Ro-Pax Ferry B145-I
Basic parameters

polferries

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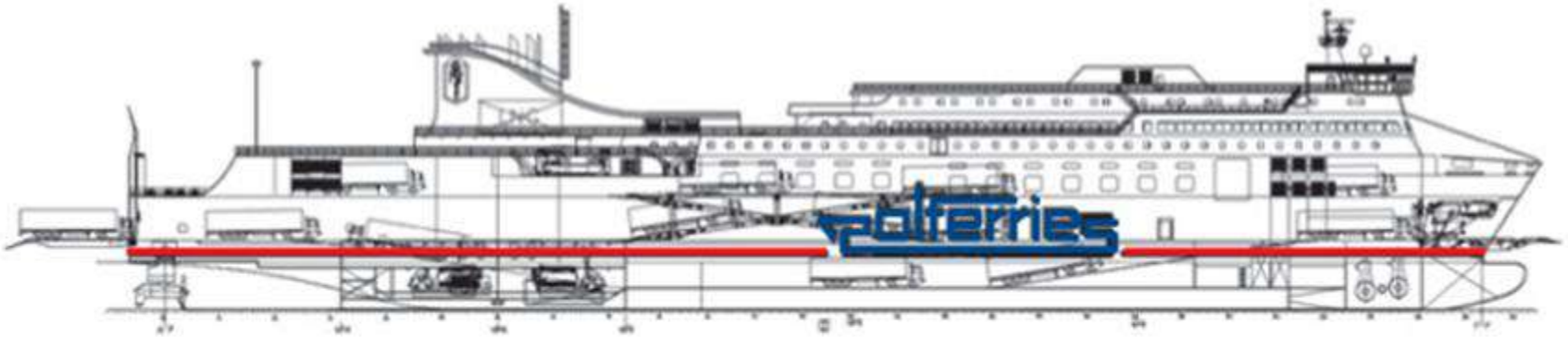
Ro-Pax Ferry B145-I
Operating parameters



LANE LENGTH – min. 3000 m

PASSENGERS – min. 400 PERSONS

CREW – 71 PERSONS

LORRIES - min. 165 pcs
CARS - min. 50 pcs

POLSKA ŻEGLUGA BAŁTYCKA SA

Ro-Pax Ferry B145-I
Operating parameters

AREA OF OPERATION

BALTIC SEA – EMISSION CONTROL AREA UNDER IMO/MARPOL:

- SOx-ECA (since 2005) - MARPOL, ANNEX VI, Reg. 14,
- NOx-ECA (since 2021) - MARPOL, ANNEX VI, Reg. 13.

CURRENT CONNECTIONS OPERATED BY PŻB S.A.:

- Świnoujście – Ystad,
- Gdańsk – Nynäshamn.

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Ro-Pax Ferry B145-I
Operating parameters

WHY THE NEW RO-PAX?

TRANSPORTATION CORRIDOR „BALTIC-ADRIATIC” – BAC, AN IMPORTANT PILLAR OF THE TRANS-EUROPEAN TRANSPORT NETWORK – TEN-T:

„SZCZECIN CORRIDOR” – AXIS SZCZECIN / ŚWINOUJŚCIE-POZNAŃ - WROCŁAW - OSTRAWA – IS A PART OF THE BAC.

(Source: http://regionybac.pl/)

POLSKA ŻEGLUGA BAŁTYCKA SA

Ro-Pax Ferry B145-I
Operating parameters

TYPE OF FERRY TRANSPORTATION

- PASSENGERS
- CARS
- BUSES
- LORRIES

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Ro-Pax Ferry B145-I
Operating parameters

LOADING AND UNLOADING OF THE FERRY (1/5)

RO-RO CARGO (1/4)

- **LAND RAMP**

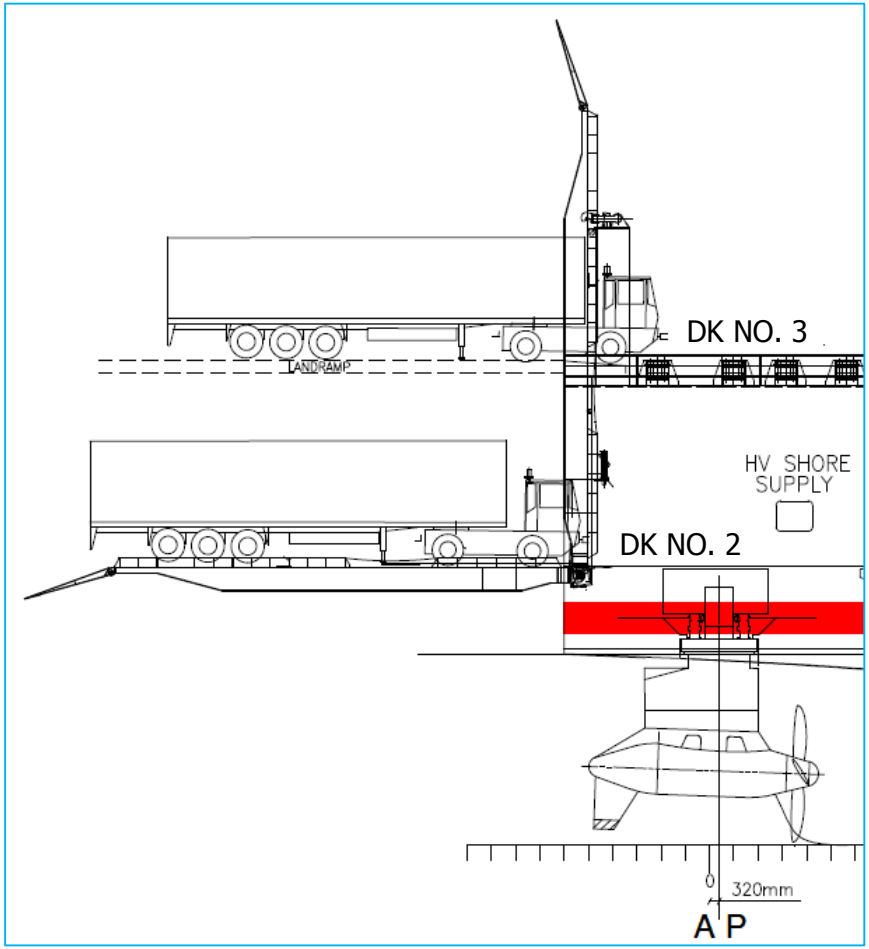
  WIDTH abt 4.0 m

  ENTRY/DEPARTURE TO/FROM DK NO. 3 FROM THE AFT SIDE

- **STERN DOOR-RAMP**

  WIDTH abt 15 m

  ENTRY/DEPARTURE TO/FROM DK NO. 2 FROM/TO LAND
  2 LORRIES SIMULTANEOUSLY



LOADING AND UNLOADING OF THE FERRY (2/5)

