

# Optimise gangway systems for your offshore operations

A top priority in offshore maintenance operations is the safe and cost-efficient transfer of crew and equipment from ship to platform and wind turbines at sea. One solution is a motion compensated gangway system installed on a purpose-build walk-to-work vessel designed to operate in rough sea conditions. Operation of these gangway-vessel combinations contributes substantially to wind farm maintenance costs.

Thorough assessment of the operational envelope in the prevailing conditions of the wind farm where you operate will contribute in optimising the transfer operation of maintenance personnel and thus reducing overall cost. MARIN can support you by carrying out accurate and reliable assessments in each stage of the process, from conceptual development of your motion compensated gangway-vessel combination to its design and operation.

## Services for motion compensated gangway systems:

- Conceptual phase: Feasibility study
- Design phase: Operability assessment
- Operational phase: Tools to support onboard daily operations
- Wind farm maintenance strategy: inputs for planning and logistics for the gangway-vessel combination



### *Conceptual phase: Feasibility study*

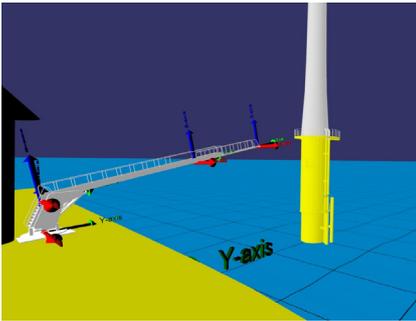
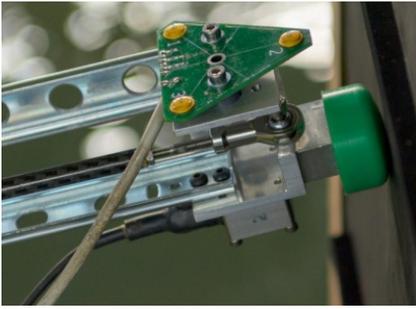
In the conceptual phase, a feasibility assessment can support you in selecting the most suitable gangway system configuration for your vessel for the prevailing sea state. MARIN can conduct this feasibility assessment by means of numerical simulations to give insight into the operational envelope of the vessel and gangway system. Various gangway-vessel combinations can be evaluated and compared on key performance indicators, including aspects such as safety, operational risk and maximum operability.

### *Design phase: Operability assessment*

In the design phase, MARIN offers model tests in a wave basin and numerical simulations to assess the performance of your gangway-vessel combination under maximum sea state and to the safety level required by certification bodies. The assessment includes investigation of potential locations for the gangway on the vessel because a smart location increases the weather window for the transfer operation significantly.

### *Operational phase: Tools to support onboard daily operations*

MARIN can develop onboard numerical tools together with you to optimise daily operations of the onboard gangway system. An operating procedure can be developed to support the operator in selecting the optimum configuration and heading for the vessel-gangway combination to increase operability and enhance safety.



#### Related products:

- O&M logistics
- O&M vessel selection
- O&M operational training
- WT landing platform alignment
- Wind farm traffic safety assessment
- Vessel seakeeping performance

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### *Wind farm maintenance strategy: inputs*

MARIN can contribute in optimising your wind farm maintenance strategy by providing inputs for planning and logistics of the vessel-gangway combination. We can perform a statistical analysis to assess operational uptime for transfer of maintenance personnel on basis of metocean data covering the lifetime of the wind farm. This information is an essential input for annual maintenance planning and to the overall maintenance strategy of the offshore wind farm.

### State of the art tools

Developed in-house, aNySIM XMF is state-of-the-art software for hydrodynamic time domain simulations that are suitable for modelling motion compensated gangways interacting with vessel motions. This software can be interfaced with any gangway control system modelled in Matlab Simulink.

Detailed assessments can be carried out in our high-end wave basins to gain insight into the physical interactions of the access system, ship and turbine landing platform. These model tests are essential in proof-of-concept demonstration and in certification.

### Expertise and experience

MARIN is an independent and innovative service provider specialising in hydrodynamic assessments and investigations. With over 80 years experience, we are fully conversant with challenging metocean conditions in Oil & Gas and renewable energy projects worldwide. MARIN offers services for hydrodynamic analysis of various types of installations and operations offshore. Our expertise includes concept validation, slamming, operability of jack up installation and maintenance vessels, motion compensation, mooring, dynamic positioning and logistic scenario analysis.

This expertise and experience is used in performing workability studies for wind farm maintenance operations for walk-to-work vessels with access gangways. Thereby, time domain simulations and model tests are carried out to gain insight into the limitations of an innovative gangway system connected to a turbine landing platform and disconnected in control mode.

