SIGNIFICANT SHIPS OF 2020

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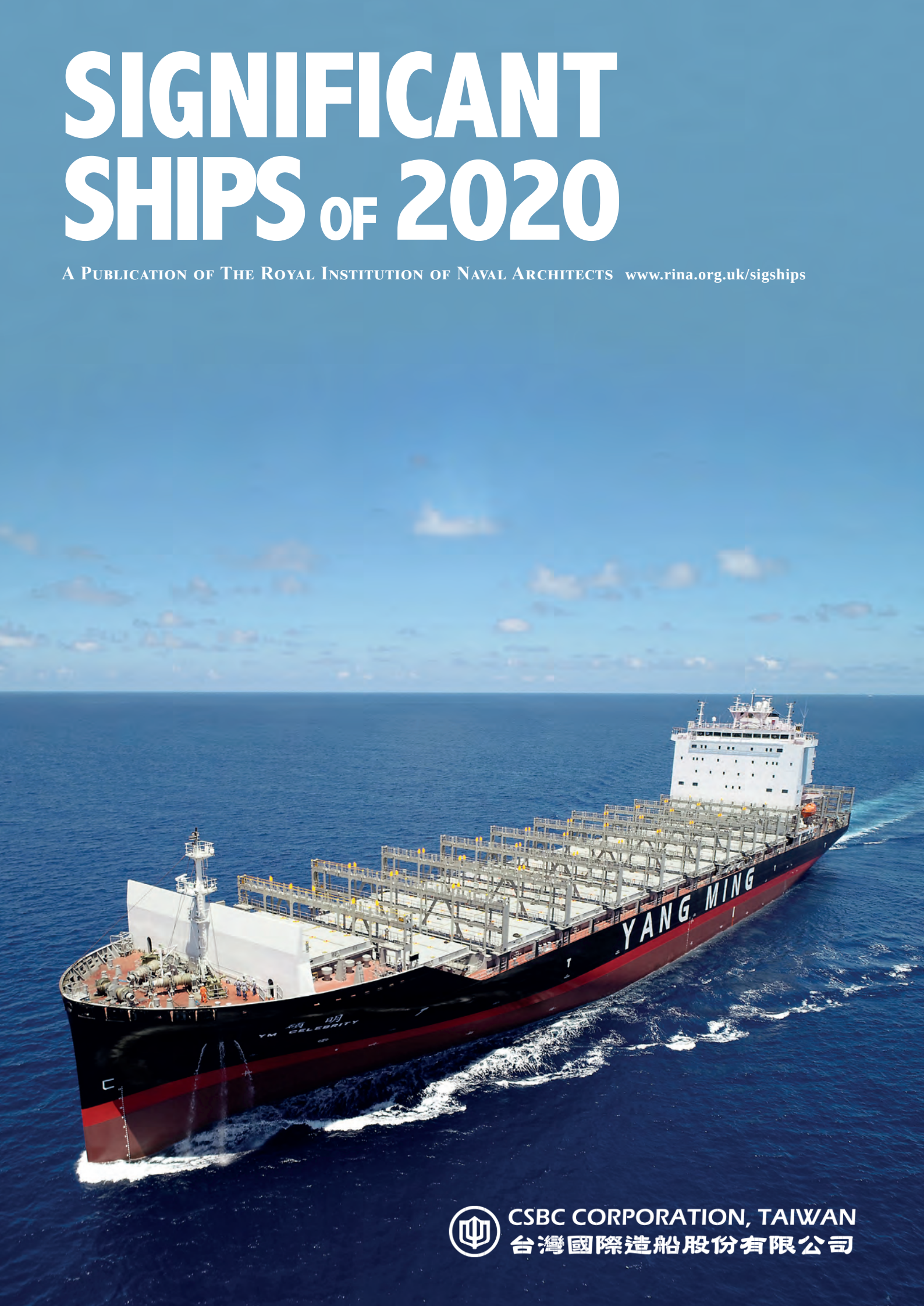

