

基于CFD的调速型液力耦合器设计方法 Design Method of Variable Speed Hydrodynamic Coupling Based on CFD

何延东 马文星 邓洪超 刘刚

辽宁石油化工大学

关键词: 调速型液力耦合器 计算流体力学 参数化设计 优化

摘要: 提出基于UG和CFD的调速型液力耦合器参数化设计和优化设计方法。建立了调速型液力耦合器参数化模型和优化设计流程。基于流场数值解与实验结果的原始特性曲线吻合较好, 故CFD可用于复杂的液力耦合器气液两相流动计算。针对3个不同的参数方案, 对制动工况、牵引工况和额定工况进行流场数值计算及原始特性预测, 并与基型耦合器对比, 得到方案2的流动分布较合理, 压力差与速度差较小, 泵轮转矩系数较大, 为基型耦合器的合理优化方案。The parametric design and optimum design method of variable speed hydrodynamic coupling based on UG and CFD was proposed. The parametric model and optimum design flow of variable speed hydrodynamic coupling were established. The original characteristic curve based on flow-field numerical solution matched with the experiment result well, so CFD could be used for the complex gas-liquid two-phase flow of hydrodynamic coupling. Numerical simulation and performance prediction were conducted respectively to three different parametric schemes under brake condition, traction condition and rated condition, and compared with the base-type coupling. The second scheme had a more reasonable flow distribution, its pressure and velocity difference was smaller, pump torque coefficient was larger, and was the reasonable optimization scheme of base-type coupling.

[查看全文 \(请使用Adobe Acrobat 6.0版本浏览\)](#) [返回首页](#)

[引用本文](#)