

SHIP'S PARTICULARS

Last updated : 2024/10/10

	<p align="center">MAIN ENGINE KIND & H.P.</p> KAWASAKI HEAVY INDUSTRIES, LTD. STEAM TURBINE MCR: 39,500 PS (29,052 KW) x 90 rpm NOR: 39,500 PS (29,052 KW) x 90 rpm										
	<p align="center">MAIN BOILER'S KIND & NO'S.</p> KAWASAKI HEAVY INDUSTRIES, LTD. Marine Water Tube Boiler of Dual Fuel Type UME 68/59 x 2 SETS <p align="center">PROPELLER</p> DIAMETER: 8,230 mm PITCH: 7,308.2 mm FPP, 6 BLADES IMMERSION: 8.547 m										
CLASSIFICATION:	KR & ABS										
PLYING LIMIT:	OCEAN GOING										
TOTAL NUMBER OF PERSON:	48 PERSONS										
BUILDER:	SAMSUNG HEAVY INDUSTRIES, KOJE, S. KOREA										
KEEL LAY:	30-Jun-2002										
LAUNCHING:	02-Nov-2002										
DELIVERED :	30-Sep-2003										
Last Dry Dock :	27-Aug-2023										
LENGTH: (L.O.A)	278.852 m										
LENGTH: (L.B.P.)	266.000 m										
BREADTH: (MOULDED)	42.600 m										
DEPTH: (MOULDED)	26.000 m										
DESIGN DRAFT: (MOULDED)	11.322 m										
HEIGHT (KEEL TO MAST)	66.515 m										
BOW TO MANIFOLD CENTER:	139.654 m										
MANIFOLD CENTER TO STERN:	139.198 m										
GROSS TONNAGE:	92,927.00 tons										
NET TONNAGE:	27,878.00 tons										
LIGHT WEIGHT:	29,139.60 MT / 3.803 m										
LOAD LINE:	DRAFT:	DEADWEIGHT / DISPLACEMENT / TPC									
TROPICAL:	12.272 m	77,712.3 MT / 106,800.60 / 98.8									
SUMMER:	12.022 m	75,248.4 MT / 104,336.70 / 98.3									
WINTER:	11.772 m	72,804.5 MT / 101,892.80 / 97.7									
	<p align="center">BOW TRUSTER</p> CPP 2,000 kw x 1 set (2,682 hp) SPEED IN FULL LOAD: 21.10 knots SPEED IN BALLAST: 21.35 knots										
	<p align="center">TANK CAPACITY</p> F.W.T. 262.7 m ³ D.W.T. 265.0 m ³ F.O.T. (5 TANKS) 6,690.7 m ³ D.O.T. (3 TANKS) 594.6 m ³ CARGO TANK: 138,270.5 m ³ BALLAST TANK: 54,051.4 m ³										
<p align="center">CARGO PUMP SYSTEM</p> MAIN PUMP: 1,700 m ³ x 8 sets SPRAY PUMP: 50 m ³ x 4 sets EMERGENCY PUMP: 550 m ³ x 1 set											
<p align="center">BALLAST PUMP SYSTEM</p> BALLAST PUMP: 3,000 m ³ x 3 Sets EDUCTOR: 300 m ³ x 2 sets											
<p align="center">CARGO TANK SIZE & NO'S</p> <table border="1"> <thead> <tr> <th>NO. 1 CTK</th> <th>NO.2 CTK</th> <th>NO.3 CTK</th> <th>NO.4 CTK</th> </tr> </thead> <tbody> <tr> <td>24,519.9 m³</td> <td>39,372.1 m³</td> <td>39,380.5 m³</td> <td>34,998.0 m³</td> </tr> </tbody> </table>				NO. 1 CTK	NO.2 CTK	NO.3 CTK	NO.4 CTK	24,519.9 m ³	39,372.1 m ³	39,380.5 m ³	34,998.0 m ³
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24,519.9 m ³	39,372.1 m ³	39,380.5 m ³	34,998.0 m ³								
<p align="center">WINCHES POWER & NO'S</p> WINDLASS: 58 tons x 12m/min x 2 sets MOORING WINCH: 30 tons x 15m/min x 8 sets											
<p align="center">DERRICKS, SIZE, S.W.L., & NO'S</p> HOSE HANDLING CRANE: 10tons - 12m/min x 2 sets (NO LOAD): 24m/mins PROVISION (JIB TYPE): 3 tons - 12m/min x 2 sets PROVISION (MONO RAIL) 10 tons - 10m/min x 1 set (20 tons - 3m/min)											
<p align="center">ANCHOR</p> WEIGHT OF BOWER: 18.8 tons x 2 sets LENGTH OF CABLE: (JIS Stockless) (1 CABLE = 27.5 m) (S) SIDE: 14 CABLES (P) SIDE: 13 CABLES											

