

# GAS FORM-C

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## CLIPPER MARS



**«Industry leading provider of LPG and petrochemical tonnage»**

**BASED ON:**  
OCIMF/SIGTTO  
Ship Information Questionnaire for Gas Carriers  
2nd Edition 1998

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Solvang ASA dates back to 1936. From very modest beginnings, the shipping company has now developed into one of the world's leading transporters of LPG and petrochemical gases. Solvang ASA has its headquarters in Stavanger, with offices in Oslo and the Philippines.

Solvang has a fleet of modern and efficient vessels - all built in the accordance with the most up to date specifications and fitted with new and efficient technology. Perhaps of greater importance than the modern technology is the way in which the vessels are operated – the people onboard. Good seamanship represents the very core of our business, and we place a firm focus on this area in the form of education, working on attitudes and training.

On every single sailing, we are required to demonstrate the full range of our experience and expertise.

**«Industry leading provider of LPG and petrochemical tonnage»**

Our strength lies in reliable, high-quality deliveries. It is our goal to maintain a steady course towards the future, at the same time as making good use of the experience we have gained.

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## **1. SECTION A – GENERAL INFORMATION**

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## 1.1 PRINCIPAL SHIP PARTICULARS

| A1     | PRINCIPAL SHIP PARTICULARS   |         | CLIPPER MARS                                                               |
|--------|------------------------------|---------|----------------------------------------------------------------------------|
| 1.0    | Date Questionnaire Completed |         | 10.09.2021                                                                 |
| 1.1    | Name of vessel               |         | Clipper Mars                                                               |
| 1.2    | LR/IMO Number                |         | IMO 9377078                                                                |
| 1.3    | Last Previous Name           |         | N/A                                                                        |
| 1.3.1  | Date of Name change          |         | N/A                                                                        |
| 1.4    | Second Last Name Change      |         | N/A                                                                        |
| 1.4.1  | Date of Name change          |         | N/A                                                                        |
| 1.5    | Third Last Name Change       |         | N/A                                                                        |
| 1.5.1  | Date of Name change          |         | N/A                                                                        |
| 1.6    | Fourth Last Name Change      |         | N/A                                                                        |
| 1.6.1  | Date of Name change          |         | N/A                                                                        |
| 1.7    | Flag                         |         | NIS                                                                        |
| 1.8    | Port Of Registry             |         | Stavanger                                                                  |
| 1.9    | Official Number              |         |                                                                            |
| 1.10   | Call Sign                    |         | LAHZ6                                                                      |
| 1.11   | VSAT                         |         | +44 203 145 4635                                                           |
| 1.12   | Fleet 77                     |         | +870773232836                                                              |
| 1.13   | Fax                          |         |                                                                            |
| 1.14   | Mini – M                     |         |                                                                            |
| 1.15   | E-mail                       |         | master.clipper.mars@solvangship.no                                         |
| 1.16   | GSM Mobile                   |         | + 47 904 04 714                                                            |
| 1.17   | SAT C                        |         | 425866710/425866711                                                        |
| 1.18   | Vessel's MMSI Number         |         | 258667000                                                                  |
| 1.19   | Max tank pressure            | UNIT    |                                                                            |
| 1.19.1 | (1) Pressurized              | [bar g] |                                                                            |
| 1.19.2 | (2) Semi- Refrigerated       | [bar g] |                                                                            |
| 1.19.3 | (3) Refrigerated             | [bar g] | 0.275                                                                      |
| 1.20   | Minimum tank temperature     | UNIT    |                                                                            |
| 1.20.1 | (1) Pressurized              | [°C]    |                                                                            |
| 1.20.2 | (2) Semi- Refrigerated       | [°C]    |                                                                            |
| 1.20.3 | (3) Refrigerated             | [°C]    | -50                                                                        |
| A1     | OWNERSHIP AND OPERATION      |         |                                                                            |
| 1.21   | REGISTERED OWNER             |         | P/R CLIPPER MARS DA                                                        |
| 1.22   | Visitor's address            |         | Strandkaien 36                                                             |
| 1.22.1 | City                         |         | N-4005 Stavanger                                                           |
| 1.22.2 | Country                      |         | Norway                                                                     |
| 1.23   | Postal address               |         | P.O. Box 90                                                                |
| 1.23.1 | City                         |         | N-4001 Stavanger                                                           |
| 1.23.2 | Country                      |         | Norway                                                                     |
| 1.24   | Office Telephone Number      |         | +47 51 84 84 00                                                            |
| 1.25   | Office Fax Number            |         |                                                                            |
| 1.26   | Office Telex Number          |         |                                                                            |
| 1.27   | Office e-mail Address        |         | <a href="mailto:solvang-lgc@solvangship.no">solvang-lgc@solvangship.no</a> |
| 1.28   | Number of Years Vessel Owned |         | 12.8                                                                       |
| 1.29   | NAME OF TECHNICAL OPERATOR   |         | Solvang ASA                                                                |
| 1.30   | Visitor's address            |         | Strandkaien 36                                                             |
| 1.30.1 | City                         |         | N-4005 Stavanger                                                           |
| 1.30.2 | Country                      |         | Norway                                                                     |
| 1.31   | Postal address               |         | P.O. Box 90                                                                |
| 1.31.1 | City                         |         | N-4001 Stavanger                                                           |
| 1.31.2 | Country                      |         | Norway                                                                     |
| 1.32   | Office Telephone Number      |         | (+47) 51 84 84 00                                                          |

|           |                                                    |                                                                            |
|-----------|----------------------------------------------------|----------------------------------------------------------------------------|
| 1.33      | Office Fax Number                                  |                                                                            |
| 1.34      | Office Telex Number                                |                                                                            |
| 1.35      | Office e-mail Address                              | <a href="mailto:solvang-lgc@solvangship.no">solvang-lgc@solvangship.no</a> |
| 1.36      | Number of Years as vessel Operator                 | 12.8                                                                       |
| 1.37      | Total number of vessels, Operator                  | 27                                                                         |
| 1.38      | <b>COMMERCIAL OPERATOR</b>                         | <b>Solvang ASA</b>                                                         |
| 1.39      | <b>Visitor's address</b>                           | Haakon VII's gt 6                                                          |
| 1.39.1    | City                                               | N-0121 Oslo                                                                |
| 1.39.2    | Country                                            | Norway                                                                     |
| 1.40      | <b>Postal address</b>                              | P.O.Box 1737 Vika                                                          |
| 1.40.1    | City                                               | N-0121 Oslo                                                                |
| 1.40.2    | Country                                            | Norway                                                                     |
| 1.41      | Office Telephone Number                            | (+47) 22 47 19 50                                                          |
| 1.42      | <b>Office e-mail Address</b>                       | <a href="mailto:chartering@solvangship.no">chartering@solvangship.no</a>   |
| 1.42.1    | Office e-mail Address 2                            | <a href="mailto:operation@solvangship.no">operation@solvangship.no</a>     |
| 1.43      | Number of Years as vessel Operator                 | 12.8                                                                       |
| 1.44      | Builder                                            | Hyundai HI                                                                 |
| 1.45      | Name of Yard Vessel Built At                       | Ulsan, Korea                                                               |
| 1.46      | Hull Number                                        | 1904                                                                       |
| 1.47      | Date Keel Laid                                     | 09.06.2008                                                                 |
| 1.48      | Date Launched                                      | 29.08.2008                                                                 |
| 1.49      | Date Delivered                                     | 20.11.2008                                                                 |
| 1.50      | Date of Completion of Major Hull Changes (If Any)  | N/A                                                                        |
| 1.51      | If Changes were made, specify changes and yard     | N/A                                                                        |
| <b>A1</b> | <b>CLASSIFICATION</b>                              | <b>UNIT</b>                                                                |
| 1.52      | Classification Society                             | [Text]                                                                     |
| 1.53      | <b>Class Notation</b>                              | [Text]                                                                     |
| 1.53.1    | Cont.                                              | [Text]                                                                     |
| 1.53.2    | Cont.                                              | [Text]                                                                     |
| 1.54      | If Class Society Changed, Name of Previous society | [Text]                                                                     |
| 1.55      | If Class Society Changed, Date of Change           | [Date]                                                                     |
| 1.56      | <b>Built in accordance with Regulations:</b>       |                                                                            |
| 1.56.1    | IMO                                                | [Yes/No]                                                                   |
| 1.56.2    | USCG                                               | [Yes/No]                                                                   |
| 1.56.3    | RINA                                               | [Yes/No]                                                                   |
| 1.56.4    | Other                                              | [Yes/No]                                                                   |
| 1.57      | <b>IMO Certification Certificate of Fitness</b>    |                                                                            |
| 1.57.1    | IGC                                                | [Yes/No]                                                                   |
| 1.57.2    | A328                                               | [Yes/No]                                                                   |
| 1.57.3    | A329                                               | [Yes/No]                                                                   |
| 1.57.4    | Letter of compliance                               | [Yes/No]                                                                   |
| 1.57.5    | Issued By                                          | [Text]                                                                     |
| 1.58      | Unattended Machinery Space certificate             | [Yes/No]                                                                   |
| <b>A1</b> | <b>TONNAGES</b>                                    | <b>UNIT</b>                                                                |
| 1.59      | Nett Registered Tonnage                            | [NT]                                                                       |
| 1.60      | Gross Tonnage                                      | [GT]                                                                       |
| 1.61      | <b>Suez Canal Tonnage</b>                          |                                                                            |
| 1.61.1    | Net Tonnage                                        | [NT]                                                                       |
| 1.61.2    | Gross Tonnage                                      | [GT]                                                                       |
| 1.62      | <b>Panama Canal Tonnage</b>                        |                                                                            |
| 1.62.1    | Net Tonnage                                        | [NT]                                                                       |
| 1.62.2    | Gross Tonnage                                      | [GT]                                                                       |

«Industry leading provider of LPG and petrochemical tonnage»

## 1.2 HULL DIMENSIONS

| A2   | HULL DIMENSIONS                                      | UNIT  | CLIPPER MARS |
|------|------------------------------------------------------|-------|--------------|
| 2.1  | Length Overall                                       | [m]   | 205.0        |
| 2.2  | Length Between Perpendiculars                        | [m]   | 195.0        |
| 2.3  | Distance Bow to Bridge                               | [m]   | 168.6        |
| 2.4  | Distance Bridge Front to Mid-Point Manifold          | [m]   | 66.9         |
| 2.5  | Distance Bow to Mid-Point Manifold                   | [m]   | 101.6        |
| 2.6  | Extreme Breadth                                      | [m]   | 32.2         |
| 2.7  | Extreme Depth                                        | [m]   | 20.8         |
| 2.8  | Summer Draught                                       | [m]   | 12.1         |
| 2.9  | Corresponding Deadweight                             | [ton] | 43544.0      |
| 2.10 | Light Displacement/weight                            | [ton] | 15623.0      |
| 2.11 | Loaded Displacement (Summer)                         | [ton] | 59167.0      |
| 2.12 | Cargo Tank Cubic Capacity (100% full)                | [m3]  | 60284.0      |
| 2.13 | Distance from Keel to Highest Point (With mast down) | [m]   | 50,8 (49,55) |
| 2.14 | Air Draught normal ballast (With mast down)          | [m]   | 44,4 (43,15) |

