

VESSEL PARTICULARS (FORM C)
LPG/C GAS ALICE
(last updated 22/01/2020)

Specifications of the vessel and the gas installation.

(A) VESSEL'S CHARACTERISTICS

PREAMBLE

Name : **GAS ALICE**
 Owner : **NORTHERN CAPITAL HOLDING INC.**
 Flag : **CYPRUS**
 Build : **2006, Miura Shipbuilding Co., Ltd.**
 Date on Service : **27 FEB 2006**
 Class : **Nippon Kaiji Kyokai (NKK)**

GRT International : **2997** Suez : **3509.72**

Panama :

NRT International : **948** Suez : **2712.25**

Panama : **2573.0**

Is vessel build according to
 USCG regulations? :
 RINA regulations? :
 Japanese regulation? :

Has vessel received
 USCG approval? :
 RINA approval? :

HULL

LOA : **95.88 M**
 LBP : **89.50 M**
 Breadth : **15.00 M**
 Depth : **7.00 M**
 Summer Draft : **5.513 M corresponding to Summer DWT = 3,147.45**
 Multiple Draft : **5.383 M corresponding to Multiple DWT = 3,147.45**

Estimated draft with full cargo and full bunkers are as follows.

Product	Draft Fore' (m)	Draft Aft' (m)	Draft Mean (m)	Corresponding Deadweight (t)
Propylene (98%)	4.49	6.11	5.30	2,994
N-Butane (98%)	4.76	6.17	5.46	3,179
VCM	4.32	6.56	5.44	3,190

Propeller immersion :

At aft draft **6.11 m correspond.** : **100 %**
 At aft draft **6.17 m correspond.** : **126 %**
 At aft draft **6.56 m correspond.** : **142 %**

COMMUNICATION EQUIPMENT

Call letter : **D5DZ2**
Radio Station normally watched : **CH. 16**
Radio MF/HF NBDP :
Radio MF/HFTEL/DSC : **YES**
VHF : **YES**
Satellite Communication **Fleet 77 Phone 1** : **Tel 1: +870 765 1122 68**
Fleet 77 Phone 1 : **Tel 2: +870 765 1122 69**
Fleet 77 Fax : **Tel 2: +870 765 1122 70**
Inmarsat 'C' tlx : **463714484 ansbck: GALI**
E-MAIL : **gasalice@stealth.gr**

MACHINERY

Main Engine x 1 . Type and make : THE HANSHIN DIESEL WORKS, LTD. - LH41LA
Vertical, 4 Cycle, Single Acting, Self Reversing,
Cross Head type, Diesel Engine with Turbo Charger
. Service power : 2,647 kW (3,600 BHP) x 240 min⁻¹
No of Cylinders : 6 Cylinders
Cyl Bore x Stroke : 410mm x 800mm
. Grade of fuel used : IFO - 380cst with Iso 8217 RME 25

Auxiliaries Type and make : YANMAR CO., LTD. - 6NY16L – DN
4 Cycle, Single Acting, Trunk Piston Type Diesel
Engine
Grade of fuel used : MGO (DMA) with Iso 8217 DMA
No off : 2

Emergency Gen Type : YANMAR NF 19-HF
No off : 1

Bow Thruster Type : : KAMOME PROPELLER - TCB-55MA 318 HP / 234 kW
Electric Driven Controllable Pitch Propeller

Boiler Power: : 4.0 Ton
Type : MIURA PROTECH CO.,LTD. - VWH-600E
Evaporation : 538 kg/h Actual Evaporation
Max Design : 0.69 Mpa
Pressure
Feed Water Temp : About 80-90 °C
No off : 1

Exhaust Economiser Type : MIURA PROTECH CO.,LTD. - KF-39F
Evaporation : 340 kg/h @ 85% and 400 kg/h @ 100%
No off : 1

Air Compressors (Main) Type / Capacity : MATSUBARA IRON WORKS LTD. - MH111
No off : 1

