### Suezmax Oil Tanker

**166,300 DWT**

**Builder / Yard No.:** Shipyard BRODOSPLIT / 433, 434, 447  
**Name:** ALAN, HRVATSKA, DONAT  
**Owner / Flag:** Aenona Maritime Ltd / Malta  
**Designed by:** Shipyard Brodosplit  
**Delivered:** 2003, 2004, 2007

Single screw diesel engine driven Oil Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into twelve (12) cargo and two (2) slop tanks. Hull structure made of mild and higher tensile steel. Three (3) grades of cargo can be handled simultaneously.

**Classification:** Bureau Veritas 1  
- OIL TANKER, ESP UNRESTRICTED  
- NAVIGATION, SYS-NEQ-1  
- VERISTAR -HULL, -AUT -UMS, SPM, IN WATER SURVEY, VCS-C-CARGO CONTROL, -HMON -SHAFT

**Main dimensions**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length over all</td>
<td>281.20 m</td>
</tr>
<tr>
<td>Length between perpendiculars</td>
<td>270.00 m</td>
</tr>
<tr>
<td>Breadth moulded</td>
<td>48.20 m</td>
</tr>
<tr>
<td>Depth moulded</td>
<td>23.00 m</td>
</tr>
<tr>
<td>Design draught</td>
<td>16.00 m</td>
</tr>
<tr>
<td>Scantling draught</td>
<td>17.10 m</td>
</tr>
<tr>
<td>Deadweight at design draught</td>
<td>152,853 t</td>
</tr>
<tr>
<td>Deadweight at scantling draught</td>
<td>166,447 t</td>
</tr>
<tr>
<td>Main engine Split-MAN-B&amp;W</td>
<td>6570MC-C</td>
</tr>
<tr>
<td>Selected maximum continuous rating</td>
<td>16,780 kW/82 rpm</td>
</tr>
<tr>
<td>Trial speed at design draught and 85% SMCR</td>
<td>15.5+5 kn</td>
</tr>
<tr>
<td>Main engine daily fuel oil consumption</td>
<td>56.7 t/day</td>
</tr>
<tr>
<td>Cruising range</td>
<td>23,000 nm</td>
</tr>
<tr>
<td>Crew complement</td>
<td>32</td>
</tr>
</tbody>
</table>

**Capacities (100%)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo and slop tanks</td>
<td>185,447 m³</td>
</tr>
<tr>
<td>Ballast tanks</td>
<td>52,313 m³</td>
</tr>
<tr>
<td>Heavy fuel oil</td>
<td>4,025 m³</td>
</tr>
<tr>
<td>Diesel</td>
<td>130 m³</td>
</tr>
<tr>
<td>Fresh and feed water</td>
<td>410 m³</td>
</tr>
</tbody>
</table>

**Painting**

- Cargo tanks & Slop: HEMPAUR 4515  
- Under water hull and boot topping: HEMPAUR COMBIC 7199, TIN FREE self polishing antifouling

**Cargo equipment**

- Cargo pumps: 3 x 3,500 m³/h at 140 mWC, s.g. 1.0, 1 cSt centrifugal pumps, steam turbine driven
- Cargo stripping: 1 x 250 m³/h at 140 mWC, s.g. 1.0, 1 cSt KPF 275 steam driven  
- 2 x 400 m³/h at 30 mWC, s.g. 1.0, 1 cSt stripping eductor
- Cargo manifolds: 3 x 500 mm

**Auxiliary engines plant**

- Main diesel-generator sets: 3 x 912 kW
- Emergency diesel-generator set: 1 x 248 kW

**Heating plant**

- Auxiliary oil fired boilers: 2 x 35 t/h saturated steam at 18 bar G
- Composite boiler: 1 x 1.8+1.5 t/h saturated steam at 7 bar G
Single screw diesel engine driven Oil Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into twelve (12) cargo and two (2) slop tanks. Hull structure made of mild and higher tensile steel. Four (4) grades of cargo can be handled simultaneously.

**Classification:** DNV: *A1 Ice-1C, Tanker for Oil ESP, SPM, E0, NAUT-OC, LSC (D5), VCS 2, CLEAN, NAUTICUS (Newbuilding), TMON*

**Main dimensions:**
- Length over all: 247.24 m
- Length between perpendiculars: 236.00 m
- Breadth moulded: 42.00 m
- Depth moulded: 21.00 m
- Design draught: 13.50 m
- Scantling draught: 14.90 m
- Deadweight at design draught: 94,918 t
- Deadweight at scantling draught: 108,078 t
- Main engine: Split-MAN-B&W 7S60MC-C
- Selected maximum continuous rating: 14,130 kW/94 rpm
- Trial speed at design draught and 90% SMCR: 15.52 kn
- Main engine daily fuel oil consumption: 51.2 t/day
- Cruising range: 18,000 nm
- Crew complement: 26

**Capacities (100%)**
- Cargo and slop tanks: 126,211 m³
- Ballast tanks: 37,365 m³
- Heavy fuel oil: 2,822 m³
- Diesel: 162 m³
- Fresh and feed water: 300 m³

**Painting**
- Cargo tanks and slop tanks: INTERSHIELD 300
- Under water hull and boot topping: INTERSPEED 340
- TN FREE self polishing antifouling
- Ice belt Sealer + Anti abrasion epoxy coating (50 my + 400 my)
- Open deck and exposed superstructure: Epoxy (300 my)

**Cargo equipment**
- Cargo pumps: 4 x 3000 m³/h at 130 mLC, s.g. 0.9, 1 cSt centrifugal pumps, steam turbine driven
- Cargo stripping: 1 x 200 m³/h at 130 mLC, s.g. 0.9, 1 cSt electric motor driven
- 1 x 250 m³/h at 25 mLC, s.g. 0.9, 1 cSt stripping eductor
- Cargo manifolds: 4 x 500 mm

**Auxiliary engines plant**
- Main diesel-generator sets: 3 x 870 kW
- Emergency diesel-generator set: 1 x 248 kW

**Heating plant**
- Auxiliary oil fired boilers: 2 x 35 t/h saturated steam at 16 bar G
- Composite boiler: 1 x 2.5/3.7 t/h saturated steam at 7 bar G
Oil Product Tanker

95,000 DWT

Builder / Yard No.: Shipyard BRODOSPLIT / 435, 436
Owner / Flag: European Navigation Inc. / Greece
Designed by: Shipyard Brodosplit
Delivered: 2003, 2004

Single screw diesel engine driven Oil Product Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into twelve (12) cargo and two (2) slop tanks.

Hull structure made of mild and higher tensile steel. Six (6) grades of cargo can be handled simultaneously.

Classification: ABS: A1 (E) Oil and Chemical Carrier, +AMS, +ACCU, CPP, SH, RES, ESP, with special rotations UWILD, COW, SPM

Main dimensions
- Length over all: 228.60 m
- Length between perpendiculars: 220.00 m
- Breadth moulded: 42.00 m
- Depth moulded: 21.00 m
- Design draught: 11.354 m
- Scantling draught: 14.05 m
- Deadweight at design draught: 70,443 t
- Deadweight at summer draught: 94,143 t
- Main engine Split-MON-B&W
- 650 MC-C
- Selected maximum continuous rating: 13,530 kW/105 rpm
- Trial speed at design draught and 90% SMCR: 15.83 kn
- Main engine daily fuel oil consumption: 49.0 t/day
- Cruising range: 18,000 nm
- Crew complement: 28

Capacities (100%)
- Cargo spill slop tanks: 116,032 m³
- Ballast tanks: 37,569 m³
- Heavy fuel oil: 2,531 m³
- Diesel: 210 m³
- Fresh and feed water: 260 m³

Painting
- Cargo tanks and slop tanks: SIGMA PHENGUARD
- Under water hull and boot topping: SIGMA ALPHAGEN 20 TIN FREE self polishing antifouling
- Open deck and exposed superstructure: Epoxy + Polyurethane (260 my + 60 my)

Cargo equipment
- Cargo pumps: 12 x 1000 m³/h at 130 mCL, s.g. 0.8, 1 cSt submerged, centrifugal, hydraulic motor driven
cargo tanks pumps
- 2 x 250 m³/h at 130 mCL, s.g. 0.8, 1 cSt submerged, centrifugal, hydraulic motor driven slop tanks pumps
- 1 x 100 m³/h at 130 mCL submerged hydraulic driven centrifugal spill pump
- 2 x 150 m³/h at 70 mCL, s.g. 0.8, 1 cSt submersible, centrifugal, hydraulic motor driven portable cargo pump

Auxiliary engines plant
- Main diesel-generator sets: 4 x 990 kW
- Emergency diesel-generator set: 1 x 280 kW

Heating plant
- Auxiliary oil fired boilers: 1 x 2.5 t/h saturated steam at 7 bar G
- Composite boiler: 1 x 2.0/1.6 t/h saturated steam at 7 bar G
Oil Tanker

114,000 DWT

Single screw diesel-engine driven Oil Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into twelve (12) cargo and two (2) slop tanks. Hull structure made of mild and higher tensile steel. Three (3) grades of cargo can be handled simultaneously.