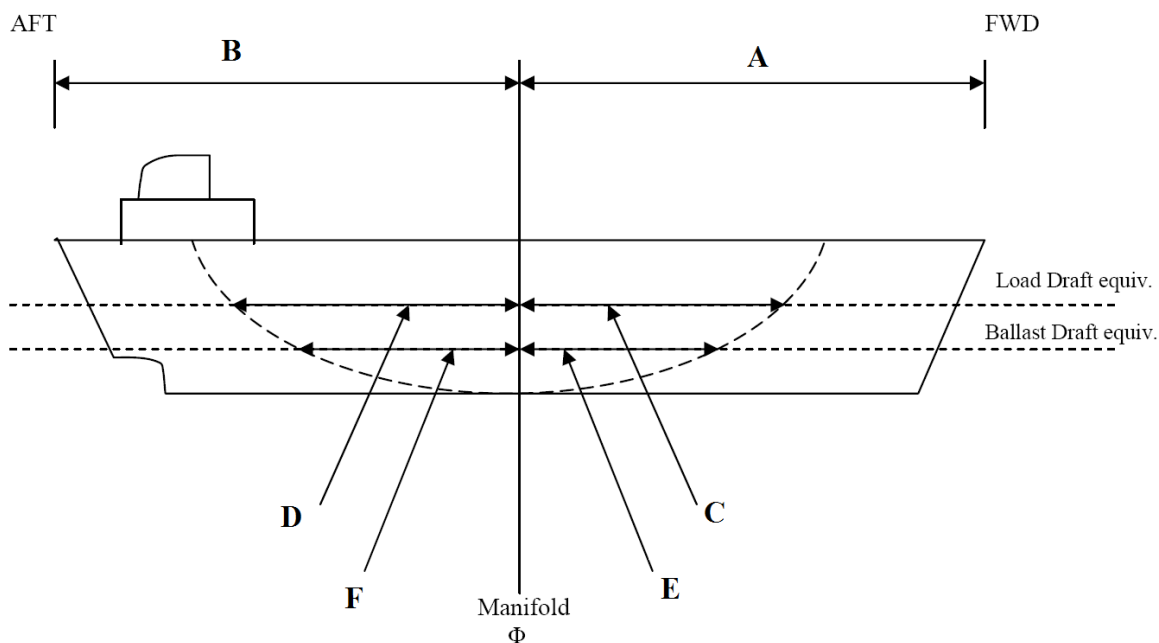
## 1.3 IMMERSION

| A3    | IMMERSION                     | UNIT  | CLIPPER MARS |
|-------|-------------------------------|-------|--------------|
| 3.1   | <b>Normal Ballast Draught</b> | [TPC] | 50.61        |
| 3.1.1 | Draught                       | [m]   | 7.2          |
| 3.2   | <b>Loaded Draught</b>         | [TPC] | 56.82        |
| 3.2.1 | Draught                       | [m]   | 12.1         |

## 1.4 LOADED PARTICULARS

| A4     | LOADED PARTICULARS       | UNIT     | CLIPPER MARS |       |         |
|--------|--------------------------|----------|--------------|-------|---------|
| 4.1    | <b>Cargo:</b>            |          | Propane      | VCM   | Ammonia |
| 4.2    | Density:                 | [ton/m3] | 0.58         | 0.97  | 0.68    |
| 4.3    | Cargo                    | [ton]    | 34249.00     | 40019 | 40019   |
| 4.4    | Bunkers                  | [ton]    | 2868.00      | 2868  | 2868    |
| 4.5    | DO                       | [ton]    |              |       |         |
| 4.6    | Fresh Water              | [ton]    | 274.00       | 274   | 274     |
| 4.7    | Stores/Spares            | [ton]    |              |       |         |
| 4.8    | Lube Oil                 | [ton]    | 120          | 120   | 120     |
| 4.9    | Ballast                  | [ton]    |              |       |         |
| 4.10   | Deadweight Const.        | [ton]    | 99           | 99.00 | 99.00   |
| 4.11   | <b>Draught - Forward</b> | [m]      | 11.24        | 11.92 | 11.87   |
| 4.11.1 | Aft                      | [m]      | 11.81        | 12.29 | 12.33   |
| 4.11.2 | Equiv.                   | [m]      | 11.52        | 12.1  | 12.1    |

## 1.5 PARALLEL MID-BODY DIMENSIONS



| A5    | PARALLEL MID-BODY DIMENSIONS        | UNIT | CLIPPER MARS |
|-------|-------------------------------------|------|--------------|
| 5.1   | A Manifold to FWD                   | [m]  | 101.68       |
| 5.2   | B Manifold to AFT                   | [m]  | 103.31       |
| 5.3   | <b>Loaded draft equiv-</b>          |      |              |
| 5.3.1 | C Manifold to FWD side tangent line | [m]  | 46.2         |
| 5.3.2 | D Manifold to AFT side tangent line | [m]  | 54.8         |
| 5.4   | <b>Ballast draft equiv.</b>         |      |              |
| 5.4.1 | E Manifold to FWD                   | [m]  | 37.9         |
| 5.4.2 | F Manifold to AFT                   | [m]  | 42.8         |

## 1.6 BUNKER CAPACITIES

| A6    | BUNKER CAPACITIES | UNIT    | CLIPPER MARS       |
|-------|-------------------|---------|--------------------|
| 6.1   | <b>HFO</b>        | [Grade] | IFO 380 (Standard) |
| 6.1.1 | Capacity @ 100 %  | [m3]    | 2183.33            |
| 6.2   | <b>LSHFO</b>      | [Grade] | N/A                |
| 6.2.1 | Capacity @ 100 %  | [m3]    | N/A                |
| 6.3   | <b>Diesel Oil</b> | [Grade] | DO                 |
| 6.3.1 | Capacity @ 100 %  | [m3]    | 785.19             |

## 1.7 FUEL CONSUMPTION DETAILS

Average speed and consumption, based on max force 4 Beaufort and 15% Sea Margin.

Vessel use mainly HFO for all consumers. DO/GO for INCN and when Rules & Regulations demands it for other consumers

| A7     | FUEL CONSUMPTION DETAILS                           | UNIT      | CLIPPER MARS   |
|--------|----------------------------------------------------|-----------|----------------|
| 7.1    | LOADED CONDITION                                   |           | *About         |
| 7.2    | Average speed over 12 months                       | [kn]      | 16.0           |
| 7.3    | Average consumption, Main engine                   | [ton/day] | 38.0           |
| 7.4    | Consumption, AUX                                   |           |                |
| 7.4.1  | Butane                                             | [ton/day] | 3.5            |
| 7.4.2  | Propane/Ammonia                                    | [ton/day] | 4 – 8          |
| 7.5    | Average consumption, AUX                           |           |                |
| 7.5.1  | Propane/Ammonia                                    | [ton/day] | 5              |
| 7.5.2  |                                                    | [ton/day] |                |
| 7.6    | BALLAST CONDITION                                  |           |                |
| 7.7    | Average speed over 12 months                       | [kn]      | 16.0           |
| 7.8    | Average consumption, Main engine                   | [ton/day] | 36.0           |
| 7.9    | Average consumption, AUX                           | [ton/day] | 3.5            |
| 7.10   | PORT/IDLE                                          |           |                |
| 7.11   | Average consumption, AUX, Loading                  | [ton/day] | 7              |
| 7.12   | Average consumption, AUX, Discharging              | [ton/day] | 5              |
| 7.13   | Average consumption, AUX, Idle                     | [ton/day] | 4              |
| 7.14   | Average consumption, Boiler (depending on weather) | [ton/day] | 2,0-3,0        |
| 7.15   | OTHER                                              |           |                |
| 7.16   | INCN (When operating) - MDO/MGO                    | [ton/day] | 0.2            |
| 7.17   | IGG-plant (When operating)                         | [ton/day] | 0.2            |
| 7.18   | ME CONSUMPTION GRAPH/KNOTS                         |           | LOADED BALLAST |
| 7.18.1 | 17                                                 | [ton/day] | 46.0 43.0      |
| 7.18.2 | 16                                                 | [ton/day] | 38.0 36.0      |
| 7.18.3 | 15                                                 | [ton/day] | 32.0 30.0      |
| 7.18.4 | 14                                                 | [ton/day] | 28.0 26.0      |
| 7.18.5 | 12                                                 | [ton/day] | 24.0 23.0      |

## 1.8 MAIN ENGINE PARTICULARS

| A8    | MAIN ENGINE PARTICULARS         | UNIT   | CLIPPER MARS         |
|-------|---------------------------------|--------|----------------------|
| 8.1   | Main Engine Make and Type       | [Text] | Hyundai B&W 5S60MC-C |
| 8.2   | No of Units                     | Pcs    | 1                    |
| 8.3   | Maximum Continuous Rating (MCR) | [kW]   | 10150                |
| 8.3.1 | RPM                             | [RPM]  | 98                   |
| 8.4   | Total Available Power           | kW     | 10 150               |
| 8.5   | Normal service Power            | kW     | 9 135                |

## 1.9 AUXILIARY PLANT

| A9    | AUXILIARY PLANT                       | UNIT     | CLIPPER MARS     |
|-------|---------------------------------------|----------|------------------|
| 9.1   | Make and Type of Auxiliary Generators | [Text]   | HHI-EES, 8H21/32 |
| 9.2   | Main Generators                       | [Pcs]    |                  |
| 9.2.1 | No of Units                           | [Pcs]    | 3                |
| 9.2.2 | Maximum Generator Output per Unit     | [kW]     | 1 200            |
| 9.3   | Generators, other                     | [Yes/No] | NO               |

|       |                                              |        |                      |
|-------|----------------------------------------------|--------|----------------------|
| 9.3.1 | No of Units                                  | [Pcs]  | N/A                  |
| 9.3.2 | Maximum Generator Output per Unit            | [kW]   | N/A                  |
| 9.4   | Shaft Generator                              | [kW]   | N/A                  |
| 9.5   | Total Available Power                        | [kW]   | 3600                 |
| 9.6   | Emergency Generator                          | [kW]   | 130                  |
| 9.7   | <b>Emergency Fire Pump</b>                   | [Text] |                      |
| 9.7.1 | Type                                         | [Text] | Vertical Centrifugal |
| 9.7.2 | Delivery Pressure                            | [Bar]  | 10                   |
| 9.7.3 | Motive Power                                 | [Text] | Electric             |
| 9.7.4 | If Electrical, Indicate Power Required in kW | [kW]   | 55                   |
| 9.8   | <b>Steering Gear Type</b>                    |        | Cylinder             |
| 9.8.1 | kW to Steer the Vessel with One Pump Unit    | [kW]   | 37                   |

## 1.10 POWER/SPEED INFORMATION

| A10    | POWER/SPEED INFORMATION     | UNIT | CLIPPER MARS |
|--------|-----------------------------|------|--------------|
| 10.1   | <b>Trial Data</b>           |      |              |
| 10.1.1 | NCR                         | [kW] | 8 480        |
| 10.1.2 | MCR                         | [kW] | 10 150       |
| 10.1.3 | Speed                       | [kn] | 17.704       |
| 10.1.4 | Draught                     | [m]  | 6.4          |
| 10.2   | <b>Normal Service Speed</b> |      |              |
| 10.2.1 | NCR                         | [kW] |              |
| 10.2.2 | MCR                         | [kW] |              |
| 10.2.3 | Speed                       | [kn] |              |
| 10.2.4 | Draught                     | [m]  |              |

## 1.11 THRUSTERS

| A11  | THRUSTERS                                    | UNIT   | CLIPPER MARS      |
|------|----------------------------------------------|--------|-------------------|
| 11.1 | Make and Type                                | [Text] | Kawasaki KT-157B5 |
| 11.2 | No. Installed                                | [Pcs]  | 1.00              |
| 11.3 | Location and Rated Bollard Pull or kW output | [kW]   | 1200              |

## 1.12 FRESH WATER

| A12  | FRESH WATER                 | UNIT      | CLIPPER MARS |
|------|-----------------------------|-----------|--------------|
| 12.1 | Capacity of Distilled Tanks | [ton]     | N/A          |
| 12.2 | Capacity of F/D.W. Ts       | [ton]     | 274.20       |
| 12.3 | Daily Consumption           | [ton/day] | 8.00         |
| 12.4 | Daily Evaporator Output     | [ton/day] | 30.00        |

