

Investigation of the Flow in Impeller Sidewall Gap of a Centrifugal Pump Using CFD

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Abstract : In this paper, the flow in a sidewall gap of an impeller which belongs to a centrifugal pump is studied using numerical method. The flow in sidewall gap forms internal leakage and is the source of “disk friction loss” which is the most important cause of reduced efficiency in low specific speed centrifugal pumps. Simulation is done using CFX software and a high quality mesh, therefore the modeling error has been reduced. Navier-Stokes equations have been solved for this domain. In order to predict the turbulence effects the SST model has been employed.

Keywords : numerical study, centrifugal pumps, disk friction loss, sidewall gap

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