

GAS FORM-C

CLIPPER VANGUARD



«Industry leading provider of LPG and petrochemical tonnage»

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

CONTENTS

1.	SECTION A – GENERAL INFORMATION.....	4
1.1	PRINCIPAL SHIP PARTICULARS.....	5
1.2	HULL DIMENSIONS	7
1.3	IMMERSION	7
1.4	LOADED PARTICULARS	7
1.5	PARALLEL MID-BODY DIMENSIONS.....	8
1.6	BUNKER CAPACITIES.....	8
1.7	FUEL CONSUMPTION DETAILS.....	9
1.8	MAIN ENGINE PARTICULARS	9
1.9	AUXILIARY PLANT	9
1.10	POWER/SPEED INFORMATION.....	10
1.11	THRUSTERS	10
1.12	FRESH WATER.....	10
1.13	BALLAST CAPACITIES AND PUMPS	11
1.14	MOORING	11
1.15	NAVIGATIONAL EQUIPMENT	13
1.16	COMMUNICATIONS EQUIPMENT.....	14
2.	SECTION B – CARGO SYSTEMS.....	15
2.1	GENERAL INFORMATION.....	16
2.2	CARGO TANKS.....	16
2.3	CARGO TANK CAPACITIES.....	17
2.4	LOADING RATES.....	17
2.5	DISCHARGING – GENERAL	18
2.6	DISCHARGE PRESSURE.....	18
2.7	UNPUMPABLES.....	18
2.8	VAPORISING UNPUMPABLES	18
2.9	RELIQUEFACTION PLANT	19
2.10	COOLING CAPACITY	19
2.11	CARGO TEMP. LOWERING CAPABILITY.....	19
2.12	INERT GAS.....	20
2.13	CARGO TANK INTERTING/DE-INERTING	20
2.14	GAS FREEING TO FRESH AIR	20
2.15	CHANGING CARGO GRADES	20
2.16	DECK TANK CAPACITIES	21
2.17	PRE-LOADING CONDITIONS.....	21
2.18	VAPORISER.....	21
2.19	BLOWER.....	22

2.20	CARGO RE-HEATER	22
2.21	HYDRATE CONTROL	22
2.22	CARGO MEASUREMENT	22
2.23	CARGO SAMPLING	23
2.24	CARGO MANIFOLD	24
2.25	CARGO REDUCERS	25
2.26	CONNECTION TO SHORE FOR ESD/COM SYSTEMS	25
2.27	MANIFOLD DERRICK/CRANE.....	25
2.28	STORES HANDLING	25
3.	SECTION C – MACHINERY	27
3.1	NOX FACTOR TIER II	28
3.2	NOX FACTOR TIER III.....	29
3.3	EGCS/SCRUBBER.....	30
3.4	HEAT RECOVERY	30
3.5	OTHER RELEVANT TECHNICAL INFORMATION	30
3.6	ENVIRONMENTAL/PERFORMANCE TECHNOLOGIES INSTALLED.....	31
4.	APPENDIX/DRAWINGS.....	32
4.1	CARGO PUMPS	33
4.2	BOOSTER PUMPS.....	34
4.3	RE-HEATER CAPACITY, AMMONIA.....	35
4.4	RE-HEATER CAPACITY, PROPANE	36
4.5	MOORING DIAGRAM.....	37



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. 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.

«Industry leading provider of LPG and petrochemical tonnage»