## 1.13 BALLAST CAPACITIES AND PUMPS

| A13    | BALLAST CAPACITIES AND PUMPS | UNIT   | CLIPPER MARS             |             |
|--------|------------------------------|--------|--------------------------|-------------|
| 13.1   | Tank Capacities              |        | Capacity [m3]            | Tanks [Pcs] |
| 13.1.1 | Forepeak                     | [Col]  | 656.60                   | 1           |
| 13.1.2 | Wing or Side tanks           | [Col]  | 14307.1                  | 8           |
| 13.1.3 | Aft Peak                     | [Col]  | 1264.5                   | 1           |
| 13.1.4 | Other                        | [Col]  |                          |             |
| 13.1.5 | Other                        | [Col]  |                          |             |
| 13.1.6 | <b>Total</b>                 | [Col]  | <b>16 228.20</b>         | <b>10</b>   |
| 13.2   | Ballast Pumps                |        |                          |             |
| 13.2.1 | Capacity per pump            | [m3/h] | 800                      |             |
| 13.2.2 | Model                        | [Text] | Shinko                   |             |
| 13.2.3 | Type                         | [Text] | Electric                 |             |
| 13.2.4 | Setting                      | [Text] | Vertical Centrifugal     |             |
| 13.3   | No of Pumps                  | [Pcs]  | 2                        |             |
| 13.4   | Total Capacity               | [m3/h] | 1600                     |             |
| 13.5   | Location                     | [Text] | Engine Room              |             |
| 13.6   | Control Location             | [Text] | CCR, Engine Room, Bridge |             |

## 1.14 MOORING

| A14    | MOORING EQUIPMENT        | UNIT     | CLIPPER MARS |           |           |           |
|--------|--------------------------|----------|--------------|-----------|-----------|-----------|
| 14.1   | Mooring wires (On drums) |          | FWD          | FWD DECK  | AFT DECK  | POOP      |
| 14.1.1 | Number                   | [Pcs]    |              |           |           |           |
| 14.1.2 | Diameter                 | [mm]     |              |           |           |           |
| 14.1.3 | Length                   | [m]      |              |           |           |           |
| 14.1.4 | Maximum Breaking Load    | [ton]    |              |           |           |           |
| 14.2   | Mooring wire tails       |          | FWD          | FWD DECK  | AFT DECK  | POOP      |
| 14.2.1 | Number                   | [Pcs]    |              |           |           |           |
| 14.2.2 | Type                     | [Text]   |              |           |           |           |
| 14.2.3 | Diameter                 | [mm]     |              |           |           |           |
| 14.2.4 | Length                   | [m]      |              |           |           |           |
| 14.2.5 | Maximum Breaking Load    | [ton]    |              |           |           |           |
| 14.3   | Mooring ropes (On drums) |          | FWD          | FWD DECK  | AFT DECK  | POOP      |
| 14.3.1 | Number                   | [Pcs]    | 6            | 2         | 2         | 6         |
| 14.3.2 | Type                     | [Text]   | KARATMAXI    | KARATMAXI | KARATMAXI | KARATMAXI |
| 14.3.3 | Diameter                 | [mm]     | 64           | 64        | 64        | 64        |
| 14.3.4 | Length                   | [m]      | 220          | 220       | 220       | 220       |
| 14.3.5 | Maximum Breaking Load    | [ton]    | 78.4         | 78.4      | 78.4      | 78.4      |
| 14.4   | Mooring winches          |          | FWD          | FWD DECK  | AFT DECK  | POOP      |
| 14.4.1 | Number                   | [Pcs]    | 3            | 1         | 1         | 3         |
| 14.4.2 | [S]ingle/[D]ouble drums  | [S/D]    | Double       | Double    | Double    | Double    |
| 14.4.3 | Split drums              | [Yes/No] | YES          | YES       | YES       | YES       |
| 14.4.4 | Motive power             | [Text]   | Hydraulic    | Hydraulic | Hydraulic | Hydraulic |
| 14.4.5 | Heaving power            | [ton]    | 20           | 20        | 20        | 20        |
| 14.4.6 | Brake capacity           | [ton]    | 62.7         | 62.7      | 62.7      | 62.7      |
| 14.4.7 | Hauling speed            | [m/s]    | 0.25         | 0.25      | 0.25      | 0.25      |
| 14.5   | Wires/ropes not on drums |          | WIRES        | ROPES     | EM'GENCY  |           |
| 14.5.1 | Number                   | [Pcs]    |              | 6         |           |           |
| 14.5.2 | Type                     | [Text]   |              | KARATMAXI |           |           |
| 14.5.3 | Diameter                 | [mm]     |              | 64        |           |           |
| 14.5.4 | Length                   | [m]      |              | 220       |           |           |

|        |                       |       |  |  |  |
|--------|-----------------------|-------|--|--|--|
| 14.5.5 | Maximum Breaking Load | [ton] |  |  |  |
|--------|-----------------------|-------|--|--|--|

| A14    | ANCHORS AND WINDLASSES                               | UNIT     | CLIPPER MARS       |
|--------|------------------------------------------------------|----------|--------------------|
| 14.5.1 | <b>Windlass Motive Power (e.g. Steam, Hydraulic)</b> | [Text]   | Hydraulic          |
| 14.5.2 | Hauling Power                                        | [ton]    | 28.9               |
| 14.5.3 | Brake Holding Power                                  | [ton]    | 206.7              |
| 14.5.4 | <b>Anchor Type</b>                                   | [Text]   | High Holding Power |
| 14.5.5 | Weight                                               | [kg]     | 7 425              |
| 14.5.6 | Is Spare Carried                                     | [Yes/No] | NO                 |
| 14.5.7 | Cable Diameter                                       | [mm]     | 78                 |
| 14.5.8 | No of Shackles Port                                  | [Pcs]    | 12                 |
| 14.5.9 | No of Shackles Starboard                             | [Pcs]    | 12                 |
| 14.6   | <b>TOWING EQUIPMENT</b>                              |          |                    |
| 14.6.1 | Is Ship fitted with a Towing Bracket AFT(drum)       | [Yes/No] | YES                |
| 14.6.2 | If Yes, state SWL                                    | [ton]    | 200                |
| 14.6.3 | Is Towing Chain provided                             | [Yes/No] | YES                |
| 14.6.4 | <b>Dimensions of Towing Wire – Diameter</b>          | [mm]     | 57                 |
| 14.6.5 | Length                                               | [m]      | 86                 |
| 14.7   | <b>Windage on Ballast Draught</b>                    |          |                    |
| 14.7.1 | End-on                                               | [m2]     | 976                |
| 14.7.2 | Lateral                                              | [m2]     | 3360               |

Mooring diagram is provided in the appendix.

## 1.15 NAVIGATIONAL EQUIPMENT

| A15     | NAVIGATIONAL EQUIPMENT                                  | UNIT     | CLIPPER MARS      |
|---------|---------------------------------------------------------|----------|-------------------|
| 15.1    | Magnetic Compass                                        | [Yes/No] | YES               |
| 15.2    | Off Course Alarm – Magnetic                             | [Yes/No] | YES               |
| 15.3    | <b>Gyro Compass</b>                                     | [Yes/No] | YES               |
| 15.3.1  | Specify number                                          | [Pcs]    | 2                 |
| 15.4    | Off Course Alarm – Gyro                                 | [Yes/No] | YES               |
| 15.5    | <b>Bridge Repeaters</b>                                 | [Yes/No] | YES               |
| 15.5.1  | Specify Number                                          | [Pcs]    | 2                 |
| 15.6    | Radar 3 GHz                                             | [Yes/No] | YES               |
| 15.7    | Radar 9 GHz                                             | [Yes/No] | YES               |
| 15.8    | Are Radars Gyro Stabilized                              | [Yes/No] | YES               |
| 15.9    | Radar Plotting Equipment                                | [Yes/No] | YES               |
| 15.10   | ARPA                                                    | [Yes/No] | YES               |
| 15.11   | ECDIS (Electric Display and Information System)         | [Yes/No] | YES               |
| 15.11.1 | Make/Type                                               | [Text]   | Furuno / FMD-3300 |
| 15.12   | Depth Echo Sounder with Recorder                        | [Yes/No] | YES               |
| 15.13   | Depth Echo Sounder without Recorder                     | [Yes/No] | NO                |
| 15.14   | Speed/Distance Indicator                                | [Yes/No] | YES               |
| 15.15   | Doppler Log                                             | [Yes/No] | YES               |
| 15.16   | Speed of Approach Doppler                               | [Yes/No] | YES               |
| 15.17   | Rudder Angle Indicator                                  | [Yes/No] | YES               |
| 15.18   | Rudder Angle Indicator on Each Bridge Wing              | [Yes/No] | YES               |
| 15.19   | R.P.M Indicator                                         | [Yes/No] | YES               |
| 15.20   | R.P.M Indicator on Each Bridge Wing                     | [Yes/No] | YES               |
| 15.21   | Controllable Propeller Pitch Indicator                  | [Yes/No] | NO                |
| 15.22   | Thruster (s) indicator                                  | [Yes/No] | YES               |
| 15.23   | Rate of turn Indicator                                  | [Yes/No] | YES               |
| 15.24   | Radio Direction Finder                                  | [Yes/No] | NO                |
| 15.25   | NAVTEX Receiver                                         | [Yes/No] | YES               |
| 15.26   | GPS                                                     | [Yes/No] | YES               |
| 15.27   | Transit SATNAV                                          | [Yes/No] | NO                |
| 15.28   | DECCA navigator                                         | [Yes/No] | NO                |
| 15.29   | Omega                                                   | [Yes/No] | NO                |
| 15.30   | Loran C                                                 | [Yes/No] | NO                |
| 15.31   | Weather Route System                                    | [Yes/No] | YES               |
| 15.32   | Sextant(s)                                              | [Yes/No] | YES               |
| 15.33   | Signal Lamp ALDIS                                       | [Yes/No] | YES               |
| 15.34   | Anemometer                                              | [Yes/No] | YES               |
| 15.35   | Engine Order Recorder                                   | [Yes/No] | YES               |
| 15.36   | Course Recorder                                         | [Yes/No] | YES               |
| 15.37   | Steering motor controls controls fitted on bridge wings | [Yes/No] | YES               |
| 15.38   | Is bridge Equipped with a “Dead Man” Alarm Equipment    | [Yes/No] | YES               |
| 15.39   | <b>What chart outfit coverage is provided</b>           | [Yes/No] |                   |
| 15.39.1 | Worldwide                                               | [Yes/No] | YES               |
| 15.39.2 | Limited                                                 | [Yes/No] | NO                |
| 15.39.3 | <b>If Limited Please Indicate</b>                       | [Text]   |                   |
| 15.40   | Formal Chart Correction System in use                   | [Yes/No] | YES               |
| 15.41   | Electronic Chart System in use                          | [Yes/No] | YES               |

## 1.16 COMMUNICATIONS EQUIPMENT

| A16     | COMMUNICATIONS EQUIPMENT                                                 | UNIT     | CLIPPER MARS  |
|---------|--------------------------------------------------------------------------|----------|---------------|
| 16.1    | Main Transmitted Including Radio Telephone Distress Frequency            | [Yes/No] | YES           |
| 16.2    | Main Receiver Including Radio Telephone Distress Frequency               | [Yes/No] | YES           |
| 16.3    | Radio Telephone Distress Frequency Watch Receiver                        | [Yes/No] | YES           |
| 16.4    | Main Radio Antenna                                                       | [Yes/No] | YES           |
| 16.5    | Reserve Radio Antenna                                                    | [Yes/No] | NO            |
| 16.6    | Main and Reserve Installations Electrically Separate and Independent     | [Yes/No] | YES           |
| 16.7    | 2182 kHz Bridge auto Alarm                                               | [Yes/No] | YES           |
| 16.8    | Alarm Signal Generating Device                                           | [Yes/No] | YES           |
| 16.9    | <b>VHF Radio (s)</b>                                                     | [Yes/No] | YES           |
| 16.9.1  | Specify Number                                                           | [Pcs]    | 3             |
| 16.10   | <b>Portable VHF/UHF Radios</b>                                           | [Yes/No] | YES           |
| 16.10.1 | Specify Type and Number                                                  | [Pcs]    | 3/4(OFE)      |
| 16.11   | Are Sets Intrinsically Safe                                              | [Yes/No] | YES           |
| 16.12   | Inmarsat Satellite System                                                | [Yes/No] | YES           |
| 16.13   | Specify System Type A, B, C, F or VSAT                                   | [Text]   | C, VSAT, FBB  |
| 16.14   | Is the ship equipped as per GMDSS Requirements                           | [Yes/No] | YES           |
| 16.15   | <b>If Yes, which area of operation is vessel certified to operate in</b> | [Text]   | A1, A2, A3    |
| 16.15.1 | EPIRB                                                                    | [Yes/No] | YES           |
| 16.15.2 | SARTS                                                                    | [Yes/No] | YES           |
| 16.16   | Emergency Lifeboat Transceiver                                           | [Yes/No] | (incl. EPIRB) |
| 16.17   | At least Three Survival craft Two-way Radio Telephone Apparatus          | [Yes/No] | YES           |
| 16.18   | Full Set of Publications                                                 | [Yes/No] | YES           |

