基于Pro/E的水轮机尾水管肘管部分的三维造型 3-D Modeling of Hydraulic Turbine Draft Tube Based on Pro/E

齐学义 马惠萍 杨国来 敏政

兰州理工大学

关键词： 水轮机 尾水管 Pro/E 造型 CFD

摘 要： 针对水轮机内部流场CFD数值模拟及工程实际制造需要，对弯肘型尾水管的三维造型进行分析与研究，发现常用的造型方法过程繁琐，且不便于修改流道也不易光滑。本文提出一种新的造型方法，不仅克服了常用方法的弊端，而且造型过程简洁直观、生成的型面平顺光滑，修改过程灵活，适应性强，可更精确地实现设计意图。经实例造型与CFD流场模拟验证，提出的方法不仅设计出的尾水管内部水流运动符合设计假定，其流场分布与理论分析相符，而且所设计出的尾水管流道平顺光滑，流态良好。 For the sake of CFD simulation on the turbine flow field and practical manufacturing, the 3-D modeling of bent-elbow draft tube was analyzed, which showed that the common methods have a fussy process, not easy to modify and smooth. Therefore, this paper proposed a new method that overcomes the defect of the common method, has simple process, generates smooth surface, modifies flexible, and has a large adaptability. So the design intent can be more accurately realize through this method. Validated by instance and CFD analysis, the design method of draft tube agrees with the requirement of design assumption, and the flow of the draft tube are smooth and good.

查看全文（请使用Adobe Acrobat 6.0版本浏览） 返回首页 引用本文