



GAS FORM C

Main particulars

2.1 PREAMBLE

Ship's name	BW HELIOS
Owners	Bergesen Gas Shipping AS
Flag - Registry	NIS
Builder	Kvaerner Govan Ltd., Glasgow
Delivery	29th July 1992
Class	DNV
Class notation	+ 1A1 Tanker for Liquefied Gas
Register notation	, E0, Ice C,PMS, ISM, INERT, BIS, Ship type 2G(-48°C, 680 kg/m ³ , 0,25bar) bis ERS
IMO NO	8912182

GR I/NRT	
International	34974 / 17024
Suez	37087,99 / 32367,68
Panama	37187 / 29373

2.2 HULL

	Metres
LOA	205,00
LBP	193,60
Breadth	32,20
Depth	20,00
Keel to highest point	46,63

Max summer draft	12,22 metres	Corresponding deadweight	44995 mt
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TPC fully loaded	54,70 tons (at 11,0 m draught)
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Mean draft with full bunkers and full argo		
Specific Gravity	Mean draft	Corresponding DW
Butane 0.596	10.94 m	38 060
Propane 0.58	10.79 m	37 260
Ammonia 0.68	11.79 m	42 668
Naptha 0.75	12.22 m	44 995



Communication equipment	
International call sign	LAOM4
MMSI NO	257948000
Radio station	Type JRC JSS-710
V-sat phone number	+47 2212 0212
GSM	+47 906 665 46
E-mail	bwhelios@dualog.net
Inmarsat Fleet	NERA F 77
- Telephone	+870 764 563 875
Fleet Broad Band (FBB) - Telephone	+870 773 151 004
Fleet Broad Band (FBB) - Telefax	+870 773 151 874
Satcom C Telex	425794810 / 425794820 / JRC JUE 75A

2.3 MACHINERY

Main Engine	
Sulzer	Kværner Kincaid / 6 RTA 62
Max Cont.	11400 kW/106 rpm
Grade fuel oil	IFO 380 cst ISO 8217:1987(E)RMG 35 Max Al/Si 60 mg/kg

Auxiliaries	Diesel	Turbogenerator
Maker	Ulstein Bergen	None
Kw/RPM	3 x 1200 kw / 720 rpm	
Bow thrusters		
Make & Kw/RPM	1200 bhp	

Speed/Consumption*	
Guaranteed average loaded/ballast speed over 12months	
Average consumption on Main engine at guaranteed speed	
Average consumption on Auxiliaries at guaranteed speed	

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

Slow speed/consumption figures as guidance only	
Average loaded/ballast	Consumption
14 Knots	
15 Knots	

Average consumption in port (HFO/MDO/GASOIL)	
Inert gas plant when operating	
Boiler consumption	



Permanent bunkers capacity (Excl. daily service tanks)		
HFO	3683.5 m ³ 100%	3359 Mt 0,95% @ 0,95 density
GAS OIL	82,6 m ³ 100%	63,5 Mt 0,95% @ 0,81 density
Marine Diesel Oil	171.6 m ³ 100%	131,8 Mt 0,95% @ 0,81density

2.4 CARGO INSTALLATION

Transportable products and respective quantities								
Tank No,	100 % M ₃	98 % M ₃	Butane 0,596 -2°C MT	Propane 0,581 -41,5 °C MT	NH ₃ 0,680 -32°C MT	Iso Butane 0,584 -11,7°C MT	Naphtha 0,705 20°C MT	Jet Fuel 0,800 20°C MT
1	13.949,5	13.671	8196	7952	9278	8138	9486	9486
2	14.120,8	13.838	8297	8050	9392	8238	9756	11071
3	14.124,2	13.842	8299	8052	9394	8240	9758	11073
4	14.965,7	14.666	8793	8531	9954	8731	10177	10177
Total	57.160,3	56.017	33585	32585	38018	33347	39177	41807
Decktank capacity				Port 302 m³/stbd 156 m³				
Transportable products and respective quantities								
<i>Other transportable products: Butylene, Propylene</i>								

Tank 1 & 4 limited to 70% density 970 kg/m³.

