Extending Operational Window for Offshore Campaigns

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Abstract

We are presenting solutions that were implemented by Cranemaster (Norway), as part of its heavy lift installation project on Gorgon and Jansz field.
The gangway / walkway system that was engineered for offshore platform access is another example. All these solutions can be incorporated into existing or new projects, specially in cyclone affected areas.

About HYDAC

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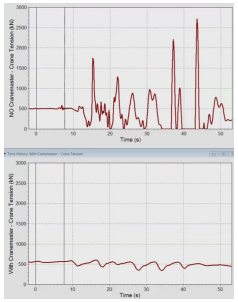
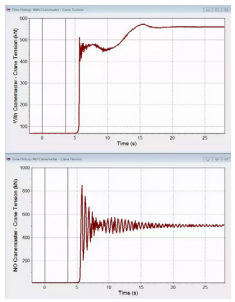
Orcaflex Simulation

Orcaflex simulations by Cranemaster demonstrated that significant reduction in forces in load and crane can be achieved in all stages of the lifting operation with a heave compensator. The graph below shows an example of splash zone crossing with and without heave compensation (below - left), we see a significant reduction of force spikes, as well as in a transfer lift (below - right) with reduction in DAF in lift situation.

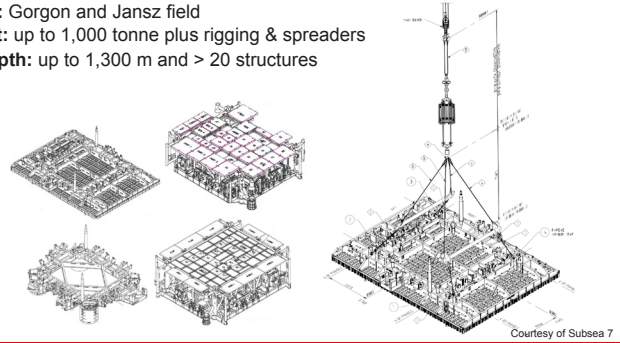




Courtesy of Cranemaster

Task

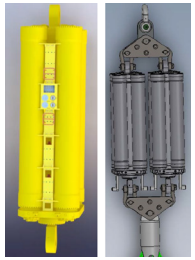
Location: Gorgon and Jansz field
Heavy lift: up to 1,000 tonne plus rigging & spreaders
Water depth: up to 1,300 m and > 20 structures

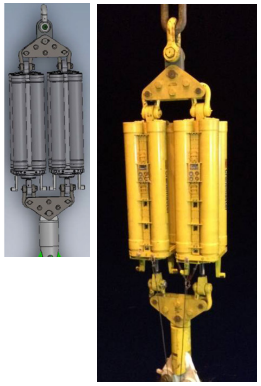


Courtesy of Subsea 7

Solution

Used for:
• Lift-off from CB
• Splash zone
• Landing
Single Unit:
• SWL: 700 t
• stroke 4.5 m (pin to pin 6.38 m)
Double Unit: (made-up from 2 singles)
• SWL: 1400 t





Courtesy of Subsea 7

Gangway Application

Active Heave Compensation System incorporates a motion reference unit in its active hydraulic system which, when engaged, maintains the walkway tip at a constant height relative to the horizon. This allows the walkway to be connected safely in sea.

The heave compensated Offshore Access System (Shell - Qatar) in the Red Sea maintains the end of the walkway at a constant height, and it is automatically enabled into “approach” mode when the walkway is slewed outboard from its cradle. The walkway is then extended and slewed against the vertical pole on the installation. A constant force system ensures that pressure is exerted against the pole before the walkway is retracted to engage the latching mechanism. Once secured, the walkway is then lowered onto the horizontal platform and the heave compensation system is disengaged. This allows the walkway to “float” between the vessel and the installation.

XOM KTT Bass Straits & Shell Qatar

Shell Qatar operates a heave compensated Offshore Access System (OAS) onboard of one of the vessels to serve platforms in the Red Sea.
The heave compensated system which maintains the end of the walkway at a constant height is automatically enabled into approach mode when the walkaway is slewed outboard from its cadle.
In Australia, the OAS allowed uninterrupted access between Marlin B & Edda Fides Flotel during the 8 months KTT Campaign.

Conclusion

Both Passive Heave Compensated and Active Heave Compensated systems have delivery lots of benefits to operator, in terms of safety of transfer of loads and personnel.
The Heave Compensated System allowed the extending operational window for offshore campaign.

Contact

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