



The future of Reefer Vessel Design



Reefer RoRo Presentation

JOC TPM Conference, Long Beach, 3rd March 2015

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Managing Director, Reefer Intel AG

Reefer Intel AG and Stena RoRo AB

and

The Danish Naval Design
Marine Consultancy Knud E. Hansen A/S

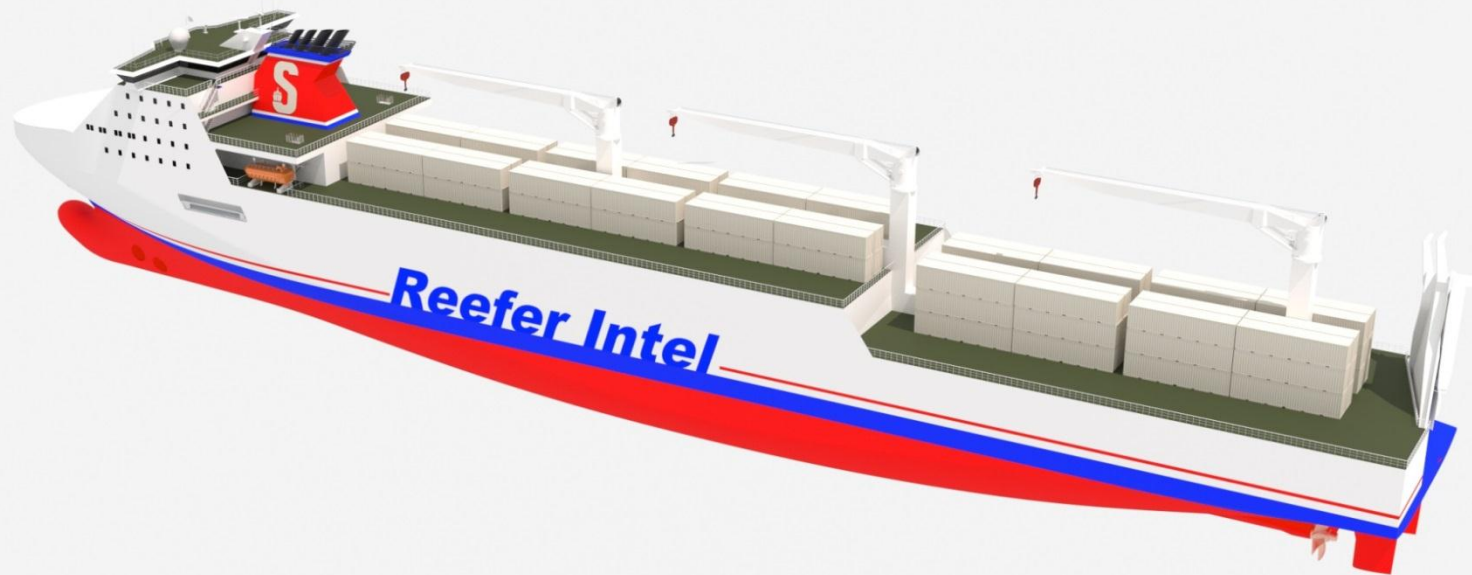
in cooperation with
TTS Port Equipment AB
Johnson Controls System AB

Why is there a need for a new specialized Reefer ship?

- The Reefer fleet is aging – average age is 25/22 years
- No specialized Reefer ships on order
- The specialized Reefer industry will fade away as the general cargo ships did
- Very slow loading and discharge operations and very manpower intensive
- We have designed the Reefer RoRo ship for the shippers of bananas to remain in control of their vital supply chain