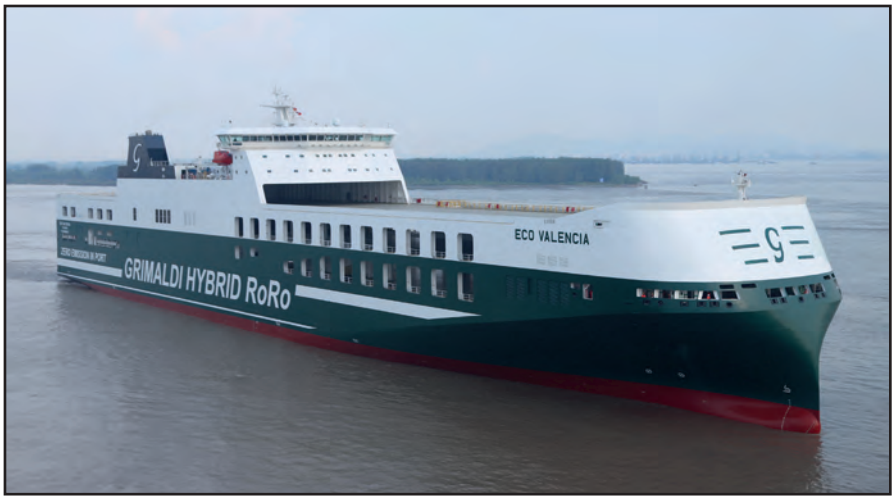

ECO VALENCIA – Ro-ro

Shipbuilder: .....**China Merchants Jinling Shipyard (Nanjing) Co. Ltd**.
Vessel's name: ..... ***Eco Valencia***
Owner/Operator: ..... **Grimaldi Lines**
Country: ..... **Italy**
Designer: .....**Knud E. Hansen A/S**
Country: .....**Denmark**
Model test establishment used: ..**Hamburgische Schiffbau - Versuchsanstalt (HSVA)**
Flag: ..... **Italy**
IMO number: **9859533**
Total number of sister ships already completed (excluding ship presented): .....**Nil**
Total number of sister ships still on order: **8**

Eco Valencia, delivered in October 2020 by Jingling Shipyard, is the first of 12 hybrid ro-ro ships designed by Danish naval architect Knud E. Hansen for the Naples-based Grimaldi Group. The vessels are known as the GG5G class or, to give them their full title, the 'Grimaldi Green 5th Generation'. Of the 12 ships, three will operate for the owner's Finnlines subsidiary and the remainder in the Mediterranean.

At 238m in length, beam of 34m and with a gross tonnage of 67,311, *Eco Valencia* is claimed to be the largest short-sea ro-ro vessel in the world and can transport 7,800 linear metres of rolling freight, equivalent to around 500 trailers. Its capacity is twice that of the biggest ships currently operated by Grimaldi but it consumes the same amount of fuel, effectively halving the CO_2 footprint of each truck or trailer.

Cargo is spread over five decks including the weather deck and two hoistable car decks. Vehicles are loaded through two stern ramps and a system of interior ramps.

As the name and class suggest, these vessels are designed to be environmentally friendly and have earnt the highest Green Plus notation from Italian classification society RINa for ships that go beyond the required environmental compliance. For the GG5G vessels, this includes an air lubrication system for the hull, a waste heat recovery system, premium anti-foulings and more.

The propulsion system comprises a pair of MAN B&W 9S50ME-C9.6 main engines and twin Rolls-Royce Promas Lite integrated rudder and propeller propulsion systems. Shaft generators and 600m² of solar panels are used for charging the ship's lithium-ion battery system, which is used in port to ensure emission-free operations. The main engines are intended to run on HFO with an Ecospray Technologies exhaust gas cleaning system, allowing compliance with 2020 sulphur regulations.

TECHNICAL PARTICULARS

Length oa: 238.00m
Length bp: 229.75m
Breadth moulded: 34.00m
Depth moulded
to tank top: 3.30m
to main deck: 9.30m
to lower deck: 17.20m
to upper deck: 23.10m
to weather decks: 28.85m
Width of double skin
side: 1.40m
bottom: 3.30m
Draught
scantling: 7.40m
design: 7.20m
Gross: 67,311gt
Deadweight
design: .....Approx. 18,120t
Bunkers (m^3)
Heavy oil: 1,640
Diesel oil: 248
Water ballast (m^3): 12,584

