A jolly series for Messina

As part of its fleet expansion plan Ignazio Messina shipping company ordered two series of eco-efficient multipurpose container ro-ro vessels from two shipyards in Korea, the second series is due for delivery later this year

With the pressure on shipowners to meet with environmental regulations, whilst still having vessels that are commercially viable, Messina, with its newest vessels aims at meeting these targets.

The second series, the Jolly Titanio class, will see four vessels that are currently under construction at STX Offshore & Shipbuilding, Korea, scheduled to be delivered between September 2014 and March 2015. These vessels are in addition to the previous four vessels of the Jolly Diamante class that was constructed at Daewoo Shipbuilding & Marine Engineering (DSME), Korea and delivered between December 2011 and March 2013.

The main feature of the ships' design is flexibility; the vessels have not been designed for a specific route, but to allow the ships to cater for all worldwide routes, this includes new routes recently opened by the company, such as its North Europe routes. The company says that the design takes in Ignazio Messina's traditional markets and routes, the design required more attention in specific areas; for instance, needing more DWT, and an increased beam which has been selected instead of an increase to the draught, in order to take into account specific characteristics of some African ports.

The vessels have been designed for heavy cargoes and project cargoes, the ramp can bear loads of up to 350tonnes and there is an area in the main garage able to accommodate a height of 7m. The in-take/out-take of the ship is served by a wide stern ramp (12m of clear way) and a wide stern door (27m of clear way), no elevators or movable ramps are applied, the architecture and the design allow operations independently on the main garage, and above (main and upper decks) and below it (twin and hold deck). This is to speed-up loading and unloading operations without using shore facilities, which can be used when the opportunity to operate on open decks is available.

Jolly Diamante from the first series of ro-ro ships for Messina

A spokesperson from Messina adds: "As ro-ro vessels they don't have any special cargo handling system, the most impressive system, from the loading/unloading point of view is the jumbo-ramp at the stern, which is one of the biggest and most powerful ever built in the world."

The vessels are equipped with a controllable pitch propeller, which allow the vessels to be operated at different speeds and loading conditions, with the possibility to optimise the propulsion chain efficiency; a shaft generator in-line with the propeller shaft, frequency controlled, is able to supply all the electric power necessary during normal sailing and also during manoeuvring, the necessity to use diesel generators is minimised.

The electric plant has been designed, with two physically separate bus-bars, one for ship services and another one for the side thrusters (the vessels are equipped with bow and stern thrusters), and with the four diesel generators able to be connected independently to each bus bar, this eliminates the risk of black-out during manoeuvring when the power demand coming from side thrusters can be very high with very fast variations.

Messina also adds that from the environmental impact point of view these vessels have many features. The vessels are equipped with a Water Ballast Management System (UV based), bringing them in-line with forth coming rules, they are also equipped with an Alternative Maritime Power system (Cold Ironing) so they are able to receive electric power from shore when berthed in ports equipped with these facilities and, last but not least, they are among the first vessels in the world equipped with Exhaust Gas Cleaning Systems (scrubbers) for SOx.

The company says that the Jolly Diamante class is the first commercial vessel series equipped with scrubbers (for auxiliaries diesel generators and boiler) and the Jolly Titanio class will continue along this path with significant improvements, with all

TECHNICAL PARTICULARS

Jolly Diamante/Jolly Titanio class

Length oa:	239/240m
Breadth:	37.5m
Depth:	19.95m
Deadweight	45,200/45,000dwt
Lanes:	6,030/6,065m
TEU:	2,920/2,889

the exhaust coming from the main engine, diesel generators and auxiliary boiler will be passed through the scrubber, with an hybrid-system able to operate both in closed and open loops.

Adding to the vessels' efficiency, the ships are also fitted with a DSME pre-swirl stator device, which is a set of fins placed in front of the propeller with the purpose of optimising the wake, with a mean power saving of around 4% observed at model tests, the company says. The main engine has been equipped with a Variable Geometry Turbo charger, able to improve the efficiency of the engine at low and intermediate loading, with an expected saving of around 4%.

In the light of the specific characteristics of this project, RINa says that it has established, based on the general rule approach, specific criteria for the structural verifications of the hull structures, in particular for concerns regarding the fatigue analyses of some important structural elements, such as the connections between ro-ro and container areas, the double bottom connection with side structures and the side frames and the structures associated with cargo operations.

The anti-pollution characteristics of these ships are certified by RINa with the assignment of the GREEN PLUS notation, which has entailed a detailed analysis of all their "environmentally friendly" capabilities.

In addition to Messina's order, Grimaldi has been following suit with an order that it placed with Hyundai Mipo Dockyard (HMD) for a further six 31,300dwt vessels that will be delivered in 2014/15, Grimaldi had a previous 15 vessels delivered between 2010-2012. Grimaldi has also set its sights on opening up opportunities across the globe with an expanded fleet and greater flexibility in its operations.

One of the main features that Grimaldi highlights about its vessels is the ballast water treatment system (BWMS) and space allocated for scrubbers, further adding green credentials to its fleet portfolio. The Ballast Water Treatment Plant which will be installed onboard its vessels is the OceanGuard BWMS, developed by Headway Technology Co., Ltd. together with Harbin Engineering University.

A Test Report for a Corrosion Contrast Experiment for Water Treated by the equipment under test (EUT) Unit, of OceanGuard BWMS to Different Materials and Coatings has been carried out. Grimaldi says that based on the long-term testing, the effects of two test waters on Q235 steel, SS304 and coating materials are the same, indicating that the treated seawater will not change the corrosion rules in the natural seawater for the materials above; and for butyl rubber, the effects of treated seawater on its properties are less than that of natural seawater.

Besides the BWMS, the new vessels are equipped with common rail main engines, which will help reduce CO_2 emissions, so it is possible to maintain a low level of smoke, minimum power for the vessel's designed speed, and lower consumption, the company adds. *NA*