Air Compressors (Emergency) Type : SANWA IRON WORKS LTD - GS3AR
No off : 1

Fuel Oil Purifier Type : MITSUBISHI KAKOKI KAISHA LTD - SJ10G

	No off	:	1
	Capacity	:	1150L/h
Diesel Oil Purifier	Type	:	MITSUBISHI KAKOKI KAISHA LTD - SJ10G
	No off	:	1
		:	1150L/h
Lub Oil Purifier	Type No off	:	MITSUBISHI KAKOKI KAISHA LTD - SJ10G
	Capacity	:	1150 L/h
Evaporator	Type	:	MIURA PRPTEC CO. LTD. – WM-10SS
	Capacity	:	9.0 ton/day
Fresh Water Sterilizer	Type	:	UZUSHIO ELECTRIC CO. LTD – USS-1000
	Capacity	:	1000L/h
Fresh Water Mineraliser	Type / Capacity	:	NA
Waste Oil Incinerator (IMO MEPC 76 (40))	Type	:	MIURA PROTEC CO. LTD. – BGW-20N
	Capacity	:	24.3 kg/h (l/h)
Oily Water Separator	Type	:	TAIKO KIKAI INDUSTRIES CO. LTD – USH -20
	Capacity	:	2 m3/h
Sewage Treatment plant	Type	:	TAIKO KIKAI INDUSTRIES CO. LTD – SBT-25
	Capacity	:	Max. 25 persons/day
Hot Water Set (Calorifier unit)	No off	:	1
Steering Gear	Type	:	TOKIMEC INC. – SP-W12-200S
	Duty Capacity	:	58.8 L/min @ 1730 min ⁻¹ 15.4MPa
	Hydraulic pump unit	:	V20-2F11F-1C11-JA-S47

Speed

About 13.0 knots, Basis up to weather Beaufort scale 4 and max significant wave height of 1.25m
 Figures given are “about” defined as 0.5knot less and +/- 5% on consumption respectively

CONSUMPTION/DAY	HFO	:	abt 9 MT/ day
Main Engine	DO	:	abt 1 MT/ day
Auxiliary Engine	DO	:	abt 2 MT/ day
In Port Discharging	DO	:	abt 1 MT/ day
In Port Idle / Loading	DO	:	abt 2 MT/ day
Use IGG	DO	:	abt 0.35MT/day
Permanent bunker capacity (100%)			
HFO	:		376.72 cbm
MGO	:		101.06 cbm
Fresh Water	:		219.64 mt

4. LOADING RATE (TONS/HOUR) – For Full Cargo Parcels

Ex-atmospheric storage with gas : 1 tank : 320 m³/hr

Return : 2 tanks : 570 m³/hr

Remarks:

* Based on maximum velocity of 5.0 metres/sec except VCM, and xxx meters/sec for VCM in the liquid piping.

* If cargo temperature is less than 0 °C, shore heater to be used.

If ship heater used, max rate is abt 150 m³ / hour, basis sea water temp 15degC.

* Loading by shore pump only, proper size (min 4") gas return line to be connected

* Subject to both ship and shore tanks being under favourable conditions

5. CARGO PUMPS

- 5.1 Type : Electric Motor Driven Deepwell Pump, Vertical Centrifugal, Multi-stage
Make : NIIGATA WORTHINTON CO.,LTD. 14M – 160 – 4 - I
How many : 2 (1 per each tank)
Maximum specific gravity : 0.948
- 5.2 Capacity (CMB/Hour) : 300 m³/hr @ 110mlc - 250 m³/hr @ 120mlc
Two speed or variable speed : Single Speed Electrical motor
Rated kW (each) : 120kw
Working pressure maximum : 12 bar
- 5.3 Location : SUMP
Removable : N/A
- 5.4 **Booster pumps** : N/A
Type : N/A
Maker : N/A
- 5.5 Capacity (CMB/Hour) : N/A
Working pressure : N/A
- 5.6 Location : N/A
- 5.7 Time to discharge a full liquid cargo using all pumps against back pressure at pump
1 bar : about 19 hours for LPG
5 bars : about 14 hours for LPG
10 bars : -----
- 5.8 Nominal back pressure when working : about 1.0 bar
In series corresponding head : N/A
Maximum back pressure : about 15 bar
Nominal pressure at rail (propane) : about 5 bar at 25 degree C cargo temperature
- 5.9 What amount of cargo remains in tanks after completion pumping before stripping:
- liquid : NIL
- vapour : about 9 ton per one tank for LPG

