

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 ⇄ HULL ⇄ MACH
 ⇄ OIL TANKER, ESP UNRESTRICTED
 NAVIGATION, SYS-NEQ-1
 ⇄ VERISTAR -HULL, ⇄ AUT -UMS, SPM,
 IN WATER SURVEY, VCS ⇄ CARGO
 CONTROL, ⇄ NMON -SHAFT

Main dimensions

Lenght over all	281.20 m
Length between perpendiculars	270.00 m
Breadth moulded	48.20 m
Depth moulded	23.00 m
Design draught	16.00 m
Scantling draught	17.10 m
Deadweight at design draught	152,852 t
Deadweight at scantling draught	166,447 t
Main engine Split-MAN-B&W	6S70MC-C
Selected maximum continuous rating	16,780 kW/82 rpm
Trial speed at design draught and 85% SMCR	15.5+5 kn
Main engine daily fuel oil consumption	56.7 t/day
Cruising range	23,000 nm
Crew complement	32

Capacities (100%)

Cargo and slop tanks	185,447 m ³
Ballast tanks	52,313 m ³
Heavy fuel oil	4,025 m ³
Diesel	130 m ³
Fresh and feed water	410 m ³

Painting

Cargo tanks & Slop	HEMPADUR 4515
Under water hull and boot topping	
Coal tar epoxy + vinyl	HEMPADUR COMBIC 7199, TIN FREE self polishing antifouling

Cargo equipment

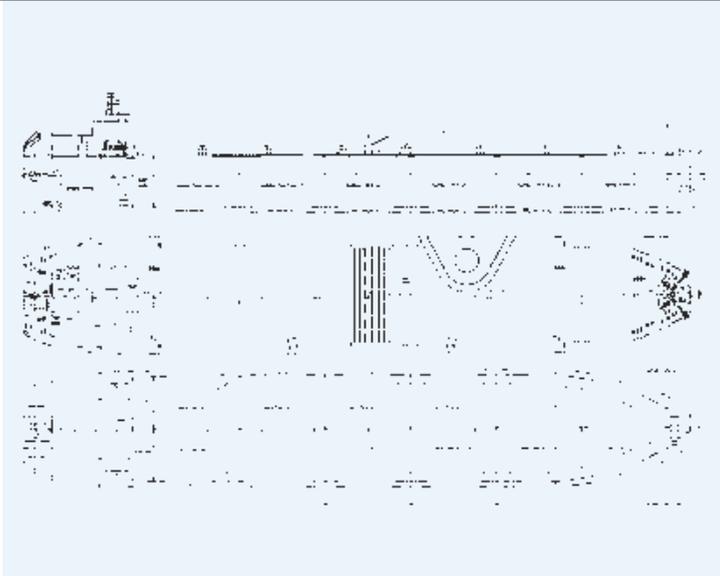
Cargo pumps	3 x 3,500 m ³ /h at 140 mWC, s.g. 1.0, 1 cSt centrifugal pumps, steam turbine driven
Cargo stripping	1 x 250 m ³ /h at 140 mWC, s.g. 1.0, 1 cSt KPF 275 steam driven
	2 x 406 m ³ /h at 30 mWC, s.g. 1.0, 1 cSt stripping eductor
Cargo manifolds	3 x 500 mm

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



Oil Tanker

108,000 DWT

Builder / Yard No.: Shipyard BRODOSPLIT / 439, 440
 Owner / Flag: Prisco Tanker Ltd, Douglas, Isle of man / Rusija (Primorsk)
 Nord Aframax Tankers, Nicosia, Cyprus / Rusija (Primorsk)
 Designed by: Shipyard Brodosplit
 Delivery: 2003, 2004, 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. Four (4) grades of cargo can be handled simultaneously.

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

Main dimensions

Lenght 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 m ³
Ballast tanks	37,366 m ³
Heavy fuel oil	2,822 m ³
Diesel	162 m ³
Fresh and feed water	300 m ³

Painting

Cargo tanks and slop tanks	INTERSHIELD 300
Under water hull and boot topping	INTERSPEED 340,
	TIN 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

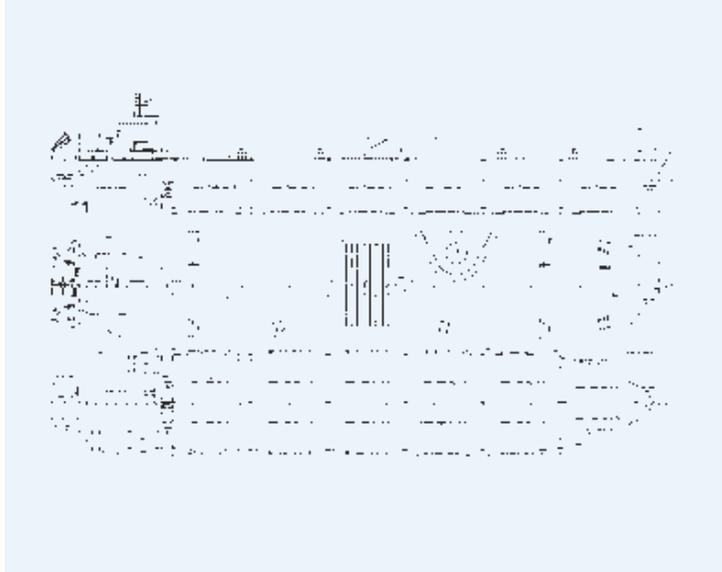
Cargo pumps	4 x 3000 m ³ /h at 130 mLC, s.g. 0.9, 1 cSt centrifugal pumps, steam turbine driven
Cargo stripping	1 x 200 m ³ /h at 130 mLC, s.g. 0.9, 1 cSt electric motor driven
	1 x 250 m ³ /h at 25 mLC, s.g. 0.9, 1 cSt stripping eductor
Cargo manifolds	4 x 500 mm

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 2.5/1.7 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, VEC, SH, RES, ESP, with special rotations UWILD, COW, SPM

Main dimensions

Lenght 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-MAN-B&W	6S60MC-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 m ³
Ballast tanks	37,569 m ³
Heavy fuel oil	2,531 m ³
Diesel	210 m ³
Fresh and feed water	260 m ³

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

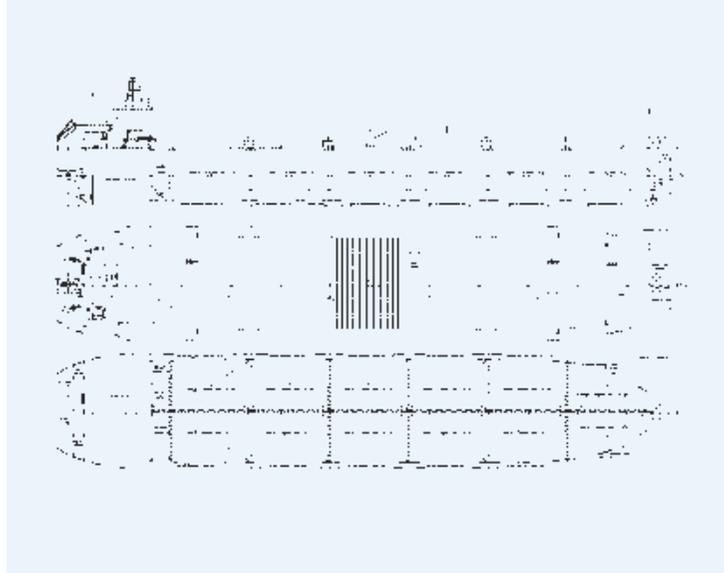
Cargo pumps	12 x 1000 m ³ /h at 130 mLC, s.g. 0.8, 1 cSt submerged, centrifugal, hydraulic motor driven cargo tanks pumps
	2 x 250 m ³ /h at 130 mLC, s.g. 0.8, 1 cSt submerged, centrifugal, hydraulic motor driven
slop tanks pumps	1x 100m ³ /h at 130 MCL submerged hydraulic driven centrifugal spill pump
	2 x 150 m ³ /h at 70 mLC, s.g. 0.8, 1 cSt submersible, centrifugal, hydraulic motor driven portable cargo pump
Cargo manifolds	6 x 350 mm

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 25 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

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.