SHELL LNG FORM B - PARTICULARS

(h)	Classification Society	KRS/ABS(dual Classification)
(i)	Protection and Indemnity Club	JAPAN P&I Club

1. Principal Particulars

(a)	Length overall	278.852 m
(b)	Length Between Perpendiculars	266.00 m
(c)	Breadth moulded	42.60 m
(d)	Depth moulded	26.00 m
(e)	Draught at summer freeboard (Extreme)	12.022 m
(f)	Height overall — keel to highest fixed point	66.515 m
(g)	Maximum air draught (with full ballast and half bunkers)(corresponding draughts)	57 m
(h)	Gross Tonnage (International)	92,927 MT
(i)	Net Tonnage (International)	27,878 MT
(j)	Gross Tonnage (Suez)	
(k)	Net Tonnage (Suez)	
(l)	Light Ship Displacement	29,139.6 MT
(m)	Displacement (maximum)	97,502.9 MT (Cargo loading at design draft) 104,336.7 MT (Cargo loading at summer draft)
(n)	Windage: Lateral	6,556 m ² (9.60 m equiv. draft)
	Longitudinal	1,571 m ² (Fwd 9.3 m Aft 9.46 m 0.16m B/S)
(o)	Classification designation	KRS: +KRS1 LIQUIFIED GAS CARRIER, 2G/3M/0.25BAR, -163°C, 0.5SG(IGC), IWS, ERS ENV(IAFS, IOPP, ISPP, IGPP, IAPP), LI, CHA ABS: +A1,LIQUEFIED NATURAL GAS CARRIER, E, +AMS, +ACCU, NIBS, TCM, SH-DLA
(p)	Conditions of Carriage (as defined on Certificate of Fitness):	Tanks Nos 1 to 4 inclusive; Min.Temp – 163.0 °C; Max press. 0.25 Bar ; Maximum density 0.500

2. Operating Draught and Deadweight

(a)	Draught filling to 98.5% (@ cargo density 0.47 kg/m ³)	11.91 m (0.47 MT/m ³)
(b)	Deadweight filling to 98.5%(@ cargo density 0.47 kg/m ³)	74172 MT (0.47 MT/m ³)

3. Ballast System

(a)	Total capacity of ballast water tanks	54051.4 m ³ (100%)
(b)	Number, capacity and head of pumps for handling ballast	3 x 3000m ³ /hr, 35 m
(c)	Is Vessel able to ballast / de-ballast within the cargo loading/discharging period?	Yes
(d)	Can the Vessel undertake ballast exchange at sea within 24 hours	Yes

4. Details of Principal Certification

(List conventions complied with / Certificates obtained, including protocols, amendments and date of issue)

(a)	Load line	Yes / ILL / Issued on 2023.08.27
(b)	SOLAS (SC, SE, SR)	Yes / Protocol of 1988/ Issued on 2023.08.27
(c)	IGC Code	Yes / Issued on 2023.08.27
(d)	Tonnage	Yes / ITC(1969) / Issued on 2004.03.04
(e)	Marine Pollution (MARPOL)	Yes / IOPP / Protocol of 1978 / Issued on 2023.08.27
(f)	I. M. O. Certificate of Fitness	Yes/ Issued on 2023.08.27
(g)	USCG Certificate of Compliance	Yes / Issued on 2023.08.27
(h)	Independent Sworn Measurer Certificate	NO
(i)	SIRE Inspection	Yes/ ALMA (Italy) / Issued on 2024.07.17
(j)	Port state control	Yes/ Gladstone, Australia / 2023.04.20

Is certification held indicating compliance with the following?

