

# Ship Building

i n d u s t r y

## Diving to Depths of Innovation

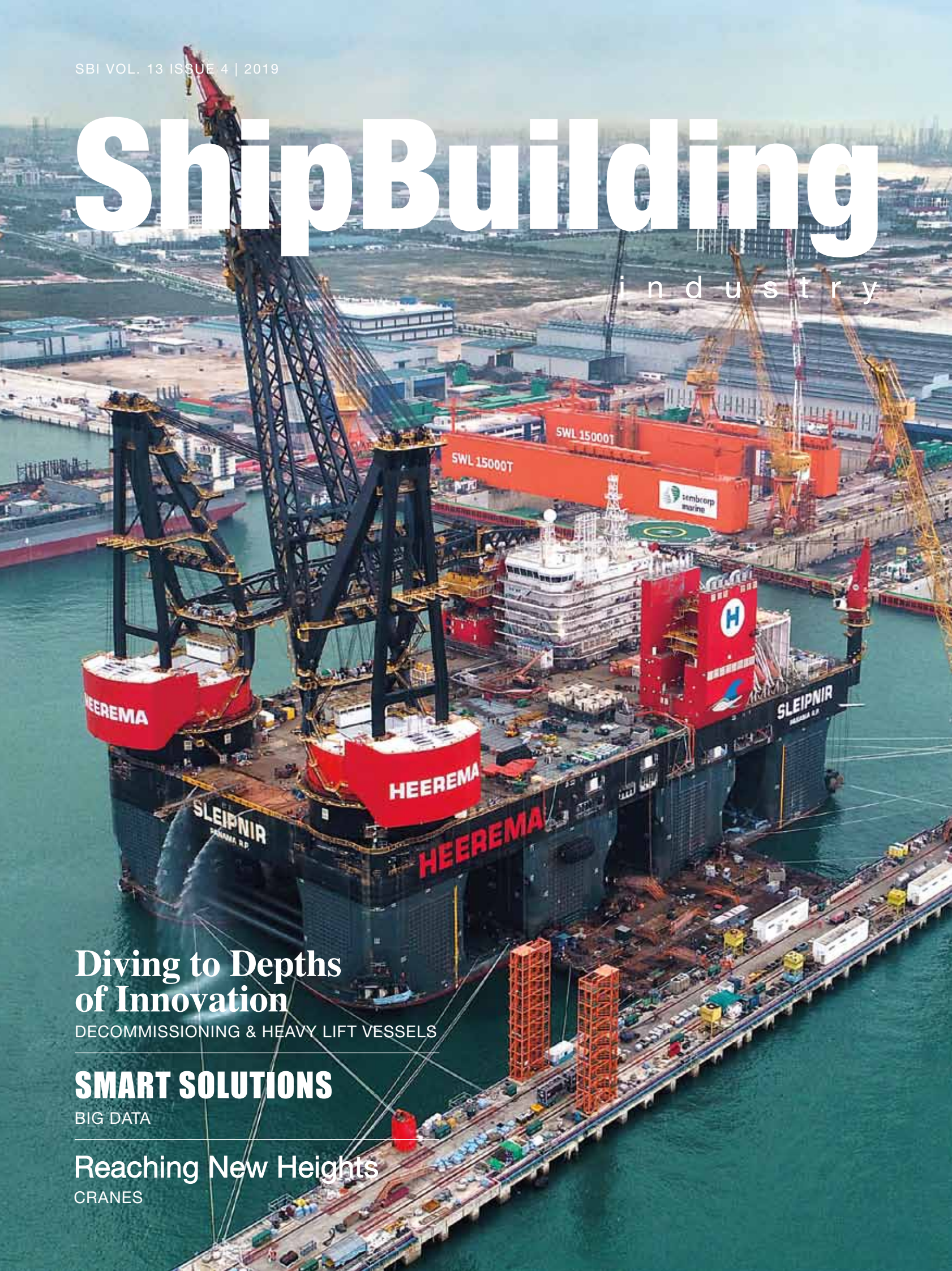
DECOMMISSIONING & HEAVY LIFT VESSELS

## SMART SOLUTIONS

BIG DATA

## Reaching New Heights

CRANES





Celebrity Flora's sophisticated bow shape – featuring a straight, wave-piercing stem, with an integrated bulb – both reduces resistance in waves when in transit and saves energy when staying in position.