Classification: Bureau Veritas
 1+Hull+MACH, OIL TANKER ESP,
 UNRESTRICTED NAVIGATION+ VERISTAR
 - HULL, DFL 25 years, AUT-UMS,
 SYS-NEQ-1, CLEAN, SPM, MON-SHAFT,
 CRS: +100 A1 Oil Tanker, ESP, SD, M1,
 AUT1, IGS, COW

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

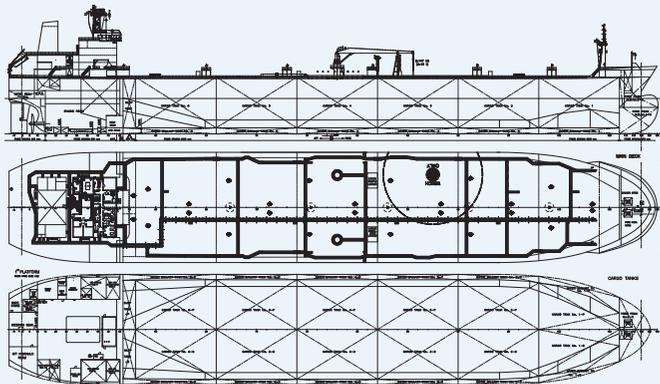
Auxiliary oil fired boilers 2 x 25 t/h saturated steam at 18 bar G
 Composite boiler 1 x 2.0/1.6 t/h saturated steam at 7 bar G

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
Dwadweight at design draught	abt. 94600 t
Deadweight at scantling draught	abt. 114000 t
Main engine MAN-B&W	6S60 MC-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 m ³
Ballast tanks	37,363 m ³
Heavy fuel oil	2,610 m ³
Diesel	165 m ³
Fresh and feed water	300 m ³



Product Tanker

Ice-1A Class

74.999 DWT

Builder / Yard No.: Shipyard BRODOSPLIT / No. 448, 449, 450, 451, 454, 455, 456, 457, 458, 459
 Owner / Flag: LR Ice Shipping Ltd. / Norway, Terra Ltd. / Bermuda, Lacus Ltd. / Bermuda, W-O NEDERLAND BV / Cyprus
 Designed by: Shipyard Brodosplit
 Delivery: 2006, 2007, 2008, 2009



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, EO, NAUT-OC, LCS-DC, VCS-2, COAT-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	6S60 MC-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%)

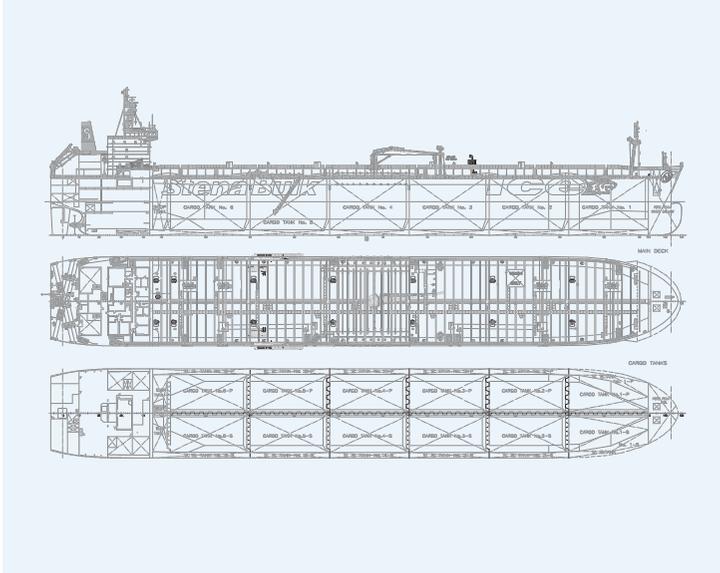
Cargo and slop tanks 85950,1 m³ Ballast tanks 31818,0 m³
 Heavy fuel oil 2294,2 m³ Diesel 185,7 m³ Fresh and feed water 246,0 m³

Painting

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

Cargo equipment

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,
 ⇄ 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
 Draught scantling 14.10 m
 Deadweight at design draught abt. 60,300 t
 Deadweight at scantling draught abt. 70,700 t

Main engine:
 3. MAJ - SULZER 6 RTA 62U
 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

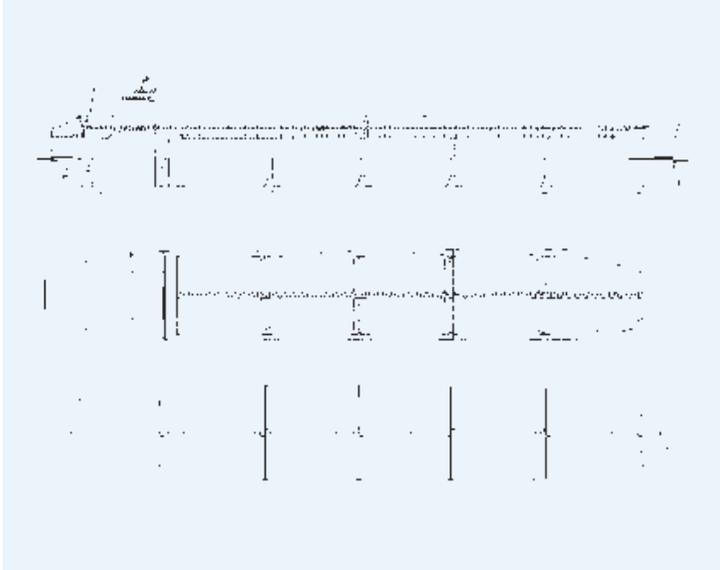
- Piping and pump system arranged for 5 segregations and one pair of slop tanks
- One hydraulically driven submerged cargo pump fitted in each cargo/slop tank, capacity abt. 900 m³/h / 300 m³/h respectively at 130 mlc, density 0.8 t/m³
- Hydraulic power units (four electric and three diesel engine driven) 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. 1.5/2.0 t/h at 8 bar

