



# SHELLNGTIME 2

## PART II LNG FORM B - PARTICULARS OF VESSEL

(a)	Ship's Name	Paolina Cosulich
(b)	Builder and Yard	Nantong CIMC Sinopacific Offshore Engineering Co Ltd
(c)	Hull No.	S1059
(d)	Year Built	2022
(e)	Port of Registry and Flag	TBD
(f)	IMO Number	9956836
(g)	Call Sign	TBD
(h)	Classification Society	TBD
(i)	Protection and Indemnity Club	SKULD (TBC)

### 1. Principal Particulars

(a)	Length overall	113.00m
(b)	Length Between Perpendiculars	109.50m
(c)	Breadth moulded	20.00m
(d)	Depth moulded	13.50m
(e)	Draught at summer freeboard (Extreme)	6.60m
(f)	Height overall — keel to highest fixed point	35.9m
(g)	Maximum air draught (with full ballast and half bunkers) - (corresponding draughts)	24.1m / 5m
(h)	Gross Tonnage (International)	8838 GT
(i)	Net Tonnage (International)	2651MT
(j)	Gross Tonnage (Suez)	To be informed upon delivery - MT
(k)	Net Tonnage (Suez)	To be informed upon delivery - MT
	Net Tonnage (Panama)	To be informed upon delivery - MT
(l)	Light Ship Displacement	MT 4900 Approx
(m)	Displacement (maximum)	10351.7 MT
(n)	Windage in normal ballast conditions: Lateral	412.5m <sup>2</sup>
	Longitudinal	1670m <sup>2</sup>
(o)	Classification designation	LNGBV

(p)	Conditions of Carriage (as defined on Certificate of Fitness):	<b>Product: LNG</b>  <b>Maximum pressure: 3.6 barG</b> <b>Minimum pressure: -0.25 barG</b>  <b>Minimum temperature: -163 oC</b> <b>Maximum density: 500 kg/m3 for structural analysis, scantling of cargo tank and cargo pump</b>  <b>Cargo tank to be 98.5 % of the total capacity at the reference temperature.</b>  <b>113.00m</b>
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## 2. Operating Draught and Deadweight

(a)	Draught filling to 98.5% (@ cargo density 0.47 kg/m3)	<b>6,493 mtrs</b>
(b)	Deadweight filling to 98.5% (@ cargo density 0.47 kg/m3)	<b>MT 5294</b>

## 3. Ballast System

(a)	Total capacity of ballast water tanks	<b>m3 2361.9</b>
(b)	Number, capacity and head of pumps for handling ballast	<b>n.2 self-priming 150 m3/h each, 0.30 Mpa or 30 MLC</b>
(c)	Is Vessel able to ballast / de-ballast within the cargo loading/discharging period?	<b>YES</b>
(d)	Can the Vessel undertake ballast exchange at sea within 24 hours	<b>Yes BWMS INSTALLED</b>

## 4. Details of Principal Certification

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

(a)	Load Line	<b>It will be available at delivery</b>
(b)	SOLAS	<b>It will be available at delivery</b>
(c)	IGC Code	<b>It will be available at delivery</b>
(d)	Tonnage	<b>It will be available at delivery</b>
(e)	Marine Pollution (MARPOL)	<b>It will be available at delivery</b>
(f)	I. M. O. Certificate of Fitness	<b>It will be available at delivery</b>
(g)	USCG Certificate of Compliance	<b>N/A</b>
(h)	Independent Sworn Measurer Certificate	<b>N/A</b>
(i)	SIRE Inspection	<b>New building</b>
(j)	Port state control	<b>New building</b>

