

**GAS FORM C****Main particulars****2.1 PREAMBLE**

<b>Ship's name</b>	BW CEDAR	
<b>Owners</b>	BW VLGC LIMITED.	
<b>Flag – Registry</b>	Isle of Man (I.O.M)	
<b>Builder</b>	Hyundai Heavy Industries, Ulsan, S Korea	
<b>Delivery</b>	2 <sup>nd</sup> July 2007 , Ulsan , South Korea	
<b>Class</b>	Det Norske Veritas Germanischer Lloyd ( DNV.GL)	
<b>Class notation</b>	+1A1 Tanker for liquified gas BIS Clean E0 NAUTICUS (New Building) OPP-F Plus (2) TMON	
<b>IMO No.</b>	9320738	

<b>GRT/NRT</b>		
<b>International</b>	<b>47386</b>	17305
<b>Suez</b>	<b>50626.89</b>	46775.59
<b>Panama</b>	NOT APPLICABLE	

**2.2 HULL**

	Meter	Feet
<b>LOA</b>	225.48	739.76
<b>LBP</b>	215	705.38
<b>Breadth</b>	36.6	120.08
<b>Depth</b>	22	72.18
<b>Keel to highest point</b>	53.438	175.32

<b>Max summer draft</b>	12.574 m	<b>Corresponding deadweight</b>	58063 M Ton
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<b>TPC fully loaded</b>	71.20 Metric Tonnes per cm
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<b>Mean draft with full bunkers and full cargo</b>		
<b>Specific Gravity</b>	<b>Mean draft</b>	<b>Corresponding DW</b>
1.025	12.574 meter ( Summer DWT)	58063
1.000	12.846 meter	58063



<b>Communication equipment</b>	
<b>International call sign</b>	2GXX7
<b>Radio station</b>	
<b>Satcom</b>	
- Telephone ( Vsat)	+65 31586476 and +47 81503092
- Telephone Inmarsat FBB	+870 773230015
- Telefax Inmarsat FBB	+870 783152378
<b>Satcom C</b>	+ 870 423593741 / 742
<b>Cell phone</b>	+47 90961258
<b>MMSI</b>	235101302
<b>E-mail</b>	<b>bwcedar@amosconnect.com</b>

**2.3 MACHINERY**

<b>Main Engine</b>	
Hyundai B&W	
<b>Max Cont. R</b>	18420 BHP X 105
<b>Grade fuel used</b>	HFO 380 Cst / Can also be run on distillate fuel.

<b>Auxiliaries</b>	
<b>Diesel</b>	
<b>Make</b>	Hyundai Heavy Industries , Model – Hyundai B&W 6L28/ 32H
<b>kW/RPM</b>	1590 PS / 720 RPM
<b>Grade fuel used</b>	HFO 380 Cst

<b>Speed/Consumption*</b>	
Guaranteed average loaded/ballast speed over 12 months	
Average consumption on Main Engine guaranteed speed	
Average consumption on auxiliaries	

\*) Above based on 50/50 propane/butane and max force 5 Beaufort

<b>Slow speed/consumption figures as guidance only</b>	
Average loaded/ballast	Consumption
Eco Speed	
Super slow speed	

<b>Average consumption in port</b>	
<b>Inert gas plant when operating</b>	
<b>Boiler consumption</b>	

<b>Permanent bunkers capacity (Excl. daily service tanks)</b>	
<b>HFO 98%</b>	1815 MT
<b>LSMGO 98%</b>	381 MT
<b>MDO 98%</b>	



2.4 CARGO INSTALLATION

Transportable products and respective quantities								
Tank No.	100 % m <sup>3</sup>	98 % m <sup>3</sup>	Butane 0.597 -2°C MT	Propane 0.58 -41,5°C MT	Ammonia 0.68 @ - 31°C MT	Butadine 0.65 @ - 4°C MT	Propylene 0.609 @ -47 °C MT	
1	17903.8	17545.7	10475	10177	11931	11405	10685	
2	21826.2	21389.7	12770	12406	14545	13903	13026	
3	21830.1	21393.5	12772	12408	14548	13906	13029	
4	20699.5	20285.5	12110	11766	13794	13186	12354	
<b>Total</b>	82259.6	80614.4	48127	46757	54818	52400	49094	
<b>Decktank capacity</b>					<b>NO DECK TANK</b>			
Transportable products and respective quantities								
<i>Other transportable products:</i>								

Scantlings of the cargo tanks are based on a maximum density of cargo of 690kg/m<sup>3</sup>. Cargo only with density up to 0.69 kg/m<sup>3</sup> can be carried in the cargo tanks.

