Deep Helder's daily fuel consumption in DP mode is around four tonnes, compared with 12–15 tonnes for a larger vessel

Vessel proves that good things come in small packages

Ordering and chartering a smaller, purpose-designed unit will make Seamar Subsea's latest newbuild a much more cost-effective vessel than the alternatives

by Malcolm Latarche

Building a vessel that is obviously smaller and less powerful than the competition may not seem like a recipe for success, but *Deep Helder*, the newest addition to the Seamar Subsea fleet, has been designed to punch above its weight and has features that could make it a very profitable investment.

Seamar first announced the order for the vessel with Shipyard De Hoop in late March 2013, describing it as a diesel-electric multipurpose offshore support vessel and saying at the time that it would be constructed for low fuel consumption, Cleanship/Green Passport/SPS2008 and high comfort class notation, making it the first offshore vessel to be built in the Netherlands to this specification.

Construction of the vessel was completed in a remarkably quick time. Steel cutting did not begin until mid-September last year, with the keel laying taking place two months later. At the end of April this year, *Deep Helder* was launched from Shipyard De Hoop in Foxhol.

During its sea trials in June, the ship performed well, with the dynamic positioning (DP) behaviour and sailing speed both exceeding expectations. The comfort class criteria for noise and vibrations and in general for the comfort on board were easily met, and the operations and performance of the crane were in full compliance.

Explaining the design philosophy behind *Deep Helder*, Rick Green, general manager of DeepOcean BV, told *OSJ* that his company had been involved in the design process along with the owner and the shipyard from very early on. *Deep Helder* is, by design, a multipurpose vessel intended to be a versatile and economic asset for serving both the oil and gas and renewables sectors in the southern basin of the North Sea.

As Mr Green pointed out, conditions in the southern basin can get rough but rarely to the extent that they do further north and yet no vessels have been purpose built to specifications for coping with the more benign conditions. "For that reason, making use of a vessel designed for much harsher conditions has a number of downsides," he said.

Highlighting one of the major differences, Mr Green said that *Deep Helder*'s daily fuel consumption in DP mode is around 4 tonnes,

which compares very favourably with the 12–15 tonnes that a larger vessel might be expected to consume. At current marine gas oil prices, that difference alone will mean a daily saving of US$7,000–9,000.

Mr Green went on to say that, with fuel costs remaining stubbornly high, several of DeepOcean's customers were questioning the need to employ large vessels on some contracts where the full extent of their capabilities was not needed.

There is a further advantage of the low consumption rate in that it means that less fuel needs to be carried, freeing space for other reasons. Deep Helder has tank capacity of 350m^3, which coupled with the meagre consumption rate, allows the ship a fair range.

Deep Helder's relatively small size – the ship is 65m in length with a beam of 15.77m and a draught of 4.5m – does impose limitations. For example, the ship can only work in significant wave heights of around 2.5m compared to the 4.5m or so that might be typical of a larger ship. However, according to Mr Green, that is less of a problem than it might at first appear. "When the sea in the southern basin gets stirred up to any extent, the conditions underwater become very turbid and that limits work in any case," he said.

After *Deep Helder*'s sea trials, the ship was named in Ijmuiden in June and delivered 10 days early directly into service with DeepOcean. DeepOcean had said its plans were to operate the vessel on a range of geophysics, inspection, geotechnical, inspection, maintenance and repair (IMR) and trenching projects along with excavation and mattress installation projects for customers in the oil and gas and renewables markets.

Mr Green believes that the renewables sector offers a lot of opportunities for a vessel like *Deep Helder* that can undertake so many tasks. He told *OSJ* that, in his opinion, the asset owners have so far been mainly concerned with installing equipment and getting it operational.

He does not believe that all of the organisations involved have fully considered the maintenance and repair of equipment. "Unlike the oil and gas sectors, which are mature and where IMR is considered from the outset, the renewables are on a steep learning curve and have yet to gain the necessary experience," he said.

Within days of the naming ceremony, DeepOcean's Norwegian subsidiary was awarded the contract for IMR and remotely operated vehicle (ROV) inspection services on Dong Energy's subsea assets in Danish and Norwegian waters. The contract is for two years firm plus options. According to DeepOcean's commercial director, Rolf Ivar Sordal, the Danish sector had been a target for the company in the North Sea. *Deep Helder* will cover the contract for the 2014 campaign.