Classification: Bureau Veritas

Main dimensions
- Length overall: 247.24 m
- Length between perpendiculars: 236.00 m
- Breadth moulded: 42.00 m
- Depth moulded: 21.00 m
- Design draught: 13.50 m
- Scantling draught: 15.60 m

Deadweight at design draught: abt. 94600 t
Deadweight at scantling draught: abt. 114000 t

Main engine MN-B&W
- 6600 MEC-C
- Selected maximum continuous rating: 13560 kW/105 rpm
- Trial speed at design draught and 90% SMCR: 15.30 kn
- Main engine daily fuel oil consumption: 52.3 t/day
- Cruising range: 17,000 nm
- Crew complement: 32 + 6 Suez crew

Capacities (100%)
- Cargo and slop tanks: 126,210 m³
- Ballast tanks: 37,363 m³
- Heavy fuel oil: 2,610 m³
- Diesel: 165 m³
- Fresh and feed water: 300 m³

Painting
- Cargo tanks: (bottom + 0.5 m, deck head-4m) Epoxy (250 my)
- Slop tanks: Epoxy (250 my)
- Under water hull and boot topping: Epoxy + sealer + AF (250 my + 75 my + 300 my)

Cargo equipment
- Cargo pumps: 3 x 2,500 m³/h at 140 mWC, s.g. 0.9, 1cSt centrifugal pumps, steam turbine driven
- Cargo stripping: 1 x 200 m³/h at 90 mWC, piston, el. motor driven stripping pumps
- 2 x 400 m³/h at 25 mWC, s.g. 1.0, 1 cSt stripping eductor
- Cargo manifolds: 3 x 450 mm

Auxiliary engines plant
- Main diesel-generator sets: 3 x 910 kW
- Emergency diesel-generator set: 1 x 250 kW

Heating plant
- Auxiliary oil fired boilers: 2 x 25 t/h saturated steam
- Composite boiler: 1 x 2.0/1.5 t/h saturated steam

Builder / Yard No.: Shipyard BRODOSPLIT / 460, 461
Owner / Flag: Donat Maritime Ltd., Valletta, Malta / Croatia
Designed by: Shipyard Brodosplit
Delivery: 2008, 2009

Single screw diesel-engine driven Oil Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into twelve (12) cargo and two (2) slop tanks. Hull structure made of mild and higher tensile steel. Three (3) grades of cargo can be handled simultaneously.
Single screw diesel engine driven Oil Product Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into twelve (12) cargo, two (2) slop tanks and residual tank (1). Hull structure made of mild and higher tensile steel. Six (6) parcels of cargo can be handled simultaneously.

Classification: DNV-1A1, Tanker for Oil, ESP, ICE-1A, E0, NAUT-OC, LCS-DC, VCS-2, COM-2, ETC, TMON, NAUTICUS (Newbuilding)

Main dimensions
- Length overall: 228.50 m
- Length between perpendiculars: 220.00 m
- Breadth moulded: 32.24 m
- Depth moulded: 20.45 m
- Design draught: 12.20 m
- Summer draught: 14.18 m
- Deadweight at design draught: 61,277 t
- Deadweight at summer draught: 74,998 t
- Main engine MAN-B&W 6S60MC-C
- Selected maximum continuous rating: 13,560 kW/105 rpm
- Trial speed at design draught and 90% SMCR: 16.29 kn
- Main engine daily fuel oil consumption: 49.2 t/day
- Cruising range: 15,000 nm
- Crew complement: 30 + 6 Suez crew

Capacities (100%)
- Cargo and slop tanks: 85,950,1 m³
- Ballast tanks: 31,838,0 m³
- Heavy fuel oil: 2,294.2 m³
- Diesel: 185,7 m³
- Fresh and feed water: 246.0 m³

Painting
- Cargo tanks: 3 x 100 mic Sigma Guard 745 (Phenolic epoxy)
- Under water hull and boot topping: Sigma Prime 2 x 100 mic Ecofleet 290, TBT self polishing antifouling

Cargo pumps
- Twelve submerged hydraulically driven centrifugal pumps Q=1000 m³/h at 130 mLC.
- One portable submersible driven centrifugal pump Q=200 m³/h at 60 mLC.
- Two submerged hydraulically driven centrifugal slop pumps Q=300 m³/h at 130 mLC.
- One residual pump of Q=80 m³/h at 130 mLC.
- Material of pumps: Stainless steel

Cargo manifolds
- Cargo line manifold connections 6 x DN 300 for cargo tanks No.1-No.6 PS/SS + slop
- 1 x DN 150 with fittings according to OCIMF.
**Oil Tanker**

70,700 DWT

**Builder / Yard No.:** Shipyard 3. MAJ / 662
**Name:** m/s MARGARA
**Owner / Flag:** Doria Shipping Co. Ltd. / Malta
**Sister Vessels:** 663, 673, 674
**Designed by:** Shipyard 3. MAJ
**Delivered:** 1999, 2000, 2001

Cargo space with longitudinal bulkhead consisting of 10 cargo tanks (5 pairs, P&S) and 2 slop tanks. The entire cargo tank length protected by double hull (double bottom and double side) forming water ballast tanks.

Additional pollution prevention measures comprising inner bottom/double side for fuel oil tanks.

Material protection: cargo tanks protected with epoxy painting system.

**Classification:** ABS-A1 (E) Oil Carrier, SH, +A-AMS, +ACCU, Ice Class IC
**Length over all:** abt. 228.20 m
**Length btw perp.:** 220.00 m
**Breadth moulded:** 32.20 m
**Depth moulded:** 20.10 m
**Draught design:** 12.55 m
**Deadweight at design draught:** abt. 14.10 m
**Deadweight at scantling draught:** abt. 60,300 t
**Deadweight at scantling:** abt. 70,700 t

**Main engine:** 3. MAJ - SULZER
**Trial speed at 9,800 kW and design draught:** abt. 15.00 knots

**Capacities**

- **Cargo tanks including slop tanks (98% full):** abt. 80,400 m³
- **Provisions**
  - Heavy fuel oil: abt. 2,670 t
  - Diesel oil: abt. 220 t
  - Light diesel oil: abt. 17 t
  - Lub. oil: abt. 115 t
  - Fresh water: abt. 160 t
  - Feed water: abt. 70 t
  - Water ballast: abt. 30,600 t

**Crew complement:** 27 + 6 Suez crew

**Cargo equipment**

- Piping and pump system arranged for 5 segregations and one pair of slop tanks
- One hydraulically driven submerged cargo pump fitted in each cargo/slop tank, capacity abt. 900 m³/h / 300 m³/h respectively at 130 mlc, density 0.8 t/m³
- Hydraulic power units (four electric and three diesel engine driven) for simultaneous discharging of 5400 m³/h of cargo at 130 mlc, density 0.8 t/m³
- Inert gas plant 6,750 m³/h

**Steam plant**

- Two oil fired boilers, steam capacity abt. 14 t/h at 8 bar each
- One exhaust gas/oil fired composite boiler capacity abt. 1,520.0 t/h at 8 bar

**Auxiliary engines plant**

- Three diesel generator sets of abt. 1100 kVA, 3 x 450 V, 60 Hz, 900 min-1 burning DO and HFO
- One emergency diesel generator set of abt. 150 kVA, 3 x 450 V, 60 Hz.
Oil Product Tanker
65,200 DWT

Twin screw diesel engine driven Oil Product Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel oil tanks. Double bottom/double side tanks and peak tanks intended for segregated ballast. Cargo space divided into ten (10) cargo and two (2) slop tanks. Hull structure made of mild and higher tensile steel. Five (5) grades of cargo can be handled simultaneously.