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	<b>SCHOTTEL EcoPeller SRE 360 Z FP</b>																																							
(b)	Maximum rated power and RPM	<b>1500KW@1800rpm</b>																																							
(c)	Proposed service power and RPM																																								
(d)	Grade of Fuel	<b>DMA as per ISO8217-2010) with 0.1% Sulphur (Viscosity 2~6 cSt/40oC)</b>																																							
(e)	Dual Fuel Burning	<p><b>YES</b></p> <p><b>Fuel gas quality</b></p> <p>The gas has to fulfil requirements as in the table below.</p> <table border="1"> <thead> <tr> <th>Property</th> <th>Unit</th> <th>Limit</th> </tr> </thead> <tbody> <tr> <td>Lower Heating Value (LHV<sub>v</sub>), min. <sup>1)</sup></td> <td>MJ/m<sup>3</sup>N <sup>2)</sup></td> <td>26</td> </tr> <tr> <td>Methane Number (MN), min. <sup>5)</sup></td> <td></td> <td>70</td> </tr> <tr> <td>Methane (CH<sub>4</sub>) content, min.</td> <td>% v/v</td> <td>70</td> </tr> <tr> <td>Hydrogen sulphide (H<sub>2</sub>S) content, max.</td> <td>% v/v</td> <td>0.05</td> </tr> <tr> <td>Hydrogen (H<sub>2</sub>) content, max. <sup>3)</sup></td> <td>% v/v</td> <td>3.0</td> </tr> <tr> <td>Liquid phase water and hydrocarbon condensate bef. engine, max. <sup>4)</sup></td> <td>% v/v</td> <td>Not allowed</td> </tr> <tr> <td>Oil content, max.</td> <td>mg/m<sup>3</sup>N</td> <td>2.0</td> </tr> <tr> <td>Ammonia content, max.</td> <td>mg/m<sup>3</sup>N</td> <td>25</td> </tr> <tr> <td>Chlorine + Fluorine content, max.</td> <td>mg/m<sup>3</sup>N</td> <td>50</td> </tr> <tr> <td>Partides or solids content in engine inlet, max.</td> <td>mg/m<sup>3</sup>N</td> <td>50</td> </tr> <tr> <td>Partides or solids size in engine inlet, max.</td> <td>µm</td> <td>5</td> </tr> <tr> <td>Gas inlet temperature</td> <td>°C</td> <td>0...60</td> </tr> </tbody> </table>	Property	Unit	Limit	Lower Heating Value (LHV <sub>v</sub> ), min. <sup>1)</sup>	MJ/m <sup>3</sup> N <sup>2)</sup>	26	Methane Number (MN), min. <sup>5)</sup>		70	Methane (CH <sub>4</sub> ) content, min.	% v/v	70	Hydrogen sulphide (H <sub>2</sub> S) content, max.	% v/v	0.05	Hydrogen (H <sub>2</sub> ) content, max. <sup>3)</sup>	% v/v	3.0	Liquid phase water and hydrocarbon condensate bef. engine, max. <sup>4)</sup>	% v/v	Not allowed	Oil content, max.	mg/m <sup>3</sup> N	2.0	Ammonia content, max.	mg/m <sup>3</sup> N	25	Chlorine + Fluorine content, max.	mg/m <sup>3</sup> N	50	Partides or solids content in engine inlet, max.	mg/m <sup>3</sup> N	50	Partides or solids size in engine inlet, max.	µm	5	Gas inlet temperature	°C	0...60
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6. Speed / Consumption

(a)		<b>Maximum fuel consumption</b> (Tonnes of Fuel Oil Equivalent / day)	
	Speed (Knots)	Laden	Ballast
		<b>TBC AFTER SEA TRIALS</b>	
(b)	Trial Speed at Maximum Power	<b>To be informed after delivery</b>	
(c)	Service Speed, Laden and Ballast	<b>TBC AFTER SEA TRIALS</b>	
(d)	In Port (cargo operations)	<b>Abt. 3.8 MT per day</b>	
(e)	In Port (idle)	<b>Abt. 2.6 MT per day</b>	
(f)	For Inert Gas Generation	<b>Abt. 3.6 MT per day of Gas Oil</b>	