RO-RO CARGO (2/4)

- **BOW UPPER DOOR + RAMP/FLAP + LAND RAMP**

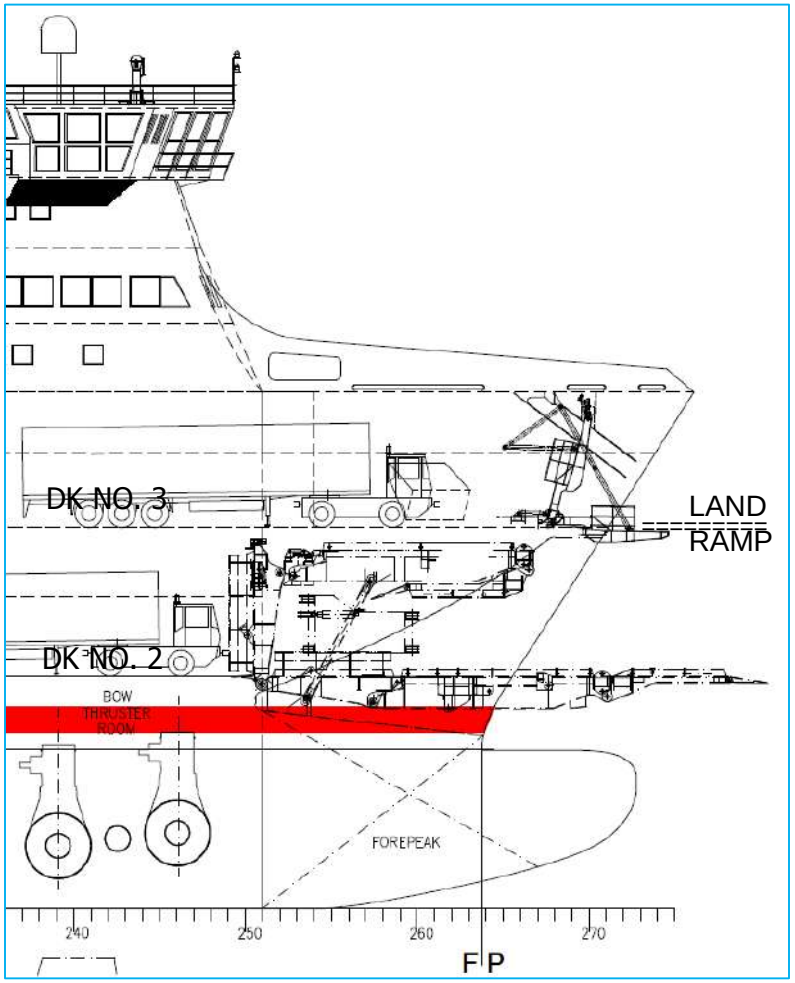
  WIDTH abt 4.0 m

  ENTRY/DEPARTURE TO/FROM DK NO. 3 FROM/TO LAND

- **BOW LOWER DOOR + DOOR-RAMP**

  WIDTH abt 6.0 m

  ENTRY/DEPARTURE TO/FROM DK NO. 2 FROM/TO LAND



LOADING AND UNLOADING OF THE FERRY (3/5)

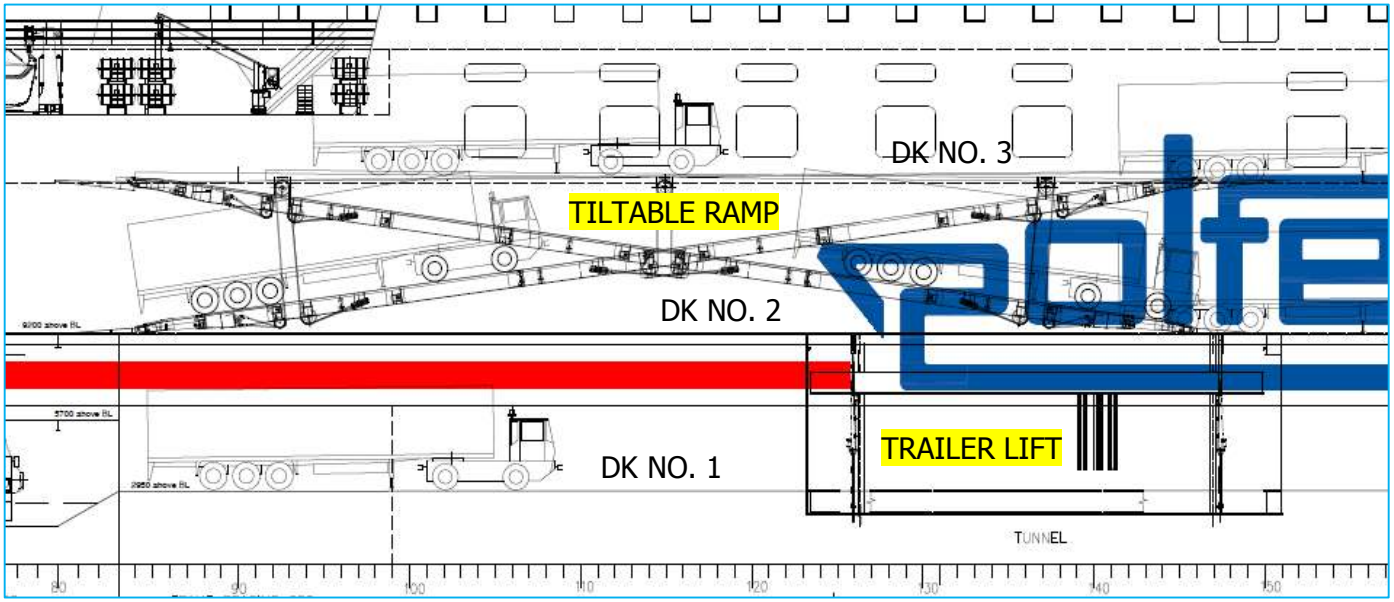
RO-RO CARGO (3/4)

