

First of ten for next-generation PSV design



Back in 2013, Esnaad in Abu Dhabi awarded Netherlands-based Shipyard De Hoop with an order for 10 state-of-the-art PSVs. Despite intense international competition, De Hoop won the prestigious contract as a result of its technically advanced design and competitive terms. While the complete production of the vessels is equally split between the builder's two facilities in Lobith and Foxhol, the delivery is spread over almost two years, with the last PSV due to be handed over in 2017.

The first vessel, named *Esnaad 221*, was delivered to Esnaad, the operating company of the Abu Dhabi National Oil Company (ADNOC) group, in mid-July 2015. In the meantime, the hull of the second vessel has been launched in Foxhol, while the steel hull of the fourth is currently being assembled on the slipway. At the Lobith facilities, the hull of the third vessel is ready to be launched, whereas the block sections of hull number five are being assembled on a second slipway. The steel cutting and construction of the first block sections for the sixth vessel are at an advanced stage.

In meeting ADNOC's requirements, the Esnaad series of PSVs has been custom designed to operate at maximum efficiency and with optimum costs, while the impacts on the environment are minimised. Although based on previous proven in-house designs, the vessels are the next step in the evolution of De Hoop PSVs.

Measuring 70.4m x 16.77m with a summer

draft of 4.85m, *Esnaad 221* is powered by four 1,480kW Wärtsilä main generators turning two 1,250kW Schottel Rudderpropellers to give a 13.5 knot maximum speed. The three transverse tunnel thrusters are also from Schottel and are of 600kW each. MAN supplied a harbour generator and an additional emergency set of 238kW and 250kW respectively.

In close consultation with the yard, ADNOC opted for diesel-electric propulsion to achieve enhanced flexibility, while at the same time obtaining economical and environmental superiority. The three main generators feeding the diesel-electric propulsion units and other consumers are located below deck, in the fore ship underneath the superstructure. This was done to accommodate the preferred generators with the relatively large medium-speed engines.

The high level of redundancy guarantees that the vessel remains fully operational, even with one complete generator set or electronic circuit out of service, while the power management system arranges the load sharing such that each set is equally loaded. By configuring optimal combinations of generators for each usage scenario, this system benchmarks an impressively low NOx emission and very favourable fuel consumption at each sailing pattern.

The hull, with its specially developed bulbous bow, is optimised to reduce wave resistance. Testament to the maximisation of cargo volume at the given hull shape is the resulting impressive deadweight of 2,050 tons

at a restricted draft of 4.85m. Most of this hull volume is dedicated to a large number of high-capacity tanks for various dry bulk and liquid cargos, such as brine, cargo fuel oil, drilling water and liquid mud. To keep the liquid slurry from separating, the liquid mud tanks are equipped with agitators. In the forward hull, among the usual fuel oil, fresh water, sewage, sludge and bilge water tanks, are the foam and dispersant tanks for fire-fighting and oil spill pollution prevention actions.

In addition to the liquid cargo, the PSV will transport deck cargo on its 515m² work-cum-cargo deck, which permits large quantities of various offshore requisites of up to 5 tons per m². For loading and unloading duties, a fully hydraulic telescopic boom type crane, with a lift capacity of 15 tons @ 2.5m, or 0.5 tons @ 25m outreach, is fitted to the starboard side.

Classed by Lloyd's Register to FiFi1 notation, the external fire-fighting tasks are performed with the two remotely controlled monitors on the top deck, capable of effectively spraying a water/foam mixture. Furthermore, the PSV is fitted with two spray booms, each 6m in length, enabling the crew to apply dispersant to the water surface in case of an oil spill.

The superstructure offers accommodation to 28 people, all in cabins with en suite bathrooms, individually controlled air treatment units, radio, television and access to internet. The complete accommodation provides a level of comfort that is considered

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well above the current standards in the 24/7 offshore industries.

ADNOC, which was established in 1971, operates in all areas of the oil & gas industry in Abu Dhabi. During the past decades, it has expanded its business activities to become one of the world's leading oil companies with substantial interests in upstream and downstream activities, including transportation, shipping, marketing and distribution.

Today, the company manages and oversees the oil production of more than 2.7m bbls a day, ranking it among the top 10 oil & gas companies in the world. It has 14 subsidiary companies and Esnaad is one of these. Esnaad means 'support' or 'service' in Arabic and this is exactly what the company does from the Mussafah Offshore Supply Base, approximately 40km by road from the city centre of Abu Dhabi.

As mentioned earlier, De Hoop has two shipyards offering slipway facilities for vessels up to 200m in length: De Hoop Lobith, in the east of the country, with 135 employees and De Hoop Foxhol, in the north, with 65 employees. The shipyard has an impressive track record in designing and constructing custom-built ships, employing its own design and engineering department.

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