Crane upgrades
Crane Simulation Module

Pipe-handling cranes

Offshore knuckle boom cranes

Offshore lattice boom cranes
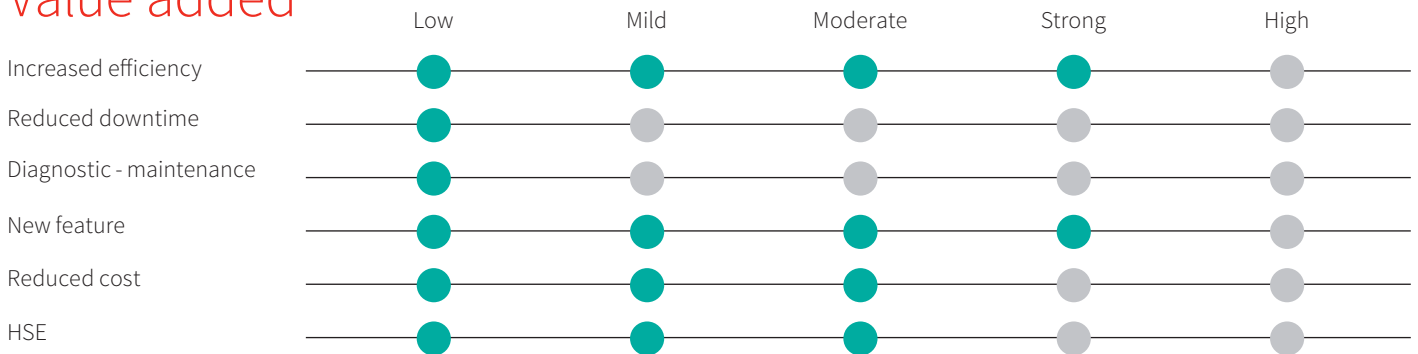
Subsea Knuckle boom cranes

Maximizing utilization through simulation

The Crane Simulation Module (CSM) from NOV is a software tool that helps vessel designers, owners, and operators better understand the capabilities and limitations of NOV's active heave compensated (AHC) lifting equipment. CSM can help broaden operational windows and improve the quality of the safety assessment before conducting lifts close to the operational limits of the equipment.

The CSM is designed for integration into Orcina OrcaFlex.

Value added

	Low	Mild	Moderate	Strong	High
Increased efficiency	●	●	●	●	○
Reduced downtime	●	○	○	○	○
Diagnostic - maintenance	●	○	○	○	○
New feature	●	●	●	●	○
Reduced cost	●	●	●	○	○
HSE	●	●	●	○	○

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Why

Knowing and documenting the performance of lifting equipment prior to an engineered lift plays a key role when defining the operational weather window. Underestimating the performance can have negative effects on the cost of the operation, while overestimating will increase the operational risk.
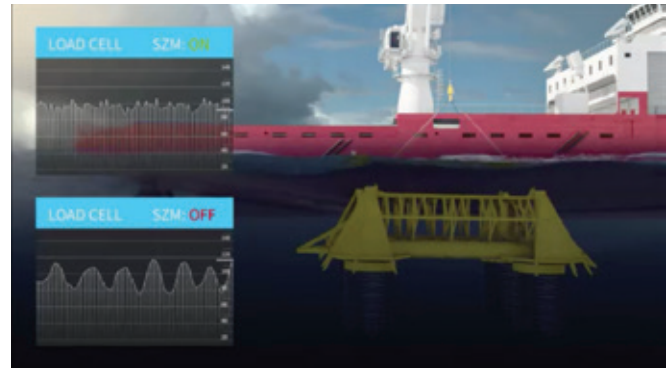
What

The CSM enables you to predict the performance of compensation modes with high accuracy, allowing you to increase the operational weather window, reduce uncertainties, and document performance in a way previously not possible.

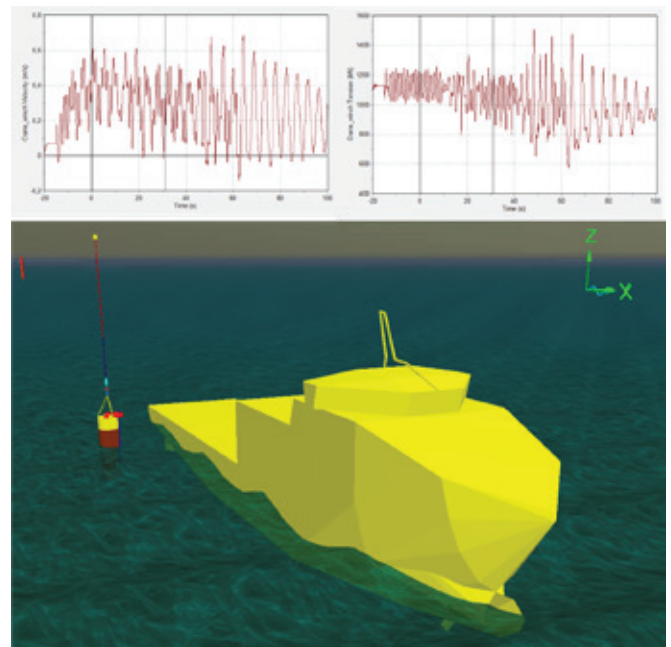The CSM allows comparison of different crane modes.

How

The CSM offers simple one-file integration with Orcina OrcaFlex through the external function interface. The file contains a detailed and accurate nonlinear time domain model of the lifting equipment in question.

Benefits

- Increased weather window through accurate simulation
- Increased utilization of lifting and handling equipment
- Possibility to perform risk assessment based on realistic equipment performance
- Simple integration with existing engineering tools
- New ways of conducting the lifting operation can be analysed in the office, rather than live on the equipment
- The CSM provides a platform for prototyping and testing new crane features before upgrading existing equipment

Straightforward implementation into Orcina OrcaFlex.

Related

Splash Zone Mode

Lowering the load through the splash zone is one of the critical phases of a subsea lifting operation. The magnitude of the dynamic forces that the crane system may be subject to is hard to predict and can trigger overload alarms. NOV's patented Splash Zone Mode is a hybrid between AHC and ACT mode that can be activated by the operator before passing through the sea surface to minimize tension variations. The Splash Zone Mode upgrade will widen the crane's operational window by enabling the crane to handle more challenging loads in more challenging weather conditions.