# Celebrity Flora

SHIPYARD DE HOOP'S NEW INNOVATIVE EXPEDITION CRUISE VESSEL.

DELIVERED TO CELEBRITY CRUISES IN APRIL 2019, CELEBRITY FLORA IS THE FIRST EXPEDITION SHIP TAILORED IN DESIGN AND BUILT TO PROVIDE HIGH-END LUXURY CRUISING IN THE GALAPAGOS AREA.

ALL PHOTOS COURTESY OF SHIPYARD DE HOOP

Celebrity Flora, the first seagoing cruise ship built in the Netherlands in recent years was successfully delivered to Celebrity Cruises (a subsidiary of Royal Caribbean Cruises Ltd) in Amsterdam in May 2019, before sailing to Ecuador in South America where the naming ceremony took place in June. Having recently completed successful sea trials, the 100-passenger ship will embark on year-round cruises to the Galapagos Islands, beginning in Baltra – one of the smaller islands of the Galapagos – at the start of the 2019 cruise season.

## Against All Odds

Headquartered in Lobith, in Holland, Shipyard De Hoop has slipway facilities for vessels up to 200m, a combined quay length of 450m locally and a further 200m in the Rotterdam harbour area available for outfitting. When paired with its accumulated experience of technically advanced features on high-end offshore vessels and combined with its knowledge of developing luxury cruise interiors (for smaller inland cruise vessels), De Hoop was an obvious choice of shipyard for Celebrity Cruise's new vessel.

According to De Hoop's CEO, Patrick Janssens, Celebrity Flora arrived at the ideal time for entering the growing market of expedition cruise vessels, as well as presented a great opportunity for the Dutch shipbuilding industry as a whole.

## Regulations Compliance

Celebrity Flora has been designed in close collaboration with Celebrity Cruises and co-



Celebrity Flora during her recent successful sea trials.

contractors to ensure the vessel provides a fresh perspective for marine exploration of the Galapagos Islands. With the aim of ensuring that guests are fully immersed in the environment, rather than simply observing, Celebrity Flora has been optimised for the open water experience in both warmer and diverse climates.

Celebrity Flora is also the first vessel to be built according to the latest probabilistic damage stability regulations and therefore already complies with the relevant Rules and Regulations for 2020; this is supplemented with De Hoop's compliance with a two-compartment damage stability regulation. Celebrity Flora is both designed and Lloyd's classed for worldwide service, and crucially also commits to Galapagos

National Park Directorate Regulations, whereby specific environmentally low-impact features have been applied.

Combined with a zero-speed stabiliser system, Celebrity Flora also features a dynamic positioning system. This allows her to perform efficiently when stationary in water without physically anchoring and damaging the sea floor, and significantly improving passenger comfort.

## Environmentally-Minded

To achieve a high level of redundancy and to meet the Class requirements (PSMR\* and DP1/DP-AM notation), the power and propulsion plant of Celebrity Flora is duplicated and housed in two separate engine rooms. The power supply for two >>

## SPECS

### Principal Particulars

Length, over all	101.50m
Length, between perpendiculars	97.43m
Beam, moulded	17.00m
Depth, moulded (maindeck)	6.50m
Draught, moulded	4.50m
Propulsion power	2x 1450kW
Bow thruster power	2x 400kW
Speed, max	14.5 knots

Deadweight (T = 4.50m)	1,200t
Gross tonnage	5,922t
Passengers	100 persons in 50 suites (of six different sizes)
Crew & personal suite attendants	80 persons in 52 cabins

