

Owner's Requirements For A Pure Car Carrier Vessel

SUNY Maritime College

Introduction

An international RO-RO Liner plans to replace one of the older units that has reached its service life.

Trade Route (Atlantic Trade):

The trade route will run from Maryland, USA to Bremerhaven, Germany. The roundtrip is as follows: Baltimore, Maryland - Halifax, Nova Scotia - Zeebrugge, Belgium - Bremerhaven, Germany - Zeebrugge, Belgium - Halifax, Nova Scotia - Baltimore, Maryland. The total round trip route distance is 9288nm. At sea speed she will make 12 round trips per year.

Principal Cargo Types-Loading & Discharge Means

Vehicle cargo is to be driven on/off via side and quarter ramps, and an internal ramp system to the different deck levels.

Cargo Access

Side ramp on the starboard side, and a stern quarter ramp are to be fitted. The width of the ramp will allow two way traffic. The stern quarter ramp will have a maximum load capacity of 320 LT. The side ramp will have a 100LT maximum load capacity. Weathertight doors to be fitted at all ramp entrances.

Vehicle Deck Loads

The limiting vehicle load will be determined by a standard automobile of 2 tons, distributed on four wheels as per ABS deck wheel loading. Axial loads will be placed in line on any transverse deck web for design and structure purposes.

Limiting Particulars

- LOA - < 225 m
- Draft - < 10 m
- Air Draft: < 65 m
- Cargo:
 - Cars (2 tons)
 - Length: 4 m
 - Width: 1.6 m
 - Minimum Free Height: 2.0m
 - Internal Ramps
 - Width 7 - 12 m, with a maximum slope of 1:10.

Speed & Range

The vessel shall have a trial speed of 20 knots at 0.90 MCR, NCR of 0.85 MCR making 18.7 knots. She shall have a range of 9,400 nm.

Classification

ABS - The construction of the vessel will follow the ABS Rules & Guidelines for Steel Vessels as are applicable.

Registry

Panama.

Complement

The vessel shall have a minimum crew of 22 persons, including Deck, Engine and Steward's departments. There shall be a minimum of 15 cabins for unlicensed crew and 9 cabins for Officers. A further six cabins are to be fitted, in way of an Owners' stateroom, Pilots' stateroom and four cadet/general purpose cabins. All aforementioned cabins will have their own head and shower. On Main Deck there shall be an additional bunk room with accommodation for six riding crew.

Special Design Considerations

- Bow and stern thrusters shall be fitted for berthing without or with less tug assistance.
- Due to the nature of the cargo, the holds must be properly ventilated and fire extinguishing systems must be installed.
- Bilge keels will be installed to slow rolling and improve transverse RAO.
- The vessel is to be powered by a dual fuel main engine, in order to comply with current and future emissions regulations.

Applicable Regulations

The RO-RO shall meet all regulations established by the International Maritime Organization for the safety of life at sea and the protection of the marine environment. Furthermore, all SOLAS and MARPOL requirements will be met within this design.

The design shall also try to meet the future regulations regarding environmental issues established by the EEDI, such as minimizing nitrogen and sulfur oxides emissions from the main and auxiliary engines. To this end, the vessel will utilize dual-fuel engines and sufficient storage for dedicated LNG operation. Allocating for a longer service life with the increase of environmental safety parameters and ensure future flexibility for the owner.