(g)	For Reliquification of the cargo	<b>Abt. 4.9 MT per day of Gas Oil</b>
(h)	For Ballast exchange	<b>Abt. 2.7 For 100% exchange of ballast water (TBC)</b>

7. Boilers and Steam Capacity

(a)	Number and type of boilers	<b>N/A</b>
(b)	Maximum steam output available	<b>N/A</b>
(c)	Normal service output corresponding to 5(b)	<b>N/A</b>

8. Cargo Tanks

(a)	Number of tanks	<b>2</b>
(b)	Capacity of LNG tanks at 98.5% filling level	<b>m3</b>
	No 1 Tank	<b>4,038.5</b>
	No 2 Tank	<b>4,305.6</b>
	Total	<b>8344.1</b>
(c)	Gross Capacity of LNG tanks at 100%	<b>m3</b>
	No 1 Tank	<b>4,100.0</b>
	No 2 Tank	<b>4,371.2</b>
	Total	<b>8471.2</b>
(d)	Partial loading / filling restrictions	<b>No partial loading and no filling restrictions;</b>
(e)	The Vessel's cargo tanks can be cooled down from ambient in:	<b>Approx.21 Hours (considering start condition 30 degC and end condition - 140 degC, at cooldown rate is 8.2 degC/h which is the maximum acceptable cooldown rate by the cargo pump.)</b>
(f)	Maximum filling rate	<b>1500 m3 per hour</b>
(g)	Relief valve settings (MARVS)	<b>3600mb (gauge) (3.6barg)</b>
(h)	Loaded Boil-Off rate	<b>Tank No.1: 0.232% of 98% filling ratio per day Tank No.2: 0.228% of 98% filling ratio per day</b>
(i)	Ballast Boil-Off rate	<b>Not yet available. Only contractual BOG rate available.</b>

9. Cargo Discharge

(a)	Number of cargo pumps per tank	<b>2, 1 for each lobe</b>
(b)	Make and type of cargo pumps	<b>Maker: Svanehøj Type: DW 150/150-6-K+I</b>
(c)	Design rated capacity of each cargo pump and corresponding discharge head	<b>Capacity:300 m3/h Head :210 m.l.c</b>
(d)	Number of spray (stripping) pumps per tank	<b>1</b>
(e)	Make and type of spray (stripping) pumps	<b>Maker: Svanehøj Type: EFP 24-4 15/440/60.C70M.L.PN10</b>
(f)	Design rated capacity of each spray pump and corresponding discharge head	<b>Capacity:15 m3/h Head :130 m.l.c</b>
(g)	Number, Make and Capacity of Auxiliary Pumps	<b>Glycol pump Number: 2 sets per ship Maker: PG Flow Solution AS Type: PG - 50/315 A1 Capacity:54 m3/h</b>
(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.	<b>7 hours</b>
(i)	LNG STS TANSFER SYSTEM	
	Cargo hose	<b>Dolphinflex White SS composite hose for LNG STS. EN13766 – IMO IGC CODE – EN1474-II</b>
		<b>Details: nr. 1 8" 300 Ansi 25 mtrs nr. 1 6" 150 Ansi 25 mtrs</b>
	Hose supporter and Fall Arrest	<b>KLAW K080SSF005 Quantities: 1 x 8" + 1 x 6"</b>
	ERCS	<b>KLAW KR080 Liquid line 8" KLAW KR060 Liquid line 6"</b>
	QCDC	<b>KLAW DCH080SYRRA2ABZ (8") KLAW DCH060SYRRA2ABZ (6") Tank unit and connections as per ISO 21593</b>
	VSD	<b>KLAW VSD003</b>
	HPU	<b>KLAW EPHPU-4-1-P</b>