Reefer RoRo Ship

Reefer Intel **Stena RoRo**
1ST CLASS SHIP SUPPLIER



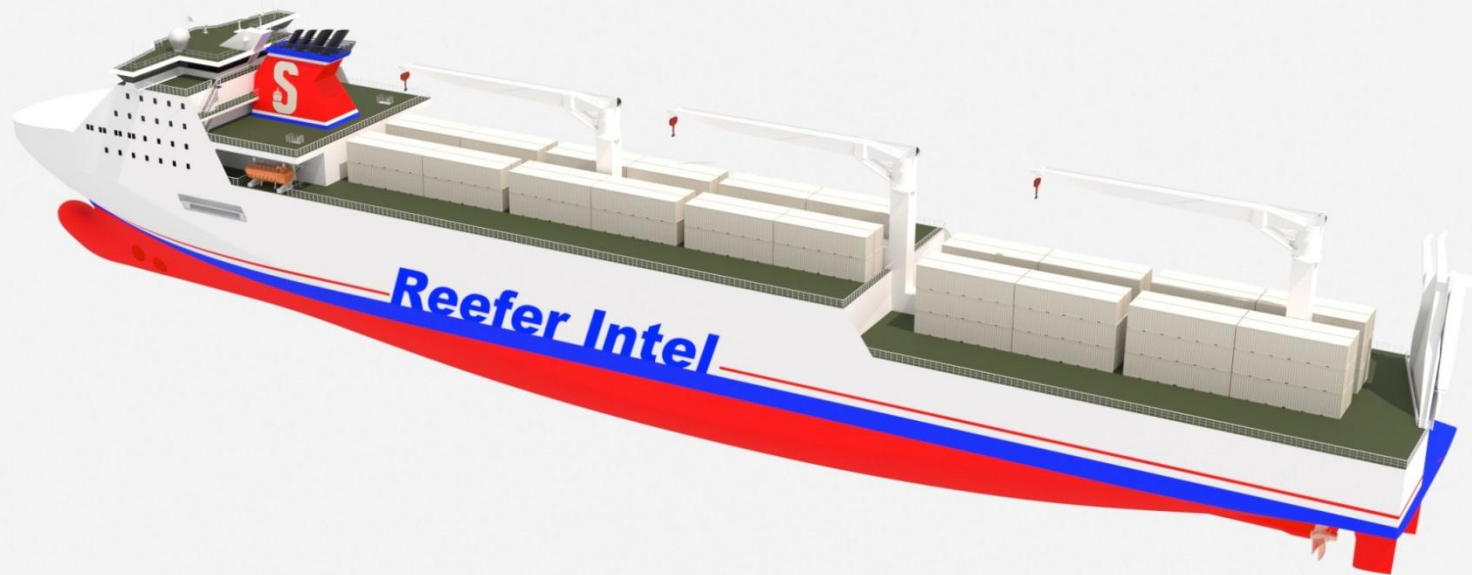
Stena RoRo


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— Since 1937 —

Reefer Intel

Reefer RoRo Ship

Reefer Intel **Stena RoRo**
1ST CLASS SHIP SUPPLIER

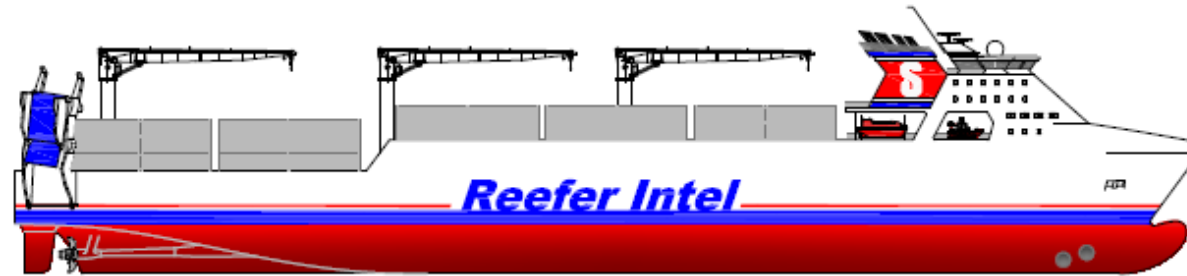


Stena RoRo

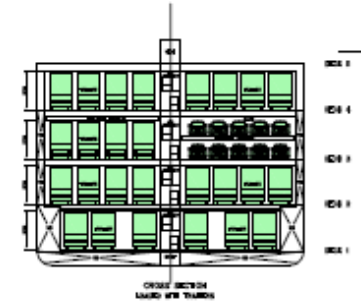

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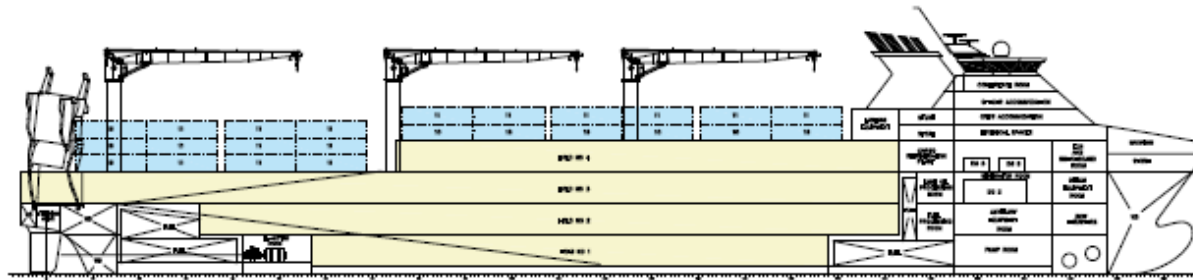
Reefer RoRo Ship



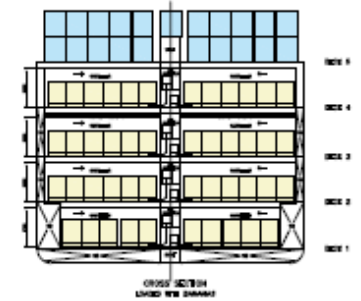