- **TWO-WAY TILTABLE RAMP**

  WIDTH abt 3.6 m
  ENTRY FROM CAR DK NO. 2 TO DK NO. 3 / DEPARTURE FROM DK NO. 3 TO DK NO. 2

- **TRAILER LIFT**

  LENGTH X WIDTH : 18 m x 3.5 m
  TRANSPORT BETWEEN CAR DK NO. 1 AND DK NO. 2



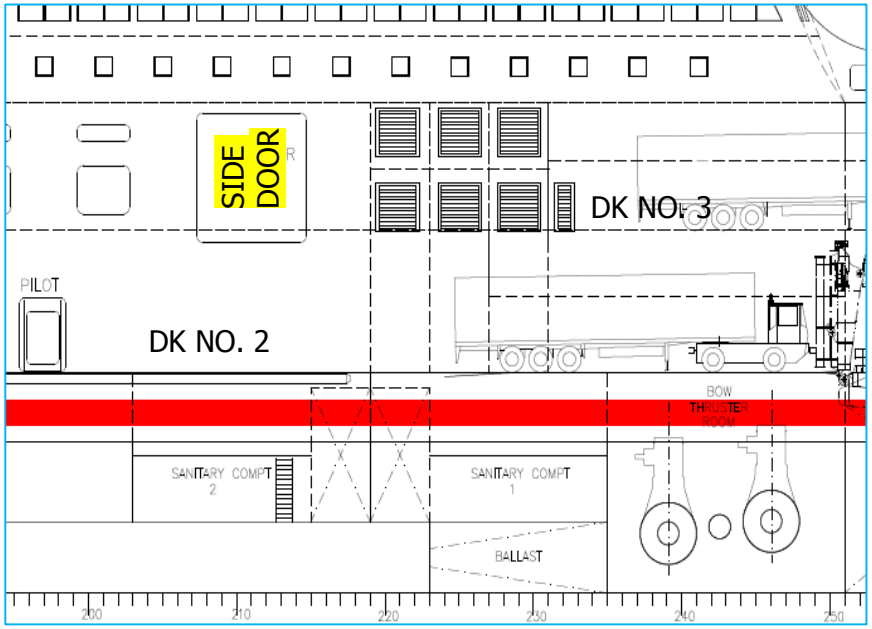
LOADING AND UNLOADING OF THE FERRY (4/5)

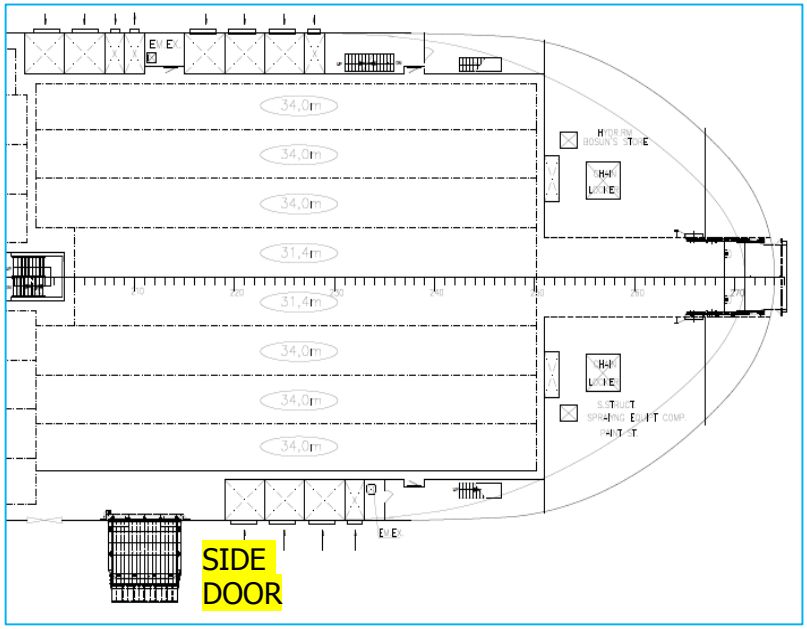
RO-RO CARGO (4/4)

- **SIDE DOOR – SB + LAND RAMP**

  WIDTH abt 5.0 m

  ENTRY/DEPARTURE FROM DK NO. 3 FROM/TO LAND – ŚWINOUJŚCIE, STAND NO. 1





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Ro-Pax Ferry B145-I
Operating parameters

LOADING AND UNLOADING OF THE FERRY (5/5)

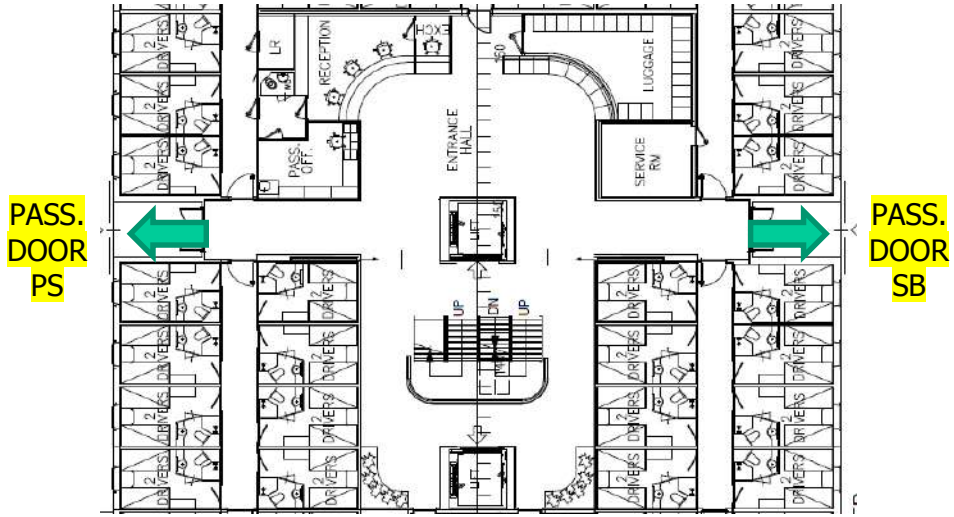
PASSENGERS

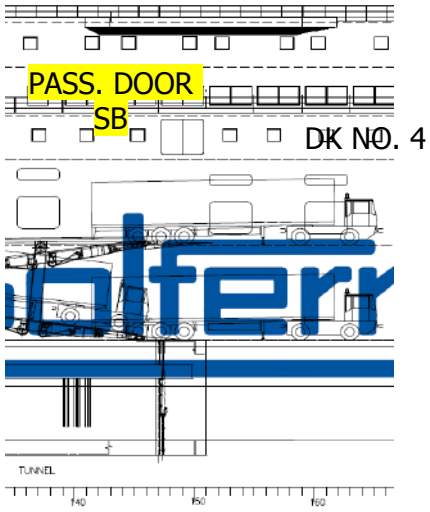
- **PASSENGER DOOR - PS**

  WIDTH abt 2.2 m
  ENTRANCE/EXIT TO/FROM PASSENGER DK (DK NO. 4) FROM/TO COMMUNICATION BRIDGES

- **PASSENGER DOOR - SB**

  WIDTH abt 2.2 m
  ENTRANCE/EXIT TO/FROM PASSENGER DK (DK NO. 4) FROM/TO COMMUNICATION BRIDGES





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Ro-Pax Ferry B145-I
Operating parameters

