

An Ocean of Possibility

Harsh Weather Turret Mooring Solutions

Orwell
OFFSHORE



Naval Architects and Offshore Engineers

COLUMN TURRET

Orwell Offshore has, over the years, gained considerable experience in the design of bespoke mooring systems for FPSO and FSO operations. Our engineering capability combined with the experience of our marine personnel allows practical solutions to be developed, backed up by the latest engineering design capability.



Orwell Offshore's standard packages include a harsh weather external column turret suitable for integration with a converted or new build FSO/FPSO.

Technical data:

This turret is designed for environmental conditions up to Hs 12.0m with suitable green water protection. The turret can be supplied with toroidal fluid swivel system or fitted with owner-supplied swivel system and has capacity for up to eight risers or umbilicals. The chain table can accommodate between 6 and 12 mooring lines and is suitable for water depths of 50m upwards.

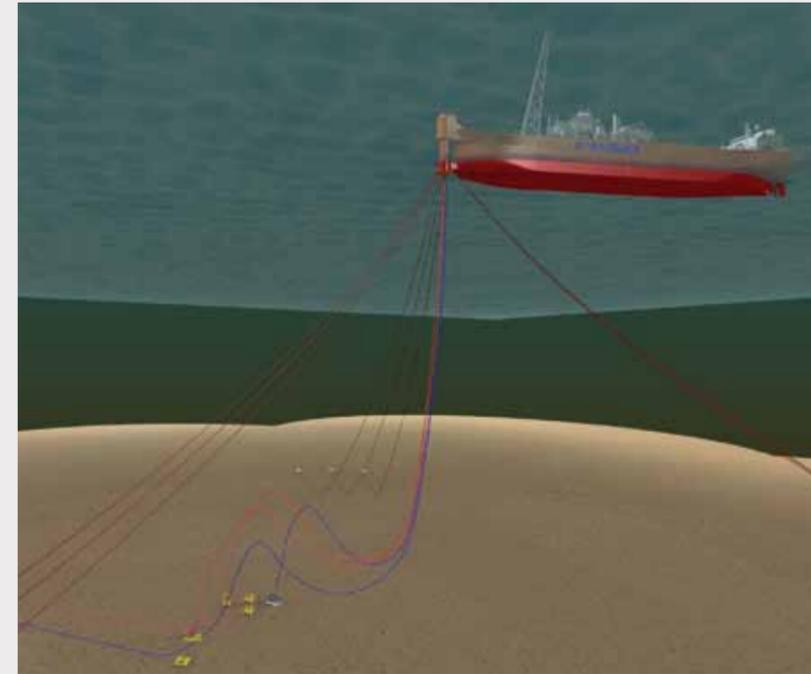
Key benefits:

- Reduction in overall steel weight compared to a standard external cantilever turret
- Reduced exposure of risers to wave slamming
- Improved load transfer between turret and vessel forepeak structure
- For harsher weather shallow water applications it allows improved mooring leg performance

The Harsh Weather Turret solution can be designed to meet all recognised offshore standards including DNV, ABS and Lloyds Register.



PROJECT REVIEW



On 1st February 2011, Orwell Offshore was contracted to engineer a replacement turret mooring system for retro-fitting to the FPSO Rubicon Intrepid. The FPSO was in operation at the Galoc Field close to Palawan Island in the Philippines. The field is located directly in the main typhoon route for the region and is prone to Category 5 typhoons, strong soliton currents and intense squalls at different times of the year.

The FPSO is equipped internally with two 6" production fluid swivels each rated to 5000psi and four 10-path hydraulic swivels. The FPSO departed the Galoc Field in October 2011, returning to Singapore for fitting of the turret. The FPSO returned to the Galoc Field for hook up in March 2012. Production recommenced on the 2nd April 2012, only 14 months after design commenced.

In August 2013, Orwell Offshore in conjunction with the field operator,

Otto Energy, completed a successful upgrade of the FPSO Turret for additional tie-back of new wells.

In November 2013, the FPSO was directly in the path of Typhoon Haiyan. The FPSO experienced winds in excess of 100mph and maximum wave heights of approximately 15m. No damage was sustained to the FPSO or Turret and production was restarted approximately 48 hours after the eye of the storm had passed over the FPSO and post storm inspections were carried out.



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