

FOREIGN LEGION ON THE WAVES

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The MN CALAO is the first of two ro-ro ships delivered to the French company Maritime Nantaise (MN) by Hyundai Mipo Shipyards. Continuing the builders specialization in the construction of ro-ro vessels, the new pair are actually the smallest ro-ros that have been built by the yard but they incorporate a number of special features making them highly suitable for military logistics.

For many years, MN has been the owner of choice for the French Ministry of Defence (MOD) with a variety of long term chartered vessels. MN also operates three specialist ro-lo vessels built for the transport of Ariane rockets and equipment from France to Guyana. At the moment, MN charters two vessels to the French MOD. The MN PELICAN was purchased second hand by the company from Scandinavia. The 1,690-tonne vessel was rebuilt with a sideport aft and crane for deck containers. Most recently, the ARK FORWARDER was chartered from Stena Line having been already retrofitted with sealift features by ARK.

Looking to the future needs of the French MOD, MN planned their new vessels to be the most suitable for military use but also to be used commercially on a wide variety of ro-ro routes Worldwide. The demands are quite diverse. Firstly, the vessels would need to fit into all French overseas territory ports as well as their homeport of Toulon. This limited the vessels overall length to 160m. The vessels would also need to load a wide spectrum of military cargo, all the way from the French Leclerc Main Battle Tank (MBT) on its transporter to 4x4 jeeps as well as containers loaded with supplies, ammunition and food.

CMN worked closely with Danish naval architects Knud E Hansen to come up with a design that would maximise the ro-ro and container intake within the limited length. Following a tender which included both European and Far Eastern yards, CMN chose Hyundai Mipo as having the best combination of price and experience. The MN CALAO was delivered in July with sistership MN TANGARA due in September.

CARGO

The vessel's comparatively high 849 TEU intake is achieved by incorporating a good 6.7m deckheight on both the tanktop (Deck 1) and Maindeck (Deck 3). This allows containers to be double stacked by forklift trucks, both decks being wide and obstruction free. Mafis are generally not used by the military as marine military logistics is usually required in far off locations. However, the Maindeck is strengthened for axle loads imposed by the heaviest Mafis. Ideally, containers are also loaded on the forward half of the Weatherdeck, either by forklift truck or by the starboard side mounted 45t crane which has a 25m operating radius. A pair of flush hatches are located forward which allow containers to be lifted from the Maindeck in an emergency. With the mooring deck located below, the Weatherdeck extends far forward above it, protected by a substantial bulwark, in order to maximize the container intake.

Wheeled and tracked cargo can be loaded via the wide TTS supplied stern ramp. The 150t capacity hydraulically

cally operated ramp has a clear width of 16.0m and a main section length of 14.7m. Three inner flaps and nine outer flaps can be folded individually depending on the width of the shore linkspan, adding a further 6.2m to the length. The ramp is self-supporting with a load of up to 100t using preventer stays. A hydraulically operated side ramp is located aft on the starboard side, required for use in ports lacking proper ro-ro facilities. The ramp is 9.0m wide and is split into 3 sections. The main section is 7.6m long hinged to a 3.85m long outer section with a further 2.6m of finger flaps. The ramp also has a 150t load capacity corresponding to the heaviest military transports such as a MBT on a multi-wheeled trailer. Both external ramps are surfaced with herringbone bars to reduce vehicle slip.

Once inside the wide entrance area, vehicles can drive up to the Weatherdeck, via a fixed internal ramp on the portside. The ramp is closed off by a 4.6m wide by 5.0m high top hinged door, also supplied by TTS.

1,137 lanemetre of ro-ro cargo can be parked on the deck but a more likely scenario is that the forward half of the deck would be loaded with containers in 3 tiers by the crane. The aft area under the accommodation and Deck 7 has a 4.7m clear height. To maximize the vehicle intake, a fixed ramp on the starboard side leads up under the accommodation to Deck 7, a smaller parking area located aft of the accommodation block.

The Maindeck itself has a maximum 913 lanemetre intake in eight lanes at it's maximum width. Apart from the longitudinal ramp bulkhead on the portside, only two pillars are required

forward to support the hatch openings. One of the most novel aspects of the design is the inclusion of a very heavy-duty hoistable vehicle deck sandwiched between the ramp bulkhead and the cover over the lower hold ramp. The deck is constructed in 3 sections, all with a 10.0m width. The forward and mid sections are 22.9m long and the aft ramp section is 25.4m long. The deck has a load capacity of 1.0t/m², far in excess of regular hoistable cardecks and a 5t maximum axle load. The deck is primarily designed for the most common 4 x 4 military transport and reconnaissance vehicles. Operated by electric jigger winches, the free height on the deck is 3.0m, leaving 3.4m clear headroom below.

Access to the 6.7m high lower hold is via a fixed ramp on the starboard side. The ramp is covered by a 3 section watertight flush cover with a total length of 61.5m and 6.1m width. The fixed ramp itself has a driveway width of 4.5m between kerbs.

MACHINERY

Despite the relatively short length, a high 20-knot service speed has been specified. Hyundai Mipo has employed a similar single screw hullform to the longer Grimaldi class with a soft tunnel over the propeller to permit the installation of the largest possible propeller. Instead of a single two-stroke engine, two medium speed engines have been specified for redundancy but also to guarantee efficiency at a reduced speed on a single engine. MAN have supplied two of their latest generation 7 cylinder 48/60 "common rail" main engines which each have a maximum output of 8,400kW at 514rpm. A Renk twin input

MAIN PARTICULARS

IMO NO.	9642394
CLASS	DnV 1A1 Ice 1A
LOA	160.0
LPP	150.3
BEAM	27.0
DRAFT	8.4
DWT	12,410
GT	23,672
MAIN ENGINES	2 x MAN 7L48/60 B CR
MCR	16,800 kW
SERVICE SPEED	20 knots
TEU	849
LANEM	2,838m

SHIPPIXDATABASE

single output gearbox with pto is coupled to the MAN Alpha skewed controllable pitch propeller.

The aft engine room houses three 7H 21/32 Himsen gensets, each with an output of 1064 kW. Three Hyundai HSC-18k 1,000kW thrusters aid manoeuvrability. The two forward and one aft thruster, located beneath the shaft line, are employed in conjunction with the single flap rudder. The vessel is equipped with a ballast water treatment plant.

The accommodation area is relatively spacious but also incorporates extra cabins which can be used for drivers or military personnel. A freefall lifeboat is located on the portside aft.

MILITARY LOGISTICS

The two new MN ro-ros go a long way to bolster the French MOD's logistics global reach. French military forces have been very involved recently in sub-Saharan conflicts so the new ships have arrived at an auspicious time also bearing in mind the intended withdrawal of forces from Afghanistan. The MN CALAO's first voyage was resupply French forces stationed in Djibouti.

It is no coincidence that the two ARK newbuildings, also due for imminent delivery, are externally quite similar to the MN CALAO. While the intake is comparable at 3,000 versus 2,838 lanemetre, the Danish ARK project has opted for two slow speed main engines and twin propellers but with a somewhat higher output and service speed. However, the ARK GERMANIA is over 35m longer. This reveals that the internal layout chosen by the designers Knud E Hansen is highly efficient and probably superior to the Stralsund project. ■

