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The Influence of the Impeller Inter-blade Channels Roughness on the Energy Parameters of the Submersible Pump

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Abstract

In the research, it was practically proven that the roughness of the inner surfaces of the inter-blade channels has a high influence on the head created by the blade impeller of the

submersible pump. The study was conducted due to the method of numerical research using Ansys CFX software. It was determined that the roughness of the inner surfaces of the inter-blade channels has a high influence on the head created by the impeller of the centrifugal (submersible) pump. The research data complement the existing knowledge base on the comprehensive determination of the head created by the impeller. The authors added mechanisms for determining the head created due to viscous fluid friction and hydraulic pressure losses due to friction in the impeller inter-blade channels. The study results can be used to more accurately predict the head created by the blade impeller of the pump and, if necessary, to increase or decrease the head by changing the roughness of the inner surfaces of the impeller inter-blade channels.

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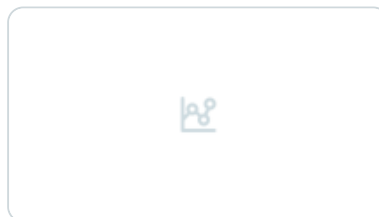
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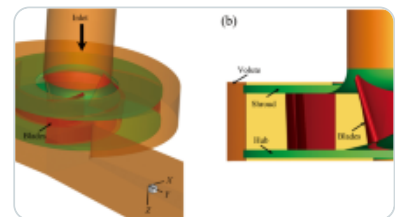
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