10. Cryogenic Systems

(a)	Type of LNG containment system	<b>Type C</b>
(b)	Design temperature	<b>Min. Temperature: -163 °C</b>
(c)	Make and type of vapour return compressors	<b>Maker: Burckhardt compression Type:2KL90-2D_1</b>
(d)	Number and rated capacity of vapour return compressors and corresponding discharge head	<b>Number: 2 sets per ship Start pressure:1 bara Start temperature: -140°C Discharge pressure: 9 bara Discharge temperature: 76°C Capacity: 360.21 kg/h</b>
(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?	<b>GCU maker: Saacke GCU type 1002/2007  GCU capacity 500 Sm<sup>3</sup>/h (100% contractual BOG)  Subcooler ready with a maximum guaranteed capacity by the vendor of 0.49 MT/hour with LNG. (128% of contractual BOG)</b>
(f)	Total capacity of liquid nitrogen storage tanks (if nitrogen generator not fitted)	<b>Liquid Nitrogen storage tank not fitted</b>

11. LNG Measurement and Tank Calibration

(a)	Are all tanks calibrated and certified by a qualified agency? (Specify agency)	<b>Yes, all cargo tanks calibrated and certified by SGS</b>
(b)	<p>Make 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>Gas Chromatograph</p>	<p><b>Maker: KONGSBERG</b></p> <p><b>Type of level measuring system: Radar Tank Gauge GLA-310/5</b>  <b>Accuracy: +/- 5 mm</b>  <b>Range: 0~20 m</b></p> <p><b>Type of temperature measuring system: Temp. sensor LNG/LPG-MN-3927</b>  <b>Accuracy:</b>  <b>-165°C to -145°C: +/-0,2°C</b>  <b>-145°C to -120°C: +/-0,3°C</b>  <b>-120°C to +40°C: +/- 1,5°C</b>  <b>Range: -196~400°C</b></p> <p><b>Type of Pressure measuring system:</b>  <b>E+H PMC71</b>  <b>Accuracy: ±0.5%</b>  <b>Range: 0~6 bara</b></p> <p><b>EMERSON 370X1 – IEC-604-3-HE-W-R.</b></p> <p><b>Component/range mole%:</b>  <b>Methane 65 to 100</b>  <b>Ethane 0 to 20</b>  <b>Propane 0 to 10</b>  <b>N-Butane 0 to 5</b>  <b>Iso-Butane 0 to 5</b>  <b>N-Pentane 0 to 1</b>  <b>Iso-Pentane 0 to 1</b>  <b>Neo-Pentane 0 to 1</b>  <b>Nitrogen 0 to 20</b>  <b>Carbon Dioxide 0 to 20</b>  <b>C6+ 0 to 1</b></p>
(c)	Is secondary system for measuring LNG liquid level fitted and, if so, state type and measuring accuracy	<p><b>Secondary system for measuring LNG liquid level is fitted.</b></p> <p><b>Type of level measuring system: Radar Tank Gauge GLA-310/5</b>  <b>Accuracy: +/- 5 mm</b>  <b>Range: 0~20m</b></p>