Auxiliary engines plant

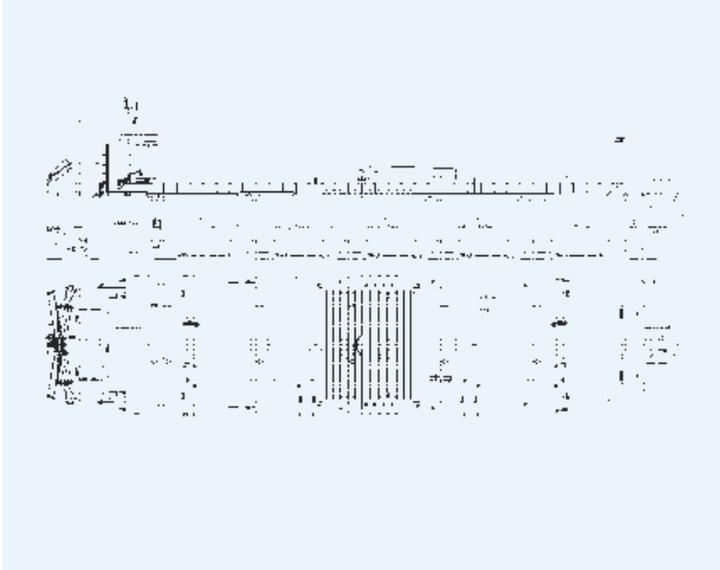
- Three diesel generator sets of abt. 1100 kVA, 3 x 450 V, 60 Hz, 900 min-1 burning DO and HFO
- One emergency diesel generator set of abt. 150 kVA, 3 x 450 V, 60 Hz.



Oil Product Tanker

65,200 DWT

Builder / Yard No.: Shipyard BRODOSPLIT / 441-444, 462-465
 Owner / Flag: CH P-MAX I-IV Limited / Bermuda
 Project No.: 995
 Designed by: Shipyard Brodosplit
 Delivery: 2005, 2006, 2007, 2008, 2009, 2010



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 +I- 1A1 Tanker for Oil ESP, NAUTICUS (Newbuilding): PLUS-2, ICE-1B, ETC, EO, 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
 Service speed at design draught 14.93 kn
 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 2,307 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 + Polyurethane (300 my + 75 my + 50 my)

Cargo equipment

- Cargo pumps
 10x800 m³/h at 120 mLC, s.g. 0.8, 1 cSt submerged, centrifugal, electric motor driven cargo tanks pumps.
 2x300 m³/h at 120 mLC, s.g. 0.8, 1 cST submerged, centrifugal, electric motor driven slop tanks pumps.
 1x200 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

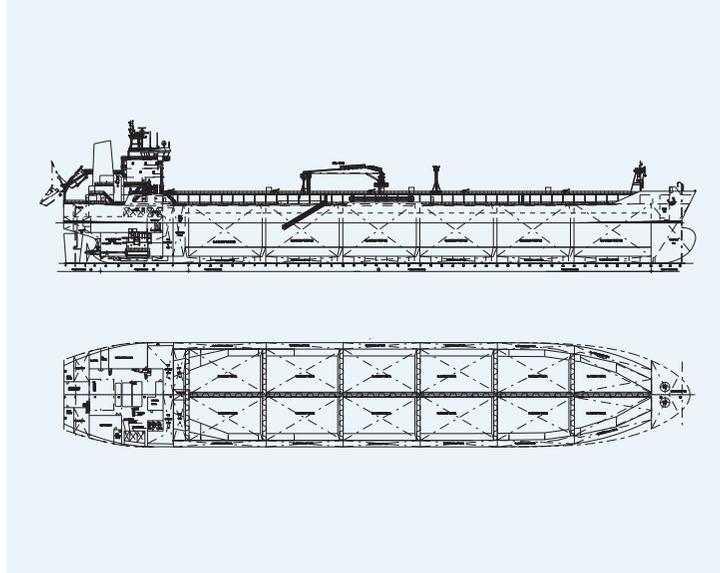
Heating plant

- Auxiliary oil fired boilers 2 x 8,5 t/h saturated steam at 7 bar G
- Exhaust boiler 1 x 1.98 t/h saturated steam at 7 bar G

Tanker for Oil, Oil Products and Chemicals

52,600 DWT

Builder / Yard No.: Shipyard 3. MAJ / 695
 Name: ANCE
 Owner / Flag: SLOKA NAVIGATION, INC./MARSHALL ISLANDS
 Sister ships: 696 - 704
 Designed by: Shipyard 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 + 1A1 Tanker for Oil & Chemicals, ESP,EO, SPM, ICE-1B, TMON, NAUTICUS (New building) DAT (-20 deg C) IMO Ship type 2

Length overall (extreme)	195.16 m
Length between perpendiculars	187.30 m
Breadth, moulded	32.20 m
Depth, moulded to upper deck	17,806 m
Design draught (extreme)	12,018 m
Deadweight at design draught (12.018 m)	49,788 t
Summer draught (extreme)	12,518 m
Deadweight at summer draught (12.518 m)	52,622 t

Main engine 3. MAJ - WÄRTSILA NSD 7 RTA 48 T-B
 CMCR 9,650 kW at 123 min-1
 Trial speed with 8,200 kW (85% CMCR) at draught 12,518 m 15,00 knots

Capacities (100%)

Cargo tanks (slop included)	58,691 m ³
Retention tank	222 m ³
Ballast tanks	23,850 m ³
Heavy fuel oil	1,591 m ³
Diesel oil	194 m ³
Lubrication oil	78 m ³
Fresh water	351 m ³

Cargo unloading time abt. 18 hours
 Consumption of HFO 169.9 g/kWh + 5%
 Cruising range abt. 13,400 nautical miles
 Crew complement 24 + 4 spare

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

Cargo equipment

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 mlc
- Slop tanks: 2 x 300 m³/h at 130 mlc
- Retention tank: 1 x 100 m³/h at 130 mlc
- Two portable pumps: 2 x 70 m³/h at 70 mlc

Total discharging capacity: abt. 3,300 m³/h at 130 mlc, 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.

Cargo tank heating with deck cargo heater. Slop and retention tanks heating with heating coils.

Inert gas generator, capacity 4,200 m³/h.

Fixed tank cleaning machines.

Hydraulic hose handling crane, 100 kN SWL.

Steam plant

- 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

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



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, +1A1(E) Oil and Chemical Carrier, + ACCU, +AMS, SH, VEC, ESP, UWILD, IMO Type 3

Main dimensions

Lenght 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	39,491 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 m ³
Ballast tanks	21,197 m ³
Heavy fuel oil	1,952 m ³
Diesel	143 m ³
Fresh and feed water	240 m ³

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)

Cargo equipment

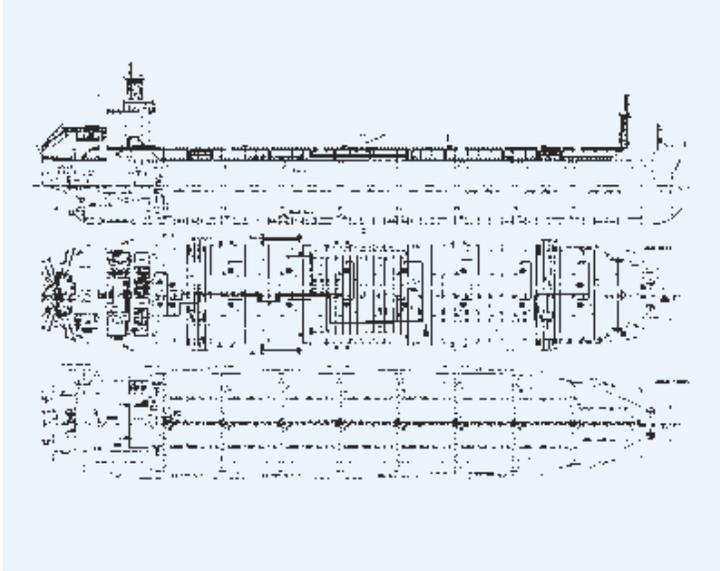
Cargo pumps	16 x 580 m ³ /h at 120 mLC, s.g. 0.8, 1 cSt submerged, centrifugal, hydraulic motor driven cargo tanks pumps
	2 x 120 m ³ /h at 130 mLC, s.g. 0.8, 1 cSt submerged, centrifugal, hydraulic motor driven slop tanks pumps
	1 x 150 m ³ /h at 70 mLC, s.g. 0.8, 1 cSt submersible, centrifugal, hydraulic motor driven portable cargo pump
Cargo manifolds	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