Classification: Det Norske Veritas, DNV-1A1 Tanker for Oil ESP, NAUTICUS (Newbuilding), PLUS-2, ICE-1B, ETC, ED, VCS2, RPS, NAUT-AW

Length over all 189.90 m
Length between perpendiculars 175.50 m
Breadth moulded 40.00 m
Depth moulded 17.90 m
Design draught 11.30 m
Scantling draught 13.00 m
Deadweight at design draught 53,938 t
Deadweight and scantling draught 65,125 t

Main engines Split-MAN-B&W 2x6S46MC-C
Selected maximum continuous rating 2x7,860 kW/129 rpm
Main engine daily fuel oil consumption 41.0 t/day
Cruising range 14,000 nm
Crew complement 28

Capacities (100%)
Cargo and slop tanks 70,255 m³
Ballast tanks 26,155 m³
Heavy Fuel Oil 2,367 m³
Diesel oil 240 m³
Fresh and feed water 374 m³

Painting
Cargo tanks and slop tanks Pure epoxy (300 my)
Under water hull and boot topping Epoxy + Tie coat + SPC (300 my + 75 my + 250 my)
Open deck and exposed superstructure Epoxy + Tie coat + Polyspenthane (300 my + 75 my + 50 my)

Cargo equipment
• Cargo pumps
 10 x 600 m³/h at 120 mLC, s.g. 0.8, 1 cSt
submerged, centrifugal, electric motor driven cargo tanks pumps.
 2 x 300 m³/h at 120 mLC, s.g. 0.8, 1 cSt
submerged, centrifugal, electric motor driven slop tanks pumps.
 1 x 200 m³/h at 70 mLC, s.g. 0.8, 1 cSt
submersible, centrifugal, hydraulic motor driven portable cargo pump.
• Cargo manifolds 5 x 300 mm

Auxiliary engines plant
• Main diesel-generators sets 4 x 865 kW
• Emergency diesel-generator set 1 x 210 kW

Heating plant
• Auxiliary oil fired boilers 2 x 8.5 t/h saturated steam at 7 bar G
• Exhaust boiler 1 x 1.9 t/h saturated steam at 7 bar G
Tanker for Oil, Oil Products and Chemicals

Builder / Yard No.: Shipyards 3. MAJ / 695
Name: ANCE
Owner / Flag: SLOKA NAVIGATION, INC. / MARSHALL ISLANDS
Sister ships: 696 - 704
Designed by: Shipyards 3. MAJ
Delivered: 2006

The ship is single screw diesel engine driven, double hull tanker for oil, oil products and IMO type 2 tanker for liquid chemicals. There are one continuous deck, forecastle, bulbous bow and transom stern. Accommodation and engine room are located at the aft part of the vessel. Cargo space is divided into six (6) pairs of cargo tanks, one (1) pair of slop tanks and one (1) retention tank. The structure of cargo tanks is designed for cargo density of 1.025 t/m³ in completely filled tanks (including zig-zag loading for port to port service). The structure of cargo tanks is also designed for cargo density up to 1.54 t/m³ in partially filled tanks with filling height limited by equivalent load of full tank with a cargo density of 1.025 t/m³. The cargo and slop tanks are divided by center line and transverse vertically corrugated bulkheads. The stiffening structure is outside the cargo tanks. Cofferdams are fitted between FO tanks as well as LO tanks. The entire cargo tanks length is protected by double hull, forming six (6) pairs of water ballast tanks. Engine room is equipped for unattended operation.

Classification: DNV- I, JAS, Tanker for Oil & Chemicals, ESP, EO, SPM, ICE-1B, TMON, NAUTICUS (New building) DAI (1-20 deg C) IMO Ship type 2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall (extreme)</td>
<td>195.16 m</td>
</tr>
<tr>
<td>Length between perpendiculars</td>
<td>187.30 m</td>
</tr>
<tr>
<td>Breadth, moulded</td>
<td>32.20 m</td>
</tr>
<tr>
<td>Depth, moulded to upper deck</td>
<td>17.806 m</td>
</tr>
<tr>
<td>Design draught (extreme)</td>
<td>12.018 m</td>
</tr>
<tr>
<td>Deadweight at design draught (12.018 m)</td>
<td>49,788 t</td>
</tr>
<tr>
<td>Summer draught (extreme)</td>
<td>12,518 m</td>
</tr>
<tr>
<td>Deadweight at summer draught (12.518 m)</td>
<td>52,622 t</td>
</tr>
<tr>
<td>Main engine</td>
<td>3. MAJ - YARTILA IV 7 RTA 48 T-B</td>
</tr>
<tr>
<td>CMCR</td>
<td>9,650 kW at 123 min-1</td>
</tr>
<tr>
<td>Trial speed with 8,200 kW</td>
<td>15.00 knots</td>
</tr>
<tr>
<td>Capacities (100%)</td>
<td></td>
</tr>
<tr>
<td>Cargo tanks (stop included)</td>
<td>58,691 m³</td>
</tr>
<tr>
<td>Retention tank</td>
<td>222 m³</td>
</tr>
<tr>
<td>Ballast tanks</td>
<td>23,850 m³</td>
</tr>
<tr>
<td>Heavy fuel oil</td>
<td>1,591 m³</td>
</tr>
<tr>
<td>Diesel oil</td>
<td>194 m³</td>
</tr>
<tr>
<td>Lubrication oil</td>
<td>78 m³</td>
</tr>
<tr>
<td>Fresh water</td>
<td>351 m³</td>
</tr>
<tr>
<td>Cargo unloading time</td>
<td>abt. 18 hours</td>
</tr>
<tr>
<td>Consumption of HFO</td>
<td>169.9 g/kWh + 5%</td>
</tr>
<tr>
<td>Cruising range</td>
<td>abt. 13,410 nautical miles</td>
</tr>
<tr>
<td>Crew complement</td>
<td>24 + 4 spare</td>
</tr>
</tbody>
</table>

Painting
Cargo tanks - Phenolic epoxy
Ballast tanks - Light colour epoxy

Cargoequipment
Each cargo line is connected with three cargo tanks connected to own midship crossover manifold. Slop tanks and retention tank are arranged with one common crossover manifold. One crossover line connects all cargo manifold lines. Loading of cargo tanks through drop lines. Four stripping lines up to manifold. Remote operation main valves in cargo area from cargo control room.
Hydraulically driven submerged centrifugal pumps:
- Cargo tanks: 12 x 550 m³/h at 130 mic
- Slop tanks: 2 x 300 m³/h at 130 mic
- Retention tank: 1 x 100 m³/h at 130 mic
- Two portable pumps: 2 x 70 m³/h at 70 mic
Total discharging capacity abt. 3,300 m³/h at 130 mic, cargo density 0.8 t/m³, viscosity 1.0 cSt.
High-pressure common hydraulic system for simultaneous running of 6 cargo pumps. Four electro driven hydraulic power units, each of 420 kW. Cargo pumps and pipes are of stainless steel AISI 316L.
Cargotank heating with deck cargo heater. Slop and retention tanks heating with heating coils.
Inert gas generator, capacity 6,200 m³/h.
Fixed tank cleaning machines.
Hydraulic hose handling crane, 100 kN SWL.

Steamplant
- Two oil fired boilers, steam capacity 10 t/h at 8.0 bar
- One exhaust gas boiler, steam capacity 1.5 t/h at 8.0 bar

Auxiliary engines plant
- Three diesel generator sets, 1,010 kW at 900 min-1 each
- One emergency diesel generator set
Oil Product / Chemical Tanker

45,000 DWT

Single screw diesel engine driven Oil Product / Chemical Tanker with longitudinal bulkhead, bulbous bow, and transom stern. Living quarters including navigation bridge, engine room with fuel-oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into sixteen (16) cargo and two (2) slop tanks. Hull structure made of mild steel. Eight (8) grades of cargo can be handled simultaneously.

Classification: ABS, Lloyd’s, Bureau Veritas, DNV, BV, GL, TUV, RINA, N Glo, RINA, DNV, LR

Main dimensions

- Length over all: 183.40 m
- Length between perpendiculars: 175.00 m
- Breadth moulded: 32.00 m
- Depth moulded: 17.95 m
- Design draught: 11.00 m
- Scantling draught: 12.00 m
- Deadweight at design draught: 39,493 t
- Deadweight at summer draught: 44,598 t

Main engine

- Split-MAN-B&W 6S50MC-C

Selected maximum continuous rating: 9,180 kW/123 rpm

Trial speed at design draught and 90% SMCR: 15.65 kn

Main engine daily fuel oil consumption: 33.6 t/day

Cruising range: 20,000 nm

Crew complement: 27

Capacities (100%)

- Cargo and slop tanks: 55,423 m³
- Ballast tanks: 21,197 m³
- Heavy fuel oil: 1,952 m³
- Diesel: 143 m³
- Fresh and feed water: 240 m³

Painting

- Cargo tanks and slop tanks: Sigma Phenguard
- Under water hull and boot topping: Epoxy + Tie coat + SPC (250 my + 75 my + 450 my)
- Open deck and exposed superstructure: Epoxy + Polyurethane (260 my + 60 my)

Builder / Yard No.: Shipyard BRODOSPLIT / 428
Name: m/s ELKA GLORY
Owner / Flag: Carriage Shipping Inc. / Monrovia
Sister vessels: 415, 416, 417, 427, 432
Designed by: Shipyard Brodosplit
Delivered: 2001-2005

Cargo equipment

- Cargo pumps: 16 x 580 m³/h at 120 mLC, s.g. 0.8, 1 cSt, motor driven cargo tanks pumps
- 2 x 120 m³/h at 130 mLC, s.g. 0.8, 1 cSt, motor driven slop tanks pumps
- 1 x 150 m³/h at 70 mLC, s.g. 0.8, 1 cSt, motor driven portable cargo pump

Cargo manifold: 8 x 300 mm

Auxiliary engines plant

- Main diesel-generator sets: 2 x 990 kW
- 2 x 740 kW
- Emergency diesel-generator set: 1 x 170 kW

Heating plant

- Auxiliary oil fired boilers: 1 x 16 t/h saturated steam at 7 bar G
- Donkey boiler: 1 x 1.5 t/h saturated steam at 7 bar G
- Exhaust gas economiser: 1 x 1.4 t/h saturated steam at 7 bar G
Handy Size Oil Product Tanker

45,000 DWT

Single screw diesel engine driven Oil Tanker with longitudinal bulkhead, bulbous bow, transom stern and forecastle. Living quarters including navigation bridge, engine room with fuel oil tanks on both sides and pump room located aft. Double bottom / double side tanks and peak tanks intended for segregated ballast. Cargo space divided into ten (10) cargo and two (2) slop tanks. Structural steel and profiles made of mild steel.