OPERATING SPEED OF THE FERRY

NIGHT CRUISE, WITH SPEED 14 kn

DAY CRUISE, WITH SPEED 18 kn

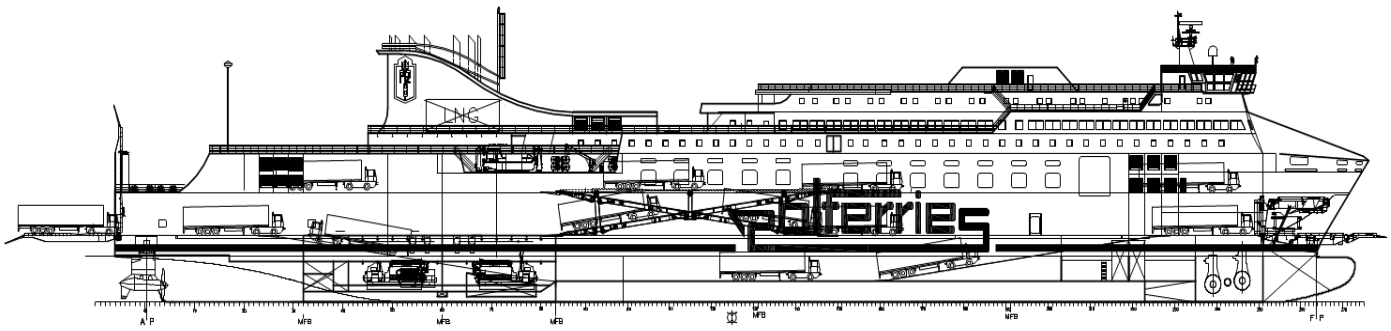
ENDURANCE OF THE FERRY

AMOUNTS OF CONSUMABLES FOR 3 DAYS ENDURANCE OF THE VESSEL	
LS MDO (LOW SULPHUR MARINE DIESEL OIL)	200 m^3
LNG (LIQUEFIED NATURAL GAS)	2 x 140 m^3
LO (LUBRICATING OIL)	18.0 m^3
TECHNICAL WATER	300 m^3
GREY WATER	340 m^3
SEWAGE	230 m^3
POTABLE WATER	500 m^3

POLSKA ŻEGLUGA BAŁTYCKA SA

Ro-Pax Ferry B145-I
Technical parameters

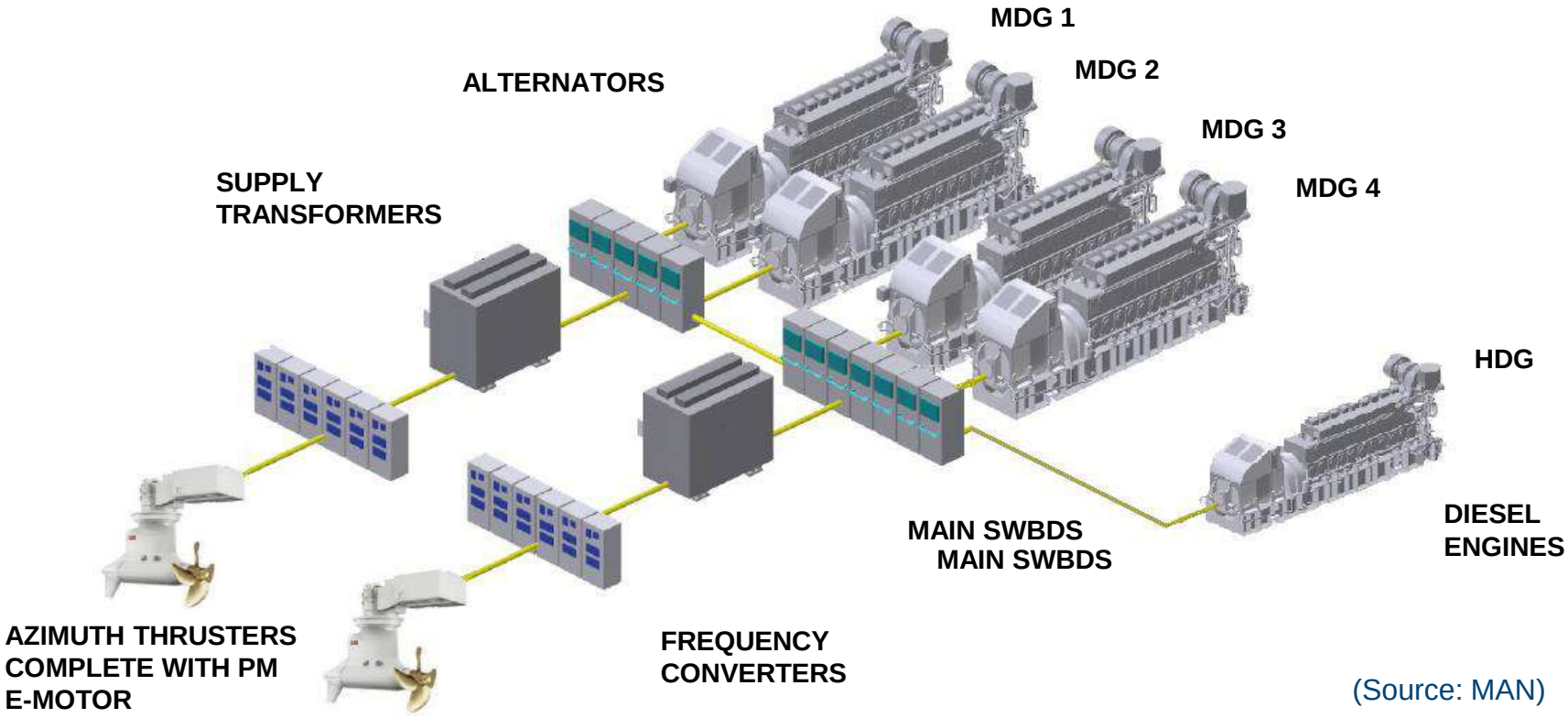
MAIN DIMENSIONS



Length, overall	:	202.50 m
Length, b. p.	:	189.00 m
Breadth, moulded	:	30.20 m
Breadth, max.	:	30.80 m
Draught, design	:	6.30 m
Depth to Main Deck	:	9.20 m
Lane length	:	abt 3000 m

PROPULSION SYSTEM (1/5)

