

ENERGY SAVINGS IN CENTRIFUGAL PUMP WITH INLET GUIDE VANES

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Abstract

A new hydraulic design method of two dimensional guide vane of centrifugal pump is introduced on the assumption that the fluid at the out let of the guide vane satisfies the uniform moment condition. Experimental results demonstrate the performance of the Centrifugal Pump without guide vane. The obtained the pump performance curves versus flow rates showing a significant attention of improvement of efficiency after the two dimensional guide vanes were installed under different pre-whirl angles. By this technique energy could be saved during the operating of the pump. These types of pumps are used in lift irrigation process in Agriculture, Heating Ventilation & Air conditioning (HVAC) & Industry.

Keywords: Centrifugal pump, Inlet Guide Vane, HVAC, Pre-Whirl Regulation, Hydraulic design, Experiment

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