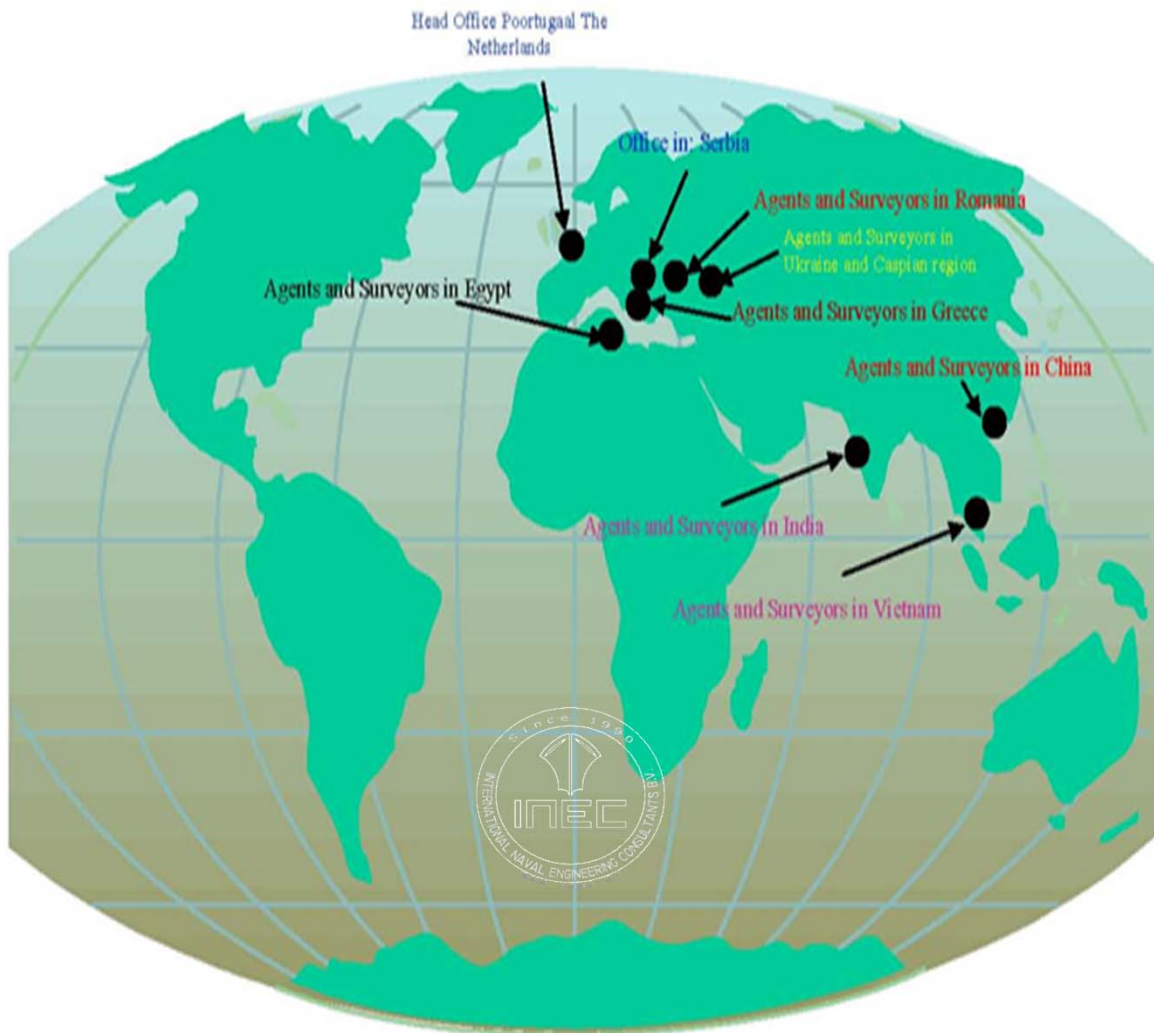


Friendship Sayang Group

Fuel Oil Bunker Tankers, Mix Bunker Tankers, LNG
Bunker Tankers



Company profile

- Independent service to partners in all segments of ships design and ship building.
- **INEC B.V.** and **Friendship Marlin B.V.** operating under Friendship Sayang Group
- **Designing** of all types of sea-going and inland ships
- Giving **assistance** to clients during all stages of shipbuilding
- **Operating** world wide
- More than **75%** of designed ships are built or supervised by us
- Realised more than **1500** different projects



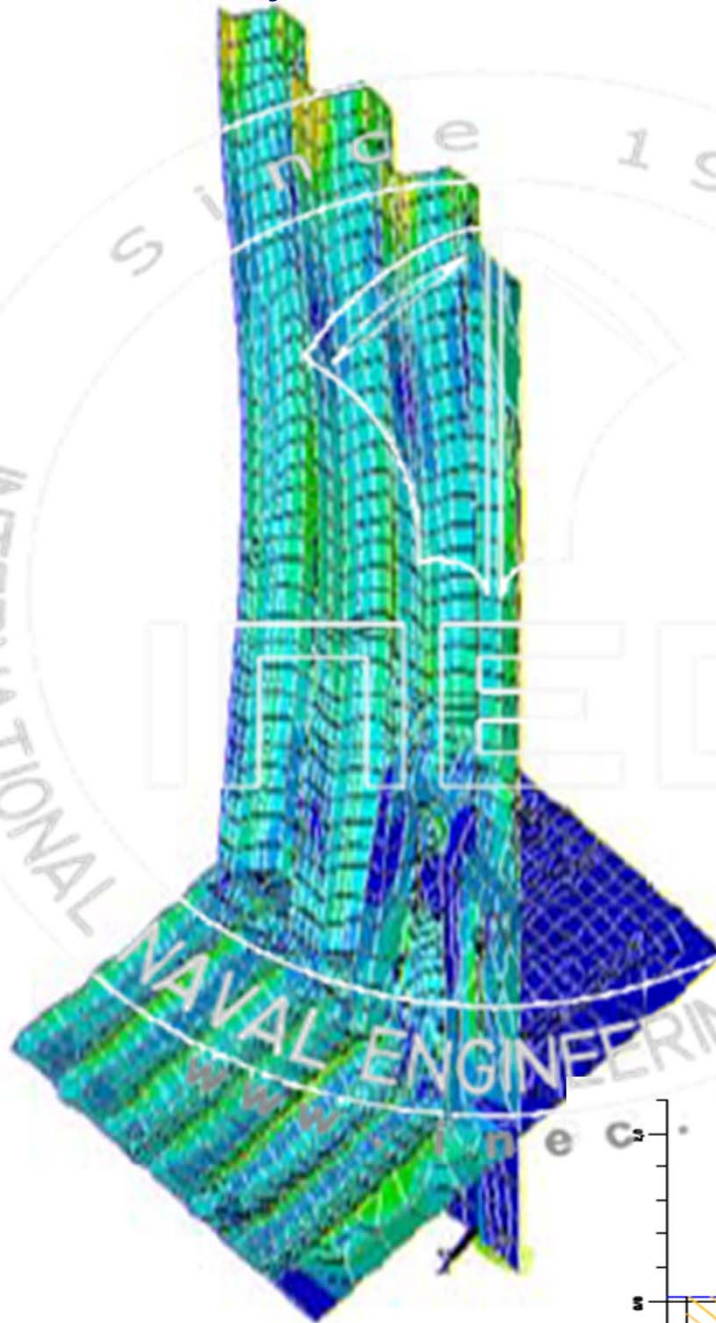
Surveys:

