

INVESTIGATION ON THE EFFECT OF BULBOUS BOW SHAPE TO THE WAVE-MAKING RESISTANCE OF AN ULTRA LARGE CONTAINER CARRIER (ULCC)

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Abstract

The bulbous bow of a ship reduce the wave-making resistance of the vessel by adding another wave system which is created by the bulb and this interfere with the wave system created by the bow of the vessel. These two wave system partially cancel out each other and reduce the wave elevation and the wave making resistance. The main aim of this project was to evaluate the effect of fore-body shape particularly the bulbous bow to the wave-making resistance of an ultra large container carrier. It was also the aim of this project to identify the optimised form of the bulbous bow design. The general idea is a set of bulbous bows is systematically created based on the bulb parameters. A commercial CFD code SHIPFLOW computes the flow and the pressure distribution around the hull. With these results the wave-making resistance of systematically varied were analysed. An optimised bulbous bow design was chosen over other 27 bulbous designs. It was found that the wave resistance can be reduced by lengthening the bulb protruding length, widening the bulb breadth and increasing the bulb height. © 2006 -2017 Asian Research Publishing Network (ARPN).

Keywords: Bulbous bow; CFD; Optimisation; Wave-making resistance