DIESEL-ELECTRIC (D-E) TYPE PROPULSION SYSTEM (1/2)



(Source: MAN)

PROPULSION SYSTEM (2/5)

D-E PROPULSION SYSTEM (2/2)

- POSSIBILITY TO OPTIMIZE LOADING OF DIESEL ENGINES – OPERATION WITH MAX. EFFICIENCY => LOWER FUEL CONSUMPTION AND POLLUTANT EMISSIONS
- HIGH RELIABILITY – MULTIPLE ENGINE REDUNDANCY (EVEN AN ENGINE MULFUNCTION, THERE WILL STILL BE SUFFICIENT POWER TO OPERATE THE VESSEL SAFELY
- D-E SYSTEM TAKES LESS SPACE COMPARE TO DIESEL-MECHANIC TYPE SYSTEM
- FLEXIBILITY IN LOCATION OF PROPULSORS – SUPPLIED WITH ELECTRIC POWER THROUGH CABLES, THEY DO NOT NEED TO BE ADJACENT TO THE PRIME MOVER
- LOWER PROPULSION NOISE AND REDUCED VIBRATIONS (NO REDUCTION GEARS)
- EFFECTIVE PERFORMANCE IN ICY CONDITIONS – THE SYSTEM CAN PROVIDE MAX. TORQUE AT LOW SPEED

PROPULSION SYSTEM (3/5)

MAIN PROPULSORS (1/2)

AZIMUTH THRUSTERS – 2 PCS

(Source: ABB)

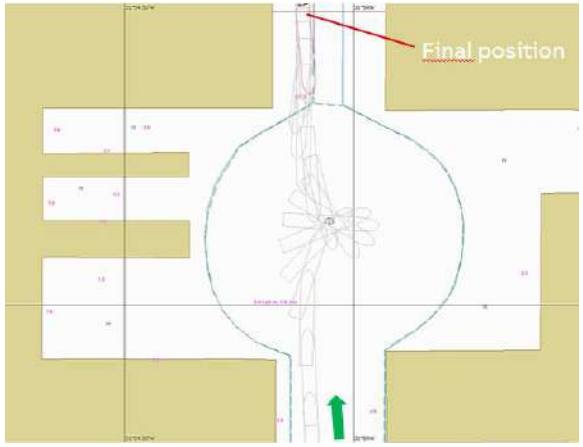
- COMPLETE WITH PM (PERMANENT MAGNET) TYPE E-MOTOR LOCATED IN UNDERWATER PART OF THRUSTER
- NO TRANSMISSION GEAR BETWEEN E-MOTOR AND FIXED PITCH PROPELLER
- HEAT LOSSES DIRECTLY TO OUTSIDE COOLING SEAWATER
- MAX. STEERING RATE – 6 deg/s

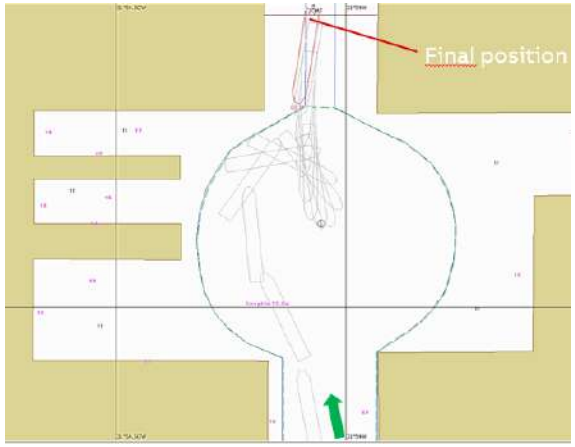
PROPULSION SYSTEM (4/5)

MAIN PROPULSORS (2/2)

EXCELLENT MANEUVERABILITY ≡ SAFETY & TIME/FUEL SAVINGS

Azimuth Thruster vs Shaftline-Rudder
(2 x 10.5 MW)





Time saving for Azimuth propulsion is abt **35 % (6 min.)** for the example port approach and berthing

(Source: ABB / Ship Simulator)

PROPULSION SYSTEM (5/5)

BOW THRUSTERS – PROVIDED FOR MANOEUVRING SERVICES

TRANSVERSE TUNNEL THRUSTERS – 2 PCS

(Source: www.ksb.com)

- COMPLETE WITH ASYNCHRONOUS TYPE E-MOTOR, FW COOLED
- COMPLETE WITH LV-PWM-CONVERTER DRIVE, FW COOLED
- COMPLETE WITH CONVERTER TRANSFORMER, FW COOLED
- FIXED PITCH PROPELLER, NiAl BRONZE
- DIRECTION OF ROTATION OF INPUT SHAFT: BI-DIRECTIONAL
- COMPLETE WITH AN HOLDING BRAKE

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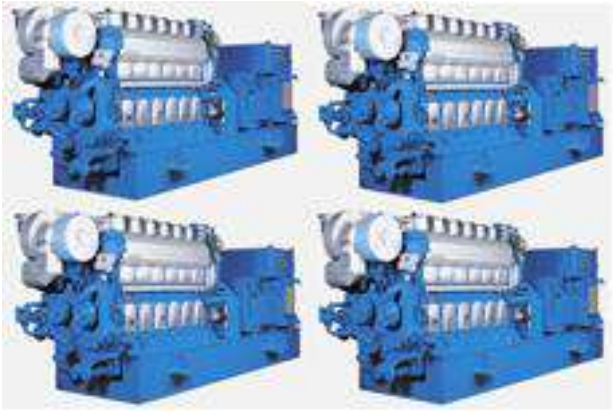
Ro-Pax Ferry B145-I
Technical parameters

POWER GENERATION SYSTEM (1/2)

SHIP PROPULSION POWER AND ELECTRIC POWER FOR GENERAL DEMANDS OF THE VESSEL

- **MAIN DIESEL GENERATORS (MDG) - 4 PCS**
  Consists of: Dual Fuel, 4-stroke, medium-speed, non-reversible, turbocharged and inter-cooled diesel engine with direct injection of liquid fuel and indirect injection of gas fuel, an alternator; the engine can be operated in gas mode or in diesel mode



- **HARBOUR DIESEL GENERATOR (HDG) - 1 PCE**
  Consists of: Dual Fuel, 4-stroke, medium-speed, non-reversible, turbocharged and inter-cooled diesel engine with direct injection of liquid fuel and indirect injection of gas fuel, an alternator; the engine can be operated in gas mode or in diesel mode

(Source: www.wartsila.com)

POWER GENERATION SYSTEM (2/2)