1. SECTION A – GENERAL INFORMATION

1.1 PRINCIPAL SHIP PARTICULARS

A1	PRINCIPAL SHIP PARTICULARS		CLIPPER VANGUARD
1.0	Date Questionnaire Completed		02.04.2020
1.1	Name of vessel		CLIPPER VANGUARD
1.2	LR/IMO Number		IMO 9789166
1.3	Last Previous Name		
1.3.1	Date of Name change		
1.4	Second Last Name Change		
1.4.1	Date of Name change		
1.5	Third Last Name Change		
1.5.1	Date of Name change		
1.6	Fourth Last Name Change		
1.6.1	Date of Name change		
1.7	Flag		NIS
1.8	Port Of Registry		Stavanger
1.9	Official Number		9789166
1.10	Call Sign		LAZK7
1.11	VSAT		+44 203 868 8311 / 2 / 3
1.12	Fleet 77		+870 773265909
1.13	Fax		
1.14	Mini – M		
1.15	E-mail		clipper.vanguard@solvangship.no
1.16	GSM Mobile		+47 90 57 63 06
1.17	SAT C		425913810 / 1
1.18	Vessel's MMSI Number		259138000
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]	0,40 (Harbour)/0,275 (Sea)
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 SIRIUS 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		+47 51 84 84 11
1.26	Office Telex Number		
1.27	Office e-mail Address		solvang-vlgc@solvangship.no
1.28	Number of Years Vessel Owned		0.3
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		(+47) 51 84 84 11
1.34	Office Telex Number		
1.35	Office e-mail Address		solvang-vlgc@solvangship.no
1.36	Number of Years as vessel Operator		2.6
1.37	Total number of vessels, Operator		27
1.38	COMMERCIAL OPERATOR		Solvang ASA
1.39	Visitor's address		Haakon VII's gt 6
1.39.1	City		N-0121 Oslo
1.39.2	Country		Norway
1.40	Postal address		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	Office e-mail Address		chartering@solvangship.no
1.42.1	Office e-mail Address 2		operation@solvangship.no
1.43	Number of Years as vessel Operator		2.6
1.44	Builder		Hyundai HI
1.45	Name of Yard Vessel Built At		Ulsan, Korea
1.46	Hull Number		2889
1.47	Date Keel Laid		28.12.2015
1.48	Date Launched		16.06.2017
1.49	Date Delivered		31.08.2017
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
A1	CLASSIFICATION	UNIT	CLIPPER VANGUARD
1.52	Classification Society	[Text]	DNV GL
1.53	Class Notation	[Text]	+1A1 TANKER FOR LIQUIFIED GAS
1.53.1	Cont.	[Text]	2G, E0, TMON, BWM-T
1.53.2	Cont.	[Text]	NAUTICUS (NB), Plus-1, NAUT-OC
1.54	If Class Society Changed, Name of Previous society	[Text]	N/A
1.55	If Class Society Changed, Date of Change	[Date]	N/A
1.56	Built in accordance with Regulations:		
1.56.1	IMO	[Yes/No]	YES
1.56.2	USCG	[Yes/No]	YES
1.56.3	RINA	[Yes/No]	NO
1.56.4	Other	[Yes/No]	NO
1.57	IMO Certification Certificate of Fitness		
1.57.1	IGC	[Yes/No]	YES
1.57.2	A328	[Yes/No]	NO
1.57.3	A329	[Yes/No]	NO
1.57.4	Letter of compliance	[Yes/No]	NO
1.57.5	Issued By	[Text]	DNV GL
1.58	Unattended Machinery Space certificate	[Yes/No]	YES (24hr)
A1	TONNAGES	UNIT	CLIPPER VANGUARD
1.59	Nett Registered Tonnage	[NT]	17240
1.60	Gross Tonnage	[GT]	46491
1.61	Suez Canal Tonnage		
1.61.1	Net Tonnage	[NT]	44667.46
1.61.2	Gross Tonnage	[GT]	50064.32
1.62	Panama Canal Tonnage		
1.62.1	Net Tonnage	[NT]	41685
1.62.2	Gross Tonnage	[GT]	TBA

1.2 HULL DIMENSIONS

A2	HULL DIMENSIONS	UNIT	CLIPPER VANGUARD
2.1	Length Overall	[m]	230.0
2.2	Length Between Perpendiculars	[m]	225.3
2.3	Distance Bow to Bridge	[m]	188.9
2.4	Distance Bridge Front to Mid-Point Manifold	[m]	77.2
2.5	Distance Bow to Mid-Point Manifold	[m]	111.9
2.6	Extreme Breadth	[m]	32.3
2.7	Extreme Depth	[m]	23.2
2.8	Summer Draught	[m]	12.0
2.9	Corresponding Deadweight	[ton]	50891.0
2.10	Light Displacement/weight	[ton]	18771
2.11	Loaded Displacement (Summer)	[ton]	69662
2.12	Cargo Tank Cubic Capacity (100% full)	[m3]	78868.8
2.13	Distance from Keel to Highest Point (With mast down)	[m]	48.3
2.14	Air Draught normal ballast (With mast down)	[m]	41.8

