

LNG FORM B - PARTICULARS OF VESSEL

(a)	Ships Name	Armada LNG Mediterrana
(b)	Builder and Yard	Mitsui Engineering & Shipbuilding, Chiba
(c)	Hull No.	1250
(d)	Year Built	1985 /April
(e)	Port of Registry and Flag	Valetta, Malta
(f)	IMO Number	8125868
(g)	Call Sign	9HA4196
(h)	Classification Society	Bureau Veritas (BV)
(i)	Protection and Indemnity Club	The Standard Club Europe P&I

1. Principal Particulars

(a)	Length overall	283.00 m
(b)	Length Between Perpendiculars	270.00 m
(c)	Breadth moulded	44.80 m
(d)	Depth moulded	25.00 m
(e)	Draught at summer freeboard (Extreme)	11.50 m
(f)	Height overall — keel to highest fixed point	66.75 m
(g)	Maximum air draught (with full ballast and half bunkers)(corresponding draughts)	57.45m at d =9.30m
(h)	Gross Tonnage (International)	102,671 MT
(i)	Net Tonnage (International)	30801 MT
(j)	Gross Tonnage (Suez)	106,124.52 MT
(k)	Net Tonnage (Suez)	95,318.87 MT
(l)	Light Ship Displacement	30,858.2 MT
(m)	Displacement (maximum)	95,242.1 MT
(n)	Windage: Lateral	1187 m ²
	Longitudinal	7180 m ²
(o)	Classification designation	I ✕ HULL, ✕ MACH, Liquefied Gas Carrier, Malta Field ✕ Veristar Hull ✕ POSA, LSA, AUTO, INWATERSURVEY, CPS (WBT)
(p)	Conditions of Carriage (as defined on Certificate of Fitness):	Tank Number : No.1 ~ No.5 Minimum temperature: -163°C Maximum pressure : 0.025 MPa Maximum Density : 0.5

2. Operating Draught and Deadweight

(a)	Draught filling to 98.5% (@ cargo density 0.47 kg/m ³)	11.50 m (Summer draft)
(b)	Deadweight filling to 98.5%(@ cargo density 0.47 kg/m ³)	66 317 MT

3. Ballast System

(a)	Total capacity of ballast water tanks	55,629.9 m ³
(b)	Number, capacity and head of pumps for handling ballast	2 sets x 2700m ³ /h x 25mTH
(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	No

4. Details of Principal Certification

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

(a)	Loadline	Load line 1966 with the protocol of 1988, Cert.No.: SGP0/EPN/20160906213554 Date of issue: 10 Sept 2016
(b)	SOLAS	SC: SOLAS 1974 with the protocol of 1988, Cert.No.: SGP0/EPN/20160906214113 Date of issue: 10th Sept 2016 SE: SOLAS 1974 with the protocol of 1988, Cert.No.: SGP0/EPN/20160906221640 Date of issue: 10th Sept 2016 SR: SOLAS 1974 with the protocol of 1988, Cert.No SGP0/EPN/20160906222519 Date of issue: 10th Sept 2016
(c)	IGC Code	
(d)	Tonnage	
(e)	Marine Pollution (MARPOL)	IOPP: SGP0/EPN/20160906225148 10 Sept 2016 IAPP: SGP0/EPN/20160906223719 10 Sept 2016 ISPP: SGP0/EPN/20160906222903 10 Sept 2016
(f)	I. M. O. Certificate of Fitness	Gas fitness: SGP0/EPN/20160906232843 Date of issue: 10th Sept 2016
(g)	USCG Certificate of Compliance	N/A
(h)	Independent Sworn Measurer Certificate	N/A
(i)	SIRE Inspection	TBA
(j)	Port state control	TBA

Is certification held indicating compliance with the following?