SIDE VIEW



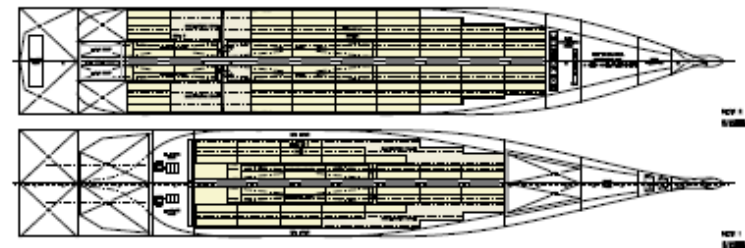
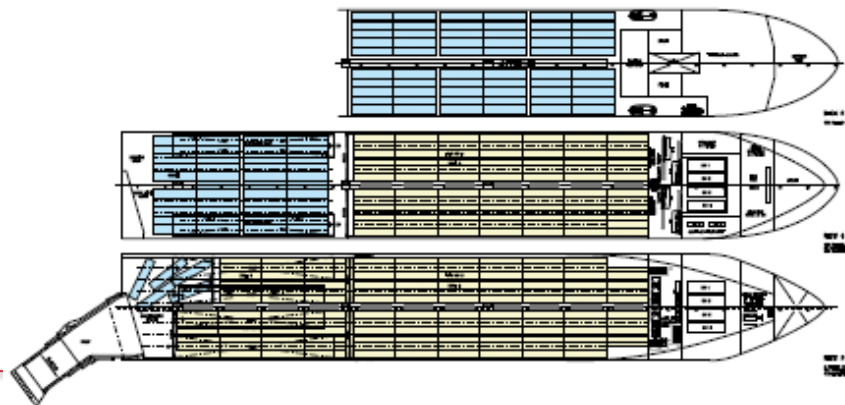
CROSS SECTION
LOADED WITH TANKERS



PROFILE



CROSS SECTION
LOADED WITH SHIPWAS



- Economy of scale – 50% increase of cargo
- Short port turnaround time
- Slow steaming or more loading and discharge ports
- RoRo return cargo: Cars, trucks and general project cargo

- The ship is a Reefer RoRo and Reefer Container vessel designed for unrestricted worldwide service
- It is a "Green Ship" with low emissions of CO₂, NO_x and Sox