6. STRIPPING

- 6.1 Stripping system, if any : N/A
- 6.2 Time required to remove all traces of liquid cargo as stated in 5.9 for:
- LPG : about 3.5 hours for Vapour pushing

7. CARGO COMPRESSORS

- 7.1 Type : Vertical, Single Stage, Water Cooled,
Double Acting, Oil Free Type
Make : TANABE PNEUMATIC MACHINERY CO., LTD.
LPGOS - 97A
How many : 2 sets
Piston displacement :
Rated Kw :
Stroke :
Max discharge pressure : 20 bar. g
Pressure differential No
of Revolutions : 4.0 bar
:
- 7.2 Are compressors oil free : YES
- 7.3 Can they reliquefy VCM without risk : N/A
- 7.4 State time to bring full cargo of butane
to atmospheric pressure from : N/A

8. INERT GAS SYSTEM

- 8.1 Does the vessel use inert gas? : YES
If so, state utilization and quantities : CARGO TANK CONDITIONING
- 8.2 Can the vessel produce inert gas? : YES
If so, state type and composition of gas produce: N2 – Min Oxygen obtainable 0.1 % by volume
Dew point at 760 mm Hg : - 60 °C or lower
Discharge Capacity : 415 Nm3/hour with N2 Purity 97.0 Vol.%
: 200 Nm3/hour with N2 Purity 99.9 Vol.%
- 8.3 Maximum production obtainable : 415 Nm3/hour with N2 Purity 97.0 Vol.%
: 200 Nm3/hour with N2 Purity 99.9 Vol.%

NOTE:- Above quantities obtained at engine room temperature 45° C

- 8.4 State if there are storage facilities for inert gas onboard: N/A
- Size : N/A
- Pressure : N/A
- 8.5 State if any shore supply of nitrogen may be required: :
- for what purpose :
- what quantities :

9. GAS FREEING

- 9.1 State method used giving all details : IGG – N2 Plant / Fans
9.2 State time required including stripping : About 72 to 96 HRS

10. CHANGING GRADE

- 10.1 From completion discharge of cargo Propane, time required in hours and inert gas in CBM
required to reach a tank and gas installation atmosphere of less than 100 ppm of Propane in
Vapour phase.
Time required: about 28 hrs

- 10.2 Can this operation be carried out at sea? : YES
- 10.3 Can the ship measure the number of ppm in vapour phase? : YES
- 10.4 Has vessel deck tank for changing grade/cooling operations? : N/A
- 10.5 Deck tanks : N/A
Capacity :
Purpose :

11. COOLING CAPACITY LPG CONDENSER :

- 11.1 Maker / Type : N/A
- 11.2 Flow :
- 11.3 Surface area :
- 11.4 Thermal Capacity :
- 11.5 Location :

12. CARGO HEATER

- 12.1 Type : Horizontal shell & tube
- 12.2 Inside Diameter : 650 m²
- 12.3 Overall length : 5968mm
- 12.4 Cargo flow rate : 140 m³/hr (Based on heating up Propane of minus (-) 42 deg.C. up to 0 deg.C. at Sea Water temperature 15 deg.C.)
- 12.5 Min Inlet Temp : 48 deg.C.
- 12.6 Min Outlet Temp : 16-45 deg.C.
- 12.7 Required Sea water Capacity : 420 m³/hr
- 12.8 Design Pressure : 20 bar
- 12.9 Hydrostatic Test Pressure : 30 bar
- 12.10 Tightness Test Pressure : 30 bar

- 12.11 State discharging rate for propane to be brought from atmospheric pressure : N/A

13. CARGO VAPORIZER

In case vapour gas is needed to feed compressors, can vessel produce its own if no shore available:

N/A

14. REFRIGERATING APPARATUS

- 14.1 Is it independent of cargo? : NA
Is so, state cooling agents : NA
- 14.2 What minimum temperature can be maintained : NA
- 14.3 What time required at sea to lower by 1°C the full cargo of : NA

15. MEASURING APPARATUS

What gauges on board? MUSASHINO CO.,LTD. M - LMZ
Type : Float type level gauge
Location : At each cargo tank dome

16. SAMPLES

- 16.1 State how tank atmosphere samples can be taken and where from?
BOTTOM, MIDDLE, TOP

