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Structural Analysis of Hydro-Turbine Spiral Casing and Stay Ring Using Ansys

Authors : Surjit Angra, Pooja Rani, Vinod Kumar

Abstract : In hydro power plant spiral casing and Stay ring is meant to guide the water flow to guide vane and runner. Spiral casing and Stay ring is subjected to static i.e. pressure load as well as fluctuating load acting on the structure due to water hammer effect in water conductor system. Finite element method has been used to calculate stresses on spiral casing and stay ring. These calculations were done for the maximum possible loading under operating condition "LC1 Quick Shut Down". The design load is reached for the spiral casing and stay ring during the emergency closure of the guide apparatus "LC1 Quick Shut Down". During this operation the forces from the head cover to the stay ring also reach their maximum.

Keywords : hydro-turbine, spiral casing, stay ring, structural analysis
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