

自吸泵气液两相流数值模拟分析 Numerical Simulation on Gas-liquid Two-phase Flow in Self-priming Pump

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摘要: 采用Mixture多相流模型、Realizable湍流模型与SIMPLEC算法,应用CFD软件Fluent对内混式自吸泵自吸过程的气液两相流进行了数值模拟。通过分析不同含气率条件下流场的压力分布、速度分布、气相分布,探讨了气液两相介质在泵内的运动情况,一定程度上揭示了内混式自吸泵自吸过程的内部流场变化规律,为自吸泵的设计提供更多的参考依据。3-D simulation was performed for the gas-liquid two-phase turbulent flow in self-priming pump by using Fluent software with Mixture model, SIMPLEC algorithm and Realizable turbulence model. The gas-liquid two-phase flow in self-priming pump was investigated in the pressure in the pump, the velocity in the pump, the distribution of gas and liquid phase in the pump. To some extent, the results reveal the self-suction process of the two-phase flow in self-priming pump, and provide references for self-priming pump design.

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