(k)	ISPS Code	Yes
(l)	Rules and Regulations of Suez Canal Authorities	Yes
(m)	ISM	Yes

5. Propulsion

(a)	Type and make of propulsion plant	Mitsui STAL-LAVAL AP Cross compound type x 1set
(b)	Maximum rated power and RPM	40000ps -98RPM
(c)	Proposed service power and RPM	36000ps -95RPM
(d)	Grade of Fuel	MDO
(e)	Dual Fuel Burning	N/A

6. Speed / Consumption

(a)		Maximum fuel consumption (Tonnes of Fuel Oil Equivalent / day)	
	Speed (Knots)	Laden	Ballast
	14.5	119	105
	14	108	101
	13.5	100	95
	13	94	90

(b)	Trial Speed at Maximum Power	TBC (after conversion)
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(c)	Service Speed	TBC (after conversion)
(d)	In Port (cargo operations)	Loading 40MT per day / Discharging 45MT per day
(e)	In Port (idle)	30 MT per day
(f)	For inert gas generation	25 MT per day of Gas Oil

7. Boilers and Steam Capacity

(a)	Number and type of boilers	Two-drum, water tube, marine boiler with gas air heater
(b)	Maximum steam output available	67,000kg/h/set
(c)	Normal service output corresponding to 5(b)	59,000kg/h./set

8. Cargo Tanks

(a)	Number of tanks	5
(b)	Capacity of LNG tanks at normal filling level 98.6% (at -160°C) (Exclusive Dome Capacities)	m3
	No 1 Tank	20,244.490
	No 2 Tank	25,859.171
	No 3 Tank	25,883.695
	No 4 Tank	25,892.968
	No 5 Tank	25,899.779
	Total	123,780.103
(c)	Gross Capacity of LNG tanks 100% (at -160°C) (Exclusive Dome Capacities)	m3
	No 1 Tank	20,626.921
	No 2 Tank	26,335.360
	No 3 Tank	26,319.194
	No 4 Tank	26,292.478
	No 5 Tank	26,303.231
	Total	125,877.185

(d)	Partial loading / filling restrictions	11,000m3 per hour
(e)	The Vessel's cargo tanks can be cooled down from ambient in:	35 Hours
(f)	Maximum filling rate	0 - 50% of tank in no less than 8 hours. Allowable liquid velocity at manifold piping 10m/sec at 2 Arm
(g)	Relief valve settings (MARVS)	0.0686 barG
(h)	Loaded Boil-Off rate	Average daily boil-off rate shall not exceed 0.20%.

9. Cargo Discharge

(a)	Number of cargo pumps per tank	10 units (1 unit large tank and 1 unit small per tank.)
(b)	Make and type of cargo pumps	Vertical type, centrifugal, electrical drive, submerged type
(c)	Design rated capacity of each cargo pump and corresponding discharge head	1. 1,100m ³ /h x 135mTH pump 2. 55m ³ /h x 180mlc
(d)	Number of spray (stripping) pumps per tank	2 (No.3&4 Cargo Tank)

(e)	Make and type of spray (stripping) pumps	J.C.carter
(f)	Design rated capacity of each spray pump and corresponding discharge head	50m ³ /hr
(g)	Number, Make and Capacity of Auxiliary Pumps	N/A
(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 hours

10. Cryogenic Systems

(a)	Type of LNG containment system	Spherical Independent Tanks of MOSS
(b)	Design temperature	-163 degC
(c)	Make and type of vapour return compressors	Centrifugal , Steam turbine driven
(d)	Number and rated capacity of vapour return compressors and corresponding discharge head	2 x 18,000m ³ /h 2.02 bar
(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
(f)	Total capacity of liquid nitrogen storage tanks (if nitrogen generator not fitted)	N/A

11. LNG Measurement and Tank Calibration

(a)	Are all tanks calibrated and certified by a qualified agency? (Specify agency)	Yes NKKK
(b)	Make and type of primary system for measuring cargo level, temperature and pressure Level measuring system accuracy and range Temperature measuring system accuracy and range Pressure measuring system accuracy and range	Capacitance type $\pm 0.2^{\circ}\text{C}$ (-165 $^{\circ}\text{C}$ to -145 $^{\circ}\text{C}$) $\pm 1.0^{\circ}\text{C}$ (-145 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$) $\pm 1\%$ (800mbarA to 1400mbarA)
(c)	Is secondary system for measuring LNG liquid level fitted and, if so, state type and measuring accuracy	Float type $\pm 7.5\text{mm}$ over the full height

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 – Stbd side only.
(b)	State layout of liquid and vapour connections	LLVLL 16” 2.52m interval
(c)	Distance of the centre of manifolds from amidships	30.77 m FWD from midship
(d)	Distance of presentation flange from ship's side	3.5 m
(e)	Distance of presentation flange from ship's rail	3.5 m
(f)	Height of manifold centre above keel	31.2 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?	Cargo level high-high :99.4 % Cargo level very-high :99.5 %
(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-Seatechnik / Miyaki connector Pneumatic ESD Link	Yes Yes No