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## **2. SECTION B – CARGO SYSTEMS**

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## 2.1 GENERAL INFORMATION

| B1     | CARGO - GENERAL INFORMATION                             |                     | CLIPPER MARS |           |
|--------|---------------------------------------------------------|---------------------|--------------|-----------|
| 1.1    | List Products Which the Ship is Certified to Carry      |                     |              |           |
| 1.1.1  | 1.                                                      | Ammonia anhydrous   |              |           |
| 1.1.2  | 2.                                                      | Butadiene           |              |           |
| 1.1.3  | 3.                                                      | Butane              |              |           |
| 1.1.4  | 4.                                                      | Butane-propane      |              |           |
| 1.1.5  | 5.                                                      | Butylenes           |              |           |
| 1.1.6  | 6.                                                      | Propane             |              |           |
| 1.1.7  | 7.                                                      | Propylene           |              |           |
| 1.1.8  | 8.                                                      | VCM (Fill = 68.7 %) |              |           |
| 1.1.9  | 9.                                                      |                     |              |           |
| 1.1.10 | 10.                                                     |                     |              |           |
| 1.1.11 | 11.                                                     |                     |              |           |
| 1.1.12 | 12.                                                     |                     |              |           |
| 1.1.13 | 13.                                                     |                     |              |           |
| 1.1.14 | 14.                                                     |                     |              |           |
| 1.1.15 | 15.                                                     |                     |              |           |
| 1.1.16 | 16.                                                     |                     |              |           |
| 1.1.17 | 17.                                                     |                     |              |           |
| 1.1.18 | 18.                                                     |                     |              |           |
| 1.1.19 | 19.                                                     |                     |              |           |
| 1.1.20 | 20.                                                     |                     |              |           |
| 1.1.21 | 21.                                                     |                     |              |           |
| 1.1.22 | 22.                                                     |                     |              |           |
| 1.1.23 | 23.                                                     |                     |              |           |
| 1.1.24 | 24.                                                     |                     |              |           |
| 1.2    | Transport and Carriage Condition                        |                     | UNIT         |           |
| 1.3    | Minimum Allowable Tank Temperature                      |                     | [Celsius]    | -50       |
| 1.3.1  | Maximum Allowable Tank Pressure (Seagoing setting)      |                     | [bar g]      | 0.275     |
| 1.3.2  | Maximum Allowable Tank Pressure (Harbour setting)       |                     | [bar g]      | 0.4       |
| 1.4    | Grades which can be Loaded or Discharged Simultaneously |                     | [Pcs]        | 2         |
| 1.5    | Grades which can be Transported Simultaneously          |                     | [Pcs]        | 2         |
| 1.6    | Number of Products Re-liquefied Simultaneously          |                     | [Pcs]        | 2         |
| 1.7    | State Natural Tank Segregations (Possible combinations) |                     | UNIT         |           |
| 1.7.1  | 1.                                                      |                     | [Tank]       | 1+3 & 2+4 |
| 1.7.2  | 2.                                                      |                     | [Tank]       | 2 & 1+3+4 |
| 1.7.3  | 3.                                                      |                     | [Tank]       | 1+2+3+4   |

## 2.2 CARGO TANKS

| B2    | CARGO TANKS                                                               | UNIT    | CLIPPER MARS        |
|-------|---------------------------------------------------------------------------|---------|---------------------|
| 2.1   | <b>Cargo Tanks</b>                                                        |         |                     |
| 2.1.1 | Type                                                                      | [Text]  | NV 4-4-MOD23        |
| 2.1.2 | Material                                                                  | [Text]  | Carbon Manganese LT |
| 2.2   | Maximum Allowable Relief Valve setting                                    | [bar g] | 0.4                 |
| 2.3   | <b>Safety Valve Set Pressure – If Variable Give Range of Pilot Valves</b> |         |                     |
| 2.3.1 | Seagoing setting                                                          | [bar g] | 0.275               |
| 2.3.2 | Harbour setting                                                           | [bar g] | 0.4                 |
| 2.4   | Maximum Vacuum                                                            | [bar g] | -0.05               |
| 2.5   | Maximum Cargo Density (98% full)                                          | [kg/m3] | 690                 |
| 2.6   | Maximum Rate of Cool-Down                                                 | [C/h]   | 10                  |

|       |                                                        |        |           |
|-------|--------------------------------------------------------|--------|-----------|
| 2.7   | State any Limitations regarding Partially Filled Tanks | [Text] | VCM=68,7% |
| 2.7.1 | Cont.                                                  | [Text] |           |
| 2.8   | State Allowable Combinations of Filled and Empty Tanks | [Text] |           |
| 2.8.1 | Cont.                                                  | [Text] |           |

## 2.3 CARGO TANK CAPACITIES

| B3    | CARGO TANK CAPACITIES | UNIT  | CLIPPER MARS |       |       |       |       |
|-------|-----------------------|-------|--------------|-------|-------|-------|-------|
| 3.1   | Capacity              | Tank  | 1            | 2     | 3     | 4     | Total |
| 3.1.1 | 100 %                 | [m3]  | 13799        | 15694 | 15697 | 15095 | 60284 |
| 3.1.2 | 98 %                  | [m3]  | 13523        | 15380 | 15383 | 14793 | 59079 |
| 3.2   | <b>Cargo</b>          |       |              |       |       |       |       |
| 3.2.1 | iso-butane            | [ton] | 8033         | 9136  | 9137  | 8787  | 35093 |
| 3.2.2 | Propane               | [ton] | 7843         | 8920  | 8922  | 8580  | 34266 |
| 3.2.3 | Butadiene             | [ton] | 8803         | 10012 | 10014 | 9630  | 38460 |
| 3.2.4 | Propylene             | [ton] | 8249         | 9382  | 9384  | 9024  | 36038 |
| 3.2.5 | Ammonia               | [ton] | 9196         | 10458 | 10460 | 10059 | 40174 |
| 3.2.6 | Butylene/Butenes      | [ton] | 8033         | 9136  | 9137  | 8787  | 35093 |
| 3.2.7 | n-butane              | [ton] | 8127         | 9243  | 9245  | 8891  | 35506 |
| 3.2.8 | Ethylene              | [ton] |              |       |       |       |       |

- Cargoes may not be applicable for vessel. Check which cargoes the vessel is certified to carry.

## 2.4 LOADING RATES

VR = Vapour Return, W/O VPR = Without Vapour Return

| B4     | LOADING RATES |                  | UNIT   | CLIPPER MARS |        |          |        |
|--------|---------------|------------------|--------|--------------|--------|----------|--------|
|        |               |                  |        | REFRIGERATED |        | PRESSURE |        |
| 4.1    | Cargo         |                  | [m3/h] | VR           | W/O VR | VR       | W/O VR |
| 4.1.1  | 1             | Propylene        | [m3/h] | 2400         | 2400   |          |        |
| 4.1.2  | 2             | Propane          | [m3/h] | 2300         | 2300   |          |        |
| 4.1.3  | 3             | Ammonia          | [m3/h] | 2700         | 2700   |          |        |
| 4.1.4  | 4             | Iso butane (0°C) | [m3/h] |              |        |          |        |
| 4.1.5  | 5             | Propane (0°C)    | [m3/h] |              |        |          |        |
| 4.1.6  | 6             | Propane (10°C)   | [m3/h] |              |        |          |        |
| 4.1.7  | 7             | Propane (20°C)   | [m3/h] |              |        |          |        |
| 4.1.8  | 8             | Propane (30°C)   | [m3/h] |              |        |          |        |
| 4.1.9  | 9             |                  | [m3/h] |              |        |          |        |
| 4.1.10 | 10            |                  | [m3/h] |              |        |          |        |
| 4.1.11 | 11            |                  | [m3/h] |              |        |          |        |
| 4.1.12 | 12            |                  | [m3/h] |              |        |          |        |
| 4.1.13 | 13            |                  | [m3/h] |              |        |          |        |
| 4.1.14 | 14            |                  | [m3/h] |              |        |          |        |
| 4.1.15 | 15            |                  | [m3/h] |              |        |          |        |
| 4.1.16 | 16            |                  | [m3/h] |              |        |          |        |
| 4.1.17 | 17            |                  | [m3/h] |              |        |          |        |
| 4.1.18 | 18            |                  | [m3/h] |              |        |          |        |
| 4.1.19 | 19            |                  | [m3/h] |              |        |          |        |
| 4.1.20 | 20            |                  | [m3/h] |              |        |          |        |

## 2.5 DISCHARGING – GENERAL

Pumping curves for cargo main pumps and booster pumps are given in the appendix.

| B5    | DISCHARGING – GENERAL | UNIT    | CLIPPER MARS            |
|-------|-----------------------|---------|-------------------------|
| 5.1   | <b>Cargo Pumps</b>    | [Text]  | Deepwell                |
| 5.1.1 | Type of Pumps         | [Text]  | Centrifugal             |
| 5.1.2 | Number per Tank       | [Pcs]   | 2                       |
| 5.1.3 | Rate (per pump)       | [m3/h]  | 500                     |
| 5.1.4 | Delivery Head         | [mlc]   | 130                     |
| 5.1.5 | Maximum Density       | [kg/m3] | 970                     |
| 5.2   | <b>Booster Pumps</b>  |         |                         |
| 5.2.1 | Type of Pumps         | [Text]  | Centrifugal, Horizontal |
| 5.2.2 | Number                | [Pcs]   | 2                       |
| 5.2.3 | Rate (per pump)       | [m3/h]  | 500                     |
| 5.2.4 | Delivery Head         | [mlc]   | 125                     |
| 5.2.5 | Maximum Density       | [kg/m3] | 690                     |

## 2.6 DISCHARGE PRESSURE

| B6    | DISCHARGE PERFORMANCE                                              | UNIT | CLIPPER MARS |
|-------|--------------------------------------------------------------------|------|--------------|
| 6.1   | <b>Fully Refrigerated, Full Cargo Discharge Times (all pumps):</b> |      | VR W/O VR    |
| 6.1.1 | Manifold Back Pressure (1 kg/cm2) x                                | [h]  | 15 15        |
| 6.1.2 | Manifold Back Pressure (5 kg/cm2) x                                | [h]  | 16 16        |
| 6.1.3 | Manifold Back Pressure (10 kg/cm2) x                               | [h]  | 60 60        |
| 6.2   | <b>Pressurized, Full Cargo Discharge Times (all pumps):</b>        |      | VR W/O VR    |
| 6.2.1 | Manifold Back Pressure (1 kg/cm2) x                                | [h]  |              |
| 6.2.2 | Manifold Back Pressure (5 kg/cm2) x                                | [h]  |              |
| 6.2.3 | Manifold Back Pressure (10 kg/cm2) x                               | [h]  |              |

x = Based on largest single tank volume

^ = Based on discharging tanks one at a time

## 2.7 UNPUMPABLES

| B7    | UNPUMPABLES                | UNIT | CLIPPER MARS |
|-------|----------------------------|------|--------------|
| 7.1   | <b>Unpumpables, liquid</b> |      |              |
| 7.1.1 | Tank 1                     | [m3] | 17           |
| 7.1.2 | Tank 2                     | [m3] | 18           |
| 7.1.3 | Tank 3                     | [m3] | 18           |
| 7.1.4 | Tank 4                     | [m3] | 17           |
| 7.1.5 | Total                      | [m3] | 70           |