- **Friendship Sayang Group is specialized in the following surveys:**
 - **New building** surveys
 - **Special and transport** surveys
 - **Damages** on ships and their parts
 - **Surveys during conversions**
 - **Assessment** on damages
 - **Coating** surveys and **Special** surveys

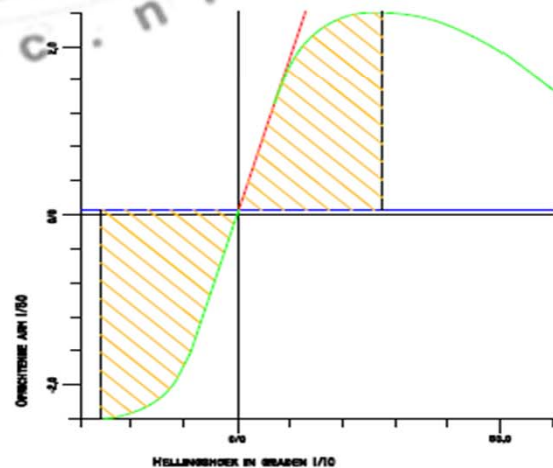


Calculations

- All types of **hydrostatic** and **hydrodynamic** calculations
- Longitudinal and local strength **calculations**
- **FEM** and **CFD** analyses

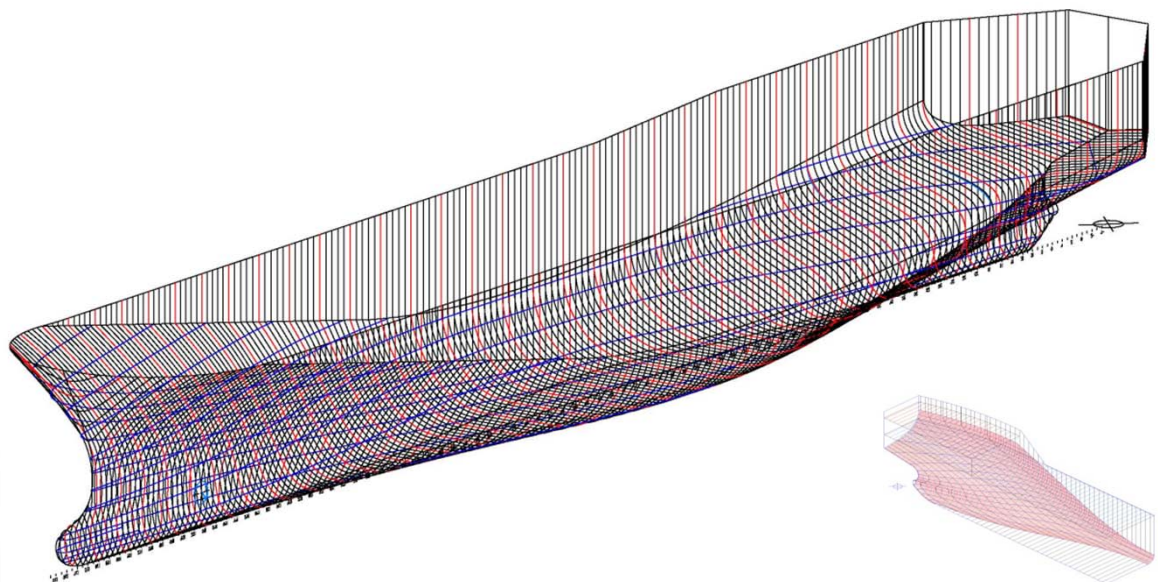
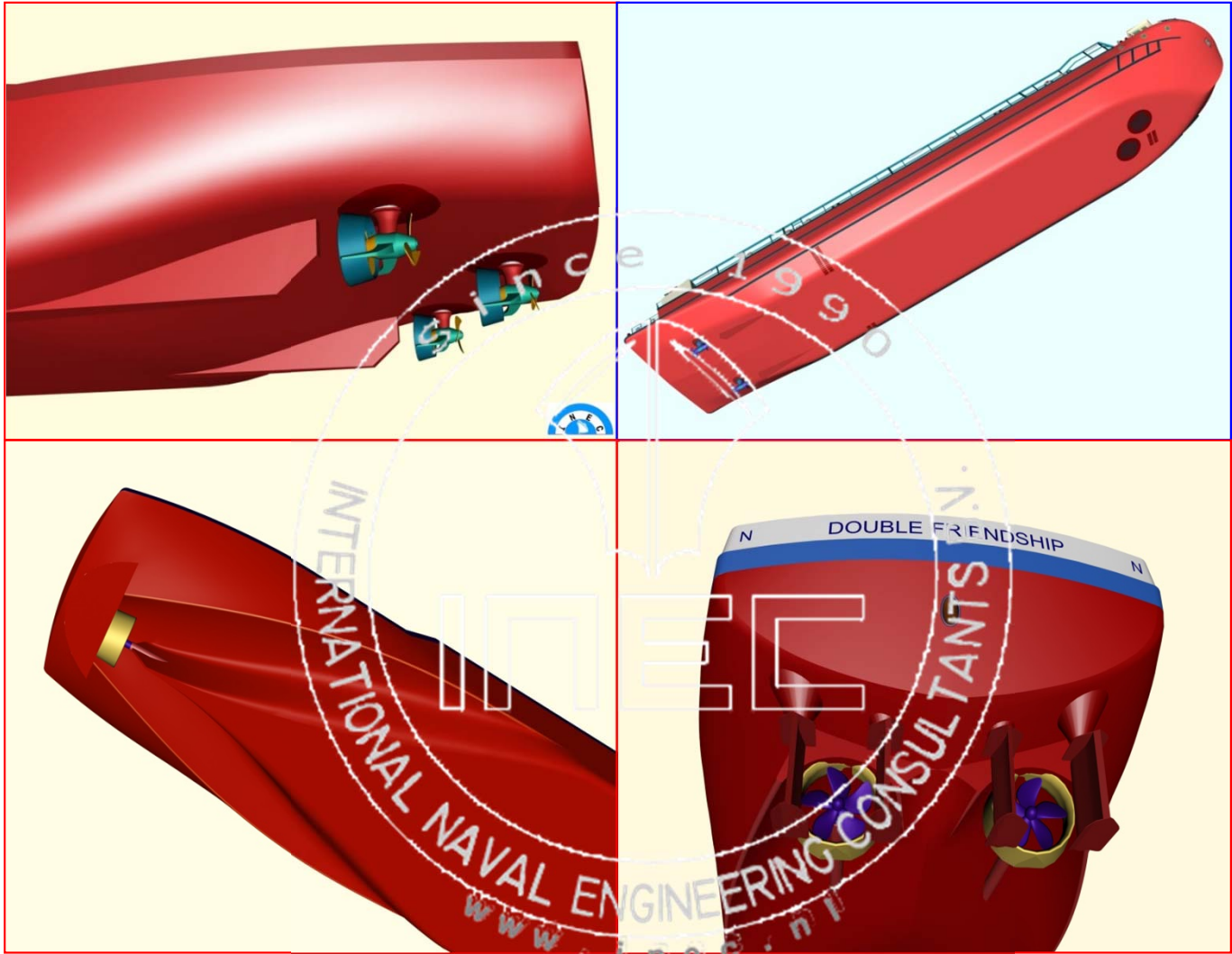


