HOLLAND SHIPBUILDING

Holland Shipbuilding

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FIVELBORG
FERUS SMIT SIDE-LAUNCHES 14,000 TON ICE-CLASS 1A VESSEL

Nemo H_2
AMSTERDAM'S LATEST CANAL CRUISE BOAT IS POWERED BY HYDROGEN

ROSSINI
WAGENBORG'S LARGEST LIVING QUARTER BARGE OPERATIONAL

Technology and the spirit of enterprise
THE VISION OF KEES-JAN MES, MANAGING DIRECTOR IMTECH MARINE & OFFSHORE

SPECIAL
SMM 2010
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ROSSINI

Shipyard De Hoop delivers largest Living Quarter Barge to Wagenborg

Builder:
Shipyard De Hoop
Lobith-Tolkamer, The Netherlands
Owner:
Wagenborg Offshore BV
Delfzijl, The Netherlands

In 2007 Shipyard De Hoop was awarded with the first order for a Living Quarter Barge (LQB). Subsequently over the next years Wagenborg ordered more new built LQBs to be built in The Netherlands at two different shipyards: Shipyard De Hoop and Holland Shipyards. They are build to fulfil the demand of the fast developing in oil and gas industry in the Caspian Sea, Kazakhstan. The barges are specially designed for the harsh conditions to be found there, for example shallow waters, extreme climatic conditions with very high and low ambient temperatures, severe ice conditions for much of the year and the ever present danger of high pressure gas bubbles .
The latest addition to this fleet is the 135 meter in length, 440 berth vessel, Rossini, built by De Hoop. This one breaks all the records, the barge was built again in an extreme short span of time (20 weeks). Up till now, De Hoop has produced almost 2000 beds for Wagenborg. "We think the Rossini sets the new standard as the tendency is to go larger in these fields", said Patrick Janssens, Managing Director of Shipyard De Hoop. As with the previous vessels the hull is based on a Chinese new build hull, originally designed for an Inland Container Vessel.
In 2009, Shipyard De Hoop celebrated its 120th anniversary. Over the years, the yard has focused on custom-build sea-going vessels as well as inland vessels. Shipyard De Hoop operates from two different yards: De Hoop Lobith, 10.5 hectare on the eastern side of The Netherlands, employing 130 people, and De Hoop Foxhol, a 2.5 hectare site in the north of Holland, which employs 65 people. In addition, the yard normally employs about 100-150 regularly hired (Dutch) shipbuilders to supplement its workforce. The maximum slipway size is 200 x 60 meters. Inland operations focus on large cruise and day passenger vessels, while the offshore vessels Include dredgers, offshore /diving support vessels, suppliers, semi-submersibles, tugs and push boats, chemical tankers and container vessels. The yard has its own engineering department and has sufficient capacity in-house to completely design the vessel. Once, starting to build the vessel, Shipyard De Hoop has the capability to perform steel cutting, work preparation and pre assembly prior to assembling the complete vessel. The yard also produces its own carpentry and has work-

Principal particulars

Length o.a.	135.00m
Length w.l.	134.00m
Breadth mld.	11.45m
Depth mld.	4.25m
Draught des.	2.50m
Deadweight	1,250 tons

Tank Capacity

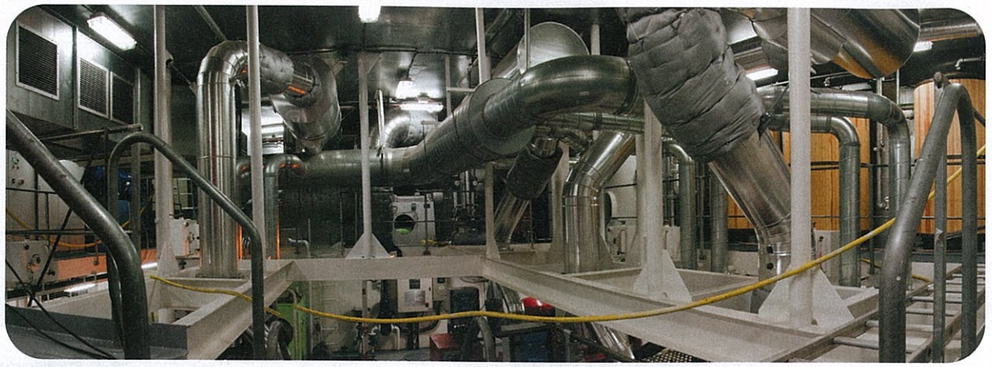
Fresh water	appr. 400m³
Fuel Oil	appr. 130m³
Sewage	appr. 1,200m³
Dirty water collecting tank	appr. 50m³

