

Shipyard De Hoop builds innovative expedition cruise vessel for Celebrity Cruises

Shipyard De Hoop has recently secured an order for the design and construction of an innovative expedition cruise vessel for Celebrity Cruises, daughter of RCCL. Despite dynamic international competition, De Hoop won the prestigious contract as a result of their accumulated experience of technically advanced features on high-end offshore vessels, combined with the knowledge of developing luxury cruise interiors (for smaller inland cruise vessels). A year on from the initial discussion with Celebrity Cruises, the project is in a very advanced stage of engineering and steel cutting, and the first block sections are currently being erected. The vessel, to be named *Celebrity Flora*, will be constructed entirely at the Lobith facilities, with yard number 488. With the official keel laying ceremony planned for later this year, the vessel's inaugural date is already set for May 2019.

De Hoop's management are convinced that a decade of participating in smaller seagoing cruise vessel projects, with the associated design development and investment in knowledge, has now paid off. De Hoop's CEO, Patrick Janssens, states quite firmly that this was - and still is - the ideal basis for entering the growing market of expedition cruise vessels; their designers were fully prepared when the Celebrity Cruises challenge arose. Furthermore, with many Dutch suppliers and subcontractors on the client-approved 'makerslist', this project is a great opportunity for the Dutch shipbuilding industry as a whole.

A unique VIP-cruise concept - Designed with the Destination in Mind

Celebrity Flora will mark an evolutionary turning point in the approach to ship design. The unique design, developed in close collaboration with the client, is an elevated and inspired approach to marine exploration of the Galapagos Islands - creating a sense of being immersed in the destination, rather than just visiting it. Although a number of expedition cruise vessels were ordered in the last year, none were optimised for the open water experience in warmer climates or in an environment where nature is so special and diverse.

Designed and classed for worldwide service, the cruise vessel is optimised for experiencing the land and marine environment of the Galapagos in high comfort. *Celebrity Flora* will be the first vessel to be built according to a two-compartment damage stability regulations and additionally complies with the relevant damage stability requirements planned for implementation during 2020. (The amendment, stipulating these regulations, was implemented by IMO in June 2017, under protest of many ship designers and builders, who considered these rules to be impossible!). Furthermore, other than complying with future international rules and regulations, the vessel also commits to specific Galapagos National Park Directorate Regulations, whereby explicit environmentally low-impact (exterior) features were applied.

As this vessel is expected to be stationary - in a bay or near one of the islands - for 66% of the operational time, considerable thought went into the design and selection of equipment, allowing the ship to perform efficiently under DP (Dynamic Positioning). Combined with a zero-speed stabiliser system, the DP system will choose a heading to minimise the roll and heave motions on the vessel, significantly improving passenger comfort. To achieve a high level of redundancy and to meet the Class requirements (PSMR* and DP2 notation), the power and propulsion plant of *Celebrity Flora* is duplicated and housed in two separate engine rooms. The introduction of an advanced propulsion system, its hull configuration (improved with CFD calculations) and the specially designed diesel engines, guarantee an average 25% reduction in hull resistance, 15% reduction of overall fuel consumption and equivalently

fewer air emissions, making this cruise ship one of the most energy-efficient ships in its class. One glance at the ship's profile reveals the sophisticated bow shape - featuring a straight, wave-piercing stem, with an integrated bulb at the waterline. This characteristic bow both reduces resistance in waves when in transit and saves energy when staying in position, due to the highly efficient short bow thruster tunnel. A further enjoyable advantage is the enhanced exterior aesthetics of the vessel.

To further reduce the environmental footprint, the cruise vessel accommodates an enhanced sewage plant to improve the quality and reduce the amount of the wastewater, an improved HVAC system leading to 50% less energy consumption and improved thermal insulation as a result of energy-efficient low-emissive glazing. In the electric system, many measures have been taken to save energy - LED lighting, solar panels, etc.

Shipyards De Hoop has put a lot of effort into decreasing noise and vibrations, the result of which can be seen in floating floors, flexibly mounted equipment and anti-vibration panels in walls and ceilings. The practical implementation of this was supported by theoretical frequency analysis of the ship and its interior construction. With Comfort Class 1 notation achieved (the highest possible Class notation), quiet and comfortable passenger areas are assured. It almost speaks for itself that the HVAC equipment consists of a highly advanced climate control system, capable of handling the challenging environmental parameters - high water and outside air temperatures - of the Galapagos.

The exterior deck areas are optimised for the best outdoor experience - offering a wide range of designated features, including a special railing design, protective sun awnings and pleasant hammocks, for enjoying the scenery in full comfort. To make the guests' stay even more pleasant, the ship's superstructure shape has been submitted to wind tunnel tests, to ensure passengers on deck will not be subjected to exhaust gasses.