Tank working pressure	
Maximum pressure	250 millibar at Sea and 400 millibar at Harbour
Minimum pressure	-50 millibar
Minimum temperature acceptable in tanks	-50 °C

Loading rate - tons/hour	4800 m3/hr with both manifold, 2400 m3/hr with single manifold.
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2.5 CARGO PUMPS

Number and type	8 / 2 per tank / Deepwell Cargo Pumps
Location	Top of tank dome
Max permissible specific gravity	0.69 mt / m <sup>3</sup>
Time for discharging full cargo using all pumps against no backpressure ( fully ref)	18 hours
Cargo remaining onboard in cargo tanks after completion pumping	40 mt liquid
Total head when working in series with booster pump	140 mlc
Booster pumps	2 / Horizontal , Centrifugal / 600 m3 per hour



<b>Number and type</b>	4 Nos./ 3 stages / 3 cylinder- double acting- oil free- reciprocating
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	<b>Propane</b>	
<b>Refrigeration Capacity</b>	305 Kw	
<b>Suction pressure</b>	0.4 Bar / 1150 M3 / hr	

## 2.7 INERT GAS SYSTEM

<b>Does the vessel use inert gas?</b>	Yes
<b>Utilization</b>	Only for tank cleaning and inerting

<b>Does the vessel produce inert gas?</b>	Yes
<b>Type</b>	Stoichiometric combustion
<b>Daily production</b>	5300 m3 per hour

<b>Composition of inert gas</b>	
<b>Carbon dioxide</b>	14%
<b>Oxygen max.</b>	0.5%
<b>Carbon monoxide max.</b>	100 ppm
<b>Hydrogen max.</b>	
<b>Nitrogen</b>	Balance
<b>Soot</b>	0 Bacharach
<b>Sulphur oxides max.</b>	1 PPM maximum
<b>Dewpoint</b>	-40 Deg Centigrade

<b>State if any shore supply of liquid nitrogen may be required</b>	
No	
<b>What quantity?</b>	No

## 2.8 GAS FREEING

<b>Can this operation be carried out at sea?</b>	Yes
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<b>State method incl. all details</b>	
<b>For LPG</b>	<b>Boil Off</b> Puddle heating 24 hours
	<b>Inerting</b> 36 hours
	<b>Ventilating for Entry</b> 24 hours
<b>For NH<sub>3</sub></b>	Puddle heating 36 hours / Gas freeing 36 hours

<b>Advise time required and consumption of inert gas if any</b>	
<b>From LPG approximately</b>	72 hours / 95400 m3 of Inert gas
<b>From NH<sub>3</sub> approximately</b>	66 hours

<b>Is the vessel equipped with inert gas blower?</b>	Yes
<b>Capacity</b>	5300 m3 per hour

<b>Ventilation fan</b>	10000 M3/hr 12000 Pascal x 2 sets
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**2.9 CHANGING GRADE**

<b>Can this operation be carried out at sea?</b>	Only if sufficient cargo heel is on board
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**State method used and time required for changing from NH<sub>3</sub> to LPG and vice versa, to reach 50 ppm of previous cargo in tanks atmosphere, the tanks being dry and free of moisture (dewpoint plus 10 degrees C)**

<b>From NH<sub>3</sub> to LPG</b>	Method – puddle heating / aerating / inerting / gassing up / cooling down
<b>Time required</b>	235 hours and 95400 m <sup>3</sup> of Inert gas

<b>From LPG to NH<sub>3</sub></b>	Method – Puddle heating / inerting / aerating / gassing up / cooling down
<b>Time required</b>	215 hours and 95400 m <sup>3</sup> of inert gas

<b>Can vessel reduce in tank atmosphere and gas installation concentration of previous cargo below 50 ppm?</b>	Yes
<b>Method used, time required and extra shore supply if any</b>	Method will depend upon existing cargo in tank and the next cargo.
<b>How can it be checked that no liquid gas remain onboard</b>	By monitoring the tank sump temperature

**2.10 CARGO HEATER**

<b>State discharging rate for propane with 2.5 mol % ethane to be brought from -42 °C to 0 °C at sea temperature of 15 °C</b>	600 m <sup>3</sup> per hour
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**2.11 CARGO VAPORIZER**

