A RUNNER SEGMENT BASED HYDRODYNAMIC MODELLING TECHNIQUE FOR THE FLOW IN THE BLADING SECTION OF A CENTRIFUGAL PUMP RUNNER

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Abstract

The article presents a technique that makes it possible to considerably reduce the time taken by hydrodynamic modelling of the flow in the blading section of a centrifugal pump runner, as well as decrease system resource requirements and speed up solving the optimisation problem. The main idea of the method we describe is computing the "fluid body" model for a blade wheel segment instead of the whole pump (inlet device, runner, outlet device). In order to validate the results of the method suggested, we compare them to the parameter values computing during modelling flows in the blading sections of the runner and the pump. The computation technique outlined here is a prerequisite for the next stage of solving the optimisation problem.

Keywords

Centrifugal pump, blade wheel, runner segment, computational fluid dynamics, blading section optimisation

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