

Minimization of Thruster Dimensions For DP Systems

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Abstract

The current paper focuses on the minimum thruster dimensions and the prospects this gives for the design of thrusters for DP systems. It reports the results of a design study in which a thruster with a special ducted propeller has been designed and tested at model scale. Van Rijsbergen and van Terwisga have shown that the current rules of thumb which are used to determine the minimum diameter of the thruster's propeller correspond approximately with the conditions where propeller cavitation starts to have negative effects on the thruster's performance. However, if sufficient power is available and special attention is paid to the design of the propeller and the thruster housing, a decrease in propeller diameter of about 30% can be achieved. Using these results, a comparison is shown of the geometry and dimensions of a standard thruster and a thruster with minimized dimensions.

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