

# Crane upgrades Crane Response Boost



Pipe-handling  
cranes



Offshore knuckle  
boom cranes



Offshore lattice  
boom cranes



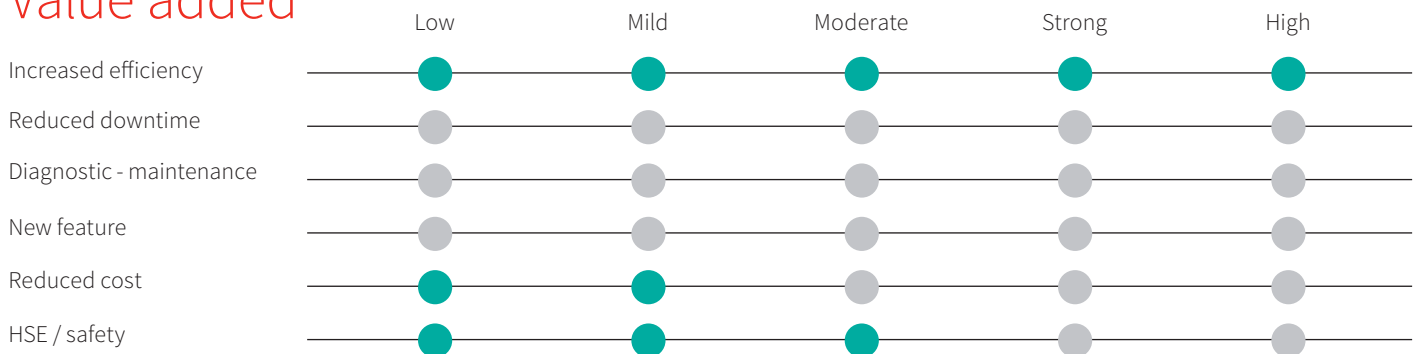
Subsea knuckle  
boom cranes



## Improve offshore load control through valve linearization

The ability to perform responsive and fast combined movements (simultaneous activation of slew and booms) is essential to an offshore crane. It may widen the weather window of an offshore lifting operation and improve the efficiency of on/off-loading at the harbour. The Crane Response Boost upgrade improves the responsiveness of previously delivered cranes by mapping the inherent nonlinearity of each movement control valve and applying compensation software.

### Value added



### Why

Offshore lifts in all but the calmest sea states, as well as time-constrained harbour operations, require simultaneous boom and slew movements that often lead to 100% pump utilization. In this situation, the crane control system continuously adjusts the control signal to each movement control valve so as to keep total oil flow within the capacity of the pump. Traditionally, cranes have software that assumes a linear relationship between the valve control signal and the oil flow through the valve at a given pressure. This has been found to cause an overly conservative limitation on oil delivery to boom and slew movements.

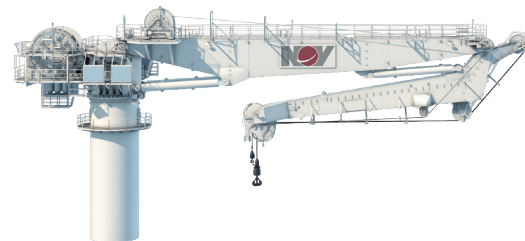
### What

The Crane Response Boost upgrade greatly increases crane responsiveness during simultaneous movements by optimizing pump utilization. This is achieved by first mapping in detail the nonlinear response curve of each individual movement control valve and then applying the result as a linearization curve to the multi-movement control software. The resulting improved movement efficiency accelerates harbor operations and improves the crane operator's ability to perform compensating movements during sea lift operations, thus improving safety and potentially widening the weather window.

### How

For most cranes, Crane Response Boost is a pure software upgrade that requires no additional components. Some cranes require minor technical modifications.

- Installation and test time estimate: 1-2 days
- Personnel required: One software and one hydraulics engineer
- Test equipment required: None



Start position



End position without (transparent) and with crane response boost.