Scantlings of the cargo tanks are based on a maximum density of cargo of 970 kg/m³.
Scantling draft is based on a full cargo with a density of 750 kg/m³

Tank working pressure	
Maximum pressure at Sea	0.250 bar Sea/ 0.400 bar Port
Minimum pressure	- 0.05 bar
Minimum temperature acceptable in tanks	- 50° C

Loading rate - tons/hour	Loading time to be abt. 20 hours without vapour return to shore when tanks are fully precooled and the cargo is fully refrigerated.
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2.5 CARGO PUMPS

Number and type	8 Centrifugal Kvaerner Eureka Deepwell pumps Type CLG 200 N3-LE/ 500 m ³ /130 mlc
Location	Two in each tank, one each side of the centerline bulkhead
Max permissible specific gravity	970 Kg/m ³



Time for discharging full cargo using all pumps against no backpressure	Abt. 15 hours
Cargo remaining onboard in cargo tanks after completion pumping	LPG: Liquid 8 mt approx Vapour 149 mt, NH3: Liquid 12 mt approx Vapour 53 mt,
Total head when working in series with booster pump	260 mlc
Booster pumps	2 Kvaerner Eureka Booster pumps type C H-200 RRN 500 m ³ /hrs at specific gravity 700 Kg/m ³

2.6 CARGO COMPRESSORS

Number and type	4 Sulzer 3K 140-3A
	Capacity on two stage 1270 m ³ /h

	Propane	Butane	Ammonia
Refrigeration Capacity (sea temp 20°C)	4 x 235000 kcal/h	4 x 345000 kcal/h	375000 kcal/h
Suction pressure	0.15 bar	0.10 bar	0.15 bar
Suction temperature	- 25 °C	+ 2 °C	- 15 °C

2.7 INERT GAS SYSTEM

Does the vessel use inert gas?	Yes
Utilization	Inerting and gasfreeing of cargo tanks. Inerting of hold spaces whenever required.

Does the vessel produce inert gas?	Yes
Type	Kvaerner Eureka Inert Gas Generator
Daily production	5000 m ³ /h = 120000m ³ /day

Composition of inert gas	
Carbon dioxide	15% by volume (approx.)
Oxygen max.	0.5 % by volume
Carbon monoxide max.	200 ppm
Hydrogen max.	100 ppm
Nitrogen	84,5% N ₂ + AR: balance
Soot	Bacharach 0
Sulphur oxides max.	Depending on fuel
Dewpoint	+ 5° C

State if any shore supply of nitrogen may be required	
Required for purging cargo tanks prior loading Propylene/Butadiene and VCM cargoes.	
What quantity?	Abt. 84.000 m ³



2.8 GAS FREEING

Can this operation be carried out at sea?	Yes
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State method incl. all details	
For LPG	Heating of liq.- warming up tanks –Inert-ventilate with air.
For NH ₃	Heating of liq.- warming up tanks-ventilate with air.

Advise time required and consumption of inert gas if any	
From LPG about	78 hrs - app. 80000 cub.m inertgas
From NH ₃ about	144 hrs - ventilation with air (no inertgas)

Is the vessel equipped with inert gas blower?	Yes
Capacity	2 x 2500 m ³ /hr

Ventilation fan	2x25000 m ³ /hr
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2.9 CHANGING GRADE

Can this operation be carried out at sea?	Yes
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State method used and time required for changing from NH₃ 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 °C)

From NH ₃ to LPG	Heating of liquid-warming up tanks – ventilate with air-inerting – gassing up – cooldown
Time required	192 hrs

From LPG to NH ₃	Heating of liquid – warming up tanks - inerting – ventilate with air –gasing up - cooldown
Time required	168 hrs

Can vessel reduce in tank atmosphere and gas installation concentration of previous cargo below 50 ppm?	Yes, but time consumed and expenses incurred to reduce concentration of previous cargo in tank atmosphere and gas installation below 50 ppm to be for time charterers' account
Method used, time required and extra shore supply if any	Continuous venting with air for additional 24 hours
How can it be checked that no liquid gas remains onboard	By temperature sensors at tank bottom.