- Intended cargoes: oil products.
- Four (4) grades of cargo can be handled simultaneously.

Classification: LR 100 A1 Oil and Chemical Tanker, Ship type 3 (double hull), NAV1, LMC, UMS, IGS, ESP, COW, IWS, SCM

Length over all: 182.40 m
Length btw perp.: 174.00 m
Breadth moulded: 32.20 m
Depth moulded: 17.60 m
Draught design: 11.00 m
Draught scantling: 12.00 m
Deadweight at des. draught: 40,000 t
Deadweight at scant. draught: 45,000 t

Main engine: BRODOSPLIT-MAN-B&W 6S50MC
SMCR: 7,720 kW / 127 rpm
Trial speed at 90% SMCR, on design draught: 15.3 knots

Capacities
- Cargo + slop tanks: 53,000 m³
- Segregated ballast tanks: 20,158 m³

Provisions:
- Heavy fuel oil: 1,826 m³
- Diesel fuel oil: 130 m³
- Fresh water: 200 m³

Main engine consumption: 31.8 t/day
Cruising range: 18,000 nm
Crew complement: 28

Painting
- Cargo tanks: Epoxy
- Ballast tanks: Light colour CT epoxy
- Under water hull: Epoxy + vinyl tar + SPC
- Deck and exposed superstr.: Epoxy + polyurethan

Cargo equipment
- Cargo pumps: 4 x 1100 m³/h at 120 mlC, s.g. 0.96; 1 cSt, steam turbine driven.
- Stripping: 1 x 100 m³/h at 120 m el. driven cargo pump + 1 x 200 m³/h at 20 m eductor.

Auxiliary engines plant
- Three diesel-generator sets, 740 kW, 720 rpm, 60 Hz
- One emergency generator, 96 kW, 1800 rpm, 60 Hz

Heating plant
- Two oil fired boiler capacity 15.0 t/h.
- One composite oil fired boiler, oil fired section capacity 1.5 t/h, economizer capacity 1.4 t/h.
Oil & Chemical Tanker

45,999 DWT

Builder: Shipyard ULJANIK
Owner: Iceport Shipping Company Ltd, Limassol
Designed by: Shipyard Uljanik
Delivered: 2005, 2006

The vessel is suitable for transporting crude oil and dirty petroleum products and chemicals worldwide. 18 submerged pumps are fitted in cargo tanks plus two in slop and one in residual tank. One cargo manifold is arranged for two cargo pumps, nine segregations. All cargo tanks are composed of vertical corrugated bulkheads and plane surfaces. Hull structure mild steel.

Cargo equipment
- 18 stainless steel deepwell centrifugal cargo pumps, electrically driven, cap. 500 m³/h at 125 mlc (S.G. 0.8 t/m³) visc. 1.0 cSt.
- 2 stainless steel deepwell centrifugal slop pumps, electrically driven, cap. 100 m³/h at 125 mlc (S.G. 0.8 t/m³) visc. 1.0 cSt.
- 1 stainless steel deepwell centrifugal residual pump, electrically driven, cap. 35 m³/h at 125 mlc (S.G. 0.8 t/m³) visc. 1.0 cSt.
- 2 portable stainless steel submersible centrifugal cargo pumps, hydr. capacity 70 m³/h at 50 mlc (S.G. 0.8 t/m³) visc. 1.0 cSt.
- Heating: each cargo tank, slop and residual tank is fitted with stainless steel heating coils.
- Venting: high velocity, press/vacuum valves. Vapour return arrangement at manifold.
- Cleaning: 1 stainless steel machine per each tank.
- Inerting: Nitrogen generator cap. 3,750 m³/h (95% purity).
- Hose handling: 1 crane of 100 kN SWL electro-hydraulically operated.

Heating plant
- One oil fired boiler, steam capacity 19 t/h.
- One composite boiler cap. 1,400/3,000 kg/h.

Auxiliary engines plant
- Four diesel generator sets, of 960 kW driven each.
- One emergency diesel generator set, of 109 kW.

Classifications: LR; W100A1 Double Hull Oil and Chemicals Tanker, Ship type 2, in association with a list of defined cargoes: ESP, SPM, LI, NAV1, IWS, COW, LMC, UMS, Ship right (SDA, FDA), PL, SBT.

Length over all: 182.90 m
Length btw perp.: 174.80 m
Breadth extreme: 32.20 m
Depth moulded: 17.50 m
Draught design: 11.30 m
Draught scantling: 12.00 m
Deadweight at design draught: 45,999 t
Deadweight at scantling draught: 45,999 t
Main engine: ULJANIK/MAN-B&W; 6S50MC-CMCR: 9,480 kW/127 RPM

Trial speed at 87% MCR, on draught of 11.30 m: 15.30 knots

Capacities
- Cargo tanks including slops: 53,100 m³
- Ballast tanks: 20,540 m³
- Heavy fuel oil: 2,120 m³
- Diesel fuel oil: 160 m³
- Lubricating oil: 115 m³
- Fresh water: 333 m³
- Cargo loading time: abt. 10 hours
- Consumption HFO: abt. 38,1 t/day
- Cruising Range: 19,900 n.m.
- Crew Complement: 25 persons

Painting
- Cargo and slop tanks - 2/3 epoxy phenolic and 1/3 zinc silicate coating.
Tanker for Chemicals, and Oil Products

46,764 TDW

Builder / Yard No.: Shipyard TROGIR / 302, 303, 304, 305, 306, 307
Name: m/v TARANTELLA
Owner / Flag: Whitefin Shipping Company Ltd. / Liberia
Designed by: Shipyard Trojz

Classification: DNV: -c-1A1 Tanker for Oil products and Chemicals:
ESP ED CCS W1 LCS(DIS) VCS-2 HL(1.5) COAT-2 PLUS-2 ETC NAUTICUS
(Rebuilding)
Ship type 3, 30, 60, b3, c3, v2, f2, str. 0.05

Length over all: 182.90 m
Length btw perp. 176.00 m
Breadth moulded: 32.20 m
Depth moulded to main deck: 17.20 m
Draught design, moulded: 11.00 m
Deadweight at design draught: 41,216 t
Deadweight: 46,764 t

Main engine: 2 x MAK 8M32C / Totally 7,680 kW

Trial speed at 90% MCR: 15.02 knots

Cargo tanks: 52,969 m³
Slop tanks: 1,050 m³
Heavy fuel oil: 1,473 m³
Diesel fuel oil: 134 m³
Lubrication oil: 43 m³
Fresh water: 837 m³
Ballast water tanks: 19,813 m³
Cargo loading / unloading time: 3,500 m³/h / 16 hours
Cruising Range: 13,900 nautical miles
At speed: 14.2 knots
Crew Complement: 18 + 6 spare + Pilot + 4 Suez Crew

Cargo equipment
- Cargo pumps:
  - 6 x deepwell el driven 400 m³/h at 110 mLC, s.g. 0.8, visc. 1.0 cSt
  - 8 x deepwell el driven 250 m³/h at 100 mLC, s.g. 0.8, visc. 1.0 cSt
- Slop pumps
  - 2 x deepwell el driven 1000 m³/h at 25 mLC, s.g. 0.8, visc. 1.0 cSt
- Portable pumps
  - 1 x submersible, hydraulic driven 18 m³/h at 70 mLC, s.g. 0.8, visc. 1.0 cSt
- Frequency converter power plant in engine room
- Cargo piping of stainless steel
- Nitrogen gas system cap. 4,400 Nm³/h
- Cargo tanks heating: steam/thermal oil, cargo deck heaters
- Stop tanks heating: heating coils AISI 316 L
- Tank washing: cold/hot sea and fresh water, two (2) tank cleaning machines per tank
- Cargo tanks drying: air heater 70°C and air fan 30,000 Nm³/h
- Lifting crane for cargo hose handling, hydraulically driven 100 kN cap. at 21 m outreach
- Ballast pumps: 2 x deep well el driven 1000m³/h at 25 mLC