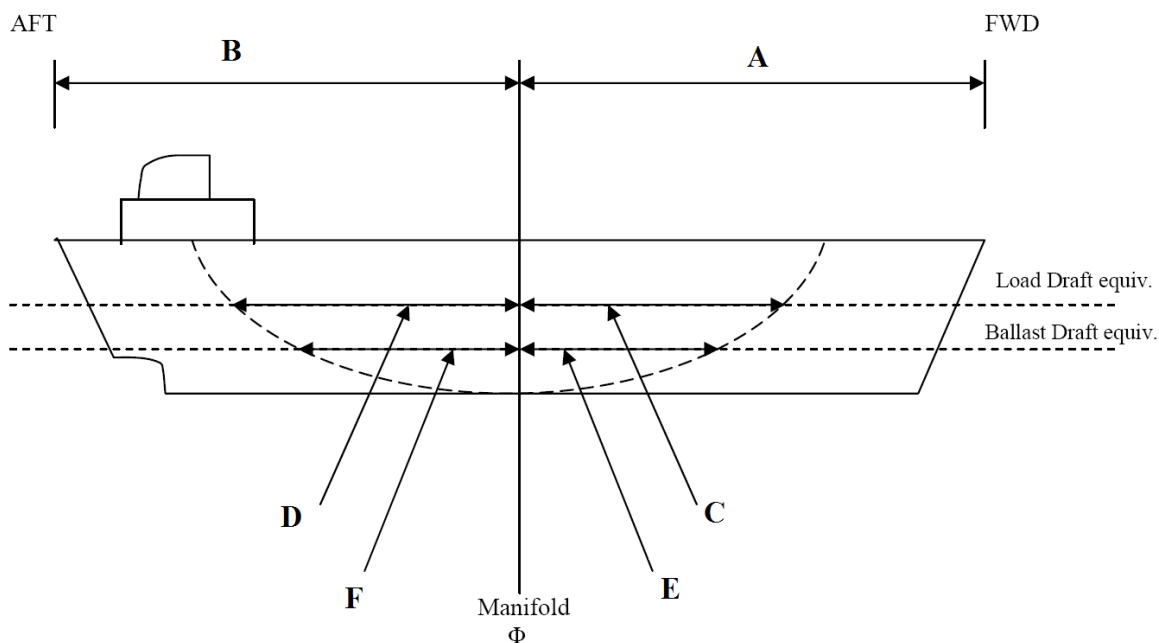
1.3 IMMERSION

A3	IMMERSION	UNIT	CLIPPER VANGUARD
3.1	Normal Ballast Draught	[TPC]	60,1
3.1.1	Draught	[m]	6,8
3.2	Loaded Draught	[TPC]	65,1
3.2.1	Draught	[m]	11.6

1.4 LOADED PARTICULARS

A4	LOADED PARTICULARS	UNIT	CLIPPER VANGUARD	
4.1	Cargo:		Propane	Butane
4.2	Density:	[ton/m3]	0,58	0.601
4.3	Cargo	[ton]	44335.00	45940
4.4	Bunkers	[ton]	2277.00	2277
4.5	DO	[ton]	200.00	200
4.6	Fresh Water	[ton]	300.00	300
4.7	Stores/Spares	[ton]	*	*
4.8	Lube Oil	[ton]	120	120
4.9	Ballast	[ton]	*	*
4.10	Deadweight Const.	[ton]	*	*
4.11	Draught – Forward	[m]	11.6	11.6
4.11.1	Aft	[m]	11.6	11.6
4.11.2	Equiv.	[m]	11.6	11.6

1.5 PARALLEL MID-BODY DIMENSIONS



A5	PARALLEL MID-BODY DIMENSIONS	UNIT	CLIPPER VANGUARD
5.1	A Manifold to FWD	[m]	111.85
5.2	B Manifold to AFT	[m]	118.14
5.3	Loaded draft equiv-		
5.3.1	C Manifold to FWD side tangent line	[m]	52,396
5.3.2	D Manifold to AFT side tangent line	[m]	71,877
5.4	Ballast draft equiv.		
5.4.1	E Manifold to FWD	[m]	52,396
5.4.2	F Manifold to AFT	[m]	58,861

1.6 BUNKER CAPACITIES

A6	BUNKER CAPACITIES	UNIT	CLIPPER VANGUARD
6.1	HFO	[Grade]	IFO 380 (Standard)
6.1.1	Capacity @ 100 %	[m3]	2308
6.2	LSHFO	[Grade]	N/A
6.2.1	Capacity @ 100 %	[m3]	N/A
6.3	Diesel Oil	[Grade]	LSMGO
6.3.1	Capacity @ 100 %	[m3]	365

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 VANGUARD	
7.1	LOADED CONDITION		*About	
7.2	Average speed over 12 months	[kn]	16.0	
7.3	Average consumption, Main engine	[ton/day]	39.0	
7.4	Consumption, AUX			
7.4.1	Butane	[ton/day]	4	
7.4.2	Propane	[ton/day]	5	
7.5	Average consumption, AUX			
7.5.1	Butane	[ton/day]	4	
7.5.2	Propane	[ton/day]	5	
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]		
7.10	PORT/IDLE			
7.11	Average consumption, AUX, Loading	[ton/day]	8	
7.12	Average consumption, AUX, Discharging	[ton/day]	5.5	
7.13	Average consumption, AUX, Idle	[ton/day]	4	
7.14	Average consumption, Boiler (depending on weather)	[ton/day]	2	
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]	39.0	36.0
7.18.3	15	[ton/day]	32.0	29.0
7.18.4	14	[ton/day]	27.0	24.0
7.18.5		[ton/day]		

**Consumption of AUX will increase with 0,2-1,0 MT/24h when systems for exhaust gas cleaning is running, depending on sulfur content in fuel oil, load of engines, alkalinity, degree of cleaning, etc

1.8 MAIN ENGINE PARTICULARS

A8	MAIN ENGINE PARTICULARS	UNIT	CLIPPER VANGUARD
8.1	Main Engine Make and Type	[Text]	Hyundai-B&W 6G60ME-C9.5
8.2	No of Units	Pcs	1
8.3	Maximum Continuous Rating (MCR)	[kW]	12020
8.3.1	RPM	[RPM]	96.5
8.4	Total Available Power	kW	12 020
8.5	Normal service Power	kW	10 220

1.9 AUXILIARY PLANT

A9	AUXILIARY PLANT	UNIT	CLIPPER VANGUARD
9.1	Make and Type of Auxiliary Generators	[Text]	Himsen 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]	140
9.7	Emergency Fire Pump	[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]	
9.8	Steering Gear Type		Electro-hydraulic
9.8.1	kW to Steer the Vessel with One Pump Unit	[kW]	

1.10 POWER/SPEED INFORMATION

A10	POWER/SPEED INFORMATION	UNIT	CLIPPER VANGUARD
10.1	Trial Data		
10.1.1	NCR	[kW]	10 270
10.1.2	MCR	[kW]	11 140
10.1.3	Speed	[kn]	17.7
10.1.4	Draught	[m]	6.54
10.2	Normal Service Speed		
10.2.1	NCR	[kW]	TBA
10.2.2	MCR	[kW]	TBA
10.2.3	Speed	[kn]	TBA
10.2.4	Draught	[m]	TBA

1.11 THRUSTERS

A11	THRUSTERS	UNIT	CLIPPER VANGUARD
11.1	Make and Type	[Text]	N/A
11.2	No. Installed	[Pcs]	N/A
11.3	Location and Rated Bollard Pull or kW output	[kW]	N/A

1.12 FRESH WATER

A12	FRESH WATER	UNIT	CLIPPER VANGUARD
12.1	Capacity of Distilled Tanks	[ton]	N/