Classification society and notations: .....RINA C✠ Ro-Ro Cargo Ship, INWATERSURVEY, BWM-T, AUT-UMS, SYS-NEQ-1, SYS-IBS, GREEN PLUS, UNRESTRICTED NAVIGATION
% high-tensile steel used in construction: ... Approx. 95%
Heel control equipment: .....One pair of heeling tanks
Roll-stabilisation equipment: .....Prepared Flume tank stabilization system
Propulsion
Design: ..... Man-ES
Model: 9S50ME-C9.6
Manufacturer: .....HHI-EMD
Number: 2
Type of fuel: .....HFO
Output of each engine: 12,780kW
Is this a diesel-electric or hybrid?: .....No
Propeller(s)
Main engine(s)
Material: ..... Ni-Al Bronze
Designer/Manufacturer: .....Rolls-Royce
Number: 2
Fixed/Controllable pitch: ..... Controllable
Special adaptations: .....Rudder bulb
Main-engine driven alternators
Number: 2
Output/speed of each set: ....2,000kW /117rpm
Diesel-driven alternators
Number: 3
Engine make/type: .....Hyundai 7H21/32
Type of fuel: .....MDO
Alternator make/type: .....Hyundai Electric & Energy System
Output/speed of each set: ..... 1,540kW / 1,000rpm
Exhaust-gas scrubbing equipment
Manufacturer: .....Ecospray Technologies
On main engines?: ..... Yes
On auxiliary engines?: .....No
Boilers
Number: .....1 x oil fired, 2 x exhaust
Type: .....1 x PA0601P01, 2 x EA45013
Make: .....KangRim
Output, each boiler: .....1 x 1,250kg/h, 2 x 1,300kg/h
Bow thruster(s)
Make: ..... Wärtsilä
Number: 2
Output (each): .....2,000kW (input)
Mooring equipment
Type: .....Electric

Special lifesaving equipment
Number of each and capacity: .....2 lifeboats (45 persons each)
Make: ..... Fassmer Marland ZhongShan China
Type: CLR-C5.9

Containers
Reefer plugs: ..... 200 plugs for reefer trailers (100 reefer trailers simultaneously)
Vehicles
Total lane length: 7,800m
Doors/ramps/lifts/moveable car decks
Stern ramp/door: 2
Side hinged ramp cover: 1
Moveable ramp flap: 1
Ramp way door: 4
End hinged ramp: 1
Hoistable car deck: 2
Car deck ramp: 2
Pilot/Bunker door: 2
Type: ..... Hydraulic operated
Designer: .....TTS Marine AB

Ballast water treatment system
Make: .....OceanGuard (Qingdao Headway Technology)
Capacity: 650m³/h

Complement
Officers: 11
Crew: 17
Suez/Repair Crew: 1
Single/double/other rooms:
Single: .... 11 officers cabins, 17 crew cabins, 1 Suez cabin, 1 owner cabin, 1 stowaway cabin
Double: .....6 driver cabins
Other rooms: ...2 offices, 1 conference room, 3 laundries, 2 linen, 1 luggage room hospital, gymnasium, changes room, dayroom, duty mess, crew mess, officer mess, driver mess/dayroom, galley, pantry, provision store
Passengers
Total: 12
Number of cabins: 6
Percentage/number outboard: 42%

Fire detection system
Make: .....Consilium
Fire extinguishing systems
Engine room: .....CO_2
Make/Type: .....Danfoss/low pressure
Vehicle spaces:
Make/Type: .....Danfoss/low pressure
Deck 1 (Tank top): .....CO_2
Deck 3 (Main deck): .....CO_2
Hoistable car decks: .....CO_2
Make/Type: .....Minimax
Deck 4 (Lower deck): .....Drencher
Deck 6 (Upper deck): .....Drencher
Deck 7 (Weather deck): .....Drencher and water monitors
Cabins: .....None (method -IC of SOLAS)
Public spaces: .....None (method -IC of SOLAS)

Waste disposal plant
Sewage plant
Make: .....Jets
Efficiency
Attained EEDI value: ..... Confidential
Required EEDI value: ..... 10,42 g/DWT*Nm (calculated for model test)
Installed Fuel Meters: ..... Installed for all consumers
Energy Saving Technologies*: ... Rudder bulb, air lubrication (Silverstream Technologies), batteries (zero emission in port), 600m² of solar panels
Hull coatings: .....Bottom and sides up to load line, 2 x coats of anticorrosive and 2 x coats of silicon paint

Contract date: ..... 26 April 2018
Launch/float-out date: .....4 September 2020
Delivery date: .....16 October 2020

ECO VALENCIA