Steam plant
- Two oil fired boilers, cap. 14,000 kg/h at 14 bar each
- Two economizers, cap. 700 kg/h at 14 bar
- Two diesel driven electric generators, 632 kW at 720 RPM
- One shaft generator 2,200 kW at 1200 RPM
- One emergency diesel driven electric generator, 125 kW at 1,800 RPM

Cargo tanks and slop tanks are protected by phenolic epoxy, 300 mic.
Ballast tanks are protected by epoxy, 300 mic.
Oil and Chemical Tanker

47,400 DWT

Builder / Yard No.: Shipyard TROGIR / 229 - 237
Name: m/s AZOV SEA
Owner / Flag: Valloy Shipping Co. / Liberia
Designed by: Shipyard Trogir, 9 sister vessels, 6 of which delivered by shipyards: ULJANIK and BRODOSPLIT
Delivered: 1998, 1999

Classification: LRS-1-100 A1 Double Hull Oil and Chemical Tanker, ESP, SPM, S.G. 1.025, Ship Type 3 in Association with a list of Defined Cargoes
- LMC, UMS, IGS, IWS

Length over all: abt 182.50 m
Length btw perp: 174.80 m
Breadth moulded: 32.20 m
Depth moulded: 17.50 m
Draught design: 11.00 m
Deadweight at draught 11.00 m: 41,100 t
Main engine: 8,310 kW/123 rpm

Trials speed at 90% MCR, draught 11.0 m: 15.00 kn

Trial speed at 90% MCR, draught 11.0 m: 15.00 kn

Capacities

Cargo tanks: 53,100 m³
Slop tanks: 1,150 m³
Heavy fuel oil: 1,704 m³
Diesel fuel oil: 134 m³
Lubrication oil: 74 m³
Fresh water: 300 m³

Ballast water tanks: 21,726 m³
Cargo loading/unloading time: 16 hours
HFO consumption of M.E.: 32.0 t/24 hours
Cruising Range: (speed 14.3 knots, 20% serv. allowance) 15,750 Nm
Crew Complement: 22+6 Suez crew

Cargoe equipment
- Cargo pumps, submerged type, hydraulically driven
  - 10 x capacity 352 m³/h at 12 bar head each,
  - 2 x capacity 100 m³/h at 12 bar head, in slop tanks,
  - 1 x portable submersible type, cap. 70 m³/h at 5 bar head,
  - 10 x cargo deck heater,
- Hydraulic power plant in engine room.
- Cargo piping of stainless steel.
- Inert gas system cap. 4,650 N m³/h.
- Slop tanks heating; heating coils CuNi 90/10.
- Tank washing: COW and hot sea water,
  - Cargo tanks: 1 cleaning machine per tank,
  - Slop tanks: 1 cleaning machine per tank,
  - Steam sea water heater 100 m³/h at 10 bar,
- Lifting crane for cargo hose handling, hydraulically driven, cap. 150 kN.
- Ballast pumps submerged type, hydraulically driven 2 x 750 m³/h at 1.8 bar.

Steam plant
- One oil fired boiler, cap. 19 t/h saturated steam, 10 bar.
- One economizer, cap. 14.1 t/h saturated steam, 10 bar.

Auxiliary engines plant
- Three diesel driven electric generators, 60 cycles,
  2 x 1,600 kVA + 1 x 850 kVA
- One emergency diesel driven electric generator, 60 cycles, 120 kVA.
The vessel is a double-hull tanker for oil and oil products and IMO type 3 tanker for chemicals. Cargo space is divided into six pairs of cargo tanks, one pair of slop tanks and one retention tank. The structure of cargo tanks is designed for cargo density of 1.025 t/m³ in completely filled tanks and for cargo density up to 1.53 t/m³ in partially filled tanks with filling height corresponding to the density ratio, including zig-zag and asymmetrical P&S loading. Double hull consists of six pairs of double bottom / double side water ballast tanks. Engine room is equipped for unattended operation.

**Classification:** LLOYD'S REGISTER OF SHIPPING • 100 A1
- Double hull oil & chemical tanker,
- Ship type 3 in association with list of defined cargoes, ESP, SPM, *MNS, LI-*LMC, UMS, IGS
- Descriptive notes: Shiplift ISDA, FDA, CM, POWNB, SERS, SOWS
- Maximum filling height with caustic soda is 67%

**Main Engine:**
3. MAU - SULZER 6 RTA 48 T-B
- CMCR: 8,310 kW at 123 min⁻¹
- Trial speed: 7480 kW (90% CMCR)
- At scantling draught: 14.60 knots
- Capacities (98%)
  - Cargo tanks (slop and retention included): 53,030 m³
  - Ballast tanks (100%): 22,270 m³

**Provisions**
- Heavy fuel oil: 1,633 m³
- Diesel oil: 125 m³
- Lubrication oil: 68 m³
- Fresh water: 354 m³

**Cargo Equipment**
- Each pair of cargo tanks arranged as segregated piping system, giving a total six cross-overs and one cross-over for pair of slop tanks and retention tank.
- Hydraulically driven submerged cargo pumps:
  - Cargo tanks: 12 x 550 m³/h at 130 mlc
  - Slop tanks: 2 x 300 m³/h at 130 mlc
  - Retention tank: 1 x 100 m³/h at 130 mlc
  - Portable pumps: 2 x 70 m³/h at 50 mlc
- Four electrically driven hydraulic power units.
- Cargo tanks heating with deck heaters. Slop and residual tanks heating with heating coils.
- Inert gas generator, capacity 4,200 m³/h.
- Fixed tank cleaning machines for each cargo tank.
- One electro-hydraulic cargo hose handling crane, 150 kN SWL.

**Steam Plant**
- One oil fired boiler, steam capacity 19 t/h at 10 bar
- One composite boiler, steam capacity 1.6 t/h (exhaust gas section) and 2.0 t/h (oil fired section) at 10 bar

**Auxiliary engines plant**
- Three diesel generators sets, abt. 3 x 1350 kW
- One emergency diesel generator set

**Painting**
- Cargo tanks - phenolic epoxy
- Ballast tanks - light colour epoxy

**Cargo Unloading Time**
- 16 hours

**Consumption of HFO**
- 32 t/day

**Cruising Range**
- 15,400 nautical miles

**Crew Complement**
- 28 + 6 Suez crew

**Builder / Yard No.:**
Shipyard 3. MAJ / 676

**Name:**
m/t MERCINI LADY

**Owner / Flag:**
Cambridge Shipping & Tr. Co. / Liberia

**Sister ships:**
677, 694

**Delivered:**
2003

**Length overall:**
182.50 m

**Length between perpendiculars:**
174.80 m

**Breadth, moulded:**
32.20 m

**Depth, moulded to upper deck:**
17.50 m

**Design draught:**
11.00 m

**Deadweight at design draught (11.00 m):**
41,000 t

**Scantling draught:**
12.20 m

**Deadweight at scantling draught (12.20 m):**
47,300 t

**Cargo equipment**
- Each pair of cargo tanks arranged as segregated piping system, giving a total six cross-overs and one cross-over for pair of slop tanks and retention tank.
- Hydraulically driven submerged cargo pumps:
  - Cargo tanks: 12 x 550 m³/h at 130 mlc
  - Slop tanks: 2 x 300 m³/h at 130 mlc
  - Retention tank: 1 x 100 m³/h at 130 mlc
  - Portable pumps: 2 x 70 m³/h at 50 mlc
  - Four electrically driven hydraulic power units.
  - Cargo tanks heating with deck heaters. Slop and residual tanks heating with heating coils.
  - Inert gas generator, capacity 4,200 m³/h.
  - Fixed tank cleaning machines for each cargo tank.
  - One electro-hydraulic cargo hose handling crane, 150 kN SWL.

**Painting**
- Cargo tanks - phenolic epoxy
- Ballast tanks - light colour epoxy
Tanker for Chemicals & Oil Products

46,941 DWT

Builder / Yard No.: Shipyard TROGIR / 310, 311, 313, 314
Name: m/s RS STREAM
Owner / Flag: WASP NAVIGATION C.o. / Liberia
Designed by: Shipyard TROGIR
Delivered: 2005, 2006

Classification: Det Norske Veritas
Class: W1A1 Tanker for Oil and Chemicals
ESP, EO, ICE-1C, LCS(UIC), SPM, VCS-2, TMON,
ht (1.53) maximum filling height 67%
NAUCITUS (Newbuilding)
Ship type 2, a2, b3, c3, v3, f2, str0.1

design characteristics
The vessel is intended for worldwide service and suitable for carriage of oil or IMO 3 type chemical cargoes in five (5) pairs of cargo tanks + two (2) slop tanks. Six (6) different grades of cargo can be carried, loaded and discharged simultaneously. Completely double-bulked in way of cargo tanks, double bottom of B/15 depth and side protective ballast tanks of not less than 2.00 m width. Stiffeners and webs fitted within ballast tanks or above deck keeping inner walls of cargo tanks smooth, without obstructions.