Length overall	204.0 m
Breadth	30.5 m
Draught	9.0 m
Deck height	4.5 m

- Main features covered by international patents

Palletized bulk operation

Reefer Intel **Stena RoRo**
1ST CLASS SHIP SUPPLIER



Specialized Reefer

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Side loading



Cassette System

Reefer Intel **Stena RoRo**
1ST CLASS SHIP SUPPLIER





Reefer Intel **Stena RoRo**

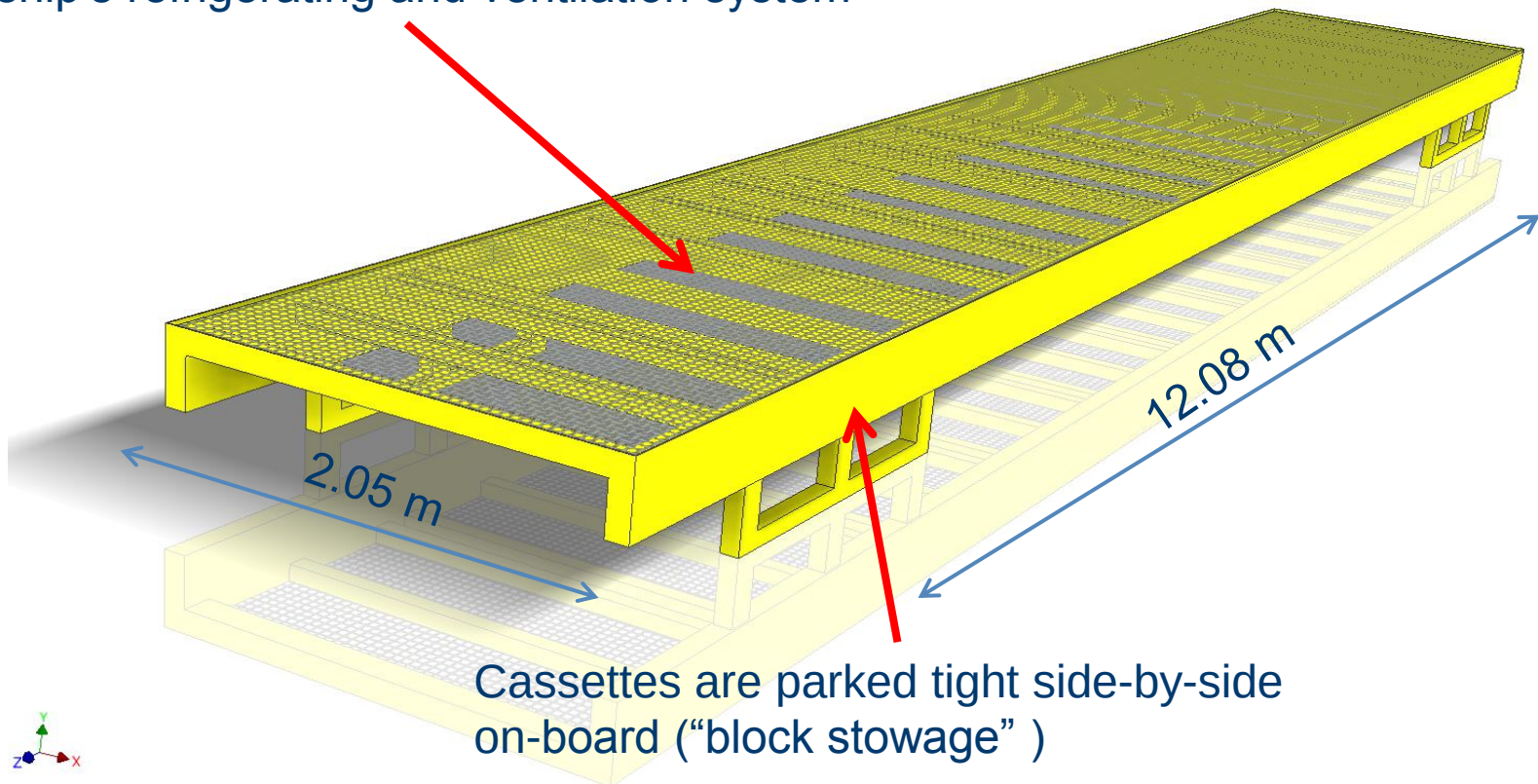
1ST CLASS SHIP SUPPLIER





TTS Cassette designed for Banana Reefer

Grating to be designed for correct pressure head with ship's refrigerating and ventilation system





Loading of Cassette over stern ramp



Block stowage of Cassette



TTS Cassette System

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Reefer Intel AG, Switzerland is the owner of the cassette/grating patent.
The company is owned by Birger Lindberg Skov.