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)” 2nd Edition — 1994?</i> (If “No”, state variations)	No, the vessel follows version Second Edition 2018 of OCIMF <i>“Recommendations for Manifolds for Refrigerated Liquefied Natural Gas Carriers (LNG)”</i>
(b)	State layout of liquid and vapour connections	<b>1. Elevated manifold:</b> L-V-L <b>2*L: 12” ANSI 300</b> <b>1*V: 12” ANSI 150</b>  <b>2. Fore manifold:</b> L-V-L <b>2*L: 8” ANSI 300</b> <b>1*V: 6” ANSI 150</b>
(c)	Distance of the centre of manifolds from amidships	<b>1. Elevated manifold: 0 mm</b> <b>2. Fore manifold: 28300 mm</b>
(d)	Distance of presentation flange from ship’s side	<b>1. Elevated manifold:</b> <b>Liquid: 3115mm</b> <b>Vapour: 3230mm</b>  <b>2. Fore manifold:</b> <b>Liquid: 3239mm</b> <b>Vapour: 3350 mm</b>
(e)	Distance of presentation flange from ship’s rail	<b>1. Elevated manifold:</b> <b>Liquid: 3047mm</b> <b>Vapour: 3364mm</b>  <b>2. Fore manifold:</b> <b>Liquid: 3179mm</b> <b>Vapour: 3290 mm</b>
(f)	Height of manifold centre above keel	N/A
(g)	Size and location of liquid nitrogen loading connection	N/A
(h)	Elevation above baseline	<b>1a. Elevated manifold Stbd:</b> <b>Liquid: 20700 mm</b> <b>Vapour: 20700 mm</b>  <b>1b. Elevated manifold Port:</b> <b>Liquid: 21800 mm</b> <b>Vapour: 21800 mm</b>  <b>2. Fore manifold:</b> <b>Liquid: 15300 mm</b> <b>Vapour: 15300 mm</b>
(i)	Elevation above design waterline	<b>1a. Elevated manifold Stbd:</b> <b>Liquid: 14350 mm</b> <b>Vapour: 14350 mm</b>  <b>1b. Elevated manifold Port:</b> <b>Liquid: 15450 mm</b> <b>Vapour: 15450 mm</b>  <b>2. Fore manifold:</b> <b>Liquid: 8950 mm</b> <b>Vapour: 8950 mm</b>

13. Emergency Shutdown System and Ship/Shore Compatibility

(a)	At what cargo level (%) is overflow protection activated?	99%
(b)	Does overflow protection activate the following: Trip ESD system? Close manifold valves? Trip cargo pumps? Trip ship/shore link system?	<b>Trip ESD system? <input checked="" type="checkbox"/></b> <b>Close manifold valves? <input checked="" type="checkbox"/></b> <b>Trip cargo pumps? <input checked="" type="checkbox"/></b> <b>Trip ship/shore link system? <input checked="" type="checkbox"/></b>
(c)	What ship/shore link systems are installed: Optical Fibre Link Electric Links — Pyle-National / Miyake connector Pneumatic ESD Link	<b>Optical Fibre Link <input checked="" type="checkbox"/></b> <b>Electric Links:</b> <b>PYLE 37 way</b> <b>and</b> <b>5-pin SIGGTO connectors</b> <b>No Miyake connector</b> <b>Pneumatic ESD Link <input checked="" type="checkbox"/></b> <b>Vessel SSL system in compliance with ISO20519 and ISO28460. It combines electric (PYLE 37 way and 5-pin SIGGTO connectors), Fiber optic and pneumatic links. The system shall enable the terminal to release the ESD on the vessel by a remote fixed wired connection.</b>

14. Bunkers

(a)	Capacity of fuel oil bunker tanks @ 98% (SG 0.99)	N/A
(b)	Capacity of gas oil bunker tanks @ 98% (SG 0.86)	225.7 MT
(c)	Maximum bunker loading rate	70 MT/hr
(d)	Segregated low sulphur fuel oil storage capacity	N/A

15. Fresh Water Capacity

(a)	Capacity of fresh water generators	5 MT per day Reverse Osmosis type
(b)	Distilled capacity	N/A
(c)	Domestic capacity	MT 96
(d)	Distilled consumption	N/A
(e)	Domestic consumption	N/A

16. Inert Gas Generation

(a)	Type and make of equipment	N/A
(b)	Capacity	N/A
(c)	Quality of gas O2 Max	N/A
(d)	Quality of gas CO Max	N/A
(e)	Quality of gas SO2 Max	N/A
(f)	Quality of gas NOx Max	N/A
(g)	Dew point	N/A
(h)	Dew point measurement systems available on-board:	Portable: SHAW MODEL SADP-R Fixed / local: Installed in the nitrogen generator systems.

