CASE STUDY

CHESTERTON
Global Solutions, Local Service.

HYDROPOWER INDUSTRY

Polymer Seals

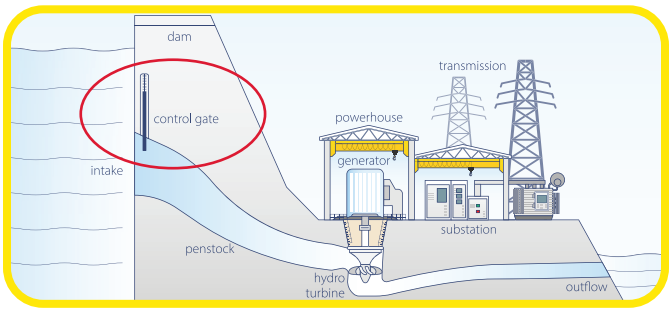
Overhauled Head Gate Cylinders Consume Less Energy

Product Solutions: P11K, R11KE, and 21K

Challenge

A customer needed to replace the seals in several head gate cylinders at a hydroelectric facility. These cylinders manage head pressure and protect equipment by controlling the flow of water into the turbine intake through the penstocks. These must operate reliably for decades.

The gate cylinders were due for an overhaul. Once dismantled, they needed to be rebuilt quickly to return the hydroelectric facility to full efficiency. The existing seals, made from fiber-filled rubber, had reached the end of their service life, and the customer sought a more durable sealing solution to extend maintenance intervals.

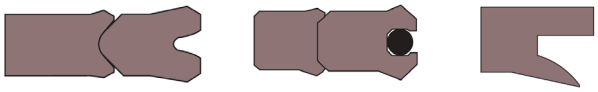


Solution

Chesterton® performed onsite measurement of the gland assemblies during the cylinder overhaul to achieve a precise seal fit, accounting for any hardware wear that may have occurred over time.

Chesterton provided custom-engineered seal solutions for the gate cylinders, manufactured from durable, abrasion-resistant polyurethane materials. These Chesterton® solutions included:

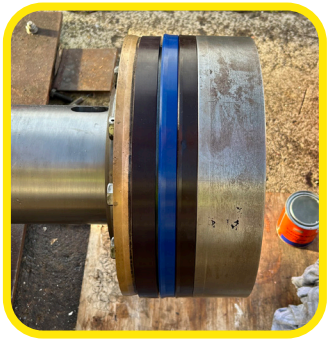
- **P11K** piston seal assembly with **AWC825** primary, **AWC800** secondary, and **AWC800** spacer
- **R11KE** rod seal assembly with **AWC825** primary energized with an **AWC740** O-Ring, **AWC800** secondary, and **AWC800** spacer
- **W21KT5** wiper made from **AWC800** to prevent particle ingress into the cylinder



P11K R11KE 21KT5

Results

Chesterton supplied seal solutions that helped enable a rapid overhaul of the head gate cylinders. Seals were delivered within days, compared to an 18-week lead time from competitors. Upon installation, the customer reported that cylinder breakaway force was reduced to one-third of the previous level, resulting in significant energy savings.



Quick delivery, simple installation, improvement to energy savings.

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