ELECTRIC POWER FOR EMERGENCY PURPOSES

- **EMERGENCY DIESEL GENERATOR (EDG) - 1 PCE**
  Consists of: 4-stroke, high-speed, non-reversible, turbocharged and radiator air-cooled diesel engine, an alternator; the engine can be operated in diesel mode

(Source: www.cat.com)

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Ro-Pax Ferry B145-I
Technical parameters

SHORE POWER CONNECTION SYSTEM

THE ELECTRIC POWER FROM THE SHORE

≡

NO EXHAUST EMISSIONS OR NOISE POLLUTION FROM THE SHIP

SHORE CONNECTIONS – 2 SETS

- SC SWBD 10.7 kV / 60 Hz, 3-phases, Panel – 1 x Circuit Breaker, 1 x Connector Panel, short circuit current 16 kA/1s, rated power 2875 kVA, IP32
- Control Box for communication between shore side and MV SWBD

- THE WAY OF COMPLYING WITH PORT EMISSION REQUIREMENTS
- SHORE INTERFACE ACC. TO SPECIFICATION FOR YSTAD AND ŚWINOUJŚCIE PORTS
- FUTURE EU DIRECTIVES WILL OBLIGE MEMBER STATES TO IMPLEMENT ALTERNATIVE INFRASTRUCTURE NETWORKS, INCLUDING SHORE POWER, BY 2025

HEATING POWER GENERATION SYSTEM (1/2)

- **LS MDO/GAS-FIRED THERMAL OIL HEATERS - 2 PCS**

- **ONE (1) HEATER IN EACH ENGINE ROOM**
- **HORIZONTAL EXECUTION**
- **THREE-PASS FLUE GAS CONFIGURATION RESULTING IN HIGH EFFICIENCY**
- **REMOVABLE PLATE PROVIDES ACCESS FOR INSPECTION AND CLEANING OF THE COILS**
- **LOW THERMAL OIL PRESSURE DROP**
- **HEAVY THERMAL INSULATION JACKET**
- **COMPLETE WITH BURNER**

(Source: www.alfalaval.com)

HEATING POWER GENERATION SYSTEM (2/2)

HEAT RECOVERY FROM DIESEL ENGINES EXHAUST GASES

- **EXHAUST GAS THERMAL OIL HEATERS / ECONOMISERS - 4 PCS**

- INSTALLED IN THE MDG EXHAUST GAS PIPELINES
- FORCED CIRCULATION VERTICAL EXHAUST GAS HEATER FOR RECOVERING HEAT FROM EXHAUST GASES
- DESIGNED SPECIFICALLY FOR PARTICULAR DIESEL ENGINE
- DESIGNED WITH LOW PRESSURE LOSS
- INTEGRATED NOZZLES AT INLET FOR SOOT CLEANING DURING OPERATION
- TOP-MOUNTED NOZZLE SYSTEM FOR FIRE FIGHTING

(Source: www.alfalaval.com)

FUEL SYSTEM (1/2)

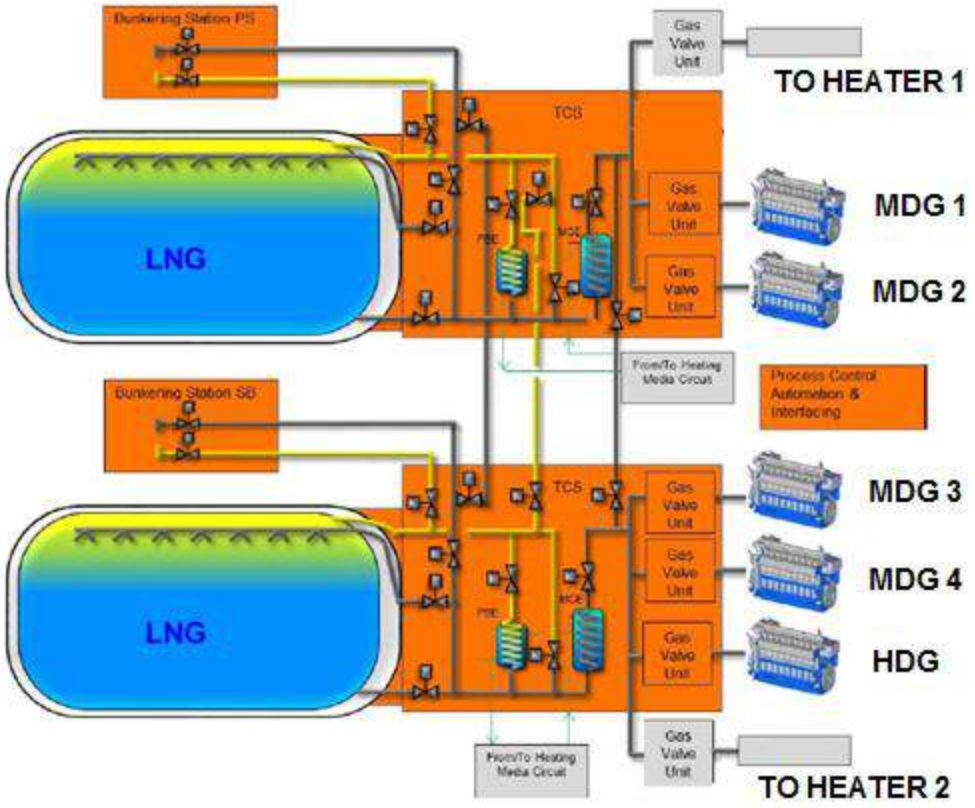
MAIN FUEL FOR THE VESSEL

❑ **LNG**

(LIQUEFIED NATURAL GAS)

- **NO PROBLEM WITH POLLUTANT EMISSIONS – CLEAN BURNING, SOx, PARTICULATE AND NOx LIMITS CAN BE ACHIEVED WITHOUT ANY ADDITIONAL EQUIPMENT**
- **EMISSIONS ARE COMPLIANT WITH CURRENT AND FUTURE ECA REGULATIONS**
- **LNG HAS LOWER PRICE TODAY THAN DIESEL FUEL**

LNG SYSTEM
FUNCTIONAL CONFIGURATION



FUEL SYSTEM (2/2)

ALTERNATIVE FUELS FOR THE VESSEL

- **LS MDO**

  (LOW-SULPHUR MARINE DIESEL OIL)