<b>In case of need of vapour gas during discharge, can vessel produce its own if no shore gas available?</b>	Yes
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**2.12 REFRIGERATING APPARATUS**

<b>Is it independent of cargo? / dedicated for cargo</b>	Yes
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**2.13 MEASURING APPARATUS**

<b>What gauges onboard</b>	Float gauges
<b>Location and type</b>	On tank domes
<b>Number of temperature sensors/gauges pr tank</b>	3 on each side, total 6 in each tank
<b>Number of pressure sensors/gauges pr tank</b>	One on each tank



Where can samples be taken?	On tank domes
Are sample bottles available onboard?	Yes

2.15 CARGO LINES

(See also last page of this gas form C)

Is vessel fitted with midship manifolds	Yes
Distance from cargo manifold to bow ( from center of manifold)	109.474 mtrs
Distance from manifold to stern ( from center of manifold)	116.006 mtrs
Height cargo manifold above main deck ( liquid system)	2100 mm
Height cargo manifold above waterline when in ballast	16.88 mtrs
Height cargo manifold above waterline when loaded	11.526 mtrs
Distance from shipside to manifold flange ( liquid manifold)	3.35 mtr
Distance between loading and vapour return connections	2.25 mtrs
Windage area in normal ballast condition	3875 m2
Is vessel fitted with SPM chainstopper suitable for 76 mm chain.	No
Is vessel fitted with cruziform bollards/fairleads/eye-pads in manifold area	Crusiform- yes, Fairlead-yes, 2 eye pads on each side

Dimension of lines		
	Diameter	Flange size
Liquid	10 inches	14 inch x 300 ASA
Gas Line	8 inches	10 inch x 150 ASA
Booster Line	10 inches	14 inch x 300 ASA

What reducers onboard			
Number	Diameter	Length	Pressure rating
2	16" - 14"	500 mm	300 x 300
2	14" - 12"	500 mm	300 x 300
2	14" - 10"	500 mm	300 x 300
2	14" - 8"	500 mm	300 x 300
2	14" - 12"	500 mm	300 x 150
2	10" - 12"	500 mm	150 x 300
2	10" - 10"	500 mm	150 x 300
2	10" - 8"	500 mm	150 x 300
2	10" - 6"	500 mm	150 x 300
2	10" - 12"	500 mm	150 x 150
2	10" - 08"	500 mm	150 x 150
1	16" - 14"	500 mm	150 x 300
1	10" - 6"	500 mm	150 x 150

2.16 LIFTING DEVICE

Where situated	Aft	Amidship
Number and type	Two cranes one on each quarter	One Crane
Lifting capacity	5 tones SWL each	10 tonnes SWL
Max. distance from ship's side of lifting hook	6.2 meter from ship side	6.2 meter from ship side

2.17 HOSES



<b>For what products are hoses suitable</b>	No hoses on board
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<b>Number</b>	<b>Length</b>	<b>Diameter</b>	<b>Working pressure</b>	<b>Flange</b>