Experience of Birger Lindberg Skov:

- Secr. Gen. of 360 Quality Association
- President of Lauritzen Reefers A/S
- Man. Dir. of GASA Aarhus
- Man. Dir. of Danish Food Transport
- Consultant to DFDS Group (RoRo business)

KNUD E. HANSEN A/S

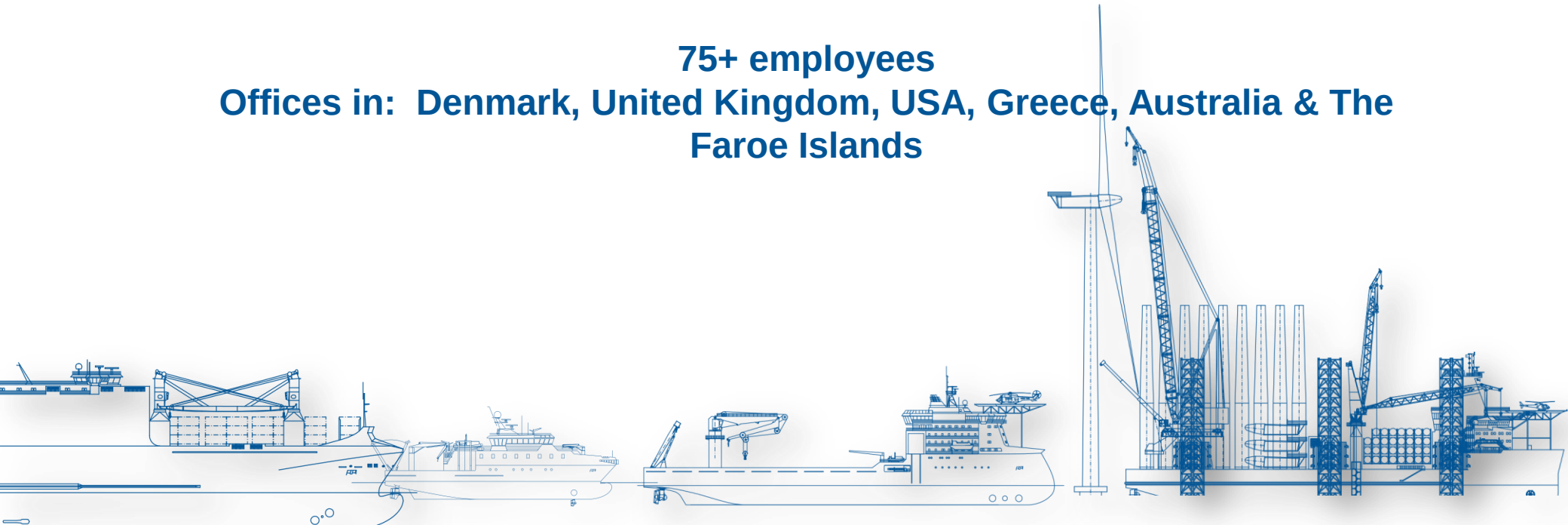
Since 1937

Naval Architects, Designers & Marine Engineers

Projects in all 7 continents of the world in 2014

75+ employees

Offices in: Denmark, United Kingdom, USA, Greece, Australia & The Faroe Islands



The Stena Sphere

Reefer Intel **Stena RoRo**
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The Stena Sphere