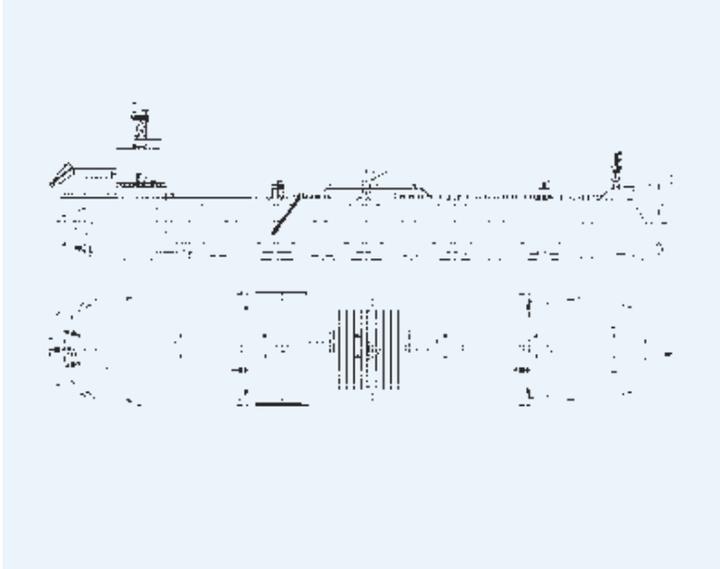
Auxiliary oil fired boilers 1 x 16 t/h saturated steam at 7 bar G
 Donkey boiler 1 x 1.5 t/h saturated steam at 7 bar G
 Exhaust gas economiser 1 x 1.4 t/h saturated steam at 7 bar G



Handy Size Oil Product Tanker

45,000 DWT

Builder / Yard No.: Shipyard BRODOSPLIT / 406
 Name: m/s MARINOULA
 Owner / Flag: Southseas Shipping Ltd. / Malta
 Sister vessel: Yard 407
 Designed by: Shipyard Brodosplit
 Delivered: 2000



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 m ³
Segregated ballast tanks	20,158 m ³

Provisions:

Heavy fuel oil	1,826 m ³
Diesel fuel oil	130 m ³
Fresh water	200 m ³

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 mIC, 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.
- Cargo manifolds: 4 x 300 mm

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 16.0 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: **Shipyards ULJANIK**
 Owner: Iceport Shipping Company Ltd, Limassol
 Designed by: Shipyards Uljanik
 Delivered: 2005, 2006



The vessel is suitable for transporting crude oil and dirty petroleum products and chemicals world wide. 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.

Classification: LR; +100A1 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	42,000 t
Deadweight at scantling draught	45,999 t
Main engine: ULJANIK/MAN-B&W;	6S50MC-C
MCR:	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 m ³
Ballast tanks	20,540 m ³

Provisions

Heavy fuel oil	2,120 m ³
Diesel fuel oil	160 m ³
Lubricating oil	115 m ³
Fresh water	333 m ³
Cargo loading time:	abt. 10 hours
Consumption HFO:	abt. 38,1 t/day
Cruising Range:	19,900 n.m.
Crew Complement:	29 persons

Painting

Cargo and slop tanks - 2/3 epoxy phenolic and 1/3 zinc silicate coating.

Cargo equipment

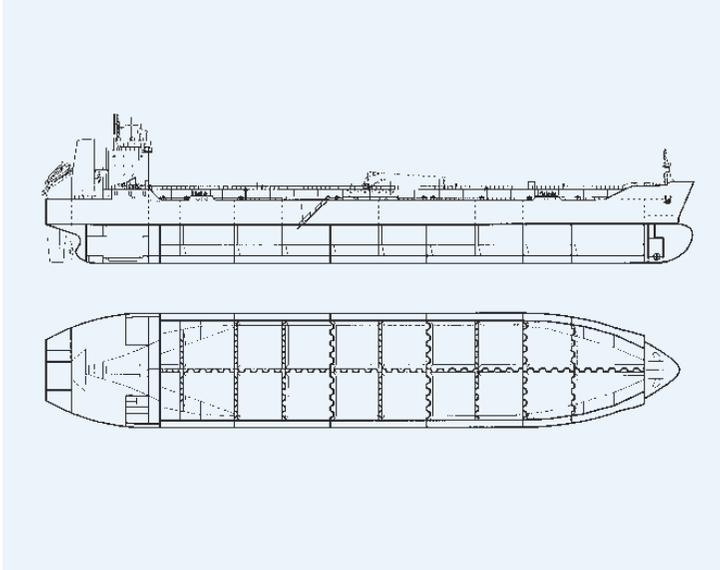
- 18 stainless steel deepwell centrifugal cargo pumps, electrically driven, cap. 500 m³/h at 125 mlc (S.G. 0.8 t/m³) visc. 1.0 cSt.
- 2 stainless steel deepwell centrifugal slop pumps, electrically driven, cap. 100 m³/h at 125 mlc (S.G. 0.8 t/m³) visc. 1.0 cSt.
- 1 stainless steel deepwell centrifugal 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 pump, 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. Gas freeing by portable air driven ventilators. 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.

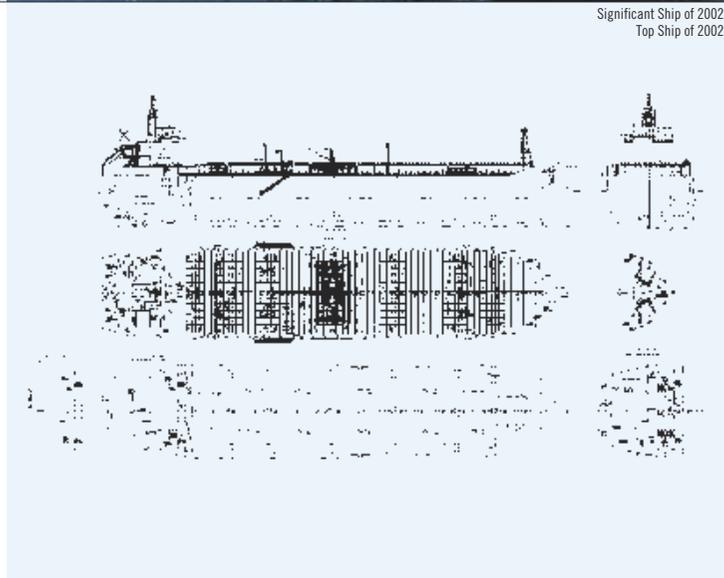


Tanker for Chemicals, and Oil Products

46,764 TDW



Significant Ship of 2002
Top Ship of 2002



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 Trogir
 Delivered: 2002, 2003, 2004