## 2.8 VAPORISING UNPUMPABLES

| B8    | VAPORISING UNPUMPABLES                                      | UNIT   | CLIPPER MARS             |
|-------|-------------------------------------------------------------|--------|--------------------------|
| 8.1   | Process Used                                                | [Text] | Hot Gas / Puddle heating |
| 8.2   | <b>Time to Vaporize Liquid Unpumpables After Discharge:</b> |        |                          |
| 8.2.1 | Propane                                                     | [h]    | 24                       |
| 8.2.2 | iso-Butane                                                  | [h]    | 24                       |
| 8.2.3 | n-Butane                                                    | [h]    | 26                       |
| 8.2.4 | Ammonia                                                     | [h]    | 120                      |
| 8.2.5 |                                                             | [h]    |                          |

## 2.9 RELIQUEFACTION PLANT

| B9    | RELIQUEFACTION PLANT           | UNIT     | CLIPPER MARS        |
|-------|--------------------------------|----------|---------------------|
| 9.1   | <b>Plant Design Conditions</b> |          |                     |
| 9.1.1 | Air Temperature                | [°C]     | 45                  |
| 9.1.2 | Sea Temperature                | [°C]     | 32                  |
| 9.2   | <b>Plant Type</b>              |          |                     |
| 9.2.1 | Single Stage/Direct            | [Yes/No] | YES                 |
| 9.2.2 | Two Stage / Direct             | [Yes/No] | YES                 |
| 9.2.3 | Three Stage / Direct           | [Yes/No] | No                  |
| 9.2.4 | Coolant Type                   | [Text]   | Seawater            |
| 9.3   | <b>Compressors</b>             |          |                     |
| 9.3.1 | Type                           | [Text]   | Sulzer + Burckhardt |
| 9.3.2 | Model                          | [Text]   | 2K 160-2F           |
| 9.3.3 | Number                         | [Psc]    | 4                   |
| 9.3.4 | Capacity (per unit)            | [m3/h]   | Varies              |
| 9.3.5 | Are they oil free?             | [Yes/No] | YES                 |

## 2.10 COOLING CAPACITY

| B10    | COOLING CAPACITY                                                      | UNIT     | CLIPPER MARS          |
|--------|-----------------------------------------------------------------------|----------|-----------------------|
| 10.1   | <b>State Cooling Capacity</b> (per compressor, 2-stage @ - 0.4 bar g) |          | SW 36 [°C] SW 15 [°C] |
| 10.1.1 | 1 Propane @ -42 [°C]                                                  | [kcal/h] | 250000                |
| 10.1.2 | 2 Com. Propane (5 mol.% ethane) @ -42 [°C]                            | [kcal/h] | 245000                |
| 10.1.3 | 3 Propane @ -20 [°C]                                                  | [kcal/h] |                       |
| 10.1.4 | 4 Propane @ -5 [°C]                                                   | [kcal/h] |                       |
| 10.1.5 | 5 Iso-Butane @ -5 [°C]                                                | [kcal/h] | 325000                |
| 10.1.6 | 6 Ammonia @ -33 [°C]                                                  | [kcal/h] | 390000                |
| 10.1.7 | 7 VCM @ -11[°C]                                                       | [kcal/h] | 350000                |

## 2.11 CARGO TEMP. LOWERING CAPABILITY

| B11   | CARGO TEMPERATURE LOWERING CAPABILITY   | UNIT | CLIPPER MARS |
|-------|-----------------------------------------|------|--------------|
| 11.0  | <b>Time taken to lower the temp of:</b> |      | SW 32 [°C]   |
| 11.1  | Propane from ...0 [°C] to -42 [°C]      | [h]  |              |
| 11.2  | -5[°C]to -42[°C]                        | [h]  |              |
| 11.3  | -38[°C] to -42[°C]                      | [h]  | 113          |
| 11.4  | +20[°C] to -42[°C]                      | [h]  |              |
| 11.5  | +10[°C] to -42[°C]                      | [h]  |              |
| 11.6  | Iso-Butane from +20[°C] to -0.5[°C]     | [h]  |              |
| 11.7  | +10[°C] to -0.5[°C]                     | [h]  |              |
| 11.8  | +10[°C] to -5[°C]                       | [h]  |              |
| 11.9  | -5[°C] to -12[°C]                       | [h]  | 66           |
| 11.10 | Ammonia from -30[°C] to -33[°C]         | [h]  | 122          |
| 11.11 | Propylene from -42[°C] to -47[°C]       | [h]  | 54           |

## 2.12 INERT GAS

| B12    | INERT GAS                             | UNIT     | CLIPPER MARS          |
|--------|---------------------------------------|----------|-----------------------|
| 12.1   | <b>Main IG Plant</b>                  |          |                       |
| 12.1.1 | Type of System                        | [Text]   |                       |
| 12.1.2 | Capacity                              | [m3/h]   | 5500                  |
| 12.1.3 | Type of Fuel Used                     | [Text]   | MDO                   |
| 12.1.4 | <b>Composition of I.G.</b>            |          |                       |
| 12.1.5 | Max O2                                | [%]      | 0.5                   |
| 12.1.6 | Max CO2                               | [%]      | 14                    |
| 12.1.7 | Max Nox                               | [%]      | Traces                |
| 12.1.8 | Max N2                                | [%]      | Balance               |
| 12.2   | Lowest Dewpoint Achievable            | [°C]     | -40                   |
| 12.3   | Used for                              | [Text]   | Inerting/purging      |
| 12.4   | <b>Auxiliary IG or Nitrogen Plant</b> |          | Unitor Marine Systems |
| 12.4.1 | Type of System                        | [Text]   | Nitrogen Generator    |
| 12.4.2 | Capacity                              | [m3/h]   | 6                     |
| 12.5   | Lowest Dewpoint Achievable            | [°C]     | -70                   |
| 12.6   | Used for                              | [Text]   | Inerting/purging      |
| 12.7   | <b>Nitrogen generator installed?</b>  | [Yes/No] | NO                    |
| 12.7.1 | Liquid storage Capacity               | [m3]     | N/A                   |
| 12.7.2 | Daily Boil-Off Loss                   | [m3]     | N/A                   |
| 12.7.3 | Maximum Supply Pressure               | [Bar]    | N/A                   |
| 12.7.4 | Supply Capacity                       | [m3/h]   | N/A                   |
| 12.7.5 | Used For                              | [Text]   | N/A                   |
| 12.7.6 | HP Nitrogen                           | [Nm3]    | N/A                   |

## 2.13 CARGO TANK INTERTING/DE-INERTING

| B13    | CARGO TANK INTERTING/DE-INERTING                                    | UNIT | CLIPPER MARS |
|--------|---------------------------------------------------------------------|------|--------------|
| 13.1   | Time Taken From Fresh Air to Under 5% O2 at -25oC Dewpoint          | [h]  | 33           |
| 13.2   | Time taken from cargo Vapor to Fully Inert at - 25oC Dewpoint when: |      |              |
| 13.2.1 | IG density less than product                                        | [h]  | N/A          |
| 13.2.2 | IG density greater than product                                     | [h]  | 33           |

## 2.14 GAS FREEING TO FRESH AIR

| B14    | GAS FREEING TO FRESH AIR                                      | UNIT   | CLIPPER MARS        |
|--------|---------------------------------------------------------------|--------|---------------------|
| 14.1   | Plant Used                                                    | [Text] | IGG Plant – Dry Air |
| 14.1.1 | Number of fans                                                | [Pcs]  | 4                   |
| 14.1.2 | Total capacity                                                | [m3/h] | 40000               |
| 14.2   | Time taken from Fully Inert Condition to Fully Breathable Air | [h]    | 3 (33)              |

## 2.15 CHANGING CARGO GRADES

The table below show the number of hours needed to change grades from the removal of unpumpables to tanks fit to load. The quantity of inert gas consumed during the operation is also indicated.

| B15    | CHANGING CARGO GRADES | UNIT  | CLIPPER MARS |        |
|--------|-----------------------|-------|--------------|--------|
| 15.1   | From propane to:      |       | [h]          | [m3]   |
| 15.1.1 | Iso-butane            | [COL] | 24/0         |        |
| 15.1.2 | Ammonia               | [COL] | 90           | 180000 |
| 15.2   | From Iso-butane to:   |       | [h]          | [m3]   |
| 15.2.1 | Propane               | [COL] | 24/0         |        |
| 15.2.2 | Ammonia               | [COL] | 90           | 180000 |
| 15.3   | From ammonia to:      |       | [h]          | [m3]   |
| 15.3.1 | Propane               | [COL] | 120          | 180000 |
| 15.3.2 | Iso-butane            | [COL] | 120          | 180000 |

## 2.16 DECK TANK CAPACITIES

| B16    | DECK TANK CAPACITIES                   | UNIT     | CLIPPER MARS     |
|--------|----------------------------------------|----------|------------------|
| 16.1   | Deck tank                              | [Yes/No] | Yes              |
| 16.2   | Deck tank capacities                   |          |                  |
| 16.2.1 | 1 Propane                              | [ton]    | 285              |
| 16.2.2 | 2 Ammonia                              | [ton]    | 334              |
| 16.2.3 | 3 Ethylene                             | [ton]    |                  |
| 16.3   | Maximum Allowable Relief Valve Setting | [bar g]  | 18.2             |
| 16.4   | Lowest Permissible Temperature         | [°C]     | -50              |
| 16.5   | Materials                              | [Text]   | Carbon Manganese |

## 2.17 PRE-LOADING CONDITIONS

The table below indicates time and quantity of coolant required to cool down cargo tanks from ambient temperature and fully gassed up state sufficient to allow loading to commence.

| B17    | PRE-LOADING CONDITIONS | UNIT  | CLIPPER MARS   |         |             |
|--------|------------------------|-------|----------------|---------|-------------|
| 17.1   | Product                |       | Quantity [ton] | VPR [h] | W/O VPR [h] |
| 17.1.1 | Propane                | [COL] | 200            | 24      | 24          |
| 17.1.2 | Butane                 | [COL] | 200            | 24      | 24          |
| 17.1.3 | Butadiene              | [COL] | 260            | 80      | 80          |
| 17.1.4 | Propylene              | [COL] |                |         |             |
| 17.1.5 | Ammonia                | [COL] |                |         |             |
| 17.1.6 | VCM                    | [COL] |                |         |             |

## 2.18 VAPORISER

| B18    | VAPORISER                     | UNIT    | CLIPPER MARS   |
|--------|-------------------------------|---------|----------------|
| 18.1   | Type of Vaporizer             | [Text]  | Shell and tube |
| 18.2   | Number Fitted                 | [Pcs]   | 1              |
| 18.3   | Capacity (per unit) – Propane | [Nm3/h] | 4000           |
| 18.3.1 | Liquid Supply rate            | [m3/h]  | 14.11          |
| 18.3.2 | Delivery temperature          | [°C]    |                |
| 18.4   | Capacity (per unit) – Ammonia | [Nm3/h] | 4000           |
| 18.4.1 | Liquid Supply rate            | [m3/h]  | 4.57           |
| 18.4.2 | Delivery temperature          | [°C]    |                |
| 18.5   |                               | [Nm3/h] |                |
| 18.5.1 |                               | [m3/h]  |                |

|        |  |      |  |
|--------|--|------|--|
| 18.5.2 |  | [°C] |  |
|--------|--|------|--|

## 2.19 BLOWER

| B19  | BLOWER                    | UNIT                 | CLIPPER MARS                  |
|------|---------------------------|----------------------|-------------------------------|
| 19.1 | Type of Blower            | [Text]               | High pressure centrifugal fan |
| 19.2 | Number fitted             | [Pcs]                | 4                             |
| 19.3 | Rated Capacity (per unit) | [Nm <sup>3</sup> /h] | 10000                         |
| 19.4 | Delivery Pressure         | [Bar]                | 0.12                          |