### Tank Capacities

Fuel oil	255m <sup>3</sup>
Fresh water	175m <sup>3</sup>
Sewage grey	150m <sup>3</sup>
Sewage black	45m <sup>3</sup>
Treated water holding	140m <sup>3</sup>
Urea	16m <sup>3</sup>
Water ballast	530m <sup>3</sup>

### Classification

Lloyd Register of Shipping X100A1, Passenger Ship, \*IWS, ECO (BWT, IHM, OW, P, SEEMP), XLMC, PSMR\*, UMS, DP(AM), NAV1, PCAC 1, 3

rudder propellers, two bow thrusters and other consumers, is supplied by four caterpillar C32 diesel generator sets. The diesel engines are equipped with an SCR (Selective Catalytic Reduction) installation, whereby the emission of nitrogen oxide (NOx) is greatly reduced. The rudder propellers, type 20 CRP of 1,450kW each, were supplied by Steerprop from Finland, while the 400kW bow thrusters are provided by Veth from the Netherlands. With this configuration a 12-knot cruising speed can easily be achieved, and a high-maneuvrability is guaranteed.

An advanced propulsion system, the hull configuration (improved with CFD calculations) and the specially developed diesel engine arrangement improve Celebrity Flora's energy efficiency too, guaranteeing an average 25% reduction in hull resistance, 15% reduction of fuel consumption and equivalently fewer exhaust emissions. These characteristics make this cruise ship one of the most energy-efficient ships in its class, in addition to being IMO Tier III compliant.

To further reduce its environmental footprint, Celebrity Flora accommodates an



enhanced sewage plant to improve the quality and reduce the amount of wastewater; an improved HVAC system (to cope with the warmer seawater and higher outside air temperatures of the Galapagos) and improved thermal insulation (thanks to energy-efficient low-emissive glazing) leads to 50% less energy consumption.

### Design in Motion

When it comes to exterior design, Celebrity Flora's sophisticated bow shape – featuring a straight, wave-piercing stem, with an integrated bulb – both reduces resistance in waves when in transit and saves energy when staying in position, just like the higher efficiency of the bow thruster.

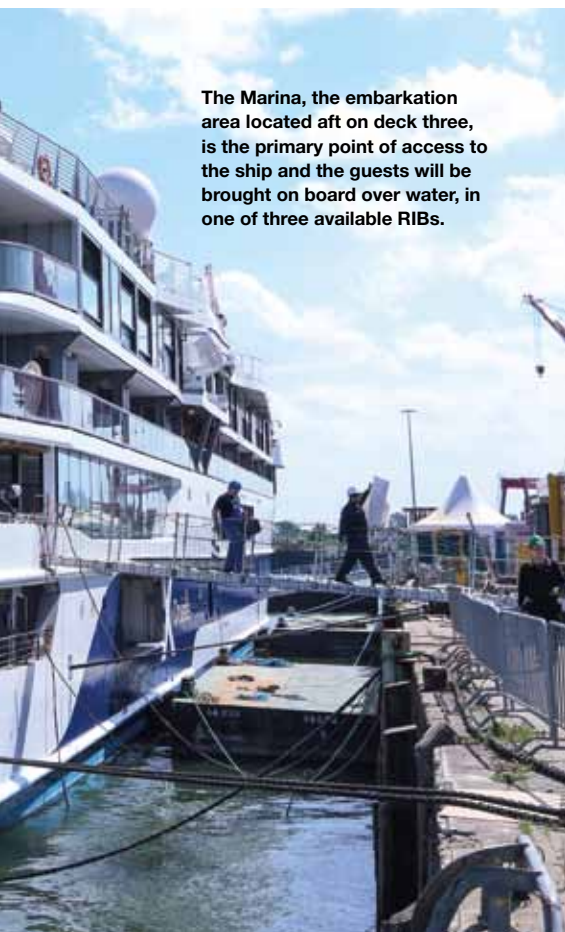
Aside from its state-of-the-art design and use of eco-friendly technology, the vessel will feature expansive and highly luxurious accommodation. The raw materials for carpentry, upholstery, finishing and decorations of all eight accommodation decks consist of sustainable, natural, regionally inspired materials. A total of 50 staterooms are divided over decks 5 and 6, accommodating up to 100 passengers, and each featuring generous bathrooms, connected to the

