Wärtsilä REvolution system takes sealing technology to a new level

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The new Wärtsilä REvolution system is a digital management system that controls, monitors, records and analyses the performance of seals autonomously in real time, increasing the predictability and reliability of sealing solutions in rotating equipment.

Wärtsilä's new digital management system revolutionises sealing technology in the hydropower industry. The system incorporates machine learning, predictive modelling and model predictive control (MPC) techniques to provide customers with intelligent, real-time active management of the sealing interface fluid film, minimising wear and removing the sealing components from the maintenance schedule critical path.
"We have increased our focus on the development of digital asset management and real-time performance optimisation solutions for seals to provide our customers with greater predictability and reliability. We want our customers to feel confident that their operations will not suffer from unexpected interruptions that can become costly. With the Wärtsilä REvolution system, customers can focus on their core business and leave lifecycle management entirely to Wärtsilä," says Harald Brodmann, Hydro & Industrial segment manager from Wärtsilä.

The launch of this new system follows a previous product development in hydropower shaft seal applications and utilises Wärtsilä REguard shaft seal technology. In 1988, Wärtsilä launched the first face type shaft seal for hydropower turbines, which included a pressurised interface management system. Since then, there have been over 100 installations of this system around the world. The Wärtsilä REvolution system has now elevated this technology to the next level with the introduction of a digital control system.

Real-time data enables asset optimisation

The Wärtsilä REvolution system's primary application is hydropower turbine shafts, but the system can also benefit industrial applications, including pumps and other large rotating equipment. It also serves as a basis for future development, offering continuous data on product performance in the customer's specific operating environment. The Wärtsilä REvolution system collects performance data, for example temperature, wear of the seal interface and pressure, and enables real-time lifecycle prediction and intervention to reduce friction and wear of the seal. It also protects the seal from contaminants. The Wärtsilä REvolution system analyses the collected data to actively optimise the seal performance in real-time.

In addition to the Wärtsilä REvolution system, Wärtsilä offers a comprehensive package of seals, bearings and associated solutions to hydropower installations and industrial plants worldwide. Wärtsilä's Hydro & Industrial services offering targets the specific needs of hydropower, tidal energy and offshore wind installations as well as mining, paper, oil & gas, water management and power generation industries.