Reefer Intel **Stena RoRo**
1ST CLASS SHIP SUPPLIER



REVENUE
SEK MILLION
60,000



ACTIVITIES ALL OVER
THE WORLD



20,000
EMPLOYEES



160
VESSELS



26,600
FLATS AND
PREMISES

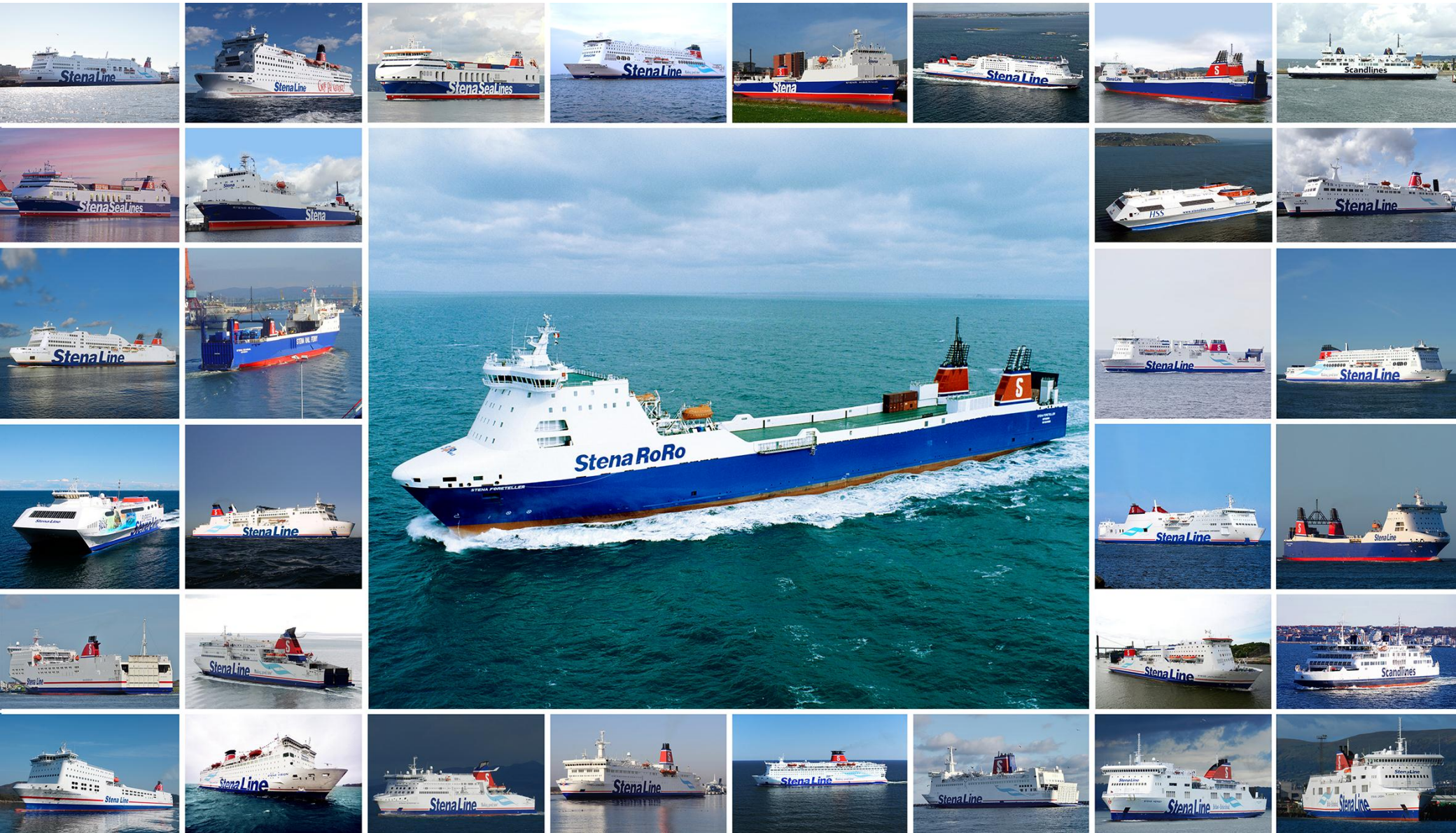


95
WIND TURBINES
IN OPERATION AND UNDER CONSTRUCTION

- We provide RoRo and passenger vessels, innovative solutions and project management
- Our customers are operators and ship owners around the globe
- Our tools are knowhow, commitment and financial resources

The Stena RoRo & Stena Line Fleet

Reefer Intel **Stena RoRo**
1ST CLASS SHIP SUPPLIER



- 12,500 high cube pallets
- 675,000 banana cartons
- Alternatively 750,000 plastic boxes.
- 55% on cassettes on the four inside refrigerated cargo decks
- 45% in refrigerated containers on the weather deck

Slow steaming

- Loading in Moin and Santa Marta and discharging in Antwerp
- Return RoRo cargo to be loaded in Zeebrugge and discharged in Moin
- Round trip in four weeks schedule to be done with a speed of 16.0 knots

- Possibility to operate with three loading and three discharge ports within a four resp. five week schedule
- About 65% reduction in time for loading and discharge
- Large savings in cost for stevedoring
- Simultaneous loading of cargo decks and containers on weather deck
- Three container cranes

- Compared to the conventional reefers ships and container carriers, the Reefer RoRo ships represent a cost reduction of about USD 1.00-1.25 per banana carton.
- 4 Reefer RoRo ships can contribute to a yearly cost reduction of about USD 45 mill – straight to the bottom line