Capacity

Accommodation	440 persons

Class

Hull: In accordance with Bureau Veritas: Special service / Accommodation barge - Non Propelled Barge, Hull, Machinery: Ice Class 1B, Coastal area. Safety / Accommodation: In accordance with RosR certificate issued by NSI



Exhaust lines and air supply for generator sets

shops for producing electrical cable looms and carrying out bench work. So basically, from start to finish, Shipyard De Hoop builds the entire vessel.
Wagenborg Offshore, part of Royal Wagenborg, has years of experience and knowledge of all oil and gas related transport disciplines at international level. The core of the company consists of committed professionals who carry out complex logistical projects in the oil and the gas industry. Wagenborg Foxdrill and Wagenborg Kazakhstan form part of the Wagenborg Offshore division. The division is specialised in shallow water transport and has many years of experience of ice navigation in both the Baltic and Scandinavian waters and with sailing ferries in the shallow Wadden Zee. Besides dismantling, moving and modifying drilling rigs, Wagenborg Offshore offers a range of other services such as conductor driving, wind turbine installation and various other services where they use their in house designed alternative rigging systems and rope access.

The Evolution of Living Quarter Barges

In 2009, the demand for accommodation was extremely high in the North Caspian Sea offshore fields. There was not much time before the winter started, channels closed and the area could not be reached for almost half a year. At that time, to meet the need, De Hoop converted the 110 meter River Cruise Vessel Debussy into a 290 berth seagoing LQB. The success of this project quickly ensured a second order (design and building) for De Hoop. Ravel, Debussy's sister vessel, was converted into a 290 berth LQB and delivered in 2001. In this second conversion, De Hoop fully 'winterized' the vessel with an ice-belt all around the hull to meet the requirements of Ice Class 1B and additional equipment & installations to enable the vessel to stay in the field during the harsh winters in Kazakhstan.

In the mean time, Wagenborg and De Hoop where talking about more LQBs for the same area, again with a very short delivery time. Because the capacity of De Hoop was limited, cooperation with Holland Shipyards was undertaken. Based on existing hulls for inland vessels and a new 116 meter design for a 320 berth LQB, the vessels Verdi (built by De Hoop) as well as Puccini and Bellini (built by Holland Shipyards) were delivered. All these barges were built from empty hulls with a complete new aft ship, in extremely short delivery times (16 weeks to 18 weeks). During this time, Holland Shipyard also converted the Passenger Vessel London Night into the 320 berth LQB Kurmangazy.

Lay-out

Though not self-propelled, Rossini is fully self-supporting in every other respect and can go without supplies for quite some time. The vessel has a double bottom over its entire length which has been subdivided into separate tank spaces for sewage, ballast water, fresh water and fuel oil. To get the hull certified Ice Class 1B, an internal ice belt has been fitted all around inside the side tanks and in the fore and aft ship.
Aft is the power plant housing the four 400 kW generator sets (400 V AC, 3 phase, 50 Hz), supplied by Veth, and a control station. In harbour and in an emergency situation the power will be supplied by one air cooled 70kW generator. Caldic Techniek delivered the matching Stamford generators, four of type HCM534 and of one type UCM 274 D for the sets. The pumps onboard are Spanish Azcue pumps, supplied by Reikon.
In the amidships area are two more technical spaces (pump rooms) with the water makers, the UV water treatment, the boilers (Jac. de Vries Gesta BV), an incinerator and the sewage treatment plant. The water maker capacity is achieved by 3 reverse osmosis units from Hatenboer Water, each with a capacity of 50m3 per day. Whilst the sewage treatment system is a combined biological treatment unit from Qua-vac; the incinerator is a TeamTec delivery.

Generator sets, Stamford generator delivered by Caldic and engine delivered by Veth

Crew cabin

Mess room with buffet corners

Hull accommodation

Above this tank deck is the lower deck, which houses from aft to fore:
- Engine room;
- Stairs ways
- Garbage area;
- Dry stores and cool & freeze spaces;
- Galley and scullery;
- Mess room with buffet corners for 220 persons;
- Sanitary facilities & stores;
- Stair ways covering all decks;
- A 137 seat day room;
- Meeting room;
- Linen stores and laundry;
- Gymnasium;
- Emergency generator room.

Between the lower deck and the main deck is the 'tech deck' (containing piping and cabling, including connections!), which has enabled the fast construction time and usage of removable accommodation modules on deck.
External communication is provided by means of 2 marine VHF's and 4 phone booths in the reception area. For internal communication there is a public address system with a maximum of 6 groups and a telephone system centrally connected with every cabin and public space interfaced to external lines.
The electrical installation of the complete radio equipment is performed by Droste Elektro.

