

A Thruster System which Improves Positioning Power by Reducing Interaction Losses

Authors: Leif Vartdal and Rune Garen, *Rolls-Royce Marine AS, Ulsteinvik, Norway*

Abstract

Rolls-Royce has delivered propeller and thruster systems to several hundred vessels which have dynamic positioning (DP) and dynamic tracking (DT) systems. These deliveries cover many different types of vessel with various degrees of complexity and comprehensiveness, both with regard to thruster type and thruster configuration.

The main task for the thrusters is to transform the power from the propulsion motors to thrust. For power to be transformed into thrust and positioning ability in the most effective way, it is necessary that the thruster itself has a high thrust per unit of power input and it is also vital that the thruster type configuration and the hull form are chosen with a view to reducing thrust losses.

Since the 1980s, from model tests carried out at NSFI/Marintek, understanding of losses in thrust and torque/power caused by thruster to thruster and thruster to hull interaction has been built up, and with it the ability to quantify matters. The results of these experiments show that these interaction losses are very dependent on both hull geometry and thruster placing.

This paper presents the results from cases where, with the help of simple modifications to thrusters, it has been possible to influence thruster-hull interaction losses to a significant degree.

An Ulstein Aquamaster thruster type known as Combithruster is also presented.

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