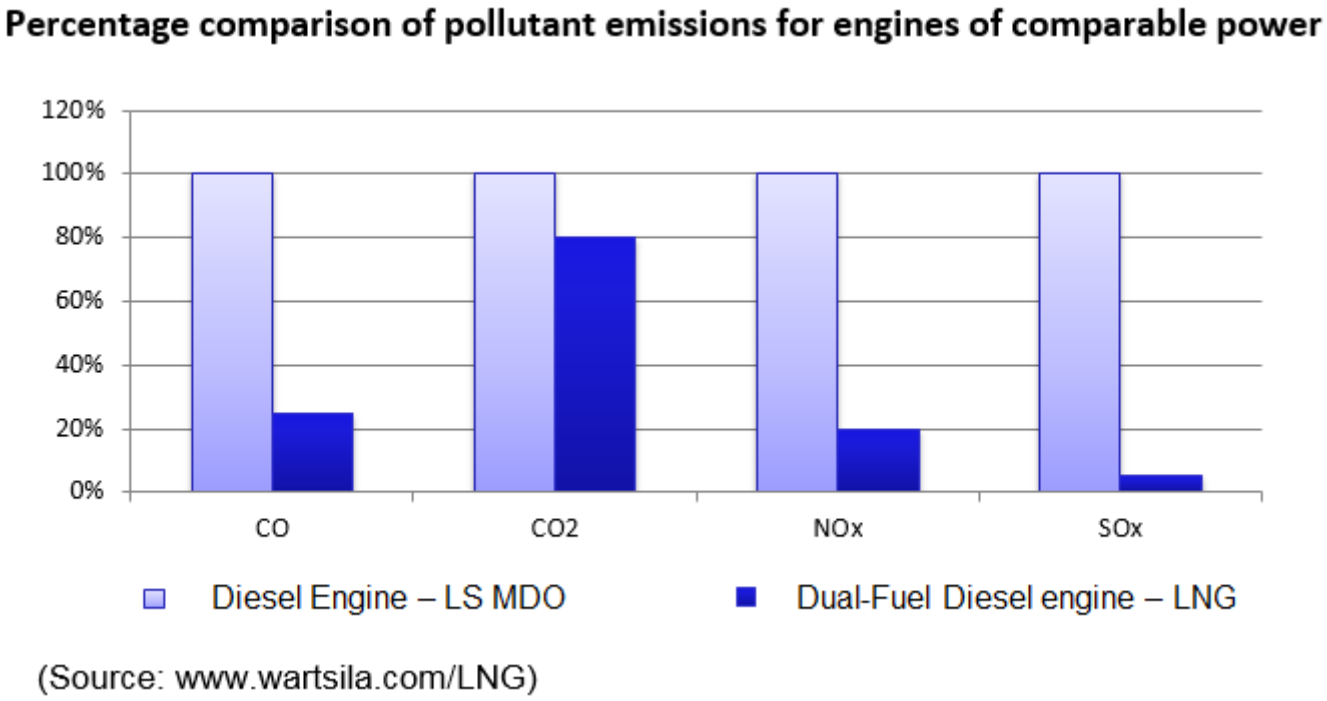
- **LS MGO**

  (LOW-SULPHUR MARINE GAS OIL)

- **LS MDO / LS MGO – MARINE DISTILLATE FUELS OF CATEGORY ISO-F-DMA, DMZ OR DMB ACC. TO ISO 8217:2012(E) WITH SULPHUR CONTENT OF MAX. 0.1 % (m/m)**

FUEL SUPPLIED EQUIPMENT	FUEL TYPE
MAIN DIESEL GENERATORS	LNG + PILOT FUEL (LS MDO/MGO) LS MDO LS MGO
HARBOUR DIESEL GENERATOR	
FUEL-FIRED THERMAL OIL HEATERS	
EMERGENCY DIESEL GENERATORS	LS MDO LS MGO

POWER PLANT EMISSIONS



(Source: www.wartsila.com/LNG)

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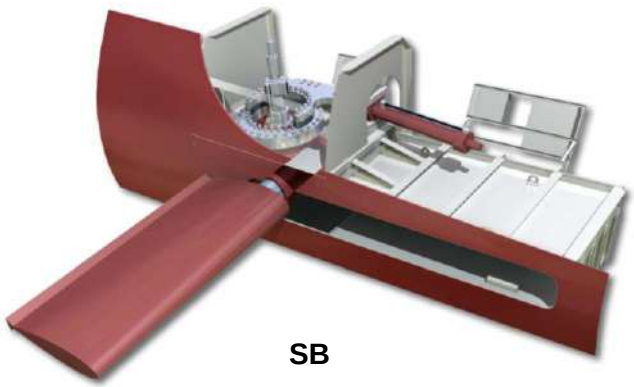
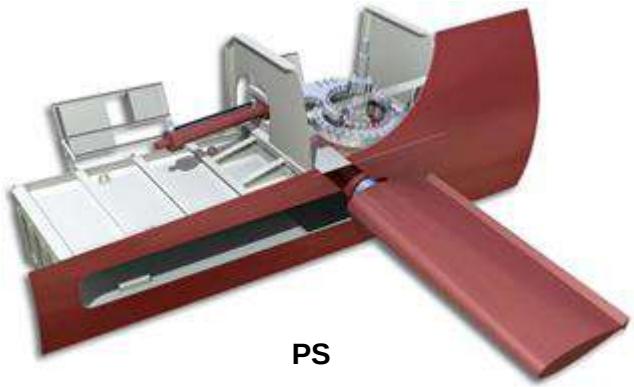
Ro-Pax Ferry B145-I
Technical parameters