Deep Helder's operational equipment includes a central 4 x 4m moonpool and two 1.2m diameter 'moon tubes', an offshore crane and the possibility to add an A-frame with the foundations already in place. There are 500m^2 of open deck with a loading of 5 t/m^2. The ship has also been equipped with a new concept Leopard ROV from Saab Seaeye

Explaining the choice of an electric ROV instead of a hydraulic type, Mr Green said, "Environmentally, we wanted an electric vehicle – yet one with work-class performance. For our application, the Leopard gives us the equivalent capability of a much larger hydraulic work-class vehicle – and its 11 thrusters mean it can handle strong currents – and that's important to us."

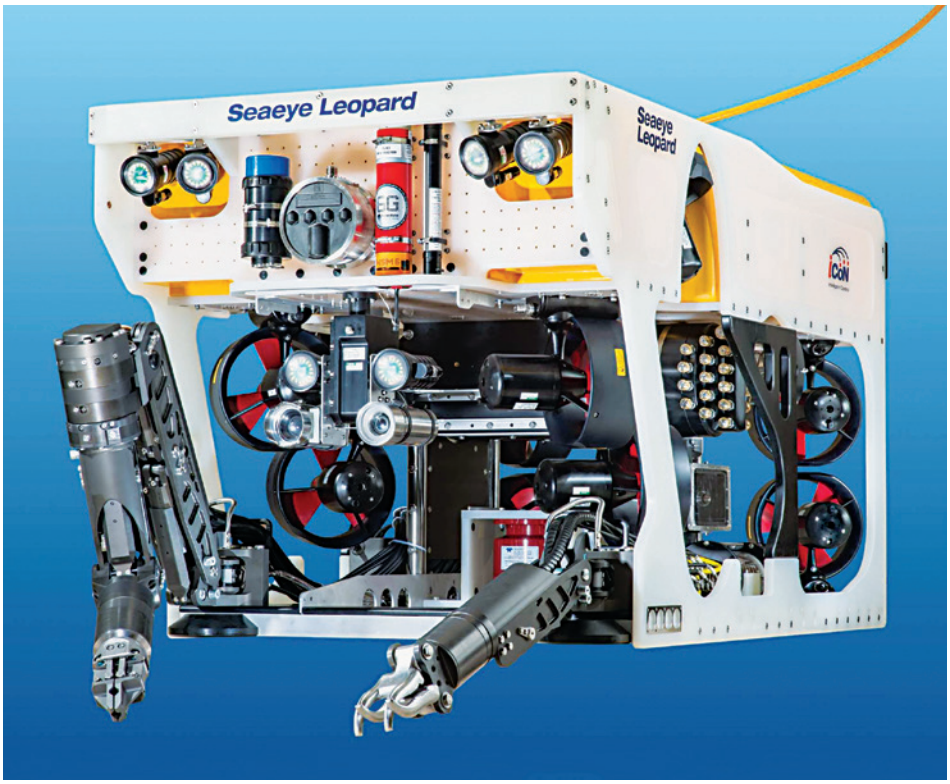
He points out that, with eight horizontal thrusters and three vertical thrusters, the Leopard can hold steady in strong cross-currents. Its large open payload bay allows for ample tooling and survey sensors to be installed on sliding trays for rapid reconfiguration and easy maintenance. With a 1 tonne through-frame lift capability and a four-point docking system for tooling skids, more demanding payloads can be added to the Leopard as needed. "It means," Mr Green said, "that a survey-grade INS system can now be easily integrated inside the vehicle."

The ship is DP2 class, and its propulsion system comprises two main Veth VZ-900 Z-drives with manoeuvrability provided by a retractable Veth VL-400 L-drive and a VT-700e Veth tunnel thruster. Power is supplied by a quartet of Caterpillar C32 diesel engines each producing 995kW to give a service speed of 10 knots. The ship has a four-point mooring system.

As with most offshore vessels today, crew and contractor comfort is of great importance, and the vessel has been built to BV's vibration and noise comfort standards. The 50 crew on board are accommodated in 10 single and 20 double cabins. **OSJ**

DEEP HELDER

Length oa	64.8m
Beam	15.77m
Draught	4.5m
Deadweight	1,500 tonnes
Engines	4 x Caterpillar C32
Power	3,980kW
DP2	Kongsberg K-POS-DP-2 Green DP
Service speed	10 knots
Deck space	500m^2
Deck strength	5 t/m^2
Moonpool	4 x 4m
Moon tubes	2 x 1.2m diameter
Crane	20 tonnes at 10m
A-frame	Optional
Classification	BV + Hull + Mach Offshore Service Ship+ DYNAPOS AM /AT-R + AUT-UMS Cleanship, Green Passport, Comf-VIB-1/ Comf-Noise-1



A Leopard electric ROV rather than a hydraulic type will be more environmentally friendly but have work-class performance