ANSYS 5.3
JAN 29 2002
11:50:12
PLOT NO. 1
TOTAL SOLUTION
STEP=1
SUB =1
TIME=1
REQV (AVG)
TOP
MAX =6.696
SMN =.302816
SMX =208.734
SMXB=304.556
MIN =.302816
23.462
45.621
69.70
91.939
116.098
139.257
162.416
185.575
208.734



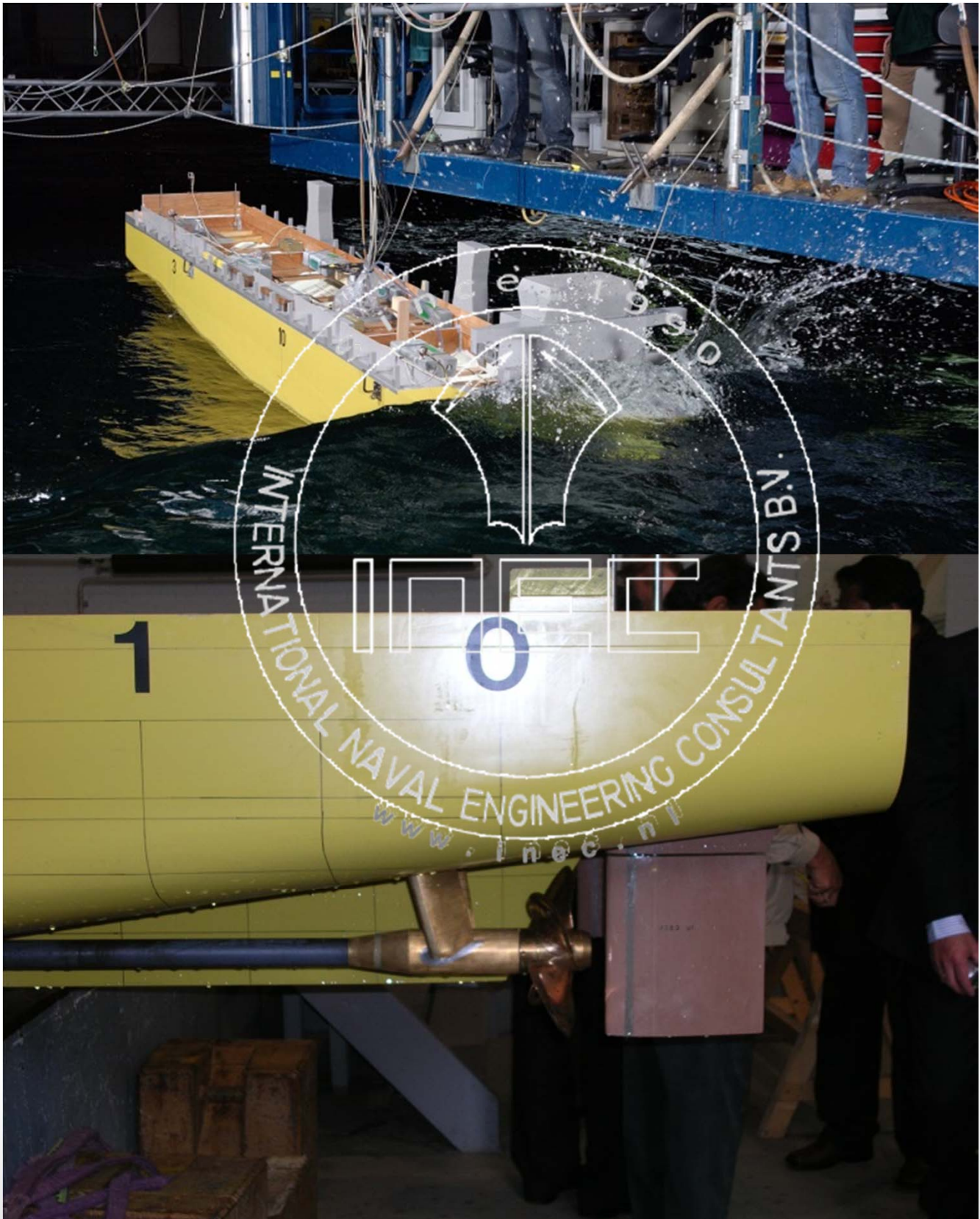
Propulsion, form's & tests 3D Design

Design, development and optimization of ships form's