Classification: DNV: +- 1A1 Tanker for Oil products and Chemicals
 ESP E0 CCO W1 LCS(DIS) VCS-2 HL(1.6)
 COAT-2 PLUS-2 ETC NAUTICUS
 (New-building)
 Ship type 2, a2, b3, c3, v3, 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
Draught scantling	12.20 m
Deadweight	46,764 t

Main engine: 2 x MAK 8M32C / Totally 7,680 kW
 Trial speed at 90% MCR 15.02 knots

Capacities

Cargo tanks	52,969 m ³
Slop tanks	1,050 m ³

Heavy fuel oil	1,473 m ³
Diesel fuel oil	134 m ³
Lubrication oil	43 m ³
Fresh water	847 m ³

Ballast water tanks:	19,813 m ³
Cargo loading / unloading time:	3,500 m ³ /h 16 hours
HFO consumption of M.E.:	30,00 t/day
Cruising Range	13,900 nautical miles
At speed	14.2 knots
Crew Complement:	18 + 6 spare + Pilot + 4 Suez Crew

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

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 250 m³/h at 100 mLC, s.g. 0.8, visc. 1.0 cSt
- Portable pumps
 - 1 x submersible, hydraulic driven 18 0m³/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
- Slop 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: 2xdeep well el.driven 1000m³ 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, 682 kW at 720 RPM
- One shaft generator 3,200 kW at 1200 RPM
- One emergency diesel driven electric generator, 125 kW at 1,800 RPM

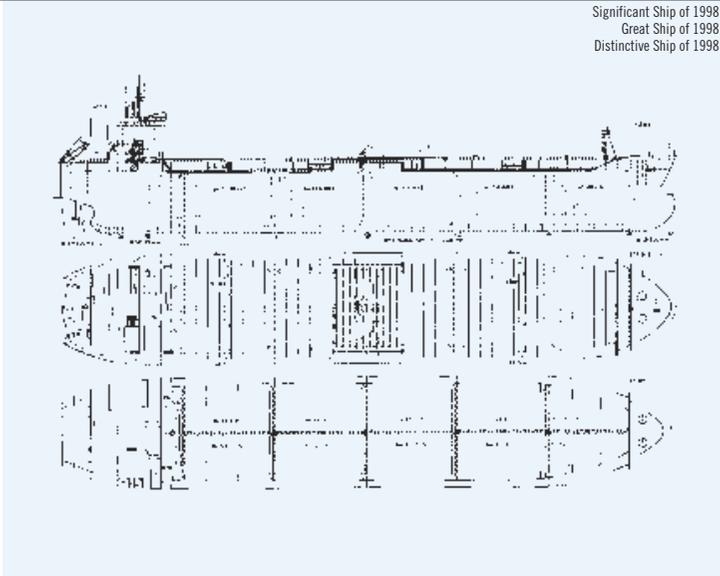
Oil and Chemical Tanker

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 1998, 1999
 Delivered:



Significant Ship of 1998
 Great Ship of 1998
 Distinctive Ship of 1998



Classification: LRS ⇄ 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
Draught scantling	12.20 m
Deadweight, at draught 12.20 m	47,400 m
Main engine	8,310 kW/123 rpm
Trial speed at 90% MCR, draught 11.0 m	15.00 kn

Capacities

Cargo tanks	53,100 m ³
Slop tanks	1,150 m ³
Heavy fuel oil	1,704 m ³
Diesel fuel oil	134 m ³
Lubrication oil	74 m ³
Fresh water	300 m ³

Ballast water tanks:	21,726 m ³
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

Five different grades of oil can be carried, loaded and discharged simultaneously. Cargo tanks are separated by double bottom and 2 m width of double sides from shell plating with structural elements within ballast tanks or above deck keeping inner tank walls smooth, without obstructions. Cargo tanks are protected by epoxy fenolic paint system.

Cargo 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 Cunifer 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. 1.4 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.

Tanker for Chemicals, Oil and Oil Products

47,300 DWT



Builder / Yard No.: Shipyard 3. MAJ / 676
 Name: m/t **MERCINI LADY**
 Owner / Flag: Cambridge Shipping & Tr. Co. / Liberia
 Sister ships: 677, 694
 Designed by: Shipyard 3. MAJ
 Delivered: 2003

The vessel is 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 up to 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, *IWS, LI ⇄ LMC, UMS, IGS
 Descriptive notes: ShipRight (SDA, FDA, CM, PCWBT, SERS, SCM) COW, SBT / PL, ETA
 Maximum filling height with caustic soda is 67%

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

Main engine	3. MAJ - SULZER 6 RTA 48 T-B
CMCR	8,310 kW at 123 min ⁻¹
Trial speed with 7480 kW (90% CMCR) at scantling draught	14.60 knots

Capacities (98%)

Cargo tanks (slop and retention included)	53,030 m ³
Ballast tanks (100%)	22,270 m ³

Provisions

Heavy fuel oil	1,633 m ³
Diesel oil	135 m ³
Lubrication oil	68 m ³
Fresh water	354 m ³

Cargo unloading time	abt. 16 hours
Consumption of HFO	32 t/day
Cruising range	abt. 15,400 nautical miles
Crew complement	28 + 6 Suez crew

Painting

Cargo tanks - phenolic epoxy
 Ballast tanks - light colour epoxy

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: 2 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 pumps are of stainless steel AISI 316 and cargo pipes of AISI 316 L.

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

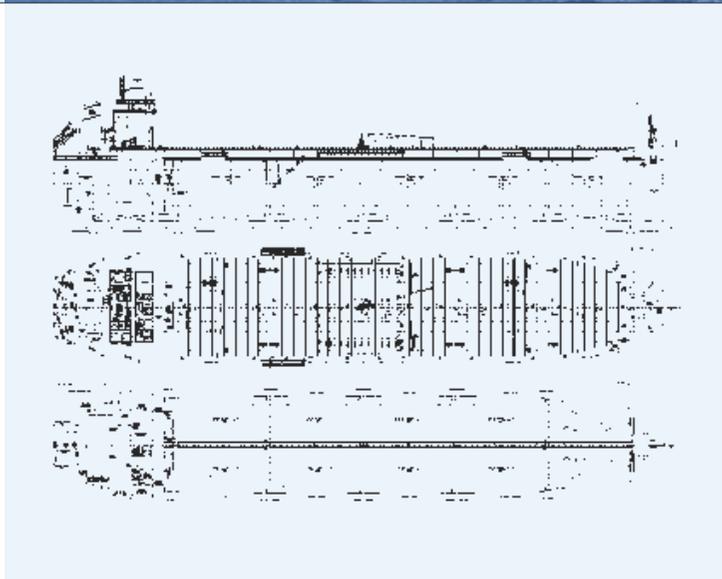
- One oil fired boiler, steam capacity 19 t/h at 10 bar
- One composite boiler, steam capacity 1.6 t/h (exhaust gas section) and 2.0 t/h (oil fired section) at 10 bar

