

**VESSEL PARTICULARS (FORM C)**  
**LPG/C GAS ALICE**  
**(last updated 09/09/2018)**

Specifications of the vessel and the gas installation which are representations by the Owners.

**(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](mailto: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<sup>-1</sup>  
No of Cylinders : 6 Cylinders  
Cyl Bore x Stroke : 410mm x 800mm  
. Grade of fuel used : IFO - 180cst 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  
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
<b>Diesel Oil Purifier</b>	Type	:	mitsubishi kakoki kaisha ltd - sj10g
	No off	:	1
		:	1150L/h
<b>Lub Oil Purifier</b>	Type	:	mitsubishi kakoki kaisha ltd - sj10g
	No off	:	1
	Capacity	:	1150 L/h
<b>Evaporator</b>	Type	:	MIURA PRPTEC CO. LTD. – WM-10SS
	Capacity	:	9.0 ton/day
<b>Fresh Water Sterilizer</b>	Type	:	UZUSHIO ELECTRIC CO. LTD – USS-1000
	Capacity	:	1000L/h
<b>Fresh Water Mineraliser</b>	Type / Capacity	:	NA
<b>Waste Oil Incinerator (IMO MEPC 76 (40))</b>	Type	:	MIURA PROTEC CO. LTD. – BGW-20N
	Capacity	:	24.3 kg/h (l/h)
<b>Oily Water Separator</b>	Type	:	TAIKO KIKAI INDUSTRIES CO. LTD – USH -20
	Capacity	:	2 m3/h
<b>Sewage Treatment plant</b>	Type	:	TAIKO KIKAI INDUSTRIES CO. LTD – SBT-25
	Capacity	:	Max. 25 persons/day
<b>Hot Water Set (Calorifier unit)</b>	No off	:	1
<b>Steering Gear</b>	Type	:	TOKIMEC INC. – SP-W12-200S
	Duty Capacity	:	58.8 L/min @ 1730 min <sup>-1</sup> 15.4MPa
	Hydraulic pump unit	:	V20-2F11F-1C11-JA-S47

### Speed

About: 13.0 knots up to Beaufort scale 4 and Douglas sea state 3.

### CONSUMPTION/ DAY

Main Engine	HFO	:	abt 9 MT/ day
Auxiliary Engine	DO	:	abt 1 MT/ day
In Port Discharging	DO	:	abt 2 MT/ day
In Port Idle / Loading	DO	:	abt 1 MT/ day
Use IGG	DO	:	abt 2 MT/ 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 m<sup>3</sup>/hr

Return : 2 tanks : 570 m<sup>3</sup>/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 m<sup>3</sup> / 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 m<sup>3</sup>/hr @ 110mlc - 250 m<sup>3</sup>/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 : 4.0 bar  
No of Revolutions :  
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 : N/A  
to atmospheric pressure from

## 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 m<sup>2</sup>
- 12.3 Overall length : 5968mm
- 12.4 Cargo flow rate : 140 m<sup>3</sup>/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 m<sup>3</sup>/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

- 200A(8B) X ANSI 300lbs
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- 200A(8B) X ANSI 300lbs
- 200A(8B) X ANSI 300lbs
- 200A(8B) X ANSI 300lbs
- 8" (300 lbs)

SHORE SIDE

- 250A(10B) X ANSI 300lbs
- 150A(6B) X ANSI 300lbs
- 125A(5B) X ANSI 300lbs
- 100A(4B) X ANSI 300lbs
- 80A(3B) X ANSI 300lbs
- 150A(6B) X ANSI 150lbs
- 100A(4B) X ANSI 150lbs
- 80A(3B) X ANSI 150lbs
- 200A(8B) X JIS 20K
- 150A(6B) X JIS 20K
- 125A(5B) X JIS 20K
- 100A(4B) X JIS 20K
- 80A(3B) X JIS 20K

For Vapor line (normal temp.)

SHIP'S SIDE

- 125°(5B) X ANSI 300lbs
- 125°(5B) X ANSI 300lbs
- 125°(5B) X ANSI 300lbs
- 125°(5B) X ANSI 300lbs
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- 125°(5B) X ANSI 300lbs

SHORE SIDE

- 150A(6B) X ANSI 300lbs
- 100A(4B) X ANSI 300lbs
- 80A(3B) X ANSI 300lbs
- 50A(2B) X ANSI 300lbs
- 150A(6B) X ANSI 150lbs
- 100A(4B) X ANSI 150lbs
- 80A(3B) X ANSI 150lbs
- 50A(2B) X ANSI 150lbs
- 125A(5B) X JIS 20K
- 100A(4B) X JIS 20K
- 80A(3B) X JIS 20K
- 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