Propulsion, form's & tests Model tests

Close cooperation with model test facilities in Europe and India



Design – 1st in The World

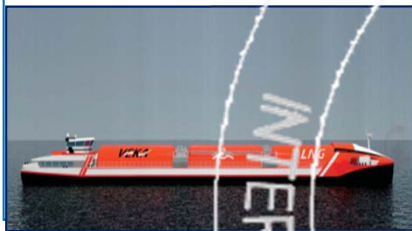
Worlds 1st Dual Fuel propelled
Bunkering Vessel



Design – 1st in The World

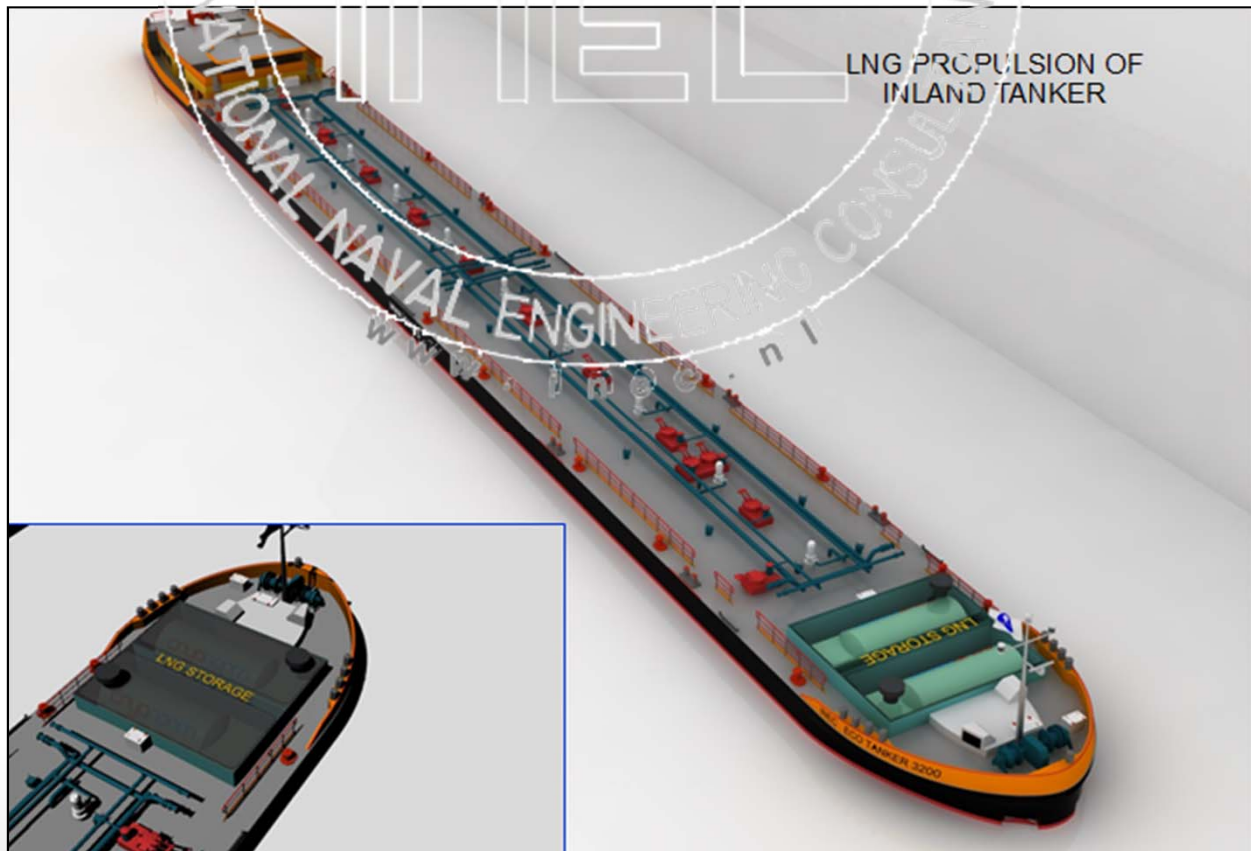
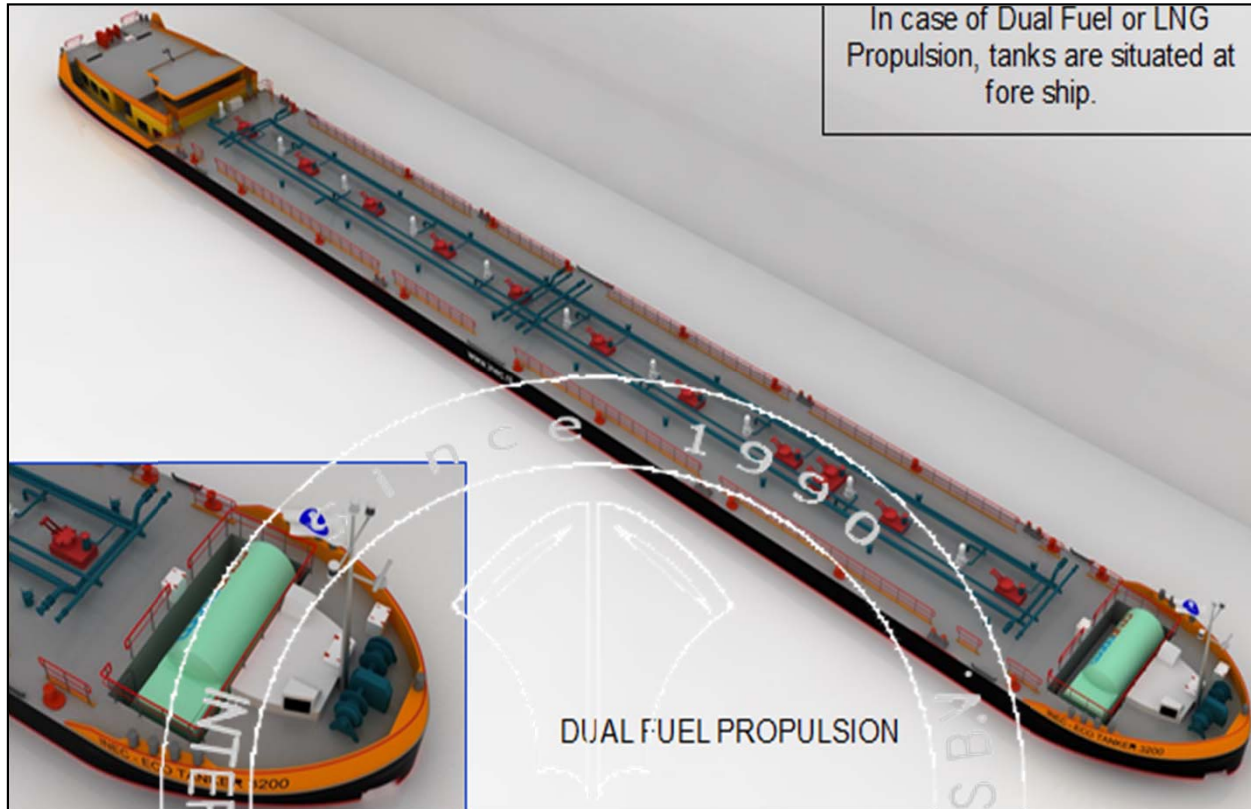
Worlds 1st LNG Bunker Vessel
Propelled fully on LNG