Auxiliary engines plant

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

Tanker for Chemicals & Oil Products

46,941 DWT



Builder / Yard No.: Shipyard TROGIR / 310, 311, 313, 314
 Name: m/s **NS STREAM**
 Owner / Flag: WASP NAVIGATION C.o. / Liberia
 Designed by: Shipyard TROGIR
 Delivered: totally 4 ships delivered, whereof two with ice class
 2005, 2006

Classification: Det Norske Veritas
 Class: +-1A1 Tanker for Oil and Chemicals
 ESP, EO, ICE-1C, LCS(DIS), SPM, VCS-2, TMON,
 hl (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 hulled 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	abt. 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 11.00 m	abt. 40,707 mt
Draft scantling (above base line)	12.20 m
Deadweight, at draft 12.2 m	abt. 46,941 mt

Main engines	9,480 kW/127 rpm
Trial speed at 90% MCR, draft 11.0 m	15.75 knots

Capacities

Cargo tanks	52,974 m ³
Slop tanks	996 m ³
Residual tank	202 m ³
Heavy Fuel Oil (storage & service)	2,204 m ³
Diesel Fuel Oil	151 m ³
Lubricating Oil (storage & service)	114 m ³
Fresh Water	252 m ³
Boiler Feed Water	83 m ³
Ballast water tanks	21,578 m ³

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 LC/0.8 t/m³ S.G.
- Cargo piping of stainless steel AISI 316L
- 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

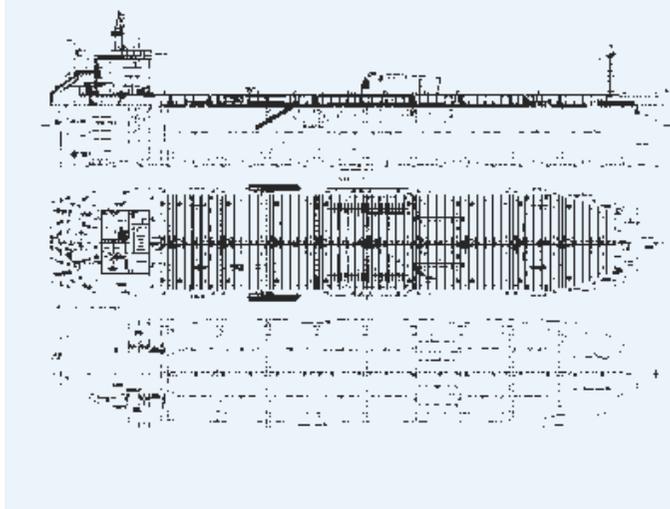
- Three (3) diesel driven electrical, generators, 960 kW each at 900 rpm
- One emergency diesel driven electric generator, 116 kW.

Tanker for Chemicals & Oil Products

46,190 DWT



Significant Ship of 2007
Distinctive Ship of 2007



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)
 ESP, IWS, SG, 1.55 T/M3, LI, EP (S, B, G, P, R, S, V),
 ETA, SPM LMC, UMS, NAV1, IGS
 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) different 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 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.

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
Desdweight, at draft 12.2 m	abt. 46,190 mt

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

Capacities

Cargo tanks	52,449 m ³
Slop tanks	1,036 m ³
Heavy Fuel Oil	2,091 m ³
Diesel Fuel Oil	104 m ³
Gas Oil	70 m ³
Lubricating Oil (Storage tanks)	121 m ³
Fresh Water	234 m ³
Boiler Feed Water	63 m ³
Washing water	562 m ³
Ballast water tanks	19,765 m ³
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) + Pilot (1) + Suez crew (6)

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 125m 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.
- Ixdrain pump-pneum. driven 30 m³/h at 20 m LC/0,8 t/m³ S.G.
- Cargo piping of stainless steel AISI 316L
- Nitrogen gas system cap. 3750 m³/h with 95% purity
- 20 deck thermal oil heaters for cargo tanks
- Slop tanks heating: heating coils AISI 316L
- Tank washing: two water heaters of 60 m³/h each
- 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.

Steam plant

- Two oil fired boilers, cap. each 14 t/h saturated steam, 8 bar
- One (1) economiser, total cap. abt 1,2 t/h saturated steam, 10 bar

Auxiliary plant

- Three (3) diesel driven electrical, generators, 1,111 kW each at 900 rpm
- One emergency diesel driven electric generator, 118 kW.

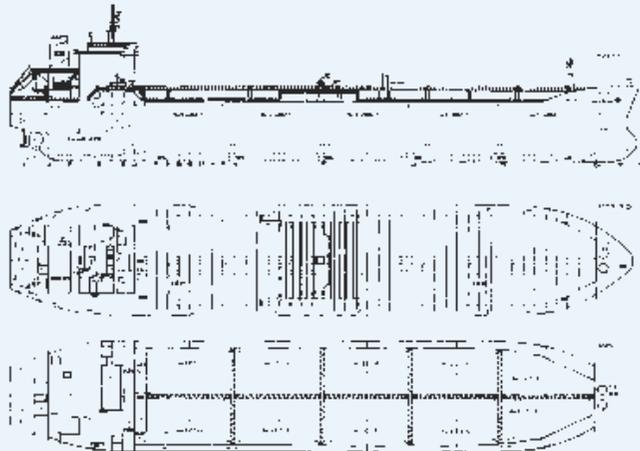
Oil and Chemical Tanker

40,700 DWT

Builder / Yard No.: Shipyard TROGIR / 217, 218, 219, 220
 Name: m/s TROGIR
 Owner / Flag: Trogir Shipping Ltd. / Liberia
 Designed by: Shipyard Trogir
 (12 sister vessels, 8 of which delivered by Shipyards ULJANIK, 3. MAJ, and BRODOSPLIT)
 Delivered: 1995, 1996, 1997



Great Ship of 1996



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; +- 100 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
Deadweight at draught of 10,00 mabt.	35,660 t
Draught scantling	11.00 m
Deadweight, at draught of 11,00 abt.	40,700 t
Main engine	8,310 kW/123 rpm
Trial speed at 90% MCR, draft 10.0 m	15.10 knots

Capacities

Cargo tanks	50,172 m ³
Slop tanks	1,144 m ³

Heavy fuel oil	1,697 m ³
Diesel fuel oil	173 m ³
Lubricating oil	71 m ³
Fresh water	359 m ³

Ballast water tanks:	19,546 m ³
Cargo loading/unloading time:	12 hours
HFO consumption of M.E.	32.0 t/24 hours
Cruising Range (speed 14,4 knots, 20% serv.all.)	16,150 Nm
Crew Complement:	23

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, - 1 x portable submersible type, cap.70 m³/h at 5 bar head.
- Hydraulic power plant suitable for siml. 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, - Cargo and slop tanks: 1 cleaning machine per tank.
- 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

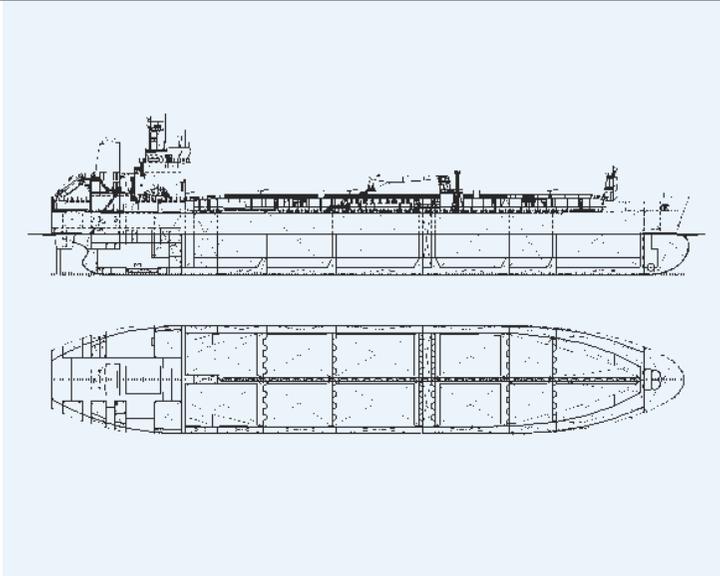
- One oil fired boiler, cap. 19 t/h satur. steam
- One economizer, cap. 1.6 t/h satur. steam

Auxiliary engines plant

- Three diesel driven el. generators, 60 cycles, 1,350 kVA each
- One emergency diesel driven el. generator, 60 cycles, 109 kVA.