Length over all: 182.50 m
Length btw perpendiculars: 174.80 m
Breadth moulded: 32.20 m
Depth moulded: 17.50 m
Draft design (above base line): 11.00 m
Deadweight, at draft 11.0 m: 40,707 mt
Main engines: 9,480 kW/127 rpm
Trial speed at 90% MCR, draft 11.0 m: 15.75 knots

Cargotanks: 52,974 m³
Slop tanks: 996 m³
Residual tank: 202 m³
Heavy Fuel Oil (storage & service): 2,204 m³
Diesel Fuel Oil: 151 m³
Lubricating Oil (storage & service): 114 m³
Fresh Water: 252 m³
Boiler Feed Water: 83 m³
Ballast water tanks: 21,578 m³

Cargo unloading time: 18 hours
Consumption of HFO for M.E.: 32.2 t/24 hours
Cruising Range (speed 15.0 knots): abt. 20,000 Nm
Crew Complement: 22 + spare (2) + Pilot (1) + Suez crew (6)

Cargo equipment
- Cargo pumps, centrifugal, deep well, electrically driven:
  - 10 x 550 m³/h at 125 m LC/0.8 t/m³ S.G.
  - 3 x 250 m³/h at 125m LC/0.8 t/m³ S.G.
  - 2 x portable hydr. driven, 70 m³/h at 50 m
- Inert gas system cap. 4,125 m³/h
- Heating coils AISI 316L in all cargo /slop tanks
- Tank washing: one water heater of 100 m³/h
- Cargo and slop tanks: 1 cleaning machine per tanks
- Cargo tank coating: pure epoxy 300 micr
- Deck crane for cargo hose handling, hydraulically driven, cap 100 kN
- Ballast pumps centrifugal, deep well, electrically driven: 2 x 750 m³/h at 18 m LC
- Steam plant
  - One oil fired boilers, cap. 19 t/h saturated steam, 7 bar
  - One (1) economiser, total cap. abt. 1.2 t/h saturated steam, 7 bar
- Auxiliary plant
  - Three (3) diesel driven electrical, generators, 960 kW each at 900 rpm
  - One emergency diesel driven electric generator, 116 kW.
**Tanker for Chemicals & Oil Products**

**46,190 DWT**

**Builder / Yard No.:**
Shipyard TROGIR / 315, 316, 317, 318, 319, 320, 321, 322

**Name:**
m/s SITEAM EXPLORER

**Owner / Flag:**
EITZEN CHEMICAL / Singapore

**Designed by:**
Shipyard TROGIR

(Totally 8 sister vessels to be built)

**Delivery:**
2007-2010

**Classification:**
LLOYD’S REGISTER OF SHIPPING

Class: +100 A1 double hull, Oil & Chemical tanker,
Ship type 2, Ship Right (SDA, FDA, CM),
ETA, SPM’ LMC, LMS, NAV1, KGS

Descriptive notations: COW, SBT, PL, Ship Right (SCM).

**Design characteristics**
The vessel is intended for worldwide service and suitable for
carriage of oil or IMO 2 / 3 type chemical cargoes in ten (10)
pairs of cargo tanks + two (2) slop tanks. Seventeen (17) dif-
fferent grades of cargo can be carried, loaded and discharged
simultaneously. Completely double hulled in way of cargo
tanks, double bottom of B / 15 depth and side protective bal-
last tanks of not less than 2.00 m width. Stiffeners and webs
fitted within ballast tanks or above deck keeping inner walls
of cargo tanks smooth, without obstructions.

**Main particulars**
Length over all abt. 182.90 m
Length btw perpendiculars 176.00 m
Breadth moulded 32.20 m
Depth moulded 17.20 m
Draft design (above base line) 11.00 m
Deadweight at draft 11.00 m abt. 39,920 mt
Deadweight scantling (above base line) 12.20 m
Deadweight, at draft 12.2 m abt. 46,190 mt

Main engines 1 x 8,200 kW / 121 rpm
Main trial speed at 100% MCR, draft 11.0 m 15.50 knots

**Capacities**
Cargo tanks 52,449 m³
Slop tanks 1,036 m³
Heavy Fuel Oil 2,091 m³
Diesel Fuel Oil 104 m³
Gas Oil 70 m³
Lubricating Oil (Storage tanks) 121 m³
Fresh Water 234 m³
Boiler Feed Water 63 m³
Washing water 565 m³
Ballast water tanks 19,765 m³
Cargo unloading time 18 hours

**Consumption of HFO for M.E.**
31.8 t/24 hours
Cruising Range (speed 14.7 knots) abt. 19,100 Nm
Crew Complement 22 + spare (2)

**Cargo equipment**
- Cargo pumps, centrifugal, submerged, hydraulically driven:
  - 16 x 500 m³/h at 125 m LC/0.8 t/m³ S.G.
  - (4+2) x 250 m³/h at 125 m LC/0.8 t/m³ S.G.
  - 1 x portable hydr. driven, 150 m³/h at 70 m
  - LC/0.8 t/m³ S.G.
- 1 x drain pump-pneum. driven 30 m³/h at 20 m
- Cargo piping of stainless steel AISI 316L
- Nittogen gas system cap. 3750 m³/h with 95% purity
- 20 deck thermal oil heaters for cargo tanks
- Cargo and slop tanks: 2 cleaning machines per tanks
- Cargo tank coating: pure epoxy 250 micr/inorganic
  zinc silicate 75 micr
- Deck crane for cargo hose handling, hydraulically driven,
  cap 100 kN
- Ballast pumps centrifugal, submerged, hydraulically driven:
  2 x 750 m³/h at 2,5 bar
- Hydraulic power unit (two el. driven power packs and two
diesel driven power packs) 400 kW each.

**Auxiliary plant**
- Three (3) diesel driven electrical, generators, 1,111 kW
  each at 900 rpm
- One emergency diesel driven electric generator, 118 kW.
Oil and Chemical Tanker

Builder / Yard No.: Shipyard TROGIR / 217, 218, 219, 220
Name: m/s TROGIR
Owner / Flag: Trogir Shipping Ltd. / Liberia
Designed by: Shipyard Trogir

The vessel is intended for worldwide service and suitable for loading, carriage, and simultaneous discharge of five different grades of black and/or white petroleum products. The vessel is also designed to carry 50% solution of caustic soda S.G. 1.53 at 67% filling of cargo tanks. Completely double hulled in way of cargo tanks, double bottom of B/15 depth and side protective tanks of not less than 2.00 m width. Structural elements within ballast tanks or above deck keeping inner tank walls smooth, without obstructions.

Classification: LRS; W100 A1 Oil and Chemical Tanker,
(Double Hull, Caustic soda only), SPM, Max. filling 67% of depth, S.G.1.53 W LMC, UMS, IGS, COW, PL, SBT

Length over all 181.00 m
Length btw perp. 173.80 m
Breadth moulded 32.00 m
Depth moulded 17.00 m
Draught design 10.00 m
Draught max. 11.00 m
Deadweight at draught of 10,000 DWT 40,700 t
Deadweight at draught of 11,000 DWT abt. 40,700 t
Main engine 8,310 kW/123 rpm
Trial speed at 90% MCR, draft 10.0 m 15.10 knots

Cargo tanks 50,172 m³
Slop tanks 1,144 m³
Heavy fuel oil 1,697 m³
Diesel fuel oil 173 m³
Lubricating oil 71 m³
Fresh water 359 m³
Ballast water tanks: 19,546 m³
Cargo loading/unloading time: 12 hours
HFO consumption of M.E. 32.0 t/24 hours
Cruising Range (speed 14.6 knots, 20% serv.all.) 16,150 Nm
Crew Complement: 23

Cruising Range (speed 14.6 knots, 20% serv.all.) 16,150 Nm

Cargo equipment
• Cargo pumps, submerged type, hydraulically driven,
  - 10 x 500 m³/h at 12 bar head each,
  - 2 x 100 m³/h at 10 bar head, in slop tanks,
• Hydraulic power plant suitable for simult. operation of 8 cargo pumps.
• Cargo piping of stainless steel, AISI 316L
• Inert gas system cap. 5,750 N m³/h.
• Cargo heating: stainless steel heating coils.
• Tank washing: COW and hot sea water, heater 100 m³/h,
• Deck crane for cargo hose handling, hydraulically driven, 150 kN.
• Ballast pumps: 2 x 650 m³/h at 1.8 bar in pump room,
  1 x 50 m³/h at 1.8 bar, eductor.

