



Free-sailing experiments

Measured quantities

Depending on the aim of the experiment the following quantities can be measured:

- Motions in 6 degrees of freedom
- Propulsor thrust, torque and RPM
- Relative wave heights
- Accelerations on specific locations
- Forces on the appendages
- Forces on hull segments
- Local pressures on hull surfaces

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The full free-sailing experiment set-up is used in general when testing the seakeeping and manoeuvring qualities of a model. A free-sailing experiment set-up is available at MARIN in the following basins:

- Seakeeping and Manoeuvring Basin: $L \times B \times Wd = 170 \times 40 \times 5$ m
- Offshore Basin: $L \times B \times Wd = 45 \times 36 \times (0-10.5)$ m (variable water depth)
- Shallow Water Basin: $L \times B \times Wd = 220 \times 14.8 \times (0-1.1)$ m (variable water depth)

Procedure

(Please refer to the picture and illustration as presented)

The free-sailing model will be self-propelled and connected to the carriage by a soft connection. This soft connection consists of power cables and wires for the steering and measurement signals. The connection will be such that this cable connection does not influence the behaviour of the model. Before each test, the model is accelerated on a straight course by the carriage until the desired approach speed is reached and the accelerations have become zero. At that moment, the model is released and the experiment begins.