Tanker for Chemicals and Oil Products

35,000 DWT



Builder / Yard No.: Shipyard 3. MAJ / 682
 Name: m/t **MARITEA**
 Owner / Flag: CALISA / Italy
 Sister ship: Yard 684
 Designed by: Shipyard 3. MAJ
 Delivered: 2002

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.

Classification: RINA ★100-A-1.1, Nav IL, Cst (oil-chem), ESP, ± IAI, ± IAP, ± IAQ-1, ± IIQ, MAN, NAU, FTC, RSD, SCC, VCS, EP2, IV, IWS, TMS, P, OWS, PMS,

Length overall (extreme)	175.870 m
Length between perpendiculars	169.000 m
Breadth, moulded	29.787 m
Depth, moulded to upper deck	16.805 m
Design draught (extreme)	11.018 m
Deadweight at design draught (11.018 m)	34,659 t

Main engine	3. MAJ - SULZER 6 RTA 52 U
CMCR	9,000 kW at 130 min ⁻¹
Trial speed with 7,620 kW (85% CMCR) at design draught	15.30 knots

Capacities (100%)

Cargo tanks (slop included)	43,200 m ³
Ballast tanks	17,018 m ³
Washing water tanks	1,119 m ³

Provisions

Heavy fuel oil	1,266 m ³
Diesel oil	191 m ³
Lubrication oil	133 m ³
Fresh water	175 m ³

Cargo unloading time	abt. 10.5 hours
Consumption of HFO with 8,120 kW	38 t/day
Cruising range	abt. 10,300 nautical miles
Crew complement	26 + 6 Suez crew

Painting Cargo tanks - phenolic epoxy
 Ballast tanks - light colour solvent free epoxy

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 mlc
- Slop tanks: 2 x 200 m³/h at 150 mlc
- Recovery tank: 1 x 200 m³/h at 150 mlc
- Portable pump: 1 x 150 m³/h at 80 mlc

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 mlc.

One electro-hydraulic cargo hose handling crane, 100 kN SWL.

Thermal oil plant

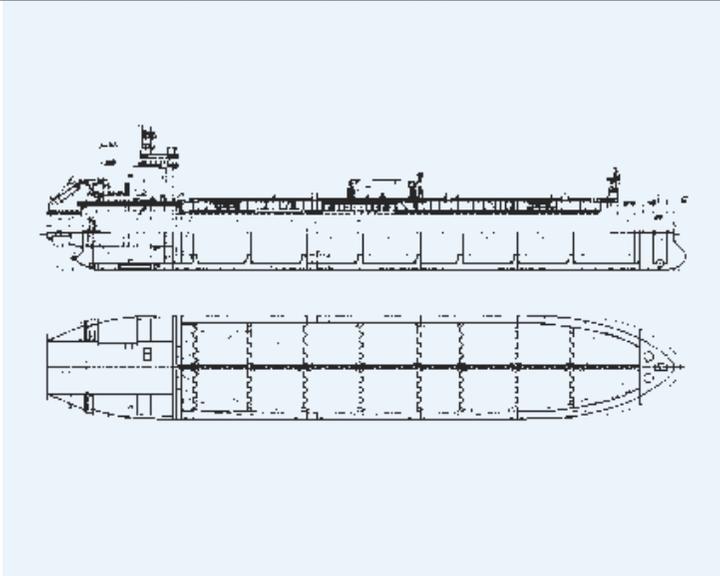
- Two thermal oil heaters, capacity 5,000 kW each
- One thermal oil economiser, capacity 850 kW

Auxiliary engines plant

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

Tanker for Chemicals and Oil Products

37,300 DWT



Builder / Yard No.: Shipyard 3. MAJ / 678
Name: m/t **BRO ELIZABETH**
Owner / Flag: Broström Tankers SA / France
Sister ship: Yard 679
Designed by: Shipyard 3. MAJ
Delivered: 2001

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.

Classification: BUREAU VERITAS
1 3/3 E ± Oil and Chemical Tanker, F, ESP,
DEEP SEA IG, OIL POL-ENG, OIL POL-CARG,
NLS POL, COW SBT PL CDS, CSA, SPM, ETA,
CNC-1 ± AUT, ± MACH, ± BOILER,
VERISTAR

Length overall (extreme)	183.97 m
Length between perpendiculars	176.00 m
Breadth, moulded	30.00 m
Depth, moulded to upper deck	15.911 m
Design draught (extreme)	9.016 m
Deadweight at design draught (9.016 m)	29,616 t
Scantling draught (extreme)	10.516 m
Deadweight at scantling draught (10.516 m)	37,026 t

Main engine	3. MAJ - SULZER 6 RTA 52 U
CMCR	7,900 kW at 120 min ⁻¹
Trial speed with 6,715 kW (85% CMCR) at design draught	15.25 knots

Capacities (100%)

Cargo tanks (slop included)	43,259 m ³
Residual tanks	239 m ³
Ballast tanks	18,185 m ³
Washing water tanks	263 m ³

Provisions

Heavy fuel oil	1,485 m ³
Diesel oil	199 m ³
Lubrication oil	97 m ³
Fresh water	224 m ³

Cargo unloading time	abt. 10.5 hours
Consumption of HFO	29.7 t/day
Cruising range	abt. 14,800 nautical miles
Crew complement	26 crew + 1 pilot + 6 Suez crew

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 mlc
- Slop tanks: 2 x 300 m³/h at 135 mlc
- Residual tanks: 2 x 80 m³/h at 120 mlc
- Portable pump: 1 x 150 m³/h at 70 mlc

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 mlc. 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

Auxiliary engines plant

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

Tanker for Chemicals, Oil and Oil Products

23,998 DWT

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.

