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SHIPYARD DE HOOP UNLEASHES NEW FSIV

Speed-KEEPER

SHIPYARD DE HOOP HAS RECENTLY COMPLETED SEA TRIALS ON THE FIRST FAST SERVICE INTERVENTION VESSEL (FSIV) 2000. THE VESSEL OFFERS high-tech cargo and crew transfer capabilities with an extensive range of custom options, enviable speed-keeping performance and a strong focus on fuel efficiency.

WORDS BY BEN LITTLER

Having successfully trialed the first of the vessels, De Hoop are constructing a further six FSIV 2000s, which are aimed at combined transportation of cargo and passengers to offshore oil fields. Construction is being split between two sites in the Netherlands; CSR in Rotterdam and Groningen Shipyards, Waterhuizen. Those built in Rotterdam are being outfitted at De Hoop's Lobith yard, whilst those at Waterhuizen will go to De Hoop Foxhol.

European with a Competitive Edge
Patrick Janssens, Managing Director of Shipyard De Hoop, speaking to SBI's Ben Littler, explained De Hoop's philosophy and the key to their success.



Photo courtesy of Shipyard De Hoop

"Our products are complex, high-tech and comfortable. However, we simplify the process of construction through customisation. Many shipyards concentrate on building standard ships that have all the bells and whistles – that can do everything. We try to really customise the vessel to the client's needs. It does only what it has to do, nothing more. This makes it cost effective. This way you can get a European standard vessel for an internationally competitive price." Cost-efficiency is very much the name of the game with the FSIV 2000. De Hoop has designed the vessels to conform to the strictest environmental standards, ensuring the lowest possible fuel consumption.

SPECS

Length	55.17m
Beam	9m
Depth	4.5m
Draught	3.1m
Deadweight	210t
Speed	21.3 knots
Working deck space	200m ²
Accommodation	100 passengers, 8 crew
Fuel capacity	40m ³ to be increased to 200m ³ as an option
Freshwater capacity	5m ³ to be increased to 160m ³ as an option
Propulsion	Hybrid diesel-electric/diesel-direct
Main power generators	2x Caterpillar 3516
Classification	Germanischer Lloyd for worldwide operation



Hybrid Power

The FSIV 2000 is powered by a unique hybrid system, featuring a diesel-electric/diesel-direct combination.

Whilst operating at low speeds – up to 13 knots – carrying out manoeuvres or in DP mode, only the port side diesel engine is called into use. This drives a generator that produces power for two electric motors, which drive the propeller shafts through the gearbox and a bow thruster.

Reaching 13 knots requires just 410kW power – a fact that is reflected in the consumption of less than 150l of fuel per hour at that speed.

When accelerating to higher speeds the switch to diesel direct mode can be made automatically,

within a matter of seconds, by the smart power management system. This sees both of the Caterpillar 3516 engines engage with the gearbox. Each engine provides 2,350kW @ 1,800rpm for a total output of 4,700kW. Once diesel-direct mode has been activated, the two propellers will be in operation, producing up to 3.7MW.

Blades & Steel

The twin propeller configuration De Hoop has employed here also improves the vessel's fuel efficiency. This is the result of the large blade surface area relative to underwater resistance-increasing appendages. >>



Photo courtesy of Shipyard De Hoop



Photo courtesy of Shipyard De Hoop

Typically three or four smaller propellers, or a jet system, would be used. Both of these options offer less efficiency, seeing considerable speed reduction when carrying cargo. De Hoop's 'the Hoop' configuration enables the vessel to maintain its top speed of 21.3 knots, even when carrying the maximum 200t payload.

The multi-chine hull is also a key component in the FSIV's fuel-efficient performance. De Hoop have optimised the hull with both transit and DP in mind. It is a lightweight construction built under Germanischer Lloyd High Speed Craft rules.

Weight reduction has been achieved via a combination of sophisticated construction techniques and use of high tensile steel. Small entrance angles of the waterlines and long bowlines improve sea-going performance in challenging conditions – even at 20 knots the acceleration remains well within comfort levels.

