inch butterfly valves to provide improved flow control for water travelling into and out of the facility's sand filters. Water from Lake Michigan is collected from a crib, a structure which serves as an offshore water intake away from pollution closer to shore, and transported to the Eugene Sawyer Purification Plant.

The water will be allowed to flow into the Eugene Sawyer plant's sand filters via a 30 inch valve controlled by Rotork's intelligent IQ actuator. The actuator will also carry out modulating duties to ensure the filter is kept full. The water will then seep through the sand bed and supporting gravel material before it is controlled by a 12 inch valve operated by a part-turn continuous modulating IQTM actuator to be sent to the clear water well and distributed to the public.

IQ actuators will also handle backwash and drain processes while the IQT actuators will carry out surface wash flow control.

Rotork's actuators were specified by the Department of Water Management due to their user friendly control interface. The actuators feature an advanced backlit display protected by a toughened glass window allowing for large segment position displays in temperatures down to -50 °C (-58 °F). The matrix display can show detailed setting, status and diagnostic multilingual screens. These screens can be navigated using non-intrusive local controls or remotely via Bluetooth using an intrinsically safe Rotork Bluetooth® Setting Tool Pro.

The availability of Rotork Site Services (RSS) support for actuator maintenance was key in securing the IQ3 and IQT3 order, and RSS carried out initial set up of all the actuators. RSS also installed custom brackets complete with weldments, structural tubing and couplings for valves ranging from 40 to 70 years old. Many of these valves had been changed during the plant's history and did not conform to modern standards so the RSS team was required to make further modifications to the custom brackets after they arrived on site to make sure they fit.

Rotork's IQ3 multi-turn electric actuators provide a direct torque output range from 10 to 3,000 Nm (10 to 2,200 lbf.ft). They offer reliable valve control and

position sensing using a contactless absolute encoder capable of measuring up to 8,000 output turns. The IQT redundant absolute encoder is contactless and has self-checking ability to increase position sensing reliability.

The watertight protected IQ3 is double-sealed and certified to IP66/68 standards (20 m for 10 days).

Possessing many common features to the IQ3, Rotork's IQT3 part-turn actuator is available in 1-phase, 3-phase and DC power supply versions and can carry out isolation or regulating duties of up to 1,200 starts per hour. The modulating variant designated IQTM can achieve up to 1,800 starts per hour and both IQT variants offer an output torque range of 50 to 3,000 Nm (37 to 2,214 lbf.ft).

RSS offers unrivalled field support for repairs, commissioning, maintenance and upgrades, all carried out by a fully trained and experienced team of service engineers. Actuators can also be upgraded, repaired and tested at one of Rotork's global workshops while RSS can assist with planned shutdowns through preventative maintenance support and project management.

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