

# Updates

UT 788 CD *Lewek Fulmar* delivers the floating production, storage and offloading vessel *Lewek EMAS* to the Chim Sao Field, Vietnam.







## EMAS invests in flexibility with performance

Two UT 788 CDs are now operating for EMAS in support of client operations. They are the largest UT Offshore vessels to be built in Asia to date and the design was developed in close cooperation with the customer to meet a strict set of requirements.





Lewek Fulmar and Lewek Falcon are among the most powerful vessels of their type operating today. They are multifunctional deepwater anchor-handling tug supply and service vessels with many capabilities: ultra-deepwater anchor-handling, towing and supply. The specific design brief was to extend their service scope capability and as such, they can also support other tasks related to subsea construction, ROV intervention, subsea maintenance and repair work.

"Central to our vision was that these new vessels would be technically complex, making the very best of available technology and able to deliver our clients' future needs, even before they knew what those needs were," says Robin Kirkpatrick, Chief Executive Officer of EMAS Marine.

"We are continuing to expand globally, to markets outside Asia where complex vessels are the norm, so the ability to safely undertake deepwater and harsh environment operations was at the forefront of our decision to invest. We took the view that only companies able to meet the exacting demands of harsh environment deep water operations and able to satisfy ever more demanding clients would continue to be successful," adds Kirkpatrick. "Early on, there was a lot of dialogue between Rolls-Royce and ourselves, as we worked out the key design and performance parameters. Minimising the vessel's environmental impact and maximising crew safety and comfort were high on the list."

### Powerful and capable

Meeting these demands requires sizable and powerful vessels, 93.4m long overall, 22m beam with a max draught of 7.87m and over 25,000kW of installed power and the largest bollard pull ever achieved from a vessel built in Asia.

The 815m<sup>2</sup> of deck area is strengthened for heavy cargoes and ensures all the normal supplies can be carried up to a deadweight of 4,700 tonnes. Built to Lloyd's Register LRS +100A1 class with DP (AA), the vessels meet Lloyd's Register Environmental Protection (EP) requirements for reduced emissions and water pollution risks. Double skin construction protects fuel tanks and potentially polluting cargo in the event of collision or grounding.

With its full outfit of Rolls-Royce equipment and systems the UT 788 CD offers impressive capabilities. The main hydraulic winch has three drums for different tasks. The anchor-handling drum can pull 500 tonnes and the two towing/working drums have pulls of 450 tonnes and can hold 750 tonnes on the brake. All have a large wire capacity and large rig chain lockers provide for ultra-deepwater anchor-handling.

The main winch is complemented by secondary winches and deck equipment for safely handling wires and chains. An installed ROV hanger suitable for a work class ROV complete with control office is incorporated in the hull design. *Lewek Falcon* additionally has a 150t active heave compensated knuckle boom crane aft and a second work class ROV on a mezzanine deck.

Sister ship *Lewek Fulmar* has a 350 tonne capacity A frame in way of the stern which uses the existing

Rolls-Royce winch set up, so that work like the handling of torpedo anchors can be safely undertaken.

Crew safety, another key requirement, is enhanced by the Rolls-Royce Safer Deck Operations systems. Remote controlled travelling cranes and manipulators, pennant wire winder and other equipment are used to reduce the risk to sea staff during operations.

### Hybrid system savings

Depending on the type of operation, the UT 788 CD can run in any of six principle propulsion modes. This caters for the large differences in power demand in the various operating modes to both cut fuel consumption and reduce emissions. Two 8,000kW main engines drive the propellers and also generate electricity. They can be used in various combinations with the four 2,230kW auxiliary generator sets to give a diesel mechanical or diesel-electric system, providing power in the most efficient way for propulsion, manoeuvring and for the deck and hotel electrical modes.

Electric motors supplement the main engines when high power is required on the propellers. Conversely, two retractable azimuth thrusters deliver low speed with very low fuel consumption and provide part of the dynamic positioning capacity.

"In diesel-electric mode the fuel cost saving is exceptional, up to 71 per cent compared to diesel mode at the same output", says Michael Petersson, Fleet Manager, EMAS Marine, "with a respectable bollard pull of 158 tonnes".

"The diesel-electric mode is utilised particularly during voyage, standing by, towing and shallow water anchor-handling. As a result, running hours of the main engines is reduced between 50-80 per cent depending on charter requirements. Further savings will also be achieved in maintenance and spare parts costs. Clients also benefit through significantly reduced fuel costs".

The first job the *Lewek Fulmar* undertook in 2011 was for a client Offshore India, laying out rig moorings. Although a relatively small project, due to improved

stability and a larger deck area, it was possible to get everything done in a single trip, a few days ahead of schedule, working to world class safety standards.

The second job was the successful installation of the co-owned FPSO *Lewek EMAS* for Vietnam's Chim Sao oil project, a job well within the vessel's capability. The job demonstrated the full suite of services provided by the EMAS group with EMAS Production converting and operating the FPSO, EMAS AMC installing the FPSO, EMAS Energy doing the well pre-testing and EMAS Marine supporting the entire project.

Having complex vessels and projects means there is a need for a highly competent crew able to get the best from the vessel. These UT 788 vessels provide greater crew comfort and attention to safety, which helps to both attract and retain staff as the new vessels create a very positive working environment. This, coupled with EMAS' commitment to staff training and development, such as evidenced by the company's commitment in its \$10M EMAS Training Academy and Simulation Centre, makes a powerful combination.

"These vessels are niche, deepwater capable and I believe this is the first time a Singapore based company had made a real commitment to complex vessels of the standard found more typically found in the North Sea for example," says Kirkpatrick.

"With a complex vessel, you have the ability to trade down to maximise utilisation and hybrid propulsion gives us the flexibility to market the vessels into different roles. More capability can deliver projects quicker with greater safety, potentially lower costs and a much reduced environmental footprint," adds Kirkpatrick. "Ensuring our customers understand these key differentiators is our next challenge but is a challenge that we relish taking on."

*Lewek Fulmar* has now commenced a multi-year contract with a major client in Brazil and *Lewek Falcon* is now working full time for EMAS AMC, EMAS's growing subsea construction division that has over 40 years of collective experience in design, construction, transportation and installation work. [AR]

1. *Lewek Falcon* at speed.
2. The Rolls-Royce automation and control system.
3. Robin Kirkpatrick, Chief Executive Officer of EMAS Marine.
4. Both UT 788 CDs have a number of additional features to enhance safety on deck.
5. View of the bridge.