Unique Characteristics

The FSIV is unique in being constructed entirely from steel. There are a number of reasons for this decision. For one thing, steel

is a more economical option than the alternative – aluminium. It is also easier to repair and requires less advanced equipment and techniques. Steel is also more versatile, especially in terms of fire-fighting. Whereas aluminium requires pre-wetting before it can be used in such operations, steel does not. De Hoop also point out that, in the event of the vessel being used in areas where there is a potential of piracy or even terrorism, steel can be made bullet-proof far easier than aluminium.

Lap of Luxury

The FSIV exploits De Hoop's long experience in building luxury cruise vessels. High standard accommodation is provided for up to 100 seated passengers and eight crew.

A sophisticated insulation system ensures low noise and vibration levels for those on board; no accommodation space has a sound level above 58dB(A) at full speed. Seating is of a very high standard for extreme comfort and De Hoop have provided plenty of luggage space. Passengers are entertained with >>

– PATRICK JANSSENS,
DE HOOP MANAGING DIRECTOR –



*These ships perform above
all industry standards...
[with] the lowest possible
fuel consumption.*

‘on-demand’ movies and music, in much the same style as in an aircraft cabin. Food is available to passengers from a self-service buffet.

For the crew onboard, there are four double-berth cabins. De Hoop also offer the option of two-deck accommodation berths for up to sixteen people as an alternative to the 100 seats, should overnight stays be a requirement.

An optional hull vane can be applied to reduce pitching for increased comfort levels. The location of the lounge area is also a step towards greater comfort. It has been placed a quarter of the way along the bow, meaning lower accelerations.

A Boat with Options

The customisable features of the FSIV 2000 are many. For example, instead of the fixed pitch ducted propellers that are fitted to the vessels currently being built, it is possible to use high rpm propellers. This configuration will enable the vessel to reach top speeds of over 25 knots. However, it will also lead to slightly reduced speed-keeping performance.

Another option is the fitting of a hull vane designed by Van Oossanen Naval Architects. This consists of a fixed foil positioned below the hull and behind the rudders, fitted by means of struts. This lowers fuel consumption by an additional 11 to 15 percent, dependent on speed.

The 55m length vessels can carry up to 200t deck cargo, though De Hoop’s design can be adjusted, with below-deck tank configurations, to have storage for liquid cargo, such as fuel and potable water, up to a total of 400t.

The vessel is also flexible when it comes to DP. The FSIV 2000 is a DP1 class notation vessel but, thanks to the hybrid engine configuration, can easily be upgraded to DP2 if required.



Photo courtesy of Shipyard De Hoop

Safe Transit

The cargo deck is well protected by the forward superstructure, high freeboard and side panels, guaranteeing safe transit for cargo. Cargo receives additional protection courtesy of the bowlines, which reduce the amount of water getting on deck.

The second cargo deck is 40m² and located in front of the accommodation. It is protected by high bulwarks/coaming construction and two strong longitudinal tubes between the structure and the bow. Fittings and lashings are provided to enable sea fastening of one TEU container.

Premium Performance

Mr Janssens, speaking soon after the successful sea trials of the first FSIV 2000, was very pleased with the outcome: “These ships perform above all industry standards. We are achieving very good results with the FSIV 2000 and the lowest possible fuel consumption, making these very cost-effective vessels.”

[i. www.dehoop.net](http://www.dehoop.net)

Compact DP

De Hoop commissioned Alpatron Marine to provide Navis DP4000 DP systems to the FSIV 2000 vessels currently under construction.

The Navis DP4000 is well suited to vessels with limited space available in the navigation console. The remote manual thruster controls, the main engine alarm and monitoring system and the autopilot are all integrated in the system. This means that there is no requirement for separate control and display units in the console. Alpatron are also supplying complete navigation and communication packages for the seven FSIVs.



Photo courtesy of Alpatron Marine

[i. www.alpatronmarine.com](http://www.alpatronmarine.com)
[i. www.navisincontrol.com](http://www.navisincontrol.com)