(k)	ISPS Code	Yes
(l)	Rules and Regulations of Suez Canal Authorities	No
(m)	ISM	Yes

5. Propulsion

(a)	Type and make of propulsion plant	KHI, Steam Turbine, Reversible geared, cross-compound steam driven
(b)	Maximum rated power and RPM	29050 kW (39500SHP) x 90.0 rpm (MCR)
(c)	Proposed service power and RPM	29050 kW (39500SHP) x 90.0 rpm (NCR)
(d)	Grade of Fuel	Steam, 61.0 kg/cm ² g @ 510°C
(e)	Dual Fuel Burning	Yes

6. Speed / Consumption

(a)		Maximum fuel consumption (Tonnes of Fuel Oil Equivalent / day)	
	Speed (Knots)	Laden	Ballast
	20.62 kts at MCR (during Sea Trials – Displacement 78451 mt)	201.9 mt/day @MCR	201.9 mt/day @MCR

	After EPL 16.907 kts at MCR57.9%	132.56 mt/day@MCR	132.56 mt/day@MCR

(b)	Trial Speed at Maximum Power	21.385 kts @ 39500BHP (MCR)
(c)	Service Speed	21.71 kts @ 39500BHP (NCR)
(d)	In Port (cargo operations)	LSMGO 45mt/day
(e)	In Port (idle)	LSMGO 25mt/day
(f)	For inert gas generation	LSMGO 28.9 mt/day

7. Boilers and Steam Capacity

(a)	Number and type of boilers	2 x KHI Marine Water Tube Boiler of Dual Fuel Type UME 68/59
(b)	Maximum steam output available	68000 kg/hr
(c)	Normal service output corresponding to 5(b)	59000 kg/hr

8. Cargo Tanks

(a)	Number of tanks	4
(b)	Capacity of LNG tanks at normal filling level (Excluding Dome at 98.6% Full, -163degC)	cu.m.
	No 1 Tank	No.1: 24,176.62 m3
	No 2 Tank	No.2: 38,820.89 m3
	No 3 Tank	No.3: 38,829.17 m3
	No 4 Tank	No.4: 34,508.03 m3
	Total	136,334.71 m3
(c)	Gross Capacity of LNG tanks at 100%Full, -163 degC)	cu.m.
	No 1 Tank	No.1: 24,519.9 m3
	No 2 Tank	No.2: 39,372.1 m3
	No 3 Tank	No.3: 39,380.5 m3
	No 4 Tank	No.4: 34,998.0 m3
	Total	138270.5 m3

(d)	Partial loading / filling restrictions	Yes. 1) Tank fillings between liquid height in tanks equal to below 10% of cargo tank length and over 80% of tank height. Sloshing loads shall be kept at an acceptable level for avoiding possible damage of the inside walls of the cargo tanks.
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(e)	The vessel's cargo tanks can be cooled down from ambient in:	10 hrs
(f)	Maximum filling rate	13,358 m ³ /hr with simultaneous filling of all cargo tanks and 3 loading arms.
(g)	Relief valve settings (MARVS)	Overpressure:25Kpa gauge Vacuum Pressure:-1Kpa gauge
(h)	Loaded Boil-Off rate	0.15% of cargo tank capacity on fully laden
(i)	Ballast Boil-Off rate	0.07% of quantity of previous cargo carried

