

Semi-submersible Rig - “The Reliable Solution With Minimal Thrust Losses”

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Abstract

This paper describes a co-operation of ABB and GlobalSantaFe (GSF) for developing of thruster system for Development Driller class semi-submersible drilling rigs.

This paper presents the requirements that operator has for propulsion system of drilling rig and a solution that fulfills these requirements.

For a drilling rig it is essential for DP operations to minimize the thruster hull interaction losses and therefore ABB and GSF have made a joint study to learn more about these losses and find a solution to give the best effective thrust for the operation. This study has been made at Krylov Ship Research Institute by the means of Computational and model scale experiments.

With the Computational method the scale effects and behavior of thruster jet have been studied. Computational method applied is state of the art RANS method.

The model test experiments give the most reliable results of the forces affecting to pontoons of the rig and this way it has been possible to quantify the losses due to thruster hull interaction. To minimize these losses the propeller shaftline has been tilted in respect of pontoon bottom and the effect of different tilt angles have been studied.

Finally it has been possible to make comparison between other solutions available on the market.

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