ABSTRACT

Improvement performance of the ship must be done to support the ship’s performance, especially for ships designed to operate in specific environment such as rivers that have a limited depth. Moreover, when the ship would be rebuilt with the sister ship. One way to improve performance is by increasing the efficiency of ship propulsion. This study focused on improving efficiency propulsion system by analyzing the flow velocity at the stern of the ship. The difference of the flow velocity before and after propeller shows the increased velocity of advance. Velocity of advance effect on the value of Propeller Efficiency. Overall, the speed of advance affects the propeller’s efficiency. To determine the speed of advance, a simulation using CFD software package is performed on the ship model. Based on the results from the simulation, a new design is created by installing stern wedges on the ship stern, with a length of 1-1.5% of the ship length. Afterwards, another CFD package simulation is performed on the new model to determine the effect of the increase of the propulsion system efficiency. The results show that the installing of stern wedges can improve the propulsion system efficiency.

Keywords: propulsion system efficiency, velocity of advance, sister ship, stern wedges