

عنوان مقاله:

Designing and Analyzing the Duct used on Pump Jet Propulsion System for an AUV

محل انتشار:

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خلاصه مقاله:

Pump jet is one of the most important propulsion systems for AUVs in high velocities. The critical characteristic of the pump jet is its high efficiency. Pump jets are among the rare propulsion systems which are used non-autonomously in shallow waters. A simple type of pump jet consists of a rotor, a stator and a cylindrical duct covering the rotor and the stator. However, in some cases the propeller with counter rotating direction has been used instead of the stator in some recent applications (like the CRP system). According to the advantages of this propulsion system, it has been widely used in recent years in various naval and military applications. Therefore, there is an essential need to numerical and experimental analysis on these types of propulsion systems. Numerical and experimental analysis conducted on the propulsion systems with ducts, especially the ones with contra rotating propellers, have been done for the purpose of achieving to a configuration with higher efficiency and the lowest possibility of cavitation occurrence. The main object of this article is to design a proper duct for pump jet propulsion system through 2D axisymmetric analysis by means of computational fluid dynamics simulations

کلمات کلیدی:

Pump Jet Propulsion System, Computational Fluid Dynamics, 2D analysis, duct

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