عنوان مقاله:

Three dimensional parametric study of a centrifugal pump impeller by varying the blade number

محل انتشار:

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خلاصه مقاله:

Today the pump design has been improved by development of computational fluid dynamics (CFD) and the complex internal flows in pump impeller and volute can be well predicted. Various parameters affect the pump performance in which blade number, blade angle and outlet diameter are the most important. In this paper the performance of impellers with the same blade angle and outlet diameter but having different blade numbers is evaluated. In this study four different blade numbers 5, 6, 7, and 8 are modeled. The numerical simulation of incompressible Navier-Stokes equations over an hybrid grid is solved by commercial software package Fluent. Rotational zone will be simulated by moving reference frame method. For each impeller, the flow pattern and pressure distribution are calculated and finally the head and efficiency curves are compared and discussed. The results show that by increasing the blade number the head increase and efficiency decrease slightly.

کلمات کلیدی:

centrifugal pump, blade number, moving reference frame, Fluent

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