Passengers' comfort and crew logistics

This latest addition to Galapagos fleet of Celebrity Cruises, a custom built 101.50-metre long ship, features 50 staterooms divided over deck 5 and 6, with a capacity to host a total of 100 passengers. [Celebrity Flora](#) transports travellers in spacious all-suite cabins, featuring generous bathrooms. The modern retreats connect to the outside through outward-facing layouts and integrated balconies. Compared to other designs, the range of cabin types shows a grand variety. [Celebrity Flora's](#) two Penthouse Suites are the largest in the Galapagos, with separate indoor and outdoor living areas, customisable lighting and shades and a telescope for stargazing or spotting wildlife. Guests can also find relaxation in the (2) Royal Suites, (1) Ultimate Sky Suite, (7) Premium Sky Suites, (16) Sky Suites or (22) Sky Suites with veranda.

The number of persons on board is completed with 80 crewmembers, including personal suite attendants to cater to guests' every need, divided over 52 cabins. The sophisticated layout allows for a separate routing for crew 'behind the scenes', to keep disruption to a minimum and not to inconvenience the passengers.

Characteristic for this vessel is the large variety of public areas, to be found on deck 4, 7 and 8: each passenger has the choice of 7 different seats. Guests can unwind in the Sunset Lounge, The Vista - an open-air hideaway with 360-degree views, cocoon-style loungers and private cabanas - or the floor to ceiling, glass-wrapped Observatory. Darwin's Cove and the Naturalist Center are the tourist offices, providing information about destination, wildlife and environmental efforts, while the Discovery Lounge

will be home to Naturalist presentations and excursion information. Guests can participate in a guided astronomy tour, or enjoy star-lit skies on their own, from the Stargazing Platform. Breakfast, lunch and dinner are served in the Seaside Restaurant, whereas the Ocean Grill offers a more casual dining space, panoramic views and dinner-under-the-stars.

The Marina is the primary point of access to the ship and the guests will be brought on board over water with the available Ridged Inflatable Boats (RIBs). Celebrity Flora's transom features integrated aft stairs, combined with a foldout stern platform with special boarding facilities, to allow safe and easy boarding for the passengers. The non-standard layout of *Celebrity Flora* is immediately expressed when boarding, as the only (passenger) entrance to the vessel is via the stern. Once inside, the entire logistics - the route leading passengers through the accommodation - is focussed on passenger experience. On lower deck (deck 3), a RIB garage - with hydraulic hull doors and dedicated cranes - is provided to allow for swift and unnoticed provisioning logistics by the crew.

Besides being state-of-the-art and using eco-friendly technology, the vessel will feature the largest and most luxurious accommodations in the Galapagos region. The raw materials for carpentry, upholstery, finishing and decorations of all eight accommodation decks consist of sustainable, natural, regionally inspired materials. To safeguard the passenger experience and correct use of materials, De Hoop has a dedicated team of designers and ergonomists on hand during the final fine-tuning of the interior layout.

Principal particulars

Length, over all	: 101.50m
Beam, moulded	: 17.00m
Depth, moulded (maindeck)	: 6.50m
Draught, moulded	: 4.50m
Propulsion power	: 2x 1250kW
Speed, max	: 14kn
Deadweight (T = 4.50m)	: 700t
Gross tonnage	: 5635t
Passengers	: 100 persons in 50 suites (of six different sizes)
Crew	: 80 persons in 52 cabins

Classification

Lloyd Register of Shipping	: * 100A1, Passenger Ship, *IWS, ECO (BWT, IHM, OW, P, SEEMP), LMC, UMS, PSMR*, DP(AM), NAV1, PCAC 1, 3
Descriptive notation	: Dynamic positioning DP2, Comfort Class 1

ABOUT CELEBRITY CRUISES

Celebrity Cruises' iconic "X" is the mark of modern luxury, with its cool, contemporary design and warm spaces; dining experiences where the design of the venues is as important as the cuisine; and the amazing service that only Celebrity can provide, all created to provide an unmatched experience for vacationers' precious time. Celebrity Cruises' 12 ships offer modern luxury vacations visiting all seven continents. Celebrity also presents incredible cruise tour experiences in Alaska and Canada. Celebrity is one of five cruise brands operated by global cruise vacation company Royal Caribbean Cruises Ltd.

ABOUT SHIPYARD DE HOOP

Shipyard De Hoop is a successful Dutch designer, engineer and builder of custom-built vessels. Each and every ship that is built is unique and built in-house, which means no standard processes, but customisation. De Hoop has a positive approach to trends and developments in the industry, allowing them to quickly embrace change and even anticipate future developments.

Shipyard De Hoop is a medium-sized shipyard headquartered in Lobith, in the east of the country, with 250 to 500 employees depending on the workload. The yard offers slipway facilities for vessels up to 200 metres length, has a combined quay length of 450 metres locally and a further 200m in the Rotterdam harbour area available for outfitting.

Shipyard De Hoop has an impressive track record in designing and constructing custom-built ships. This comprises both seagoing vessels and inland vessels, including river cruise vessels, passenger vessels, as well as high-end work and accommodation vessels for the offshore industry and renewables markets. Having their own design and engineering department, together with all other disciplines (not only hull building, but also prefabrication, carpentry/interior manufacturing, installation facilities, piping, etc.) allow them to build a complete 'turn-key' ship. The company is characterised by its flexibility and quality, whilst offering fast delivery dates at the same time.

Shipyard De Hoop will celebrate its 130st anniversary with the turn of the year from 2018 to 2019!

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