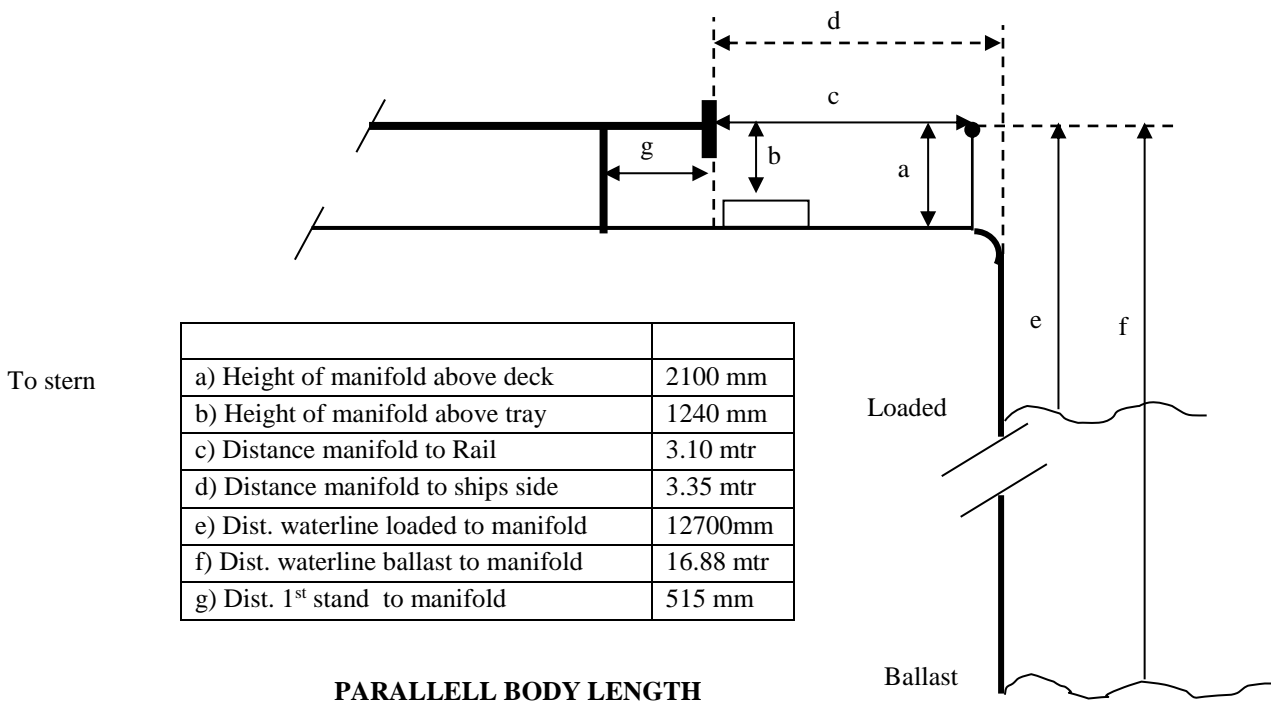
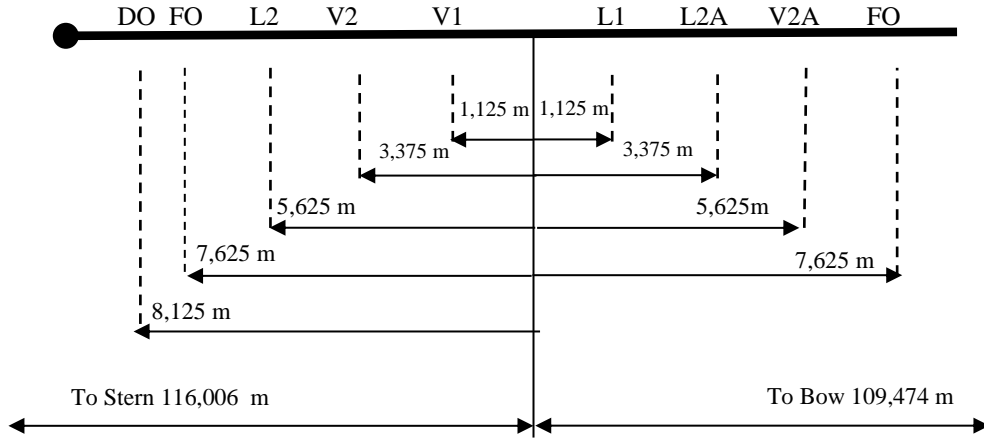
### 2.18 SPECIAL FACILITIES

<b>How many grades can vessel segregate?</b>	Two
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<b>Indicate systems</b>	1 and 3 in one group and 2 and 4 in another group while 4 could change group
<b>Is vessel able to load/discharge two or more grades simultaneously?</b>	Two grades, yes
<b>Can vessel sail with slack tanks?</b>	YES
<b>Is vessel fitted with purge tank?</b>	No

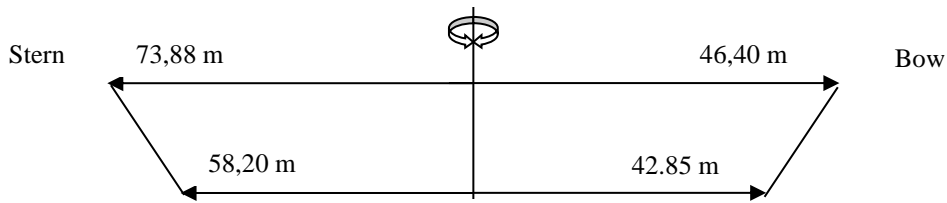


### ARRANGEMENT OF CARGO MANIFOLD



#### PARALLELL BODY LENGTH

#### LOADED CONDITION



#### BALLASTED CONDITION