9. Cargo Discharge

(a)	Number of cargo pumps per tank	2
(b)	Make and type of cargo pumps	Submerged centrifugal el. Motor driven
(c)	Design rated capacity of each cargo pump and corresponding discharge head	1700 m ³ /hr, 155 m
(d)	Number of spray (stripping) pumps per tank	1
(e)	Make and type of spray (stripping) pumps	Submerged centrifugal el. Motor driven
(f)	Design rated capacity of each spray pump and corresponding discharge head	50 m ³ /hr, 145 m
(g)	Number, Make and Capacity of Auxiliary Pumps	1, EBARA, Emergency Cargo Pump, 550 m ³ /hr, 155 m
(h)	Bulk discharge time (not including start up and stripping periods) — assume head at ship's rail = 80 mlc and no restrictions on vapour return from shore.	12 hrs

10. Cryogenic Systems

(a)	Type of LNG containment system	Membrane Type - GTT MARK III
(b)	Design temperature	-163° C
(c)	Make and type of vapour return compressors	1) High Duty Compressor (2 nos) Make: Atlas Copco, Model: GT 050 T1K1, Centrifugal, single stage , fixed speed with adjustable guide vanes.
(d)	Number and rated capacity of vapour return compressors and corresponding discharge head	2 nos. x 32000 m ³ /h @ 2 bar outlet pressure
(e)	Is a steam dump system provided? If so, is the capacity sufficient to deal with all excess steam generated by the boilers at max designed Boil-Off rate with engines stopped according to Class & USCG Rules?	Yes Yes
(f)	Total capacity of liquid nitrogen storage tanks (if nitrogen generator not fitted)	NA

11. LNG Measurement and Tank Calibration

(a)	Are all tanks calibrated and certified by a qualified agency? (Specify agency)	Yes, KIMSCO(Korean Inspectors & Marine Surveyors Corp.) licensed by Korean Government. NKKK (Nippon Kaiji Kentei Kyokai) as technical advisor
(b)	<p>Maker and type of primary system for measuring cargo level, temperature and pressure</p> <p>Level measuring system accuracy and range</p> <p>Temperature measuring system accuracy and range</p> <p>Pressure measuring system accuracy and range</p>	<p>Foxboro, Foxboro Custody Transfer CT-IV</p> <p>Level: Electrical capacitance of the sensor segment type</p> <p>Temp: platinum resistance transducer type</p> <p>Pressure: Intelligent pressure transmitter type</p> <p>Range 0.026 to 29.600 M, above TK bottom @-160°C</p> <p>System Accuracy 0.026 to 29.600 M,+/- 7.50mm (over the entire gauging height)</p> <p>Range -160°C to 80°C</p> <p>System Accuracy +/- 0.2 from -140°C to -165°C +/- 0.3 up to -120°C +/- 1.5 up to +50°C</p> <p>Range 800.0 mbar to 1400.0 mbar</p> <p>System Accuracy +/- 1.0 0% of span equal to +/- 6.0 mbar</p>
(c)	Is secondary system for measuring LNG liquid level fitted and, if so, state type and measuring accuracy	Float Level Gauge, accuracy +/- 15 mm

12. Cargo Manifolds

(a)	Do manifolds follow requirements of Vol. Category “B” of OCIMF “ <i>Recommendations for Manifolds for Refrigerated Liquefied Natural Gas Carriers (LNG)</i> ” 2nd Edition — 1994? (If “No”, state variations)	Yes
(b)	State layout of liquid and vapour connections	L – L – V – L – L
(c)	Distance of the centre of manifolds from amidships	1500 mm fwd of mid-ship.
(d)	Distance of presentation flange from ship's side	3500 mm without Short Distance Piece. (SDP length = 350 mm)
(e)	Distance of presentation flange from ship's rail	3150 mm
(f)	Height of manifold centre above keel	30.80 m
(g)	Size and location of liquid nitrogen loading connection	N/A

13. Emergency Shutdown System and Ship/Shore Compatibility

(a)	At what cargo level (%) is overflow protection activated?	99.0%
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(b)	Does overflow protection activate the following: Trip ESD system? Close manifold valves? Trip cargo pumps? Trip ship/shore link system?	Yes Yes Yes Yes
(c)	What ship/shore link systems are installed: Optical Fibre Link Electric Links: Pyle-National Pneumatic ESD Link	Yes Yes Yes

