

Numerical and Experimental Investigation of Impeller Trimming on Fluid Flow inside a Centrifugal Pump

Authors : Rouhollah Torabi, Ashkan Chavoshi, Sheyda Almasi, Shima Almasi

Abstract : In this paper the effect of impeller trim on centrifugal pump performance is studied and the most important effect which is decreasing the flow rate, differential head and efficiency is analyzed. For this case a low specific speed centrifugal pump is simulated with CFD. Total flow inside the pump including the secondary flow in sidewall gap which form internal leakage is modeled simultaneously in CFX software. The flow field in different area of pumps such as inside impeller, volute, balance holes and leakage through wear rings are studied. To validate the results experimental tests are done for various impeller diameters. Results also compared with analytic equations which predict pump performance with trimmed impeller.

Keywords : centrifugal pump, CFD, impeller, trim

Conference Title : ICCFD 2015 : International Conference on Computational Fluid Dynamics

Conference Location : Amsterdam, Netherlands

Conference Dates : May 14-15, 2015