## 2.20 CARGO RE-HEATER

Cargo re-heater capacities are given in the appendix.

| B20    | CARGO RE-HEATER                                                    | UNIT     | CLIPPER MARS |
|--------|--------------------------------------------------------------------|----------|--------------|
| 20.1   | Type of re-heater                                                  | [Text]   | Shell/tube   |
| 20.2   | Number Fitted                                                      | [Pcs]    | 1            |
| 20.3   | Heating Medium                                                     | [Medium] | Seawater     |
| 20.4   | <b>Discharge rates, SW = 15[°C], to raise product temperature:</b> |          |              |
| 20.4.1 | Propane from -42[°C] to 0[°C]                                      | [ton/h]  | 260          |
| 20.4.2 | Ammonia from -33[°C] to 0[°C]                                      | [ton/h]  | 235          |
| 20.5   | Cargo Heater Curve:                                                | [Yes/No] | YES          |

## 2.21 HYDRATE CONTROL

| B21  | HYDRATE CONTROL                       | UNIT     | CLIPPER MARS |
|------|---------------------------------------|----------|--------------|
| 21.1 | Type of Depressant                    | [Medium] | Ethanol      |
| 21.2 | Depressant Freezing Point Temperature | [°C]     | -114         |
| 21.3 | Max capacity of depressant            | [Liter]  | 2000         |
| 21.4 | Means of Injection                    | [Text]   | Hand pump    |
| 21.5 | Any other system used                 | [Text]   | Hot gas      |

## 2.22 CARGO MEASUREMENT

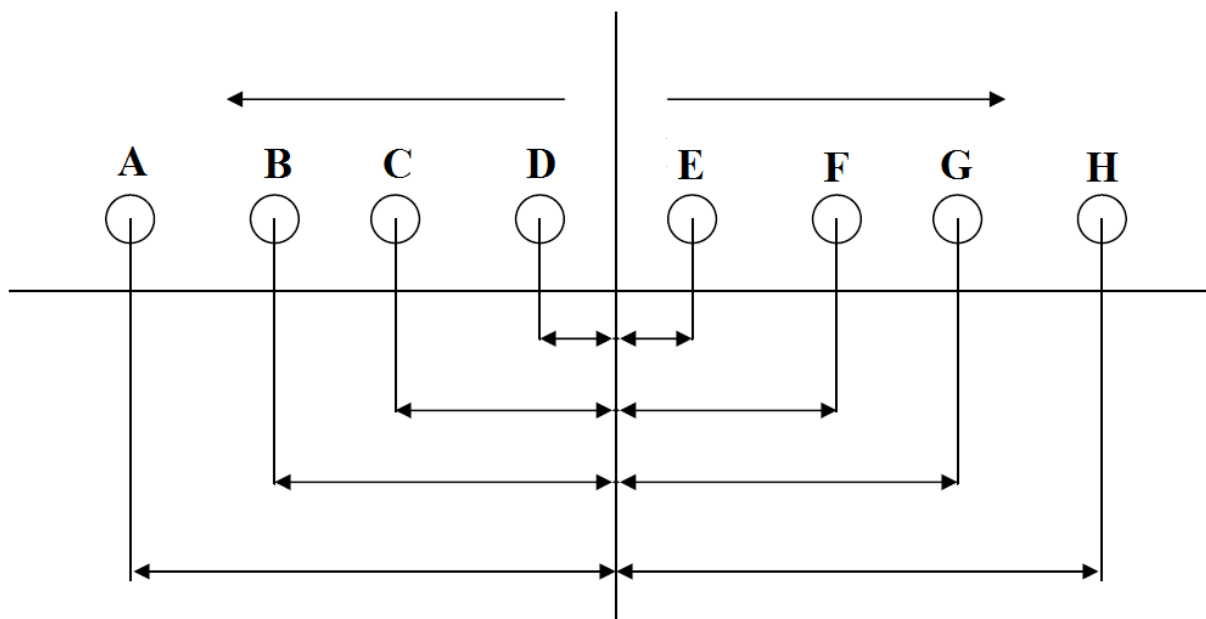
| B22    | CARGO MEASUREMENT                | UNIT   | CLIPPER MARS                  |
|--------|----------------------------------|--------|-------------------------------|
| 22.1   | <b>Level Gauges</b>              |        |                               |
| 22.1.1 | Are level gauges Local or Remote | [Text] | Both                          |
| 22.1.2 | Manufacturer                     | [Text] | HENRI                         |
| 22.1.3 | Type                             | [Text] | Float                         |
| 22.1.4 | Rated Accuracy                   | [-]    | ± 5 mm                        |
| 22.1.5 | Certifying Authority             | [Text] | DNV                           |
| 22.2   | <b>Temperature Transmitter</b>   |        |                               |
| 22.2.1 | Manufacturer                     | [Text] | ABB                           |
| 22.2.2 | Type                             | [Text] | Electronic                    |
| 22.2.3 | Rated Accuracy                   | [-]    | ±0.02 %                       |
| 22.2.4 | Certifying Authority             | [Text] | Intertek Caleb Brett – Kimsco |
| 22.3   | <b>Pressure Transmitter</b>      |        |                               |
| 22.3.1 | Manufacturer                     | [Text] | ABB                           |
| 22.3.2 | Type                             | [Text] | Electronic                    |
| 22.3.3 | Rated Accuracy                   | [-]    | ± 0.075 %                     |
| 22.3.4 | Certifying Authority             | [Text] | Intertek Caleb Brett – Kimsco |

|        |                                              |          |                               |
|--------|----------------------------------------------|----------|-------------------------------|
| 22.4   | <b>Oxygen Analyzer</b>                       |          |                               |
| 22.4.1 | Manufacturer                                 | [Text]   | Riken                         |
| 22.4.2 | Type                                         | [Text]   | RX 4150X or OX-227A           |
| 22.4.3 | Lowest Level Measurable                      |          |                               |
| 22.5   | <b>Fixed Gas Analyzer</b>                    |          |                               |
| 22.5.1 | Manufacturer                                 | [Text]   | Consilium                     |
| 22.5.2 | Type                                         | [Text]   | Salwico SW2020 (sampling)     |
| 22.6   | <b>Cargo Tank Calibration Tables</b>         |          |                               |
| 22.6.1 | Are Cargo Tank Calibration tables available  | [Yes/No] | YES                           |
| 22.6.2 | Measuring Company                            | [Text]   | Intertek Caleb Brett – Kimsco |
| 22.6.3 | Certifying Authority                         | [Text]   | Intertek Caleb Brett – Kimsco |
| 22.6.4 | Calibration calculated to .....cm ½ cm.....  | [Yes/No] | YES                           |
| 22.6.5 | Tables established to .....cm .....cm.....mm | [Yes/No] |                               |
| 22.6.6 | Trim and List corrections Available          | [YES/NO] | YES                           |
| 22.6.7 | Temperature Corrections available            | [YES/NO] | YES                           |
| 22.6.8 | Float Gauge Tape Corrections Available       | [YES/NO] | YES                           |

## 2.23 CARGO SAMPLING

| B23    | CARGO SAMPLING                   | UNIT     | CLIPPER MARS         |     |     |     |
|--------|----------------------------------|----------|----------------------|-----|-----|-----|
| 23.1   | Cargo tank sample level          | [Tank]   | 1                    | 2   | 3   | 4   |
| 23.1.1 | Top                              | [Yes/No] | Yes                  | Yes | Yes | Yes |
| 23.1.2 | Middle                           | [Yes/No] | Yes                  | Yes | Yes | Yes |
| 23.1.3 | Bottom                           | [Yes/No] | Yes                  | Yes | Yes | Yes |
| 23.2   | <b>Can sample be drawn from?</b> |          |                      |     |     |     |
| 23.2.1 | Tank Vapor Outlet                | [Yes/No] | YES                  |     |     |     |
| 23.2.2 | Manifold Liquid Line             | [Yes/No] | YES                  |     |     |     |
| 23.2.3 | Manifold Vapor Line              | [Yes/No] | YES                  |     |     |     |
| 23.2.4 | Pump Discharge Line              | [Yes/No] | YES                  |     |     |     |
| 23.3   | <b>State connection</b>          |          |                      |     |     |     |
| 23.3.1 | Type                             | [Text]   | Female, double valve |     |     |     |
| 23.3.2 | Size                             | [Inch]   | 0.5                  |     |     |     |

## 2.24 CARGO MANIFOLD



| B24     | CARGO MANIFOLD                         | UNIT  | CLIPPER MARS |     |          |                 |
|---------|----------------------------------------|-------|--------------|-----|----------|-----------------|
| 24.1    | Distance from center of manifold to:   |       |              |     |          |                 |
| 24.1.1  | Stern                                  | [m]   | 103.2        |     |          |                 |
| 24.1.2  | Bow                                    | [m]   | 101.7        |     |          |                 |
| 24.1.3  | A                                      | [mm]  | 5950         |     |          |                 |
| 24.1.4  | B                                      | [mm]  | 5450         |     |          |                 |
| 24.1.5  | C                                      | [mm]  | 3450         |     |          |                 |
| 24.1.6  | D                                      | [mm]  | 1150         |     |          |                 |
| 24.1.7  | E                                      | [mm]  | 1150         |     |          |                 |
| 24.1.8  | F                                      | [mm]  | 3450         |     |          |                 |
| 24.1.9  | G                                      | [mm]  | 5450         |     |          |                 |
| 24.1.10 | H                                      | [mm]  |              |     |          |                 |
| 24.2    | Flange                                 |       | Duty [Bar]   | ASA | Size ["] | [R]aised/[F]lat |
| 24.2.1  | A                                      | [COL] | Diesel Oil   | 150 | 4        | F               |
| 24.2.2  | B                                      | [COL] | Fuel Oil     | 150 | 8        | F               |
| 24.2.3  | C                                      | [COL] | Cargo Liquid | 300 | 14       | R               |
| 24.2.4  | D                                      | [COL] | Cargo Vapor  | 150 | 10       | R               |
| 24.2.5  | E                                      | [COL] | Cargo Vapor  | 150 | 10       | R               |
| 24.2.6  | F                                      | [COL] | Cargo Liquid | 300 | 14       | R               |
| 24.2.7  | G                                      | [COL] | Fuel Oil     | 150 | 8        | F               |
| 24.2.8  | H                                      | [COL] |              |     |          |                 |
| 24.3    | Height above uppermost continuous deck | [mm]  | 1500         |     |          |                 |
| 24.4    | Distance from ship side                | [mm]  | 3725         |     |          |                 |
| 24.5    | Height above load waterline            | [mm]  | 10240        |     |          |                 |
| 24.6    | Height above light waterline           | [mm]  | 13600        |     |          |                 |

## 2.25 CARGO REDUCERS

| B25  | CARGO REDUCERS                | CLIPPER MARS                  |
|------|-------------------------------|-------------------------------|
| 25.0 | ANSI 300                      | ANSI 300 -150                 |
| 25.1 | 2 off 14"NB 300# ' 16"NB 300# | 2 off 14"NB 300# ' 16"NB 150# |
| 25.2 | 2 off 14"NB 300# ' 12"NB 300# | 2 off 14"NB 300# ' 12"NB 150# |
| 25.3 | 2 off 14"NB 300# ' 10"NB 300# | 2 off 14"NB 300# ' 10"NB 150# |
| 25.4 | 2 off 14"NB 300# ' 8"NB 300#  | 2 off 14"NB 300# ' 8"NB 150#  |
| 25.5 | 1 off 14"NB 300# ' 6"NB 300#  |                               |
| 25.6 |                               |                               |
| 25.7 |                               |                               |
| 25.8 |                               |                               |
| 25.9 |                               |                               |
| 25.0 | ANSI 150                      | FUEL                          |
| 25.1 | 2 off 10"NB 150# ' 12"NB 150# | 1 off 12"NB 150# ' 8"NB 150#  |
| 25.2 | 2 off 10"NB 150# ' 10"NB 150# | 1 off 10"NB 150# ' 8"NB 150#  |
| 25.3 | 2 off 10"NB 150# ' 8"NB 150#  | 1 off 8"NB 150# ' 8"NB 150#   |
| 25.4 | 2 off 10"NB 150# ' 6"NB 150#  | 1 off 8"NB 150# ' 6"NB 150#   |
| 25.5 |                               |                               |
| 25.6 |                               |                               |
| 25.7 |                               |                               |
| 25.8 |                               |                               |
| 25.9 |                               |                               |