14. Bunkers

(a)	Capacity of fuel oil bunker tanks @ 98% (SG 0.99)	N/A
(b)	Capacity of diesel oil bunker tanks @ 98% (SG 0.86)	2378 m3
(c)	Maximum bunker loading rate	500 MT/hr
(d)	Segregated low sulphur fuel oil storage capacity	N/A

15. Fresh Water Capacity

(a)	Capacity of fresh water generators	65 ton/day x 1 set, 54 ton/day x 1 set,
(b)	Distilled capacity	No.1 Tank :234.6m3, No.2 Tank :240.5m3
(c)	Domestic capacity	277.6m3
(d)	Distilled consumption	30 MT per day
(e)	Domestic consumption	20 MT per day

16. Inert Gas Generation

(a)	Type and make of equipment	Oil burning type
(b)	Capacity	13,000Nm ³ /hr
(c)	Quality of gas O ₂ Max	max 1.0% (by volume)
(d)	Quality of gas CO Max	max 0.1% (by volume)
(e)	Quality of gas SO ₂ Max	max 30 ppm
(f)	Quality of gas NO _x Max	max 150 ppm
(g)	Dew point	-65 °C lowest

17. Nitrogen

(a)	Type and capacity of nitrogen generation system	2 x 70 Nm ³ /hr (Nitrogen Generator capacity)
(b)	Consumption	About 490 m3 per day (gas)
(c)	Liquid nitrogen storage	N/A
(d)	Nitrogen generator capacity	2 x 70 Nm ³ per day
(e)	Pressure tank	3.5kg/cm ²

18. Gas Compressors

(a)	Low duty (fuel gas compressor): No. and capacity	4,500m ³ /h x 1 set
(b)	Low duty (fuel gas compressor): make	Steam driven, horizontal, centrifugal

19. Electrical Generating

(a)	Number of electric generators	Main: 1 x Steam turbine (Sailing mode) Auxiliary: 1 Deck Diesel Generator, 1 x engine room diesel generator Emergency: 1 x Diesel generator
(b)	Type of electric generators	Main: Steam turbine Auxiliary: Diesel generator Emergency: Diesel generator
(c)	Output of electric generators	Main: 2500 kW Auxiliary: 1800 kW (Deck) Auxiliary: 1200 kW (ER) Emergency: 150 kW
(d)	Fuel type and quantity at full load of electric generators	Auxiliary: 5 MT /day Emergency: 0.6 MT/day
(e)	Power required for discharge / de-ballasting at full rate	4000 kW

20. Deck Machinery

(a)	Winches	Electro-hydraulic, x 9 sets Windlass: 814.4kN x 9m/min x 2 sets Mooring winch: 294kN x 15m/min x 7 sets Storm mooring system pull-in winch: 4 sets 490kN, 2m/min, 2 sets 1470kN, 2m/min
(b)	Wires	42mmΦ High strength Dyneema SK78 rope
(c)	No. Wires Forward	9
(d)	No. Wires Aft	9
(e)	Wires Fitted with Synthetic Tails	Length and Size: 22m nylon 8 strand stretchers fitted to the Dyneema ropes
(f)	Derricks, Cranes – Type and SWL	Type: HFC20220 SWL: 2t Max Working Radius: 22m Min Working Radius: 3.5m Prime Mover Type: Electric Motor Man Riding: SWL 1t Monorail Hoist: SWL 3t

21. Navigation and Communications

(a)	Type and number of radar sets fitted	FAR 2837S-36AF x 1 FAR 2827-20AF x 1
(b)	Is an approved GMDSS installed? (Type?)	Yes
(c)	Is an additional SatCom system installed? (Type?)	Yes (V-sat)
(d)	Is Suez Canal Projector fitted?	Yes

22. Crew

(a)	The Officers may be of the following Nationalities	TBC
(b)	Number of Officers (Minimum)	TBC
(c)	Number of Crew (Minimum)	TBC

23. List of Compatible LNG Terminals:

Load Ports	Discharge Ports
FSU is design specifically for Delimara, Malta	

24. Terminals to become compatible terminals

The vessel is to become compatible with the following terminals upon approval by the terminals through Ship-Shore confirmation meetings.

Load Ports	Discharge Ports
FSU is design specifically for Delimara, Malta	

(*1) Some particulars of the Vessel need to be checked and confirmed by the terminals.