

Pieter Schelte: a multi purpose model test project

MARIN has carried out extensive model tests on the multi-purpose offshore operations vessel, Pieter Schelte. Report provides an update.

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Allseas asked MARIN and HSVA to carry out a model test programme for the new Pieter Schelte design in 2007. Pieter Schelte is a vessel for single-lift installation and removal of large offshore oil and gas platforms and installation of oil and gas pipelines. Pipe laying is carried out by a large stinger and it will be done using DP tracking in astern mode. The DP system is powered by 12,6 MW thrusters.

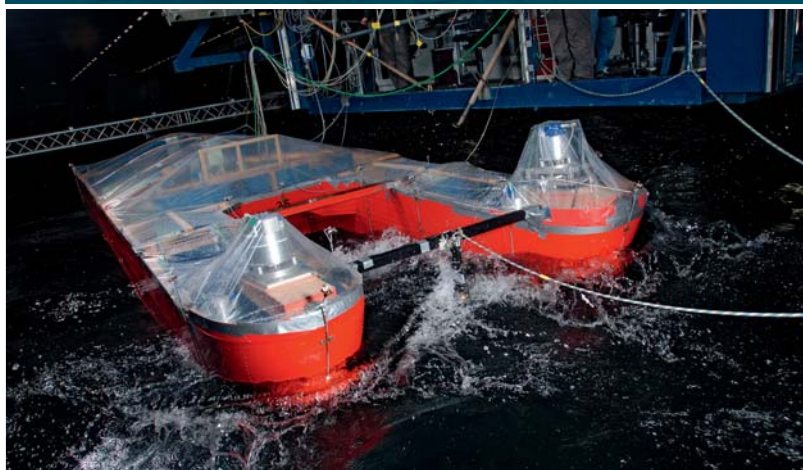
At the start of the project, the design was almost finished and the thruster equipment had been ordered but the propeller design could still be altered. Therefore, the project focused on the performance of the vessel and its design verification. DP operability tests were carried out to determine the expected total uptime at a specific location. Speed performance, power distribution, steering methodology and ice-class verification were also tested. MARIN's main objective was to provide Allseas with detailed information on the vessel's capabilities. This can then be used to determine the uptime and workability for different operational modes.

An extensive model test programme was carried out. The first phase of the project was to verify the design speed and optimum steering allocation of the 12 thrusters. This was partly done in the Deep Water Towing Basin, using a regular powering model test set-up and partly using a new captive set-up. In this captive set-up, the total forces on the vessel could be measured for various drift angles and thruster settings. This resulted in a database that was used to calibrate a numerical manoeuvring model.

Knowing these settings, the model was transported to Hamburg where the HSVA ice basin is located. Here, the Pieter Schelte was further tested for its resistance and manoeuvrability in sheet ice and broken ice fields. The results of this unique model test project were very interesting and allow the designers of the Pieter Schelte to move forward with their design and to assess the operability of the vessel under different conditions. □



Pieter Schelte can be used for jacket removal and pipe installation



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Pieter Schelte model is equipped with 12 independently operating thrusters