FIN STABILIZERS



SB



PS

- SAFETY OF THE CARGO AND VESSEL
- COMFORT FOR PASSENGERS

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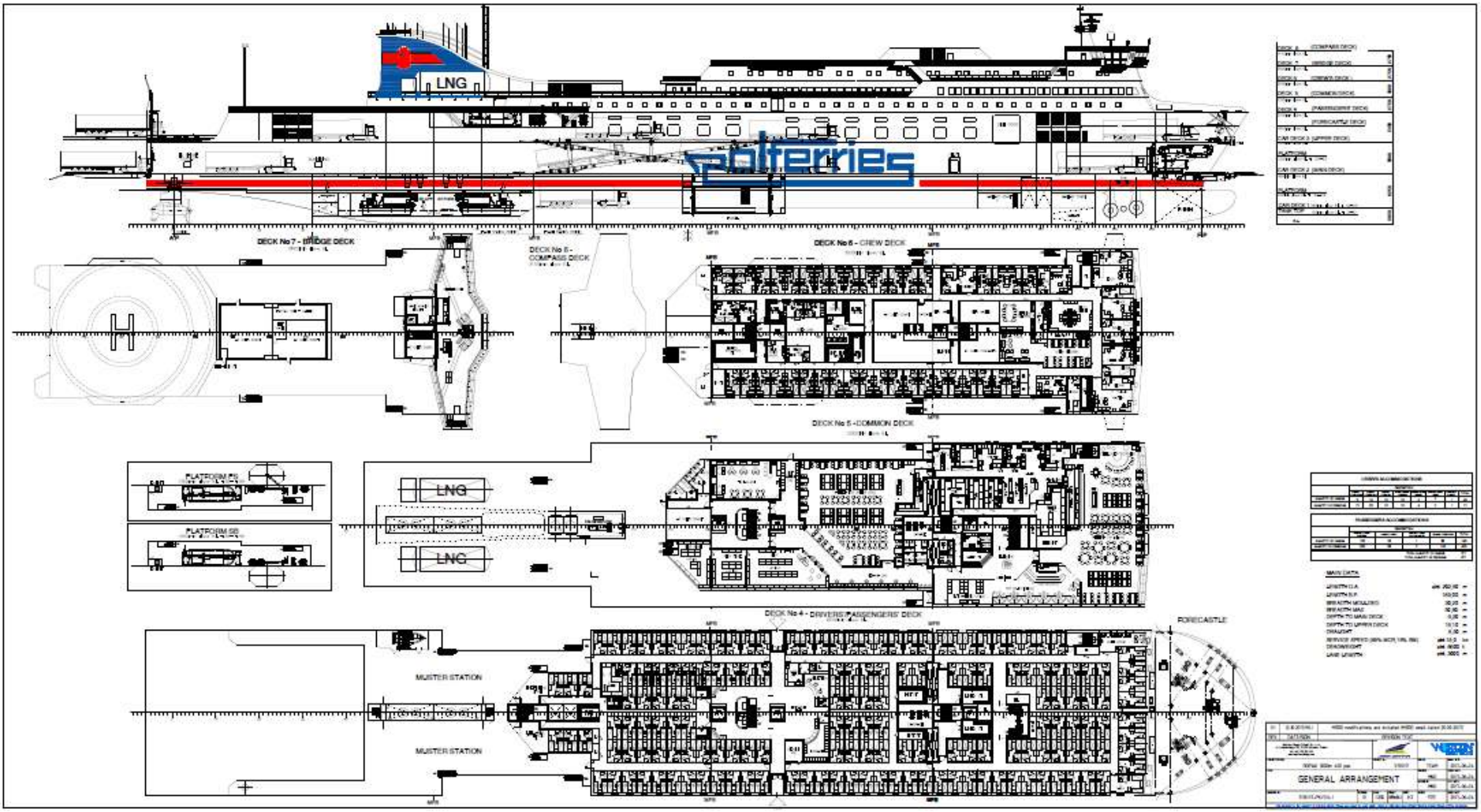
Ro-Pax Ferry B145-I
General Arrangement
(1/2)



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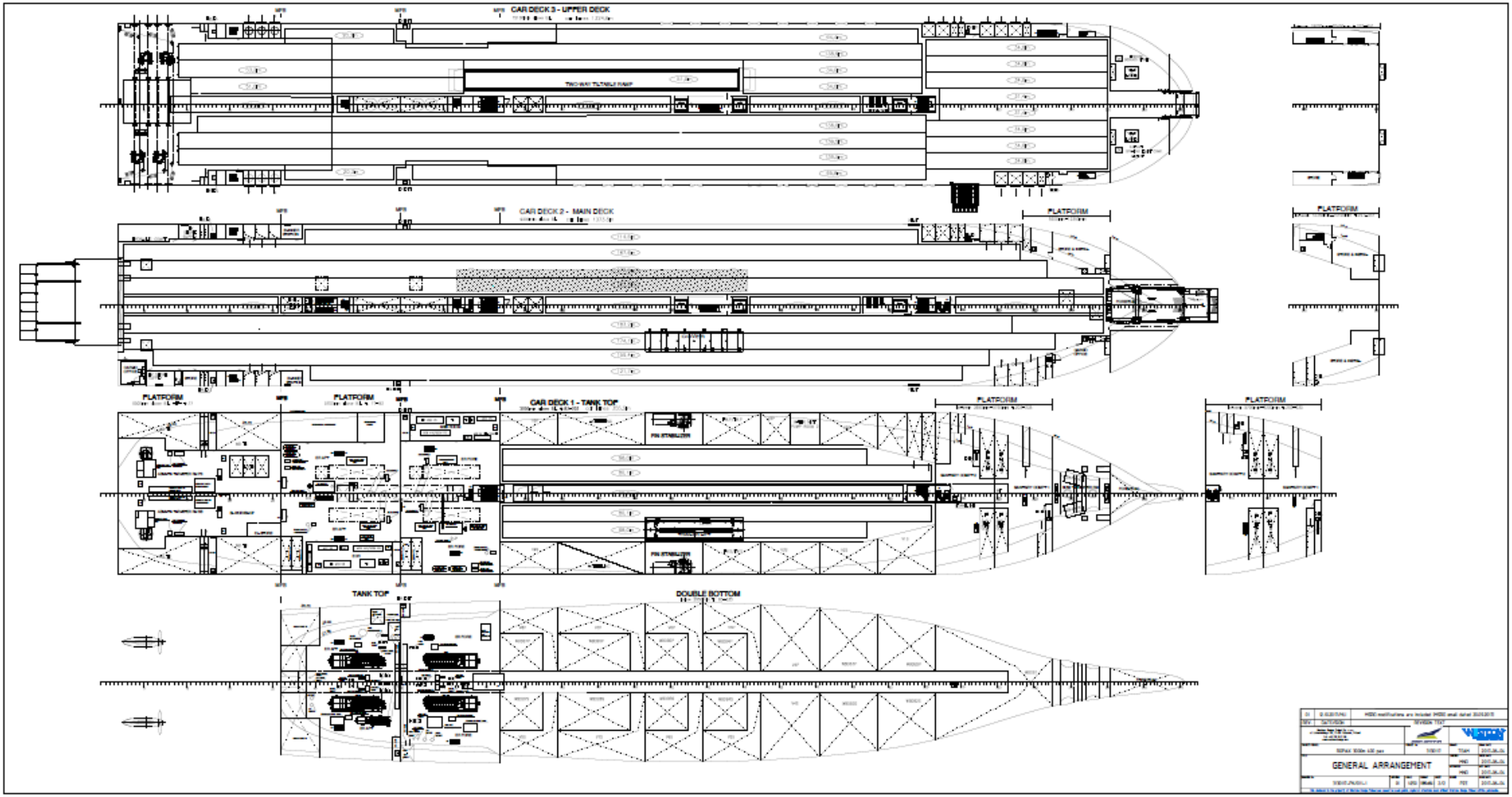
General Arrangement
(2/2)

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Thank you!
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