Traditional RoRo return cargo

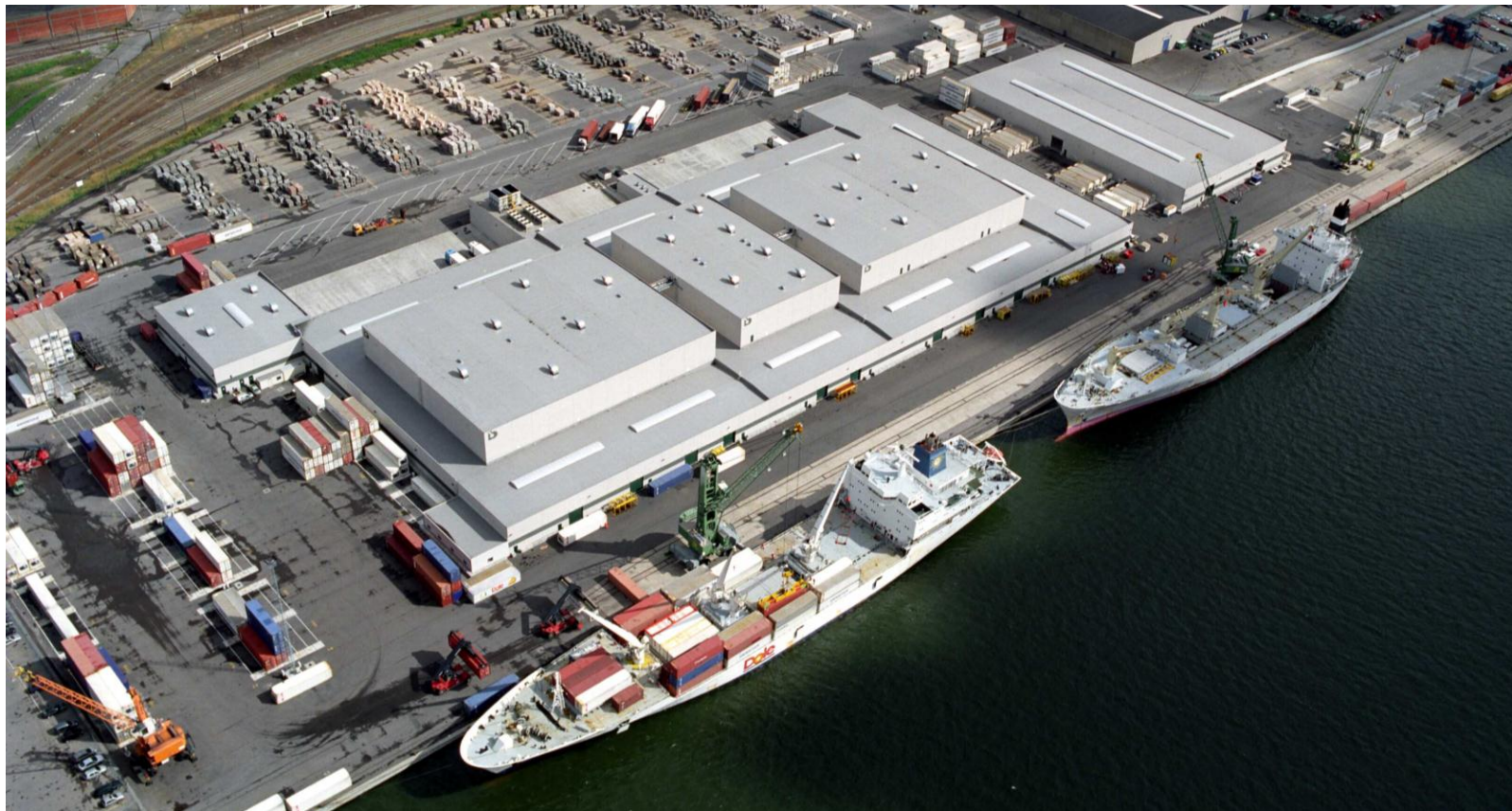
➤ Efficient loading of RoRo return cargo



”What the specialized Reefer industry has been waiting for”

Quote:

Johan Claes, General Director and Managing Director BNFW, Antwerp




Stena RoRo

Reefer Intel