Steam plant
• One oil fired boiler, cap. 10 t/h satur. steam
• One economizer, cap. 1.6 t/h satur. steam

Auxiliary engines plant
• Three diesel driven el. generators, 60 cycles, 1,350 kVA each
• One emergency diesel driven el. generator, 60 cycles, 109 kVA.
The vessel is double hull tanker for oil products and IMO type 2 tanker for chemicals. Cargo space is divided into six pairs of cargo tanks, one pair of slop tanks and one recovery tank. The structure of cargo tanks is designed for cargo density of 1.025 t/m³ in completely filled tanks and for cargo density up to 1.54 t/m³ in partially filled tanks with filling height corresponding to the density ratio. Double hull consists of six pairs of double bottom / double side water ballast tanks and washing water tanks. Engine room is equipped for unattended operation.

**Cargo equipment**

- Independent pipeline from one pair of cargo tanks and each slop and recovery tank arranged to cross-over manifold. Stern loading station provided.
- Hydraulically driven submerged centrifugal cargo pumps:
  - Cargo tanks: 12 x 500 m³/h at 150 mls
  - Slop tanks: 2 x 200 m³/h at 150 mls
  - Recovery tank: 1 x 200 m³/h at 150 mls
  - Portable pump: 1 x 150 m³/h at 80 mls
- Six electrically driven hydraulic power units, each of 435 kW.
- Cargo pumps and pipes are of stainless steel AISI 316L.
- Cargo, slop and recovery tanks heating with thermal oil and heating coils.
- Inert gas generator, capacity 5,000 m³/h.
- Fixed tank cleaning machines:
  - Cargo tanks No. 2 P&S: 4 x 16.4 m³/h at 9 bar
  - Remaining cargo tanks: 20 x 19.1 m³/h at 9 bar
  - Slop tanks: 6 x 9.1 m³/h at 9 bar
  - Recovery tank: 1 x 17 m³/h at 9 bar
  - Two tank cleaning pumps, 80 m³/h at 130 mls
- Six electrically driven hydraulic power units, each of 435 kW.
- Cargo pumps and pipes are of stainless steel AISI 316L.
- Cargo, slop and recovery tanks heating with thermal oil and heating coils.
- Inert gas generator, capacity 5,000 m³/h.
- Fixed tank cleaning machines:
  - Cargo tanks No. 2 P&S: 4 x 16.4 m³/h at 9 bar
  - Remaining cargo tanks: 20 x 19.1 m³/h at 9 bar
  - Slop tanks: 6 x 9.1 m³/h at 9 bar
  - Recovery tank: 1 x 17 m³/h at 9 bar
- Two tank cleaning pumps, 80 m³/h at 130 mls
- One electro-hydraulic cargo hose handling crane, 100 kN SWL.

**Thermal oil plant**

- Two thermal oil heaters, capacity 5,000 kW each
- One thermal oil economiser, capacity 850 kW

**Auxiliary engines plant**

- Three diesel generators sets, 1,280 kW each
- One emergency diesel generator set, 217 kW

**Fleet Fleet**

- Name: m/t MARITEA
- Owner / Flag: CALISA / Italy
- Builder / Yard No.: Shipyard 3. MAJ / 682
- Designed by: Shipyard 3. MAJ
- Delivered: 2002
The vessel is double hull tanker for oil and oil products and IMO type 2 tanker for chemicals. Cargo space is divided into eight pairs of cargo tanks, one pair of slop tanks and one pair of residual tanks. The structure of cargo tanks is designed for cargo density of 1.025 t/m³ in completely filled tanks and for cargo density up to 1.54 t/m³ in partially filled tanks with filling height corresponding to the density ratio, including zig-zag and asymmetrical loading. Double hull consists of four pairs of double bottom and four pairs of double side water ballast tanks. Engine room is equipped for unattended operation.

The vessel has:

- Cargo tanks: 43,259 m³
- Residual tanks: 239 m³
- Ballast tanks: 18,185 m³
- Washing water tanks: 263 m³

Painting:
- Cargo tanks: phenolic epoxy
- Ballast tanks: light colour epoxy
- Underwater shell: SPC antifouling

Cargo equipment:
- Independent pipeline from each pair of cargo tanks and one pair of slop tanks arranged to cross-over manifold.
- Hydraulically driven submerged centrifugal cargo pumps:
  - Cargo tanks: 16 x 500 m³/h at 135 m³c
  - Slop tanks: 2 x 300 m³/h at 135 m³c
  - Residual tanks: 2 x 80 m³/h at 120 m³c
  - Portable pump: 1 x 150 m³/h at 70 m³c
- One diesel engine driven power unit of 463 kW and four electrically driven hydraulic power units, each of 447 kW.
- Cargo pumps and pipes are of stainless steel AISI 316.
- Cargo tanks heating with deck heaters. Slop and residual tanks heating with heating coils.
- Inert gas generator, capacity 5,000 m³/h and nitrogen generator, capacity 100 m³/h.
- Fixed tank cleaning machines:
  - Cargo tanks: 32 x 31 m³/h at 8 bar
  - Slop tanks: 4 x 17.5 m³/h at 8 bar.
- One tank cleaning pump, 200 m³/h at 120 m³c.
- One electro-hydraulic cargo hose handling crane, 100 kN SWL.
- Steam plant:
  - One oil fired boiler, steam capacity 16 t/h at 8 bar
  - One composite boiler, steam capacity 1.2 t/h (exhaust gas section) and 1.5 t/h (oil fired section) at 8 bar
- Fuel tank cleaning machines:
  - Cargo tanks: 32 x 31 m³/h at 8 bar
  - Slop tanks: 4 x 17.5 m³/h at 8 bar.
- One tank cleaning pump, 200 m³/h at 120 m³c.
- One electro-hydraulic cargo hose handling crane, 100 kN S WL.

Steam plant
- One oil fired boiler, steam capacity 16 t/h at 8 bar
- One composite boiler, steam capacity 1.2 t/h (exhaust gas section) and 1.5 t/h (oil fired section) at 8 bar

Auxiliary engines plant
- Two diesel generators sets, 780 kW each
- One diesel generator set, 1,280 kW
- One emergency diesel generator set, 217 kW

Crew complement:
- 26 crew + 1 pilot + 6 Suez crew

Design draught (9.016 m) 29,616 t
Scantling draught (extreme) 10.516 m
Deadweight at scantling draught (10.516 m) 37,026 t
The vessel is double hull tanker for oil and oil products and IMO type 2 tanker for chemicals. Cargo space is divided into seven pairs of cargo tanks, one pair of slop tanks and one retention tank. The structure of cargo tanks is designed for cargo density of 1,025 t/m³ in completely filled tanks and for cargo density up to 1.55 t/m³ in partially filled tanks with filling height corresponding to the density ratio, including zig-zag and alternate loading. The structure of the cargo tanks No. 4 P&S and 5 P&S is designed for cargo density of 1.55 t/m³ in completely filled tanks. Double hull consists of seven pairs of double bottom / double side water ballast tanks. Cofferdams are provided between fuel oil tanks and shell plating. Hull and machinery are designed to comply with requirements for navigation in ice. The ship’s hull is specially equipped for in-water surveys. Engine room is equipped for unattended operation. Redundant propulsion system is arranged by PTO generator working as PTI motor (electric power of 1260 kW) driving CP propeller through tunnel shaft gear.

Painting
Cargo tanks - modified epoxy
Ballast tanks - light colour epoxy

Cargo equipment
Independent pipeline from each cargo tank pair and one line from slop and retention tank arranged to cross-over manifold, giving a total seven cargo crossovers, slop crossover and one common line.

Hydraulically driven submerged cargo pumps:
- Cargo tanks: 350 m³/h at 110 mlc
- Slop tanks: 100 m³/h at 110 mlc
- Retention tank: 100 m³/h at 110 mlc
- Portable pump: 150 m³/h at 70 mlc

Four electrically driven hydraulic power units, each of 325 kW.
Cargo pumps and pipes are of stainless steel AISI 316.
Cargo tanks heating with deck heaters. Slop and residual tanks heating with heating coils. Inert gas generator, capacity 3,750 m³/h.
Fixed tank cleaning machines for cargo and slop tanks, capacity 20 m³/h at 10 bar.
One tank cleaning pump, 100 m³/h at 130 mlc.
One electro-hydraulic cargo hose handling crane, 100 kN SWL.

Steam plant
- One oil fired boiler, steam capacity 12 t/h at 7 bar
- One composite boiler, steam capacity 1.2 t/h (exhaust gas section) and 1.5 t/h (oil fired section) at 7 bar

Auxiliary engines plant
- Three diesel generators sets, 3 x 1,020 kW
- One emergency diesel generator set, 218 kW
- One PTO generator, transmitting power of 1,260 kW from ME.

