Design and Analysis of Marine Propeller

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Abstract: *This paper presents a comparison between propellers varying in design to evaluate their performance and efficiency. A propeller is a type of fan that transmits power by converting rotational motion into thrust. A pressure difference is produced between the forward and rear surfaces of airfoil shape blade and fluid is accelerated behind the blades which generates two forces, one along the longitudinal direction of ship which is the axial force called thrust force and tangential force which produce the required torque. As propeller has great influence on the propulsive performance of ship, propeller design is important technology for energy saving in ship propulsion. Generally, alloy of aluminium or bronze material are used for manufacturing of marine propeller. The propeller is a complex geometry which requires high end modelling software. The solid model of propeller is developed in HydroComp PropCad 2005 and SolidWorks 2019 and a tetrahedral mesh is generated for this model using HYPER MESH and simulation is carried out using SolidWorks. By considering all the study and benefits this model helps to find the optimum propeller for defined objectives. Based on optimized parameters the propellers performance is calculated by the simulation of designed model.*

Keywords: Marine Propeller, Simulation, Modelling

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