## 2.26 CONNECTION TO SHORE FOR ESD/COM SYSTEMS

| B26    | CONNECTIONS TO SHORE FOR ESD AND COM. SYSTEMS | UNIT     | CLIPPER MARS |
|--------|-----------------------------------------------|----------|--------------|
| 26.1   | Is ESD connection to Shore available?         | [Yes/No] | YES          |
| 26.1.1 | System                                        | [Text]   | Electric     |
| 26.1.2 | Type of plug                                  | [Text]   | Electric     |
| 26.3   | Is Hose or cables Available on Board          | [Yes/No] | YES          |
| 26.3.1 | Specify Length                                | [m]      | 30           |
| 26.3.2 | Specify type                                  | [Text]   | Electric     |

## 2.27 MANIFOLD DERRICK/CRANE

| B27    | MANIFOLD DERRICK/CRANE          | UNIT     | CLIPPER MARS |
|--------|---------------------------------|----------|--------------|
| 27.1   | Is Manifold Derrick Provided?   | [Yes/No] | NO           |
| 27.2   | Is Manifold Crane Provided?     | [Yes/No] | YES          |
| 27.3   | Is Lifting equipment Same P&SB? | [Yes/No] | YES          |
| 27.3.1 | If NO, give details             | [Text]   |              |
| 27.3.2 | Maximum outreach                | [m]      | 21           |
| 27.3.3 | Capacity at max. Outreach       | [ton]    | 7.5          |

## 2.28 STORES HANDLING

| B28    | STORES HANDLING  | UNIT   | CLIPPER MARS           |
|--------|------------------|--------|------------------------|
| 28.1   | Number of cranes | [Pcs]  | 2                      |
| 28.1.1 | Location(s)      | [Text] | Aft bridge deck, STB&P |

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### **3.     ADDITIONAL INFORMATION**

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### 3.1 GENERAL

| C1.1    | NOx factor                | UNIT    | CLIPPER MARS      |
|---------|---------------------------|---------|-------------------|
| 1.1.1.0 | <b>Main engine</b>        |         | Tier II           |
| 1.1.1.1 | Power                     | [kW]    | 10150             |
| 1.1.1.2 | RPM                       | [RPM]   | 98                |
| 1.1.1.3 | NOx limit                 | [g/kWh] | 17                |
| 1.1.1.4 | NOx factor                | [g/kWh] | 11.7              |
| 1.1.1.5 | EIAPP                     | [Ref]   | EIAPP-G-0728-0003 |
| 1.1.1.6 | Issued                    | [Date]  | 07.10.2008        |
| 1.1.2.0 | <b>Auxiliary engine 1</b> |         | Tier II           |
| 1.1.2.1 | Power                     | [kW]    | 1280              |
| 1.1.2.2 | RPM                       | [RPM]   | 720               |
| 1.1.2.3 | NOx limit                 | [g/kWh] | 12.1              |
| 1.1.2.4 | NOx factor                | [g/kWh] | 11.1              |
| 1.1.2.5 | EIAPP                     | [Ref]   | EIAPP-G-0731-0007 |
| 1.1.2.6 | Issued                    | [Date]  | 05.08.2008        |
| 1.1.3.0 | <b>Auxiliary engine 2</b> |         | Tier II           |
| 1.1.3.1 | Power                     | [kW]    | 1280              |
| 1.1.3.2 | RPM                       | [RPM]   | 720               |
| 1.1.3.3 | NOx limit                 | [g/kWh] | 12.1              |
| 1.1.3.4 | NOx factor                | [g/kWh] | 11.1              |
| 1.1.3.5 | EIAPP                     | [Ref]   | EIAPP-G-0731-0008 |
| 1.1.3.6 | Issued                    | [Date]  | 05.08.2008        |
| 1.1.4.0 | <b>Auxiliary engine 3</b> |         | Tier II           |
| 1.1.4.1 | Power                     | [kW]    | 1280              |
| 1.1.4.2 | RPM                       | [RPM]   | 720               |
| 1.1.4.3 | NOx limit                 | [g/kWh] | 12.1              |
| 1.1.4.4 | NOx factor                | [g/kWh] | 11.1              |
| 1.1.4.5 | EIAPP                     | [Ref]   | EIAPP-G-0731-0009 |
| 1.1.4.6 | Issued                    | [Date]  | 05.08.2008        |
| 1.1.5.0 | <b>Auxiliary engine 4</b> |         | Tier II           |
| 1.1.5.1 | Power                     | [kW]    |                   |
| 1.1.5.2 | RPM                       | [RPM]   |                   |
| 1.1.5.3 | NOx limit                 | [g/kWh] |                   |
| 1.1.5.4 | NOx factor                | [g/kWh] |                   |
| 1.1.5.5 | EIAPP                     | [Ref]   |                   |
| 1.1.5.6 | Issued                    | [Date]  |                   |
| C1.2    | NOx factor                | UNIT    | CLIPPER MARS      |
| 1.2.1.0 | <b>Main engine</b>        |         | Tier III          |
| 1.2.1.1 | Power                     | [kW]    | 0                 |
| 1.2.1.2 | RPM                       | [RPM]   | 0                 |
| 1.2.1.3 | NOx limit                 | [g/kWh] | 0                 |
| 1.2.1.4 | NOx factor                | [g/kWh] | 0                 |
| 1.2.1.5 | EIAPP                     | [Ref]   | 0                 |
| 1.2.1.6 | Issued                    | [Date]  | 00.01.1900        |
| 1.2.2.0 | <b>Auxiliary engine 1</b> |         | Tier III          |
| 1.2.2.1 | Power                     | [kW]    | 0                 |
| 1.2.2.2 | RPM                       | [RPM]   | 0                 |
| 1.2.2.3 | NOx limit                 | [g/kWh] | 0                 |
| 1.2.2.4 | NOx factor                | [g/kWh] | 0                 |
| 1.2.2.5 | EIAPP                     | [Ref]   | 0                 |
| 1.2.2.6 | Issued                    | [Date]  | 00.01.1900        |
| 1.2.3.0 | <b>Auxiliary engine 2</b> |         | Tier III          |
| 1.2.3.1 | Power                     | [kW]    | 0                 |
| 1.2.3.2 | RPM                       | [RPM]   | 0                 |
| 1.2.3.3 | NOx limit                 | [g/kWh] | 0                 |
| 1.2.3.4 | NOx factor                | [g/kWh] | 0                 |
| 1.2.3.5 | EIAPP                     | [Ref]   | 0                 |

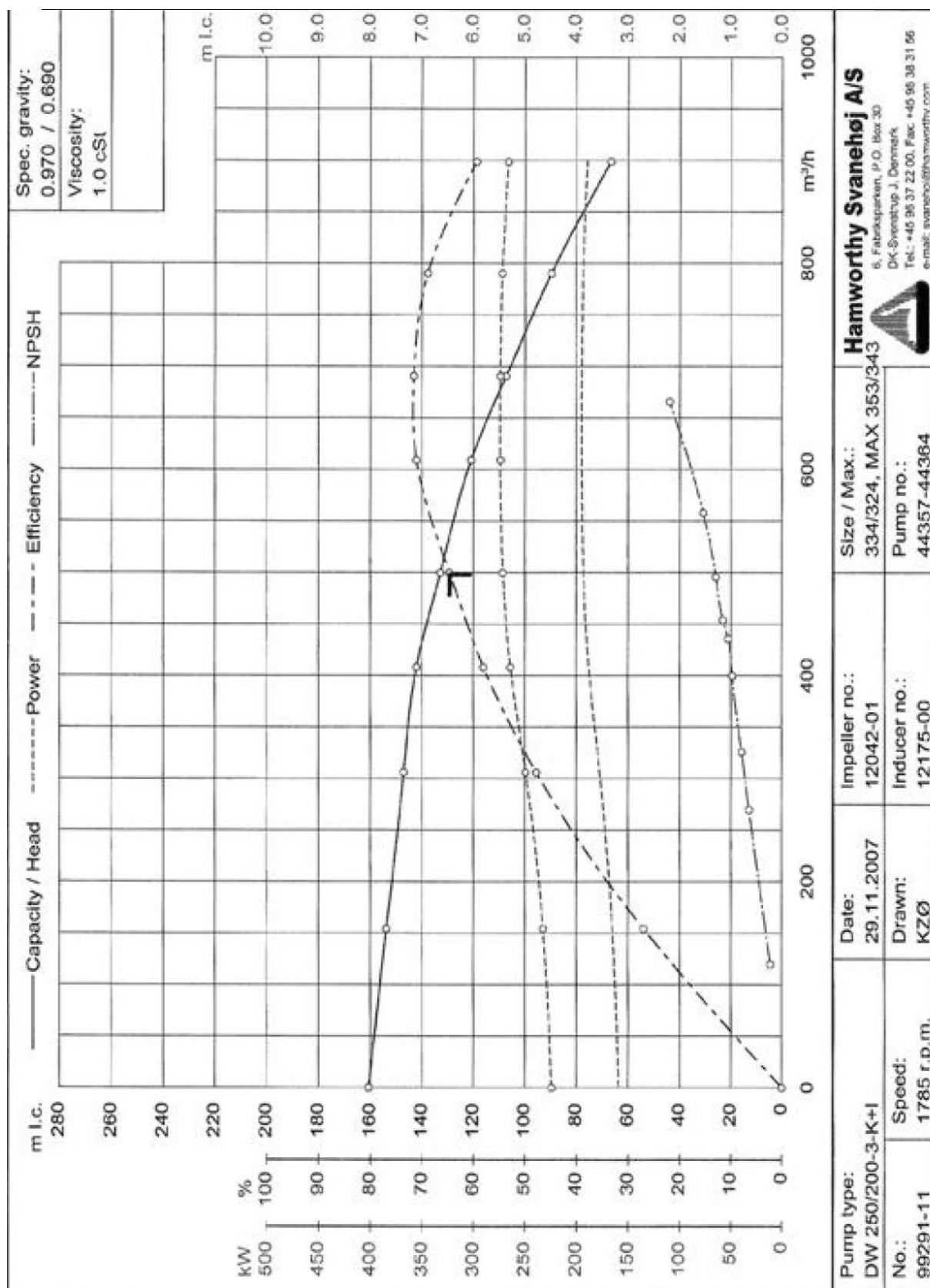
|         |                           |         |            |
|---------|---------------------------|---------|------------|
| 1.2.3.6 | Issued                    | [Date]  | 00.01.1900 |
| 1.2.4.0 | <b>Auxiliary engine 3</b> |         | Tier III   |
| 1.2.4.1 | Power                     | [kW]    | 0          |
| 1.2.4.2 | RPM                       | [RPM]   | 0          |
| 1.2.4.3 | NOx limit                 | [g/kWh] | 0          |
| 1.2.4.4 | NOx factor                | [g/kWh] | 0          |
| 1.2.4.5 | EIAPP                     | [Ref]   | 0          |
| 1.2.4.6 | Issued                    | [Date]  | 00.01.1900 |