outside world through outward-facing layouts and integrated balconies. All of the vessel's luxurious cabins – two penthouse suites (the largest in the Galapagos, with separate indoor and outdoor living areas), two royal suites, one ultimate sky suite, seven premium sky suites, sixteen sky suites and twenty-two sky suites with veranda – feature full room automation that allows passengers to control everything at the touch of a button. A further 52 cabins accommodate up to 80 crew members and personal suite attendants.

"Celebrity Flora marks another example of our revolutionary ship design by allowing the destination and its environment to influence every decision we've made", says Lisa Lutloff-Perlo, President and CEO of Celebrity Cruises. "From the luxurious all-suite accommodations to industry-first, eco-friendly innovations, we created a ship that brings a new level of luxury, sustainability and natural exploration to the region.

### Amenities and Dining

An abundance of spacious public areas can be found on decks 3, 4, 7 and 8, including a choice of seven different seating locations. Key features are the floor to ceiling glass-



The Marina, the embarkation area located aft on deck three, is the primary point of access to the ship and the guests will be brought on board over water, in one of three available RIBs.



The Vista on deck seven with dining under the stars and glamping pods.



A key feature is the floor to ceiling glass-wrapped observatory.

wrapped observatory and the open-air hideaway in The Vista on deck 7. Guests can relax in the Sunset Lounge or enjoy naturalist presentations and excursion information sessions in the Discovery lounge, both to the stern of deck 4, while a Stargazing Platform on deck 8 makes the most of the planned itinerary.

Breakfast, lunch and dinner are served in the Seaside Restaurant on deck 4, while the Ocean Grill on deck 7 offers a more casual dining space, panoramic views and dinner under the stars by way of glamping pods. "Celebrity Flora was specifically designed to bring our guests closer than ever before to the Galapagos Islands – from its outward-facing design that takes guests to the water's edge, to the enhanced custom-designed Novurania yacht tenders", says Ms Lutloff-Perlo. "And now our new Galapagos Glamping experience gives guests an incredible opportunity to experience the destination for which the ship was built, on a whole new level, under the millions of stars above."

Behind the scenes, the dry/cold/freeze stores, galleys, pantries and eateries (including the scullery and the waste/

sewage management) allow for seamless service in the restaurants thank to their innovative layout. On deck 3, a RIB garage with hydraulic hull doors, hatches and dedicated cranes is provided for storage of the tenders. To allow for swift and unseen provisioning logistics by the crew, to starboard side – near the dry, cool and freeze stores in the fore ship – a loading bay is provided. This unique RIB handling, in combination with the dedicated stern boarding facilities for passengers, is the key feature of Celebrity Flora's design.

### Further Design Features

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 Marina, the embarkation area located aft on deck 3, is the primary point of access to the ship and the guests

will be brought on board over water, in one of three available RIBs. It can accommodate up to three Zodiacs at once, reducing transport time to and from land and allowing more time for guests to explore the practically untouched islands.

Additionally, both time and finances have been invested by De Hoop in an effort to increase passenger comfort, by decreasing noise and vibrations. Floating floors, flexibly mounted equipment and anti-vibration panels in walls and ceilings all help to optimise the passenger experience. With Comfort Class 1 notation achieved (the highest possible Class notation), quiet and comfortable passenger areas are assured. In addition, thorough wind tunnel tests on the vessel's superstructure shape ensure passengers on deck will not be subjected to exhaust gasses.

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

i. [www.celebritycruises.co.uk](http://www.celebritycruises.co.uk)