

Title: **Comparison of Thruster Axis Tilting versus Nozzle Titling on the Propeller-Hull Interactions for a Drillship at the DP Conditions**

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Abstract

Azimuth-steerable thrusters are widely used in the offshore industry for efficient dynamic positioning. Due to the thruster-hull and thruster-thruster interactions the installed propulsion system may experience severe efficiency losses at DP conditions.

To provide a better understanding of these phenomena the authors presented a study on the interaction effects for a semi-submersible drill rig at the Dynamic Positioning Conference 2008.[1] It was shown that for such a twin hull configuration an inclined rotational axis can to a large extent reduce the thrust losses. (In Fig. 1 in the paper the pressure distribution on the second pontoon illustrates the differences in interaction losses due to different thruster inclinations).

In the paper a CFD study is presented with the focus on a monohull vessel in order to detect possible benefits through axis tilting for this kind of ship class.

Different thruster arrangements on a drill ship have been analysed to quantify the influence of thruster tilting with regard to interaction losses. The results for thrusters with gear-tilting are compared with a thruster that incorporates a horizontal propeller-axis and a tilted nozzle only.

The next section introduces briefly the solution method used. This is followed by sections describing the thruster and hull geometry and presenting the results of the CFD study. The final section summarizes the findings.

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