Classification: GERMANISCHER LLOYD ⇄ 100 A5 E2
 Chemical Tanker Type 2, Oil Tanker,
 NAV- 0, I ⇄, ESP, ERS X MC E2,
 AUT INERT, RP1

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

Length overall (extreme) 167.67 m
 Length between perpendiculars 160.80 m
 Breadth, moulded 26.40 m
 Depth, moulded to upper deck 13.812 m
 Design draught (extreme) 9.017 m
 Deadweight at design draught (9.017 m) 23,337 t
 Summer draught (extreme) 9.187 m
 Deadweight at summer draught (9.187 m) 23,998 t

Main engine 3. MAJ - SULZER 6 RTA 48 T-B
 CMCR 7,850 kW at 127 min-1

Trial speed with 6,600 kW (84% CMCR) at design draught 15.42 knots

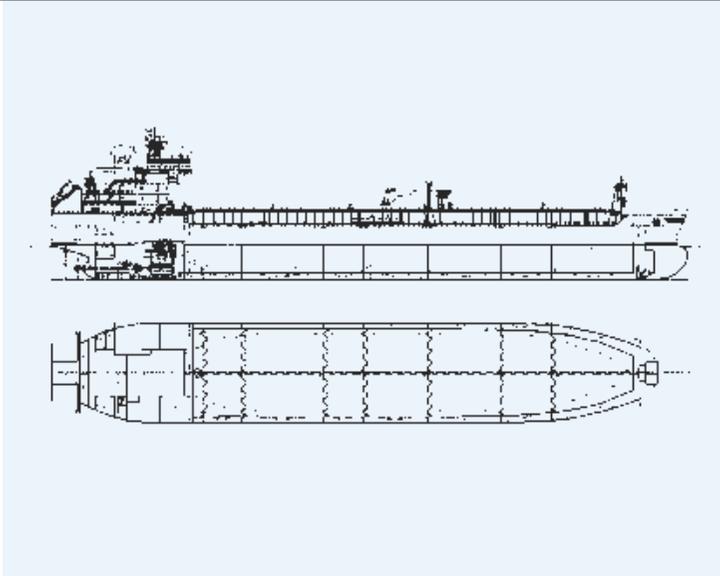
Capacities (100%)

Cargo tanks (slop included) 30,113 m³
 Retention tank 45 m³
 Ballast tanks 11,894 m³
 Washing water tanks 277 m³

Provisions

Heavy fuel oil 1,033 m³
 Diesel oil 267 m³
 Lubrication oil 54 m³
 Fresh water 180 m³

Cargo unloading time abt. 10 hours
 Consumption of HFO 31.2 t/day
 Cruising range abt. 10,000 nautical miles
 Crew complement 22 crew + 2 pilots + 4 Suez / repair men



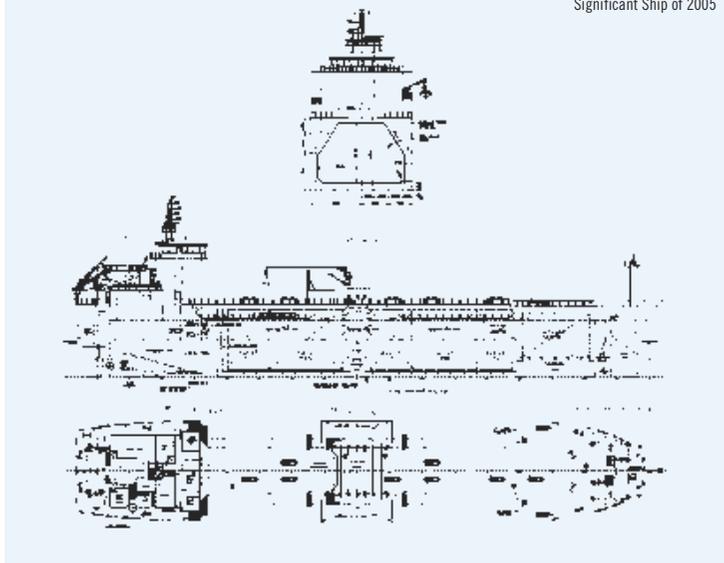
Oil-Chemical Tanker

Asphalt Carrier

9,200 DWT



Significant Ship of 2005



Builder / Yard No.: Shipyard KRALJEVICA / 531, 532, 533, 534
 Name: ASPHALT SEMINOLE, ASPHALT SAILOR, ASPHALT TRANSPORTER, ASPHALT CARRIER
 Owners / Flag: Sargeant Marine Inc., USA/Interorient Navigation Company, Cyprus / Ireland
 Project: 05-01
 Designed by: Shipyard Kraljevica
 Delivered: 2005 – 2008

Classification: BUREAU VERITAS
 1- \rightarrow HULL \rightarrow MACH OIL TANKER-ASPHALT
 CARRIER; CHEMICAL TANKER IMO 2
 UNRESTRICTED NAVIGATION \rightarrow AUT-UMS;
 SYS-IBS; MON-SHAFT; INWATERSURVEY

Main characteristics

Loa	108.5 m
Lbp	99.9 m
B(moulded)	18.6 m
D(moulded 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.
Gross tonnage	6,292
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 8 L 32, 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.

Electric power plant: Two (2) diesel generator sets, each with: diesel engine (WARTSILA) type 6L20, 1,110 kW at 900 r.p.m. generator 1,380 kVA, 3 x 440 V, 60 Hz
 One (1) emergency diesel generator set: diesel engine 117 kW at 1,800 r.p.m. generator, 125 kVA, 3 x 400 V, 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 ans asphalt, bitumen, coaltar, coaltar pitch, coaltar naphta solvent, creosote (coaltar) 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; antirolling, antipitching, 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
 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 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

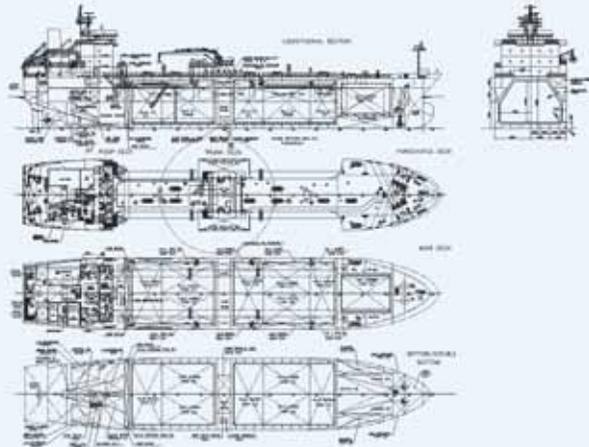
Capacities

Cargo tanks 100 % full	7,748.6 m ³
Water ballast tanks 100 % full	2,619.9 m ³
Heavy fuel oil tanks 98 % full	687.0 m ³
Diesel oil tanks 98 % full	53.7 m ³
Lubricating oil tanks 98 % full	16.6 m ³

Oil-Chemical Tanker

Asphalt Carrier

9,200 DWT



Builder: **Shipyards KRALJEVICA**
 Owners / Flag: Petrolmar S.p.a., Genova, Italy
 Designed by: Shipyards 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 tones
Service speed (at 8, 24 draught)	13.4 knots

Machinery main components

One WARTSILA marine diesel engine, type 8 L32, 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 naphta solvent, creosote (coaltar) 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; antirolling, antipitching, and antif loating keys; cargo tank supports – FERROFORM F 3637 + EPOCAST 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 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

Discharge/Loading: Port and Starboard – midship Stern discharge

Capacities

Cargo tanks 100% full	abt. 7,748.47 m ³
Water ballast tanks 100% full	abt. 2,741.3 m ³
Heavy fuel oil tanks 98% full	abt. 430.0 m ³
Diesel oil tanks 98 % full	abt. 53.65 m ³
Lubricating oil tanks 98% full	abt. 17.18 m ³