17. Nitrogen

(a)	Type and capacity of nitrogen generation system	1.PSA type N2 Generator Type: Atlas MN 1500 Capacity: 700Nm3/h (20 °C @ 1 bara), purity 97vol.%  2. Membrane type N2 Generator Type: Atlas NGM3+ Capacity: 70Nm3/h (20 °C @ 1 bara), purity: 97vol.%
(b)	Consumption	N/A
(c)	Liquid nitrogen storage	N/A
(d)	Nitrogen generator capacity	For PSA, 16800 Nm3 per day For Membrane, 1680 Nm3 per day
(e)	Pressure tank	One N2 buffer tank used for N2 purging, 5m3, design pressure: 10barg

18. Gas Compressors

(a)	Low duty (fuel gas compressor): No. and capacity	Refer to item10, (c), (d)
(b)	Low duty (fuel gas compressor): make	Refer to item10, (c), (d)

19. Electrical Generating

(a)	Number of electric generators: Diesel Electric Propulsion	Main: 4 Emergency: 1
(b)	Type of electric generators	Main: ABB AMG 0500M Emergency: LSA M46.3 M7
(c)	Output of electric generators	Main: 1120kW Emergency: 200kW
(d)	Fuel type and quantity at full load of electric generators	Dual Fuel
(e)	Power required for discharge / de-ballasting at full rate	<p>Unloading without Vapour Return From Shore + Fuel Supply from BOG Compressor and Fuel Pump:</p> <p>4 cargo pump: 580kW 1 BOG compressor: 83kW 1 fuel pump: 20kW 1 HPU, SVC: 8kW 1 glycol pump: 17kW UPS power: 15kW 2 ballast pump: 40kW Cooling water pump: 90kW Fuel pump: 4.6kW TOTAL: 857.6 kW</p>

20. Deck Machinery

(a)	Winches	No:6 Pull Type: Electro-hydraulic Brake Holding Force: 356kN
(b)	<del>Wires</del> UHMWPE ropes + Snap Back arrestor	Size: $\Phi$ 28mm x 220m B.S: 445KN
(c)	No. <del>Wires</del> Soft Forward	6
(d)	No. <del>Wires</del> Soft Aft	6
(e)	Soft Fitted with Synthetic Tails	Length and Size: Nylon 11mtrs/560 KN B.S: according MEG4
(f)	Derricks, Cranes – Type and SWL	Two (2) cargo cranes Ex-proof electro-hydraulic driven knuckle boom, 5.0 Mtons / 4 – 22 mtrs One (1) provision crane, 3.0 Mtons / 4 mtrs

21. Navigation and Communications

(a)	Type and number of radar sets fitted	MODEL: JMR-9225-6X No.1 RADAR X-BAND MODEL: JMR-9230-S No.2 RADAR S-BAND
(b)	Is an approved GMDSS installed? (Type?)	GMDSS combined in the WHC include of 2sets Inm-C (JUE-87-JR(SH1)/JUE-87-JR(SH1) and MF/HF (JSS-2250SC(SH3) etc Radio equipments
(c)	Is an additional SatCom system installed? (Type?)	FBB-(JUE-251) installed only VSAT
(d)	Is Suez Canal Projector fitted?	Yes

22. Crew

(a)	The Officers may be of the following Nationalities	According flag rules
(b)	Number of Officers (Minimum)	5 - MSM still to be defined
(c)	Number of Crew (Minimum)	5 - MSM still to be defined

23. List of Compatible LNG Terminals/Receiving Vessels

Load Ports	Discharge Ports
FSRU TOSCANA	FRSU TOSCANA
ROTTERDAM (Gate Terminal)	
ZEENBRUGE (Fluxys Terminal)	
BARCELONA (Enagas Terminal)	
RAVENNA (PIR Terminal)	
FOS Terminal	

24. List of Visited LNG Terminals at the Date of Vessel Delivery

Load Ports	Discharge Ports
N/A	N/A
N/A	N/A
N/A	N/A