Superstructure accommodation

Above the 'tech deck' is the superstructure, consisting of 2 x 17 accommodation modules and technical modules, each with its own dedicated foundation, forming the lay-out described below. Above the engine room is a small open aft deck with a funnel, a staircase and cranes. For easy provisioning, a 10-foot container can be lowered by crane into the barge through a large deck hatch. Once lowered into the hull, the container is located in a lobby right next to the provision stores, so the handling of supplies can entirely be done inside, out of the weather.
The access from the main aft deck to the accommodation leads to the reception, two offices, public toilets & showers, a large drying room and a changing room with 408 lockers.
The rest of the main deck is taken up by forty 4-berth cabins, each with an en suite bathroom, and a treatment room with a separate quarantine area.
The upper deck features a large lounge (Dayroom 1) aft with seating for 75, consisting of lounge corners, games tables and five larger tables to seat six persons. Another series of 4-berth cabins, again with an 'en suite' bathroom, an internet cafe and the Barge Manager's office complete the upper deck.

Deck lay-out

On deck we find the appropriate anchor and mooring equipment. Capstans and bollards on the aft deck and a double anchor winch on the foredeck. Anchor winch is supplied by Dijvler Materiaal, bollards & chocks are provided by Ship's Equipment Centre (SEC), Groningen (part of C.I.G.) and the anchors & chains are from Wortelboer.
On the aft deck we find on the portside one electro-hydraulic crane of 10 ton SWL at 10 m with a fixed boom and on the starboard side one electro-hydraulic crane of 10 ton SWL at 12 m with a fixed boom. Both of the cranes are supplied by Promac.
The embarkation area is on top of the aft two accommodation modules, adjacent to the life rafts which were supplied by Wagenborg.
MOB/rescue boat with davit is located on the foredeck and also delivered by Wagenborg.

Gymnasium

Galley

Zero discharge

The Caspian Sea region's oil reserves are estimated at more than 200 billion barrels, second in the world only to the Middle East. Nonetheless it is an interesting, but environmentally sensitive region! For that reason, at a conference in Astrakhan, Russian Prime Minister Vladimir Putin said all work related to the development of fields in the Russian sector of the Caspian is being conducted "in strict compliance with international environmental standards," applying zero discharge technology. The Caspian Sea is the largest enclosed body of water in the world by area. Neither classed as the world's largest lake or as a sea, the Caspian Sea has no effluents. This means that water is only leaving the Caspian Sea by evaporation or by human activity. As a consequence the waste resulting from production activities is not discharged into the sea, rather it must be collected before being rendered harmless and reprocessed. And this of course also applies to the accommodation facilities.

Conclusion

All Dutch participants in the 'LQB-projects', like Holland Shipyards and de Hoop believe there is a growing market potential for living quarter barges and not only for the offshore market in the Caspian Sea!

The same formulae is also applicable for other markets and to several levels of luxury. Making the barges suitable for prison accommodation, crew quarters or floating hotels only makes a small difference. The yard and other parties are already actively pursuing orders for accommodation vessels in the wake of the Rossini.

Subcontractors and suppliers of equipment fitted on board the 'Rossini'
(partial list)

Bovi Scheeps- en Projectinrichting, Tubbergen ..... : curtains
Caldic Techniek, Rotterdam ..... : *Stamford* generators
Dijvler Materiaal, Hardinxveld-Giessendam ..... : anchor winch
Droste Elektro, Tolkamer ..... : electrical installation complete radio equipment
Econosto, Rotterdam ..... : valves
Electrolux, Diemen ..... : washing- and drying machine
GTK, Dieren ..... : galley equipment
Hatenboer-Water, Schiedam ..... : fresh water hydrophore unit & generator
Heinen & Hopman Engineering, Spakenburg ..... : chiller
Jac. De Vries Gesta, Middenbeemster ..... : hotwater boiler
NRF, Nederlandse Radiateuren
Fabriek, Mill ..... : coolers
Promac, Zaltbommel ..... : marine crane
Qua-Vac, Almere ..... : sewage plant
Reikon, Spijkenisse ..... : *Ascue* pumps
Ship's Equipment Centre (SEC), Groningen ..... : bollards and chocks
Smits Neuchatel, Utrecht ..... : underfloors
TeamTec, Norway ..... : incinarator
Trinoxx, Hardinxveld-Giessendam .. : portholes and windows
Trinoxx, (Famos) ..... : modular bulkheads; doors inside
Veld Cold & Safe, Groenlo ..... : provision cooling
Veth Propulsion, Papendrecht .... : *Scania* generator sets; *SisuDiesel* generator set; *Stamford* generators
VDI, Rotterdam ..... : insulation
Wagenborg, Delfzijl ..... : MOB/rescue-boat; davit for MOB/rescueboat; liferafts Wetcab, Poland: wet units
Wortelboer, Rotterdam ..... : anchor and chains

GENERAL ARRANGEMENT