

# Crane upgrades Splash Zone Mode



Pipe-handling cranes



Offshore knuckle boom cranes



Offshore lattice boom cranes



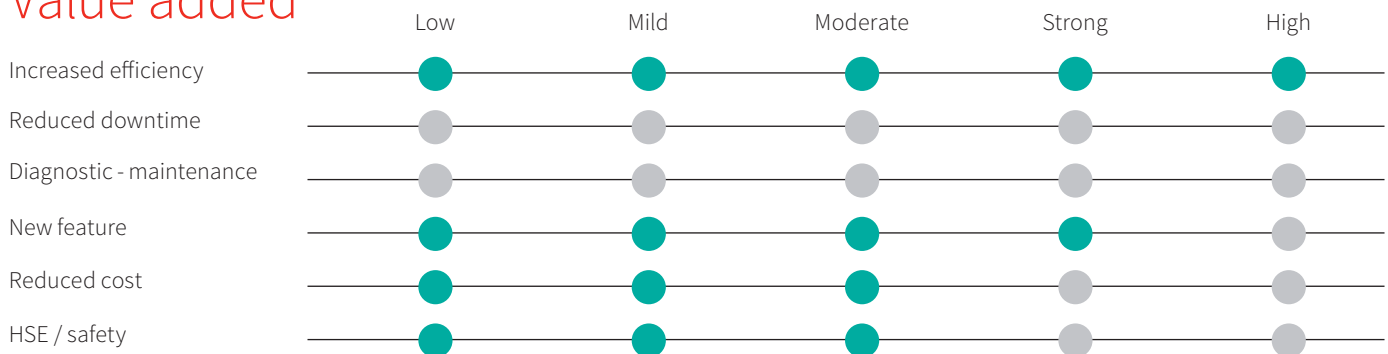
Subsea Knuckle boom cranes

## Effective minimization of splash zone dynamic forces

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. Our 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.

## Value added



## Why

The largest forces on the crane system during installation or recovery of a subsea structure often occur when the structure passes through the sea surface. The wave forces at play in the splash zone give a risk of snatch loading that may significantly restrict the weather window of a lifting operation.

## What

The Splash Zone Mode effectively reduces tension variations through the splash zone by having a control algorithm based on the AHC and ACT controllers regulate winch speed based on both MRU data and load cell feedback.

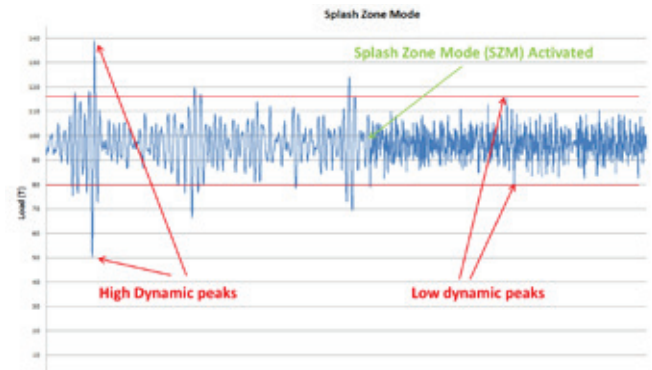
## How

Pure active cranes require only a software upgrade, no hardware needed. Active-passive (accumulator) cranes require a software upgrade plus installation of an electrically operated NG10 valve and a ½-in. check valve.

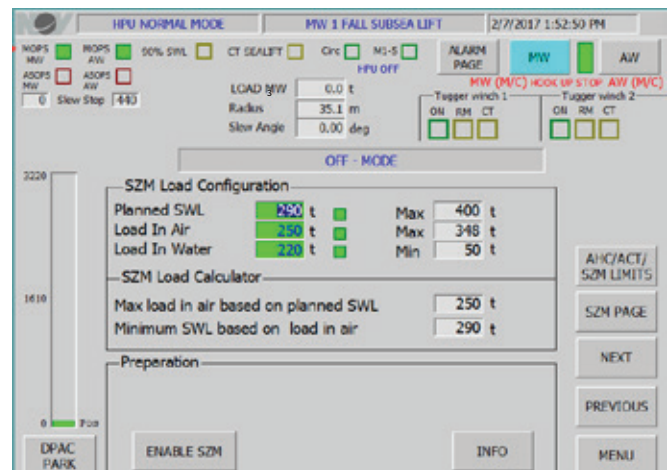
- Installation time estimate: One to two days
- Test time estimate: One day key side, one day offshore
- Test equipment required: Test load
- Personnel required: One software and one hydraulic field service engineer

## Benefits

- Reduces dynamic forces and helps avoid slack wire in the splash zone
- The hydraulic system will act as a damper and absorb load peaks
- Widens the operational window



Loadcell log during splash zone mode test.



Screen shot of SZM preparation operator panel.



## Related

### Related- Crane simulation module

NOV's Crane Simulation Module (CSM) is a software tool that enables vessel designers, vessel owners and operators to pre-verify and document the performance of NOV's Active Heave Compensated (AHC) lifting equipment. The CSM is designed for integration into Orcina OrcaFlex, thereby bringing a detailed and accurate nonlinear model of the crane system into the engineered lift assessment. It allows the crane's advanced AHC modes to be taken into account when determining the operational weather windows of the planned lift.