

Industry: Water Management/Irrigation
End User: Kaleshwaram Lift Irrigation Scheme, India
Application: Turbine Pump Axial Seal
Thordon Grade: SXL
Date of Original Installation: December 2023

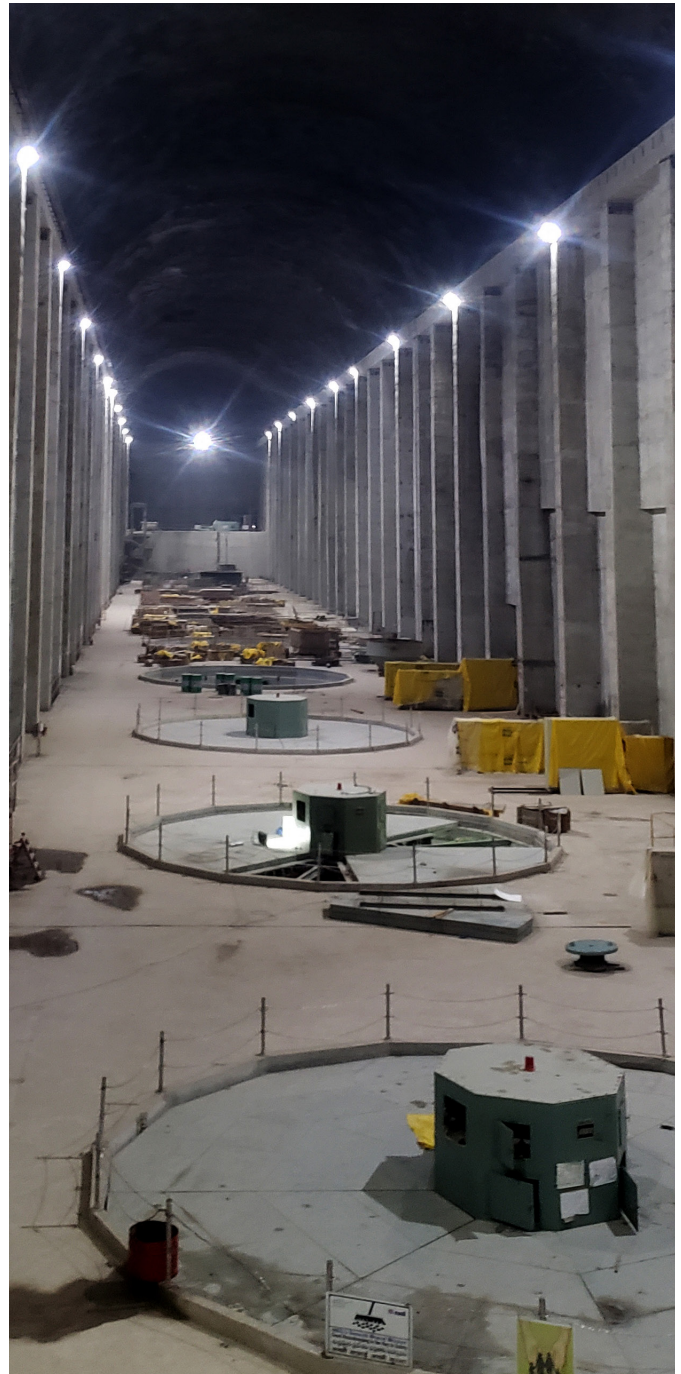
About:

The Kaleshwaram Lift Irrigation Scheme (KLIS) in Telangana, India, has been constructed in a region characterized by water scarcity, aiming to efficiently utilise available water resources for agriculture. As the world's largest multi-stage lift irrigation project, it runs for about 500 km (310 miles) through 13 districts, and is connected to a 1770 km (1100 mile) canal network incorporating 20 reservoirs and extensive underground tunnels. It features some of the largest water pumps ever built.

Challenge:

A crucial component of the large pumps used in projects like this one is the shaft seal, which prevents water leakage from lift pump shafts and flooding of the plant. The Francis-type inward-flow turbine pumps at Kaleshwaram work using a combination of radial and axial flow, requiring a reliable and robust seal design. In this application, the seal must effectively manage water and pressurized air leakage during condenser synchronized mode when starting the pump. Additionally, the seal must be able to withstand the abrasives in the water that is being lifted in the pumps.

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Solution:

Thordon alongside our authorized distributor in India, Soneji Engineering Pvt. Ltd (SEPL), won a tender to supply 24 large diameter axial shaft seal assemblies, along with a water filtration system, for the project's turbine pumps. The agreement was for the supply of all components, this includes complete assembly, testing, installation, and commissioning on site. By offering a comprehensive package, the end user benefitted from a single point of contact for their sealing solution. The Thordon SXL segmented shaft seal assembly was chosen for the project based on the products superior sealing capabilities, wear life, and extensive use across multiple markets.

Result:

The work undertaken by SEPL was commissioned by Federally/Centre-owned heavy equipment manufacturer, Bharat Heavy Electrical Limited (BHEL). By December 2023, SEPL had supplied all 24 Thordon SXL seals to BHEL, eight of which have been installed and one of which has been successfully commissioned and tested.

Drawing from SEPL's history of providing axial seals to the Indian market, it is reasonable to expect a minimum lifespan of 10 years in this application. SEPL holds a positive outlook on securing additional business from the end user. Upon achieving successful outcomes with the seal application, they foresee inquiries for guide vane bushes. Moreover, they anticipate receiving orders for seals from other hydro OEMs in India.