14. Bunkers

(a)	Capacity of fuel oil bunker tanks @ 98% (SG 0.99)	6491.5. mt
(b)	Capacity of diesel oil bunker tanks @ 98% (SG 0.86)	501.1 mt
(c)	Maximum bunker loading rate	790 m ³
(d)	Segregated low sulphur fuel oil storage capacity	N/A

15. Fresh Water Capacity

(a)	Capacity of fresh water generators	60 mt/day x 2 nos. = 120 mt/day
(b)	Distilled capacity	501 m ³
(c)	Domestic capacity	527.7 m ³
(d)	Distilled consumption	25 mt/day
(e)	Domestic consumption	5 mt/day

16. Inert Gas Generation

(a)	Type and make of equipment	Kaverner Moss, LPI 2 x 100% blowers, Oil burning type with cooling and drying unit
(b)	Capacity	14000 Nm ³ /h
(c)	Quality of gas O ₂ Max	0.5 % by vol.
(d)	Quality of gas CO Max	100 ppm
(e)	Quality of gas SO ₂ Max	2 ppm
(f)	Quality of gas NO _x Max	65 ppm
(g)	Dew point	- 45° C

17. Nitrogen

(a)	Type and capacity of nitrogen generation system	Air products, membrane permeation type
(b)	Consumption	50 Nm ³ /h (Usually)
(c)	Liquid nitrogen storage	NA
(d)	Nitrogen generator capacity	2 x 90 Nm ³ /h
(e)	Pressure tank	8.0 bar

18. Gas Compressors

(a)	Low duty (fuel gas compressor): No. and capacity	2 x 8500 m ³ /h
(b)	Low duty (fuel gas compressor): make	Atlas Copco ACE

19. Electrical Generators

(a)	Number of electric generators	3
(b)	Type of electric generators	2 Turbo generators, 1 Diesel generator
(c)	Output of electric generators	T/G 3450kW @ 1800rpm D/G 3450kW @ 720rpm
(d)	Fuel type and quantity at full load of electric generators	TG Steam 14145kg/hr DG MDO 690kg/hr
(e)	Power required for discharge / de-ballasting at full rate	Approx. 6300 kW

20. Deck Machinery

(a)	Winches	Self contained Electro hydraulic motor driven. Windlass combined with mooring winch – 2 sets. (Windlass mode – 568 KN(59.0 tons). Winch mode – 294 KN (30.0 tons). Mooring winch 8 sets - 294 KN(30.0 tons).
(b)	Wires	42 mm x 275m, 124T
(c)	No. Wires Forward	11
(d)	No. Wires Aft	11
(e)	Wires Fitted with Synthetic Tails	Yes 85 mm, 11m, 176T
(f)	Derricks, Cranes – Type and SWL	1) Midship crane: Electro-hydraulic motor driven. 2 x SWL10 T 2) Provision cranes (P&S) Deck: Electro-hydraulic motor driven. 2 x SWL 6.5T 3) Monorail crane(in E/R Casing) 1 x SWL 10T

21. Navigation and Communications

(a)	Type and number of radar sets fitted	JRC S-band (1set), JRC X-band (2 set)
(b)	Is an approved GMDSS installed? (Type?)	Yes, Area A3(INMARSAT-C,MF/HF,VHF)
(c)	Is an additional SatCom system installed? (Type?)	FB500, Iridium, V-SAT
(d)	Is Suez Canal Projector fitted?	No

22. Crew

(a)	The Officers may be of the following Nationalities	Japanese & Korean & Filipino
(b)	Number of Officers (Minimum)	11(5)

(c)	Number of Crew (Minimum)	21(7)
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23. List of Compatible LNG Terminals

Load Ports	Discharge Ports
QALHAT	INCHON
RAS LAFFAN	PYEONG TAEK
GLADSTONE	TONG YEONG
BINTULU	SAMCHEOK(HOSAN)
ARUN	