2.10 CARGO HEATER

State discharging rate for propane with 2.0 mol % ethane to be brought from –41,5°C to -5°C at sea temperature of 15°C	500 m ³ /hr
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2.11 CARGO VAPORIZER

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

Is it independent of cargo?	No
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2.13 MEASURING APPARATUS

What gauges onboard	Tank radar
Location and type	Two in each tank / type Autronica GL 90
Number of temperature sensors/gauges per tank	6
Number of pressure sensors/gauges per tank	1 in each tank

2.14 SAMPLES

Where can samples be taken?	1/2" BSP	At each manifold sample point and at pump discharge line. Vapour sample can be taken at each tank dome.
Are sample bottles available onboard?		Yes

2.15 CARGO LINES (See. also last page of this gas form C)

Distance from cargo manifold to stem (FP)	99,075 m
Distance from manifold to stern (AP)	105,925 m
Height cargo manifold above deck	1,805 m
Height manifold above working platform	1,08 m
Height cargo manifold above waterline when light	14,50 m
Height cargo manifold above waterline when loaded	11,05 m
Distance manifold flange from ship's rail	3,50 m
Distance manifold flange to ship's side without reducer	3,50 m
Distance manifold flange to first support	0,60 m
Distance between loading and vapour return connections	2,25 m
Windage area in normal ballast condition	3226 m ²
Is vessel fitted with SPM chainstopper, suitable for 76 mm chain.	Yes
Is vessel fitted with cruciform bollards/fairleads/eye-pads in manifold area	Yes

Dimension of lines			
	Diameter	Flat or Raised Face	Flange size
Liquid	2 x 14"	Raised	350 mm - 300 ASA
Gas Line	2 x 10"	Raised	250 mm - 150 ASA
Booster Line	1 x 8"	Raised	200 mm - 300 ASA
HFO Line	2 x 8"	Raised	200 mm - 150 ASA
MDO Line	1 x 16"	Raised	150 mm - 150 ASA
Gas Oil Line	None	-	-

		What reducers onboard		
Number	Diameter	Length	Flat or Raised Face	Pressure rating



2	16”- 14”	626 mm	Raised	150 ASA/300 ASA
2	14” - 14”	260 mm	”	150 ASA/300 ASA
1	12” - 14”	600 mm	”	300 ASA/300 ASA
2	12” - 14”	590 mm	”	150 ASA/300 ASA
1	10” - 14”	586 mm	”	300 ASA/300 ASA
2	10” - 14”	570 mm	”	150 ASA/300 ASA
2	10” - 12”	496 mm	”	150 ASA/150 ASA
1	8” - 14”	576 mm	”	300 ASA/300 ASA
2	8” - 14”	570 mm	”	150 ASA/300 ASA
1	6” - 14”	640 mm	”	300 ASA/300 ASA
1	6” - 14”	560 mm	”	150 ASA/300 ASA
2	8” - 10”	380 mm	”	150 ASA/150 ASA
2	6” - 10”	370 mm	”	150 ASA/150 ASA
1	4” - 6”	326 mm	”	300 ASA/300 ASA
1	4” - 6”	300 mm	”	150 ASA/150 ASA

2.16 LIFTING DEVICE

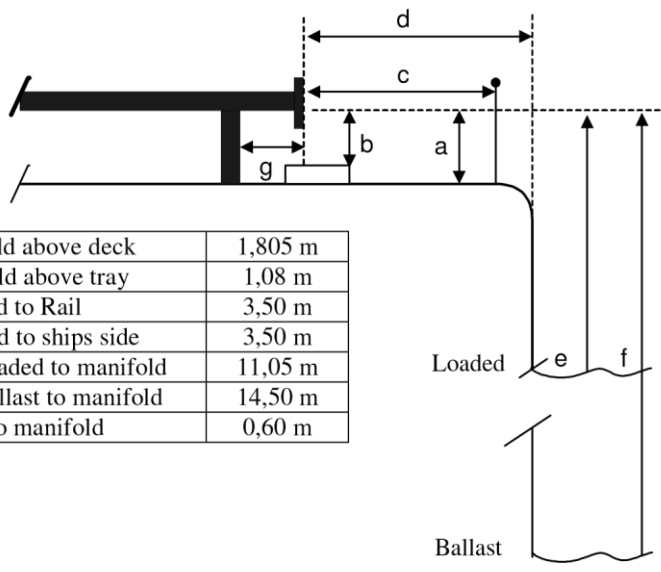
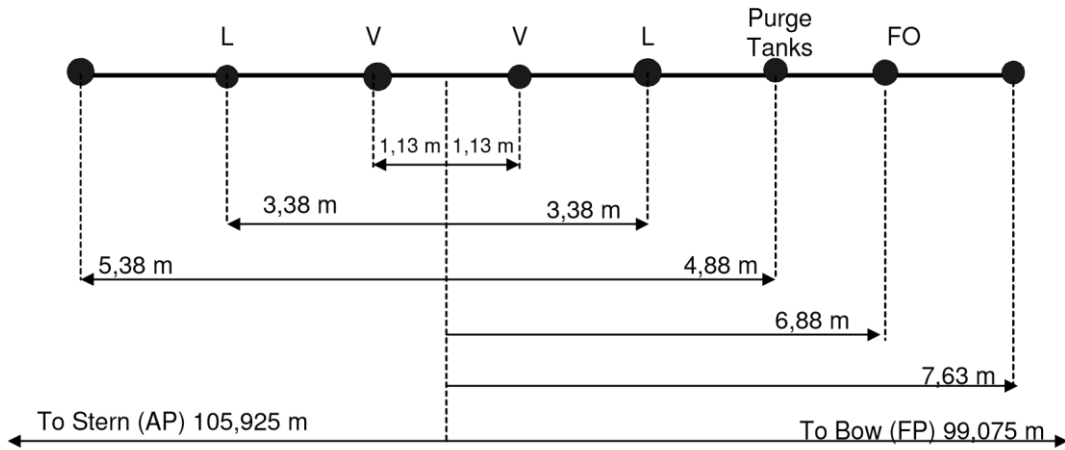
Where situated	Aft	Amidship
Port and Starboard	2 x Cranes	1 x Crane
Number and lifting capacity	3,5 tons SWL	5 tons SWL
Max. distance from ship's side of lifting hook	5 mtr	5 mtr

2.17 SPECIAL FACILITIES

How many grades can vessel segregate?	2
Indicate systems	1 & 4 + 2 & 3, 1 & 4 + 2 + 3, 1 & 2 & 4 + 3, 1 & 3 & 4 + 2
How many cargo tanks can be segregated out from the system?	Tank 2 and 3
Is vessel able to load/discharge two or more grades simultaneously?	Yes, two grades
Can vessel sail with slack tanks?	Yes



LPG/C "BW HELIOS"



a) Height of manifold above deck	1,805 m
b) Height of manifold above tray	1,08 m
c) Distance manifold to Rail	3,50 m
d) Distance manifold to ships side	3,50 m
e) Dist. waterline loaded to manifold	11,05 m
f) Dist. waterline ballast to manifold	14,50 m
g) Dist. 1 st stander to manifold	0,60 m

PARALLEL BODY LENGTH