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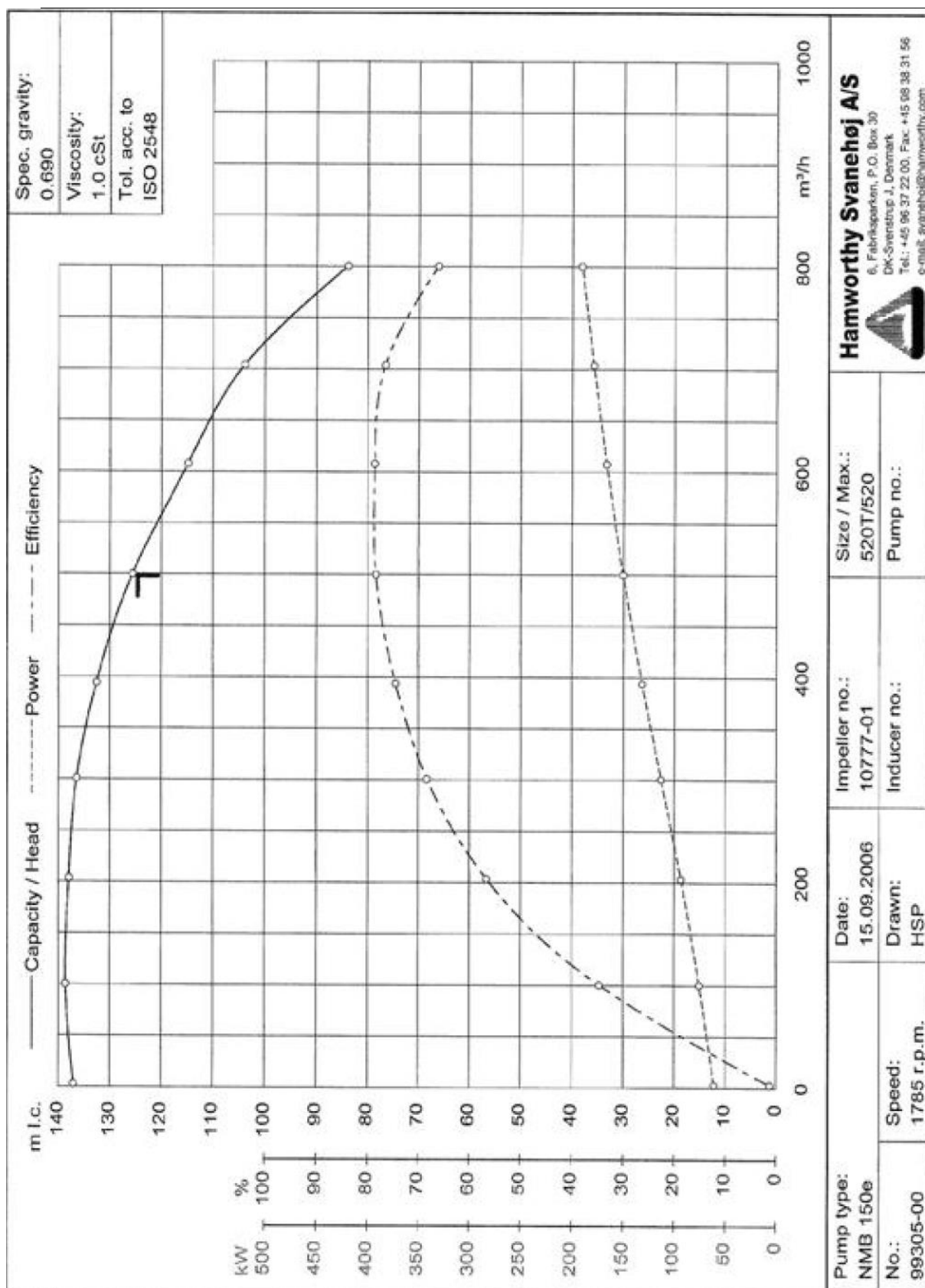
## **4. APPENDIX/DRAWINGS**

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## 4.1 CARGO PUMPS



## 4.2 BOOSTER PUMPS

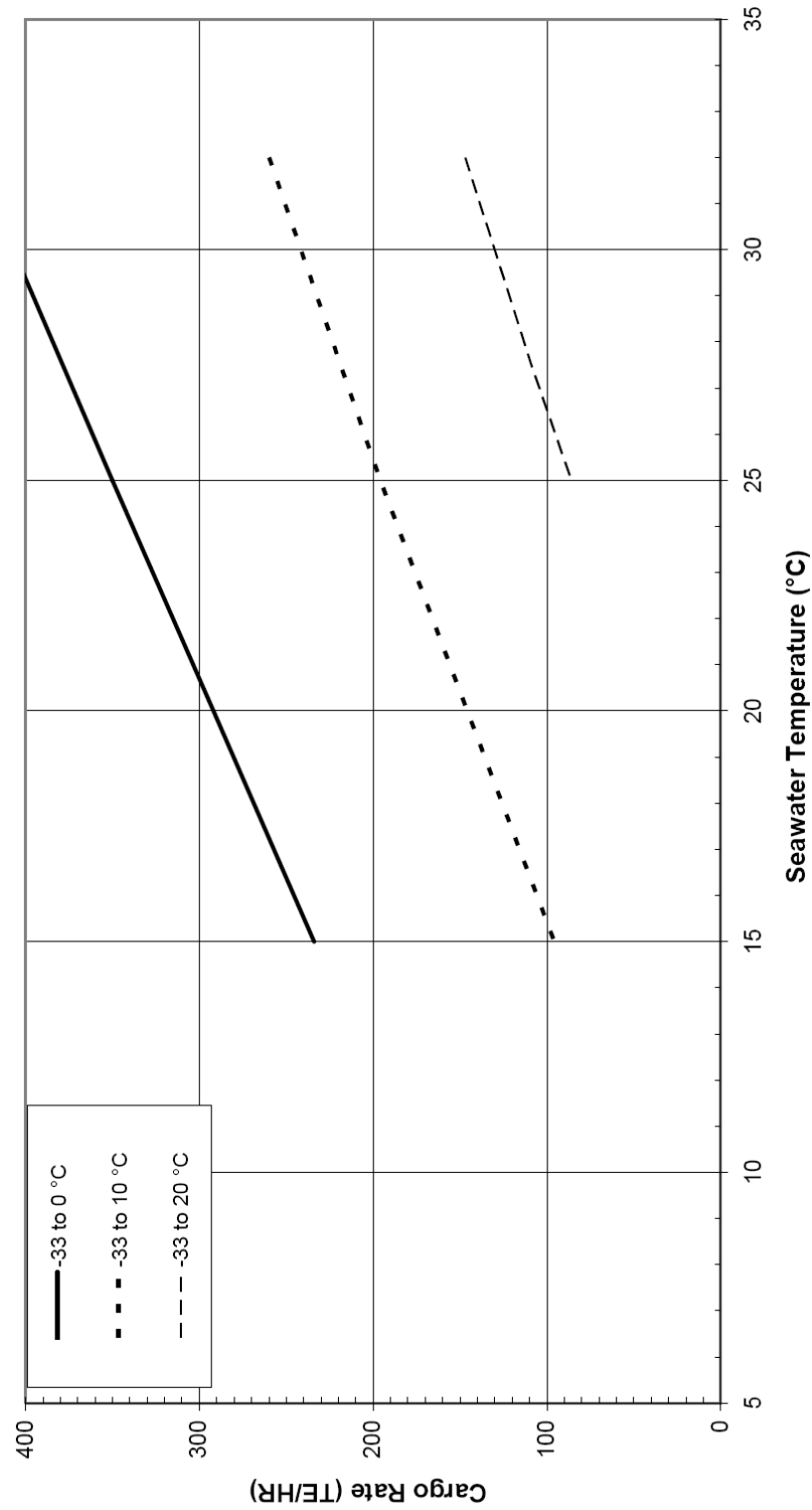


### 4.3 RE-HEATER CAPACITY, AMMONIA



#### Cargo Heater Capacity for Ammonia

Contract No. : 06021  
Client : HHI  
Hull No. : 1899, 1900, 1904-7

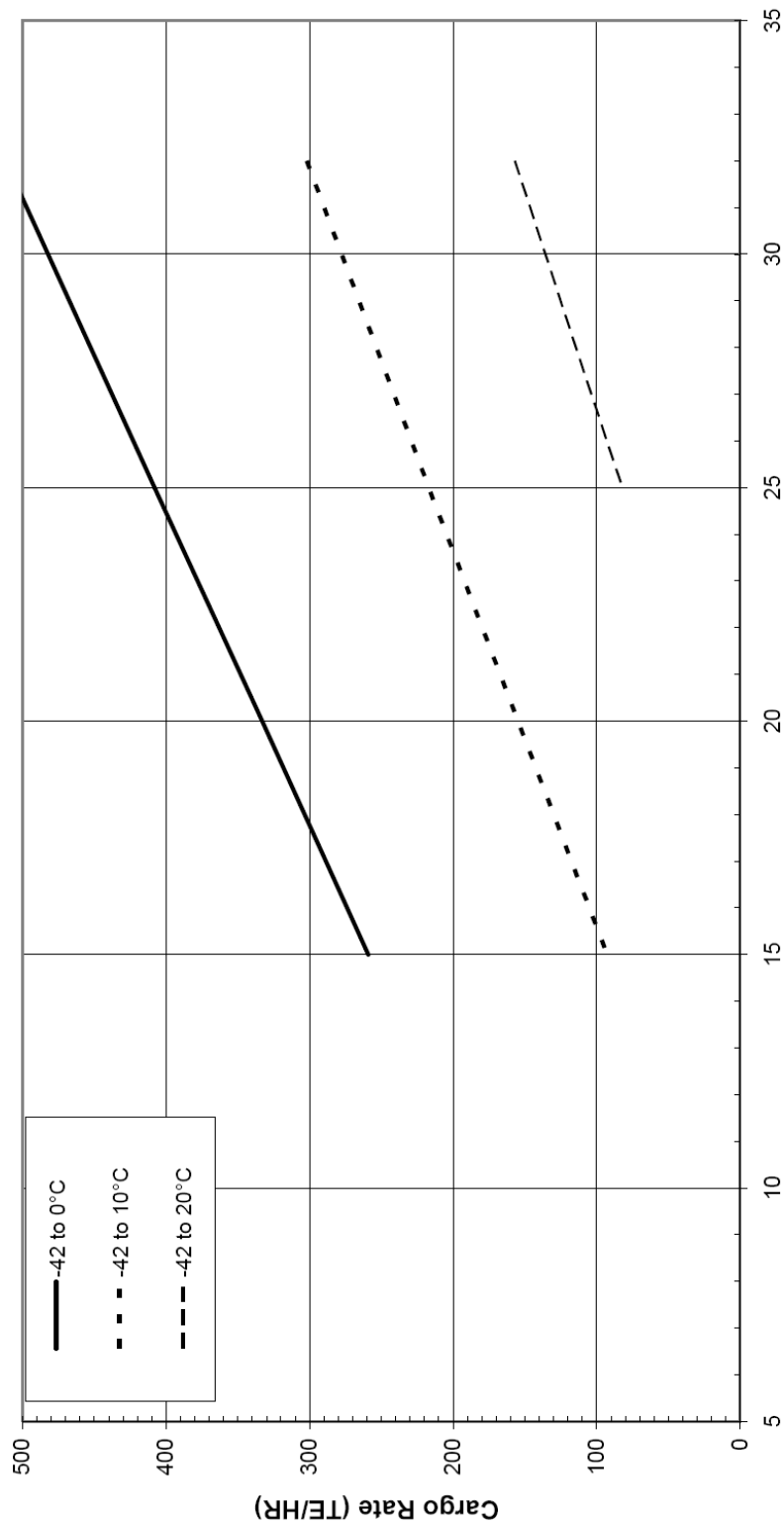


## 4.4 RE-HEATER CAPACITY, PROPANE



### Cargo Heater Capacity for Propane

Contract No. : 06021  
Client : HHI  
Hull No. : 1899, 1900, 1904-7



## 4.5 MOORING DIAGRAM

The diagram below illustrates the position of Winch Mounted Wires (W) and Ropes (R) together with Open (O) and Closed (C) Fairleads. Indicate also the position of mooring Bitts (B)

