

Thordon Debuts SXL Water-Lubricated Turbine Guide Bearings in Argentina

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In a first for its Latin American operations, Thordon Bearings has supplied a water-lubricated SXL turbine guide bearing and segmented shaft seal to state-owned power company Empresa Provincial De Energía de Córdoba (EPEC) in Argentina.

The SXL bearing was fitted as part of the grease-to-water conversion of one of four 6MW Francis-type turbines operating at San Roque Hydroelectric Power Plant, in the province of Córdoba, Argentina's fifth largest province, covering 5.94% of its total land mass. Córdoba has the country's highest number of energy consumers and installed power capacity.

In an extensive project to refurbish EPEC's San Roque Dam turbines, Thordon's Buenos Aires-based distributor and engineering partner Marine Logistics S.A. replaced the original turbine guide bearing and carrier on the No.3 turbine. However, before machining and installation of the new bearing and seal could take place, precise measurements of the complex conical geometry of the existing housing had to be carried out in situ.

Once Marine Logistics had the exact measurements, the original white metal bearing, lubricated with an emulsified grease and water mix, was removed and a new turbine guide bearing carrier was manufactured with a bronze tapered keyset for the split SXL bushing. The SXL bearing was cooled using liquid nitrogen for compression and subsequent interference fit to the bearing carrier.

As part of the contract, Marine Logistics also installed a water injection system and new seals, before checking for leaks, water pressures and operating temperatures prior to commissioning. EPEC personnel were also trained on how to disassemble and reassemble the new SXL turbine guide bearing with tapered keyset.

"This conversion optimises turbine efficiency and reduces the environmental impact for EPEC," said Claudio Di Bartolo, Naval Technician at Marine Logistics. "By eliminating the need for grease, maintenance, procurement costs, and the associated labour and logistics are reduced."

Federico Ramacciotti, EPEC's General Engineering Manager, said: "The conversion of our hydropower turbines from grease to water lubrication is very much in keeping with our long-term sustainability strategy. Thordon Bearings is known globally for the high quality, reliability and performance of its grease-free bearings, and with local support and training from Marine Logistics, it was an easy procurement decision to make."

After the success of this first conversion, EPEC plans to initiate procurement tenders next year for the complete conversion of three hydroelectric turbines at the same power plant. Thordon's SXL and ThorPlas-Blue bearings will also be evaluated for potential installation in other EPEC power plants in the Córdoba province.

The San Roque Dam, located in Córdoba's Punilla Valley, 600m (1969ft) above sea level, provides water for drinking, irrigation, flood control, and hydroelectric power generation. In addition to this facility, EPEC operates one pumping station, eight thermal- and nine other hydro-power plants in Córdoba, generating 63% of the region's power demand.

Thordon Bearings' Technical Director, Anthony Hamilton, said: "Hydro power is Argentina's largest source of clean electricity, supplying around 20% of the nation's total. However, the country currently only uses around 20% of its estimated potential, and several substantial hydropower projects are currently underway, which we also hope to be involved with."

"Hydro power is also an important part of the energy mix in countries such as Peru, Brazil, and Uruguay so we look forward to supplying more of our environmentally friendly bearing solutions in those regions in the future," adds Hamilton.