

A COMPARATIVE STUDY OF MIX FLOW PUMP IMPELLER CFD ANALYSIS AND EXPERIMENTAL DATA OF SUBMERSIBLE PUMP

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ABSTRACT

The present paper describes an improve the head of mixed flow pump impeller, Computational Fluid Dynamics (CFD) analysis is one of the advanced CAE tools used in the pump industry. From the results of CFD analysis, the velocity and pressure in the outlet of the impeller is predicted. The optimum inlet and outlet vane angles are calculated for the existing impeller by using the empirical relations. The CAD models of the mixed flow impeller with optimum inlet and outlet angles are modelled using CAD modelling software Solid Works 2009. By changing the outlet angle and the No. of blade of impeller the head of the impeller is improved to 86.75m. From this analysis it is understood that the changes in the inlet blade angle and No. of blade change the head of the impeller. From the CFD analysis the head of the impeller with optimum blade angles is calculated as 76.46m. Thus, head of the mixed flow impeller is improved by 10.29m by changing the inlet and outlet blade angles and No. of blade.

KEYWORDS: Mixed Flow Pump, Computational Fluid Dynamics (CFD) Analysis, Impeller Design, Submersible Pump