Type C LNG Tanks
3x800 m³
Designed in 2014/15
Approval: Lloyd Register



Designs-LNG INLAND SHIPS

110.00x11.40-3000ton – specially designed for Shell Tender





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International Naval Engineering Consultants

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E-mail: info@inec.com
www.inec.nl

INEC INLAND LNG BUNKER TANKER

Dimensions: 86.00/90.00 x 9.60-11.40

Capacity: 1520 - 2000m³

Single or double propelled, classic, dual fuel or LNG powered

Shown model: 86.00 x 11.40m inland bunker tanker, with two V-Pods made Verhaar, 2 bow thrusters, 2 Stainless steel LNG Type C LNG tanks, 760m³, one central manifold, hose crane, LNG or Dual Fuel propulsion





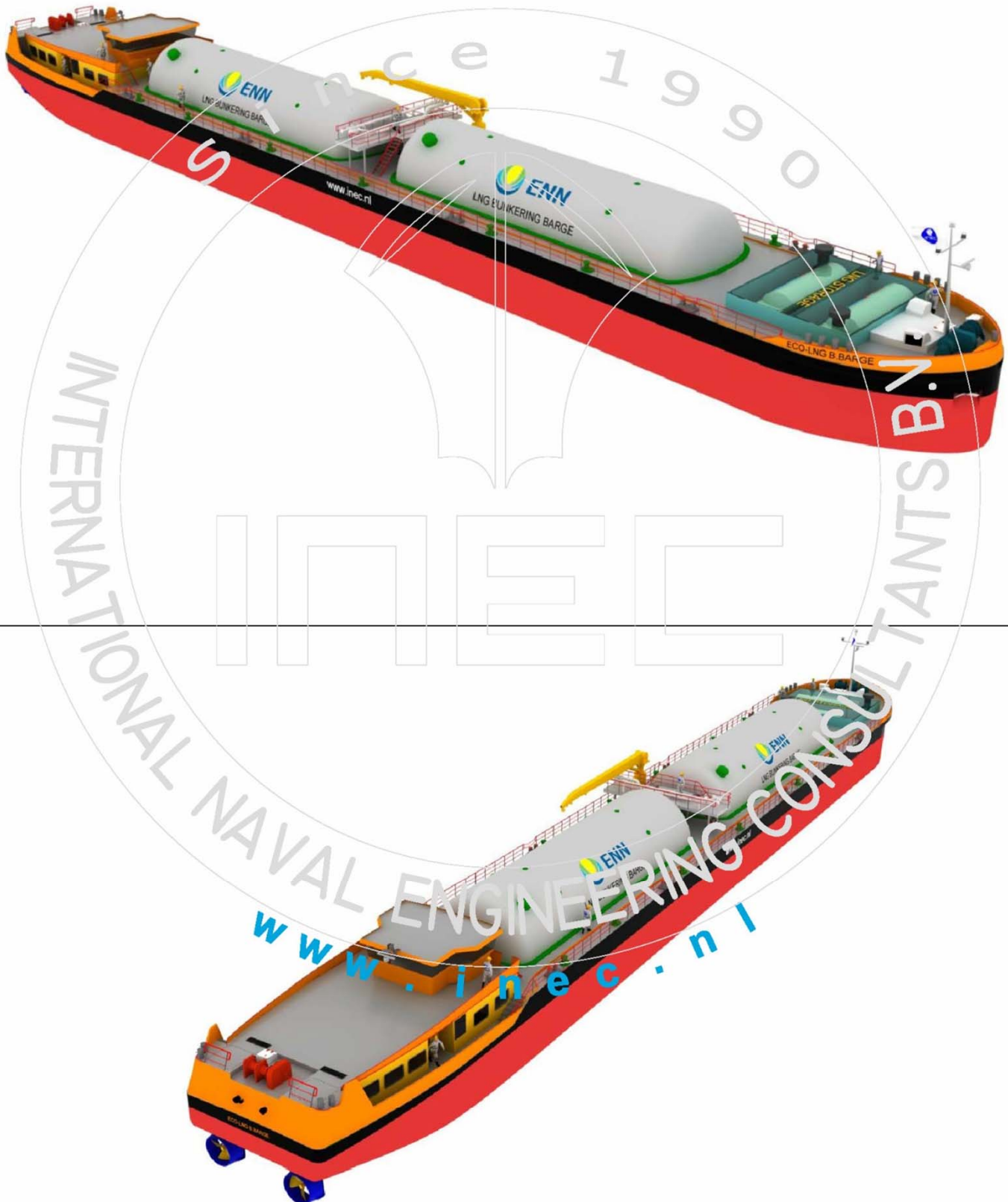
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Single or double propelled, classic, dual fuel or LNG powered

Shown model: 86.00 x 11.40m inland bunker tanker, with two V-Pods made Verhaar, 2 bow thrusters, 2 Stainless steel LNG Type C LNG tanks, 760m³, one central manifold, hose crane, LNG or Dual Fuel propulsion



Inland LNG Tanker, Bunker Tanker 110.00x11.40m

Capacity 3 x 999m³ ; Type C StSt LNG tanks

Concept for rebuilding of existing ships as well newbuilding



Designs-LNG Bunker Tankers

Shallow draft Coastal LNG Bunker Tanker



Designs-Combined LNG – MDO/LO/HFO Bunker Tankers

INEC HARBOR-COASTAL OIL-LNG BUNKERING VESSEL type: INEC – COMBIBUN1850



INEC1850CB is multipurpose bunkering vessel suitable of bunkering different oil products (MDO, HFO) as well LNG.

Vessel is available in different sizes, which can suite need for local bunkering operations.

It is especially designed for ports in which short bunkering time is available (waiting for passage, local needs, different customers during one shuttle etc.)

It's a double screw ASD vessel, with low consumption and good maneuvering and hydrodynamic characteristics.

Single propelled versions are also available.

Vessel has 4 or 6 oil cargo tanks and one, vacuum insulated, double walled LNG tank.

Universal bunkering boom of 20m is in use for ship-to-ship transfer of products.

Vessel can be equipped with heating boiler and heating coils in case of carrying HFO.

Highest safety standards and last state of art LNG containment knowledge is applied. LNG stainless steel tank is developed to sustain direct hit to bridges and rigid objects, as well free fall of 40' container.

Vessel is propelled with different propulsion concepts:

- LNG Electric propulsion
- Dual Fuel Electric propulsion
- Diesel Electric propulsion

Vessel is suitable for 24-hour service in shifts and number of crew members on board depends of customer needs.

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nesha@planet.nl

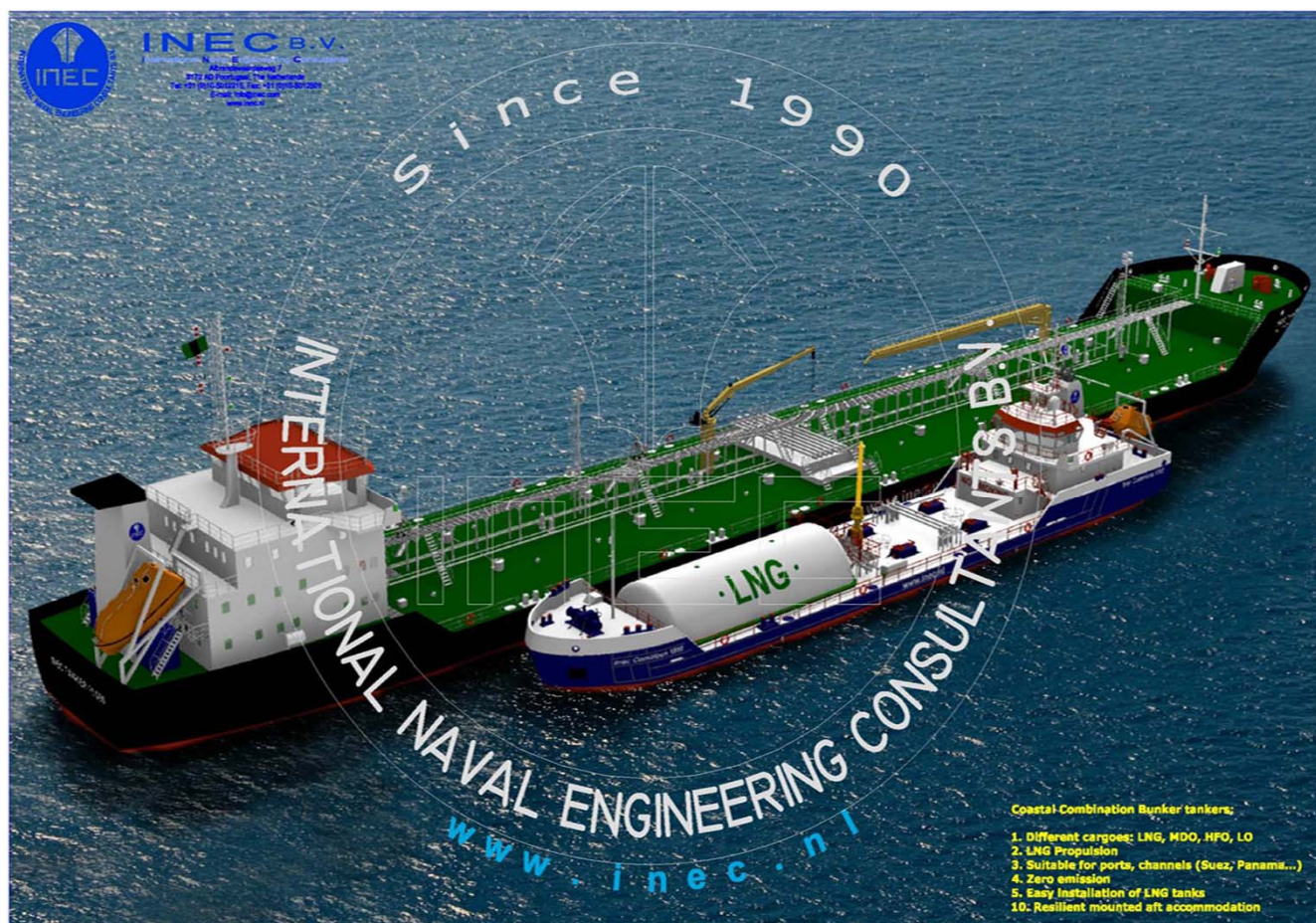
www.inec.nl



Coastal Combination Bunker tankers:

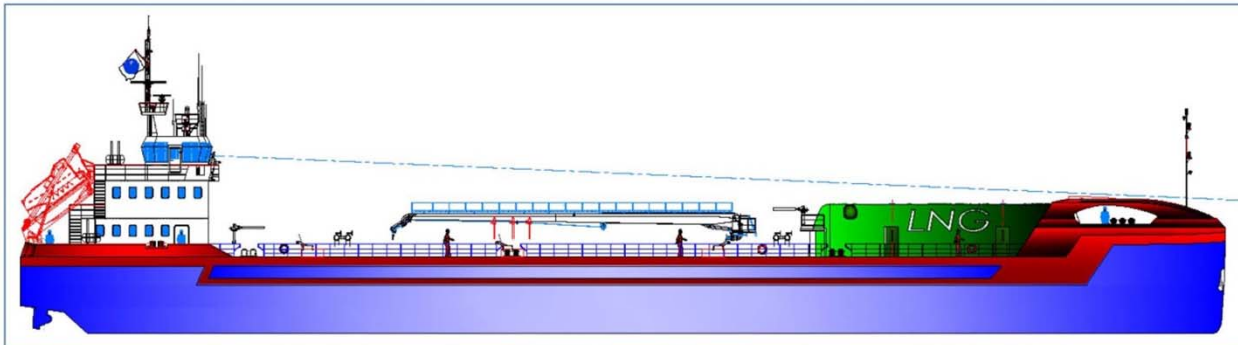
1. Different cargoes: LNG, MDO, HFO, LO
2. LNG Propulsion
3. Suitable for ports, channels (Suez, Panama...)
4. Zero emission
5. Easy installation of LNG tanks
10. Resilient mounted aft accommodation

Designs-Combined LNG – MDO/LO/HFO Bunker Tankers



Designs-Combined LNG – MDO/LO/HFO Bunker Tankers

INEC HARBOR-COASTAL OIL-LNG BUNKERING VESSEL type:INEC - COMBIBUN



INEC9010CB is multipurpose bunkering vessel suitable of bunkering different oil products (MDO, HFO) as well LNG.

L = 89.90m
B = 10.50m
H = 5.50m
D = 4.00m

Oil cargo capacity 1700m³
LNG cargo capacity 850m³

Vessel is available in different sizes:

INEC 10012CB - 1200m³; 1200m³
INEC7610CBA - 1200m³; 850m³
INEC7610CB - 1000m³; 600m³

It's a double screw ASD vessel, with low consumption and good maneuvering and hydrodynamic characteristics.

Vessel has 4 or 6 oil cargo tanks and one, vacuum insulated, double walled LNG tank.

Universal bunkering boom of 20m is in use for ship-to-ship transfer of products.

Vessel can be equipped with heating boiler and heating coils in case of carrying HFO.

Highest safety standards and last state of art LNG containment knowledge is applied. LNG stainless steel tank is developed to sustain direct hit to bridges and rigid objects, as well free fall of 40' container.

Vessel is propelled with different propulsion concepts:

- LNG Electric propulsion
- Dual Fuel Electric propulsion
- Diesel Electric propulsion

Vessel is suitable for 24 hour service in shifts and number of crew members on board depends of customer needs.



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nesha@planet.nl

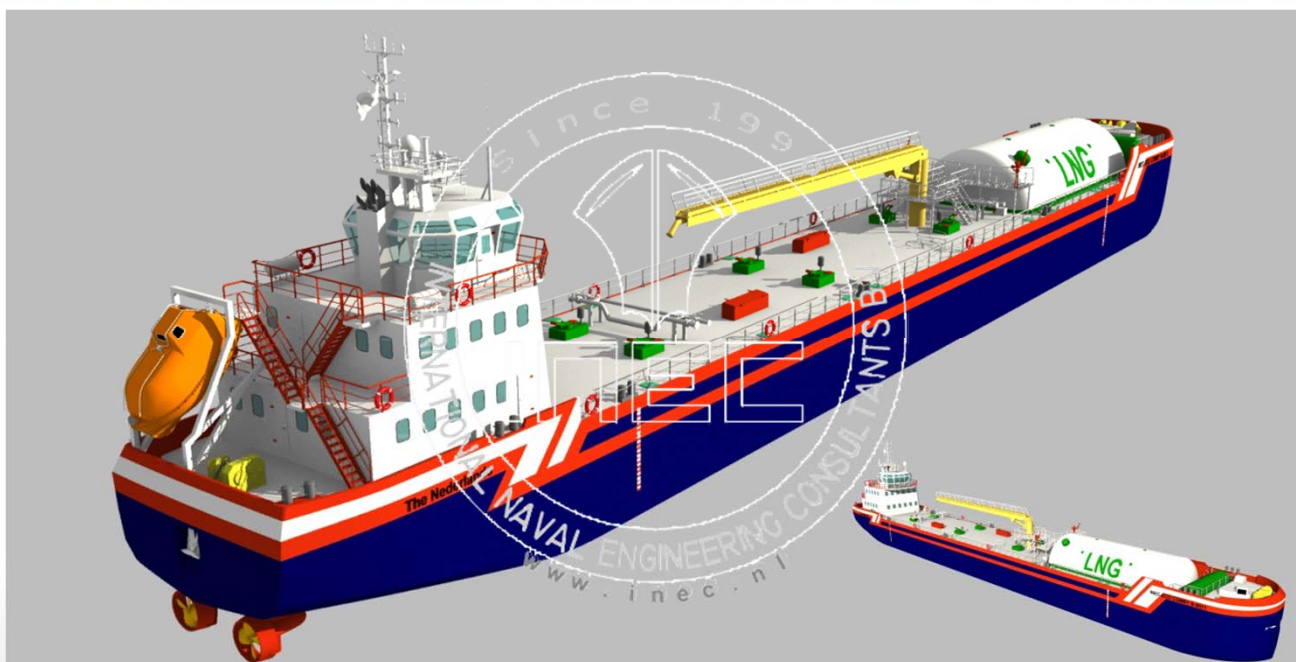
File: 31198-INEC9010CB-SHORT FLYER



Coastal Combination Bunker tankers:

1. Different cargoes: LNG, MDO, HFO, LO
2. LNG Propulsion
3. Suitable for ports, channels (Suez, Panama...)
4. Zero emission
5. Easy installation of LNG tanks
10. Resilient mounted aft accommodation

Designs-Combined LNG – MDO/LO/HFO Bunker Tankers



Designs-LNG Bunker Tankers

INEC HARBOR-COASTAL LNG BUNKER VESSEL type: INEC – LNGBUNKER1500



INEC LNG BUNKER1500 is dedicated LNG bunkering vessel, suitable

Vessel is available in different sizes:

- INEC LNG B1100** - 1100m³ LNG
- INEC LNG B1500** - 1300m³ LNG
- INEC LNG B1800** - 1800m³ LNG

Overall dimensions depend of local needs, size of tanks as well type of propulsion and crew on board.

It's a single or double screw vessel, with low consumption and good maneuvering and hydrodynamic characteristics.

Vessel has 2 Type C, LNG tanks, vacuum insulated, double walled, made from StSt.

Hydraulic operating crane is installed for manipulation of hoses during ship-to-ship bunkering operations.

Due to specially insulated tanks, BOR is extremely low.

Highest safety standards and last state of art LNG containment knowledge is applied. LNG stainless steel tank is developed to sustain direct hit to bridges and rigid objects, as well free fall of 40' container.

Vessel can be propelled with different propulsion concepts:

- LNG Electric propulsion
- Dual Fuel Electric propulsion
- Diesel Electric propulsion

Vessel is suitable for 24 hour service in shifts and number of crew members on board depends of customer needs.

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File: 31198-INECLNGBUNKER1500-SHORT FLYER



Designs-LNG Bunker Tankers



The image shows a blue and white LNG bunker tanker ship, the INEC LNG BUNKER 1500, sailing on the ocean. The ship has two large white cylindrical tanks labeled 'LNG BUNKERING SERVICES'. A yellow crane is visible on the deck. The ship's name 'INEC LNG BUNKER 1500' and the website 'www.inec.nl' are visible on the hull. A large circular watermark with the text 'Since 1990' and 'INTERNATIONAL NAVAL ENGINEERING CONSULTANTS B.V.' is overlaid on the image.

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Tel: +31 (0)19-8012315, Fax: +31 (0)19-8012361
Email: info@inec.nl
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Coastal and Port LNG Bunker tankers:

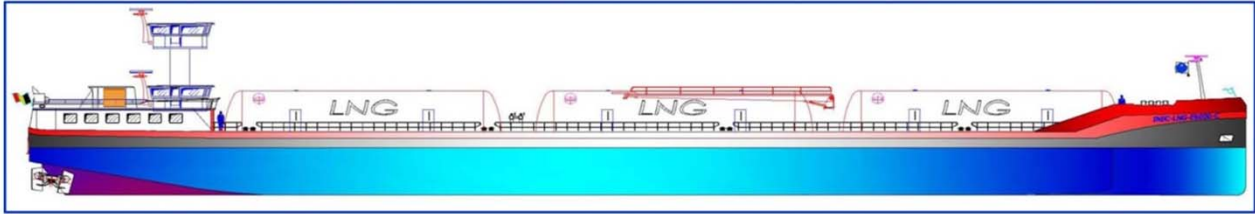
1. LNG stored in type C pressurized tanks
2. Propulsion possibilities: LNG, MDO, Dual fuel
3. Single and Double Propelled
4. Suitable for ports, channels (Suez, Panama...)
5. Suitable for ECA areas
6. Easy installation of LNG tanks
7. Capacity from 1100ton - 1800ton

www.inec.nl

Designs-LNG Bunker Tankers

INEC ESTUARY-LNG BUNKERING VESSEL

type:INEC-LNG-E6000C



INEC-LNG-E6000C is modern LNG Estuary Bunker Tanker suitable for bunkering of LNG in ports of ARA Region (The Netherlands and Belgium).

L = 110.000m
B = 20.500m
H = 6.00m
D = 4.00m

LNG cargo capacity 6000m³
Type of tanks IMO type C.

It's a double screw ASD vessel, with low consumption and good maneuvering and hydrodynamic characteristics.

Vessel has 6 StSt LNG cargo tanks, with submerged LNG pump in each tank and one manifold situated between the tanks.

Vessel is designed according to current ADN Rules and fulfills all necessary safety standards.

Bunkering boom of 20-25m is in use for ship-to-ship transfer of products.

Highest safety standards and last state of art LNG containment knowledge is applied. LNG stainless steel tank is developed to sustain direct hit to bridges and rigid objects, as well free fall of 40' container.

Vessel can be propelled with different propulsion concepts:

- LNG Electric propulsion
- Dual Fuel Electric propulsion
- Diesel Electric propulsion

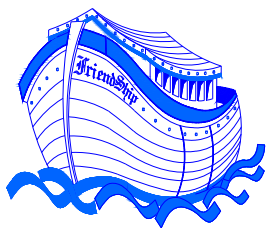
Vessel is suitable for 24 hour service in shifts and number of crew members on board depends of customer needs.



File: 31212-INEC-LNG-E6000C-SHORT FLYER



FOR ALL YOUR SHIP DESIGN AND BUILDING PROJECTS
FOR ALL TYPES OF TANKERS AND BUNKERING SHIPS
FOR ALL CONSULTING AND EXPERTISE
FOR TURN KEY DELIVERY OF SHIPS
FOR ONSITE ASSISTANCE AND PROJECT MANAGEMENT



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