

Title: Reversible francis pump turbine

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In contrast to the Pelton turbine, the Francis turbine operates at its best completely filled with water at all times. The turbine and the outlet channel may be placed lower than the lake or sea level outside, ...

The reversible pump turbine (RPT) is a modified version of a traditional turbine designed to operate in two directions. In turbine mode, it functions like a standard Francis turbine, generating electricity.

Four single-stage Francis reversible pump-turbines are installed at the machine hall having common water intake and four penstocks with inner diameter from 7100mm to 5400mm and total axis length ...

The monograph presents guidelines for designers who plan or maintain pump-turbine installations. Data are presented on recent installations. of pump-turbines which include figures showing operating ...

Research on reversible Francis pump turbines has made significant progress in recent years, but numerous avenues remain for further exploration to optimize their performance and ...

This paper proposes a new design model for application of pumped storage concept in Nepalese hydropower and elaborates the design process of such reversible pump turbine.

During the closure of the wicket gates, the transient flow characteristics is analyzed for a Francis-type reversible pump-turbine in generating mode by three-dimensional (3D) numerical ...

OverviewApplicationDevelopmentComponentsTheory of operationBlade efficiencyDegree of reactionSee alsoFrancis turbines may be designed for a wide range of heads and flows. This versatility, along with their high efficiency, has made them the most widely used turbine in the world. Francis type units cover a head range from 40 to 600 m (130 to 2,000 ft), and their connected generator output power varies from just a few kilowatts up to 1000 MW. Large Francis turbines are individually designed for each site to operate with th...

In the paper, simulated turbine characteristics for a high head Francis turbine, and for a reversible pump

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turbine are compared with laboratory measured characteristics.

As the core for energy conversion in pumped storage plants, the pump turbine is also a key component in the process of building a clean power grid, owing to its fast and accurate load regulation.

2010 Frades II, Portugal: Two reversible 372 MW pump-turbines and Europe largest and powerful variable speed motor-generators (DFIM) with 433 MVA and speed range 350 up to 381 rpm.

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