- Standard of fitting? : SUS304
- 16.2 Same question for cargo : xx
- 16.3 Are sample bottles available on board? : N/A

17. CARGO LINES

- 17.1 Is ship fitted with a port and starboard cargo manifold? : YES
- 17.2 Position of cargo center manifold
- distance from stern (AP) (S / P) : 51.30 M
 - distance from bow (FP) (S / P) : 44.70 M
 - height above deck : 1,169 mm for Liquid manifold
 - distance from ship's rail : 2.30 M
 - underside keel to manifold : 8.20 M
- 17.3 Liquid line
- flange-size : 8 inches
 - type : 300 ANSI
- Vapour line
- flange-size : 5 inches
 - type : 300 ANSI
- 17.4 What reducers on board? :
- For Liquid line (low temperature)
- | SHIP'S SIDE | SHORE SIDE |
|------------------------|-------------------------|
| 200A(8B) X ANSI 300lbs | 250A(10B) X ANSI 300lbs |
| 200A(8B) X ANSI 300lbs | 150A(6B) X ANSI 300lbs |
| 200A(8B) X ANSI 300lbs | 125A(5B) X ANSI 300lbs |
| 200A(8B) X ANSI 300lbs | 100A(4B) X ANSI 300lbs |
| 200A(8B) X ANSI 300lbs | 80A(3B) X ANSI 300lbs |
| 200A(8B) X ANSI 300lbs | 150A(6B) X ANSI 150lbs |
| 200A(8B) X ANSI 300lbs | 100A(4B) X ANSI 150lbs |
| 200A(8B) X ANSI 300lbs | 80A(3B) X ANSI 150lbs |
| 200A(8B) X ANSI 300lbs | 200A(8B) X JIS 20K |
| 200A(8B) X ANSI 300lbs | 150A(6B) X JIS 20K |
| 200A(8B) X ANSI 300lbs | 125A(5B) X JIS 20K |
| 200A(8B) X ANSI 300lbs | 100A(4B) X JIS 20K |
| 8" (300 lbs) | 80A(93B) X JIS 20K |
- For Vapor line (normal temp.)
- | SHIP'S SIDE | SHORE SIDE |
|------------------------|------------------------|
| 125°(5B) X ANSI 300lbs | 150A(6B) X ANSI 300lbs |
| 125°(5B) X ANSI 300lbs | 100A(4B) X ANSI 300lbs |
| 125°(5B) X ANSI 300lbs | 80A(3B) X ANSI 300lbs |
| 125°(5B) X ANSI 300lbs | 50A(2B) X ANSI 300lbs |
| 125°(5B) X ANSI 300lbs | 150A(6B) X ANSI 150lbs |
| 125°(5B) X ANSI 300lbs | 100A(4B) X ANSI 150lbs |
| 125°(5B) X ANSI 300lbs | 80A(3B) X ANSI 150lbs |
| 125°(5B) X ANSI 300lbs | 50A(2B) X ANSI 150lbs |
| 125°(5B) X ANSI 300lbs | 125A(5B) X JIS 20K |
| 125°(5B) X ANSI 300lbs | 100A(4B) X JIS 20K |
| 125°(5B) X ANSI 300lbs | 80A(3B) X JIS 20K |
| 125°(5B) X ANSI 300lbs | 50A(2B) X JIS 20K |

17.5 Is ship fitted with stern discharge? NO
 - Liquid line – diameter : N/A
 - flange – size : N/A
 - type : N/A

18. HOSES N/A

Are serviceable hoses available on board? :

18.1 :
 Length :
 Diameter :
 Flange-size :
 Type :
 Bending radius :

18.2 Minimum temperature acceptable :
 Maximum pressure acceptable :

18.3 For what products are hoses suitable? :

19. DERRICKS

- Hose cranes : 1
 - Where situated : Manifold area – Mid between Cargo Tanks 1 & 2
 - Lifting capacity : SWL 4.0 MT – 2.25 m / SWL 4.0 MT – 7.25 m
 - Working radius : 360 deg.

20. SPECIAL FACILITIES

20.1 How many grades can be segregated? : **The ship is designed with single segregation, able to carry a single grade of non-refrigerated cargo only.**

20.2 How many cooled? : N/A

20.3 Can vessel sail with slack cargo tanks? : YES