Builder / Yard No.: Shipyard 3. MAJ / 687
Name: m/t APATURA
Owner / Flag: DRITTE BÜTTNER SCHIFFAHRTSGESellschaft MBH & CO., GERMANY / Gibraltar
Sister ships: 680, 681, 683
Designed by: Shipyard 3. MAJ
Delivered: 2004

The vessel is double hull tanker for oil and oil products and IMO type 2 tanker for chemicals. Cargo space is divided into seven pairs of cargo tanks, one pair of slop tanks and one retention tank. The structure of cargo tanks is designed for cargo density of 1,025 t/m³ in completely filled tanks and for cargo density up to 1.55 t/m³ in partially filled tanks with filling height corresponding to the density ratio, including zig-zag and alternate loading. The structure of the cargo tanks No. 4 P&S and 5 P&S is designed for cargo density of 1.55 t/m³ in completely filled tanks. Double hull consists of seven pairs of double bottom / double side water ballast tanks. Cofferdams are provided between fuel oil tanks and shell plating. Hull and machinery are designed to comply with requirements for navigation in ice. The ship’s hull is specially equipped for in-water surveys. Engine room is equipped for unattended operation. Redundant propulsion system is arranged by PTO generator working as PTI motor (electric power of 1260 kW) driving CP propeller through tunnel shaft gear.

Painting
Cargo tanks - modified epoxy
Ballast tanks - light colour epoxy

Cargo equipment
Independent pipeline from each cargo tank pair and one line from slop and retention tank arranged to cross-over manifold, giving a total seven cargo crossovers, slop crossover and one common line.

Hydraulically driven submerged cargo pumps:
- Cargo tanks: 350 m³/h at 110 mlc
- Slop tanks: 100 m³/h at 110 mlc
- Retention tank: 100 m³/h at 110 mlc
- Portable pump: 150 m³/h at 70 mlc

Four electrically driven hydraulic power units, each of 325 kW.
Cargo pumps and pipes are of stainless steel AISI 316.
Cargo tanks heating with deck heaters. Slop and residual tanks heating with heating coils. Inert gas generator, capacity 3,750 m³/h.
Fixed tank cleaning machines for cargo and slop tanks, capacity 20 m³/h at 10 bar.
One tank cleaning pump, 100 m³/h at 130 mlc.
One electro-hydraulic cargo hose handling crane, 100 kN SWL.

Steam plant
- One oil fired boiler, steam capacity 12 t/h at 7 bar
- One composite boiler, steam capacity 1.2 t/h (exhaust gas section) and 1.5 t/h (oil fired section) at 7 bar

Auxiliary engines plant
- Three diesel generators sets, 3 x 1,020 kW
- One emergency diesel generator set, 218 kW
- One PTO generator, transmitting power of 1,260 kW from ME.
**Oil-Chemical Tanker**

**Asphalt Carrier**

9,200 DWT

---

**Main characteristics**

- **Loa:** 108.5 m
- **Lbp:** 99.9 m
- **B(moulded):** 18.6 m
- **B(dimoulded to upper deck):** 10.6 m
- **Design draught:** 6.75 m
- **Scantling draught:** 8.34 m
- **Deadweight at design draught:** 6,500 m.t.
- **Deadweight at scantling draught:** 9,233 m.t.
- **Service speed (with 15% sea margin at design draught of 6.75 m and 3,128 kW):** 13.71 knots

**Machinery main components**

- **Main engine:** One WARTSILA NSD marine diesel engine, type 8L32, four strokes, medium speed, clockwise rotation, turbocharged, with eight cylinders, developing 4,000 kW at 750 r.p.m.
  - Cylinder bore: 320 mm, piston stroke: 400 mm
  - Specific fuel oil consumption: 185 g/kWh + 5%
- **C.M.C.R:** 4,000 kW at 750 r.p.m.
- **Cruising range full bunker:** abt. 10,500 nautical miles
- **Boilers:** Two oil-fired thermal oil heaters, capacity 1,200,000 kcal/h. each.
  - One composite oil fired/exhaust gas boiler, steam capacity 2.8 t/h at 7 bar.

**Cargo equipment**

- **Cargo handling system:** Designed to load, carry and discharge heated or non-heated 2 segregated grades of cargo: oil products/chemicals and asphalt, bitumen, coal tar, coal tar pitch, coal tar naphtha solvent, creosote (coal tar) and creosote (wood).

**Capacities**

- **Cargo tanks:** Three (3) cargo tank blocks, in total eight (8) cargo tanks, Ah 32 shipbuilding steel, stiffeners inside, except in way of bottom; plane transverse bulkheads; antifouling, antifouling, and anti-floating keys; cargo tank supports – FERROFORM F 3637 + EPOCAST 36.
- **Cargo pumps:** Two (2) pumps screw type, hydraulically driven, 400 m³/h at 11 bar and 500 cSt
  - One (1) pump screw type, hydraulically driven, 150 m³/h at 11 bar and 500 cSt
- **Cargo heating:** Cargo tanks heating with heating coils installed in each tank. Heating system is able to meet the following requirements: to maintain the cargo temperature at 250°C with sea water temperature of 10°C and ambient air temperature of 0°C to increase the cargo temperature by 10°C within 24 hours in one (1) tank only, with sea water temperature of 10°C and ambient air temperature of 0°C

**Significant Ship of 2005**
Oil-Chemical Tanker
Asphalt Carrier
9,200 DWT

Builder: Shipyard KRALJEVICA
 Owners / Flag: Petrolmar S.p.a., Genova, Italy
 Designed by: Shipyard Kraljevica
 Delivery: 2009 – 2011

Classification: BUREAU VERITAS
I+HULL + MACH OIL TANKER-ASPHALT
CARRIER / CHEMICAL TANKER IMO 2
UNRESTRICTED NAVIGATION
+ AUT-UMS; (+) SYS-IBS; MON-SHAFT; AVM - APS;
INWATERSURVEY;
CLEAN SHIP SUPER 7+

Main characteristics
Length overall 108.50 m
Length b.p. 99.90 m
B (moulded) 18.60 m
D (moulded to upper deck) 10.60 m
Draught to summer load line 8.24 m (above base line)
Deadweight at summer load line abt. 9,050 metric tons
Service speed (at 8, 24 draught) 13.4 knots

Machinery main components
One WARTSILA marine diesel engine, type 8L32, four strokes, medium speed, clockwise rotation, turbocharged, with eight cylinders, developing 4,000 kW at 750 r.p.m.
Cylinder bore 320 mm, piston stroke 400 mm, specific fuel oil consumption 180 g/kWh + 5%.
C.M.C.R. 4,000 kW at 750 r.p.m.
Cruising range full bunker: abt. 6,900 nautical miles
Boilers: Two oil-fired thermal oil heaters,
Capacity 1,200,000 kcal/h, each.
One composite oil fired/exhaust gas boiler,
Steam capacity 2.8 t/h at 7 bar.

Electric power plant
Two (2) diesel generator sets, each with: diesel engine (WARTSILA) type 6L20, 1,100 kW at 900 r.p.m.
generator 1,380 kVA, 440V, 60 Hz.
One (1) emergency diesel generator set: diesel engine 117 kW at 1,800 r.p.m.
generator, 125 kVA, 440 V, 60 Hz.
One shaft generator of abt. 1,380 kVA, 440V, 60 Hz

Cargo equipment
Cargo handling system Designed to load, carry and discharge
heated or non-heated 2 segregated grades of cargo: oil products/chemicals and asphalt, bitumen, coaltar, coaltar pitch,
coaltar naphtha solvent, creosote (coal tar) and creosote (wood).
Cargo tanks: Three (3) cargo tank blocks, in total eight (8)
cargo tanks, AH 32 shipbuilding steel, stiffeners
inside, except in way of bottom, plane transverse
bulkheads; antioiling, antipitching, and antiflooding
keys; cargo tank supports – FERROFORM
F 3637 + EPICAST 36
Cargo pumps: Two (2) pumps screw type, hydraulically driven,
400 m3/h at 11 bar 500cSt
One (1) pump screw type, hydraulically driven,
150 m3/h at 11 bar and 500 cSt
Hydraulic oil system comprising power packs of 3
230 kW, 0-1,350 l/min ringline, 260 bar
Cargo heating:Cargo tanks heating with heating coils instal-
led in each tank. Heating system is able to
meet the following requirements: to maintain
the cargo temperature at 250ºC with sea water
temperature of 10ºC and ambient air tempe-
ration of 0ºC. To increase the cargo tempera-
ture by 10ºC within 24 hours in one (1) tank only,
with sea water temperature of 10ºC and
ambient air temperature of 0 ºC
Discharge/Loading: Port and Starboard – midship Stern
Discharge
Capacities
Cargo tanks 100% full abt. 7,748.47 m³
Water ballast tanks 100% full abt. 2,741.3 m³
Heavy fuel oil tanks 98% full abt. 430.0 m³
Diesel oil tanks 98% full abt. 53.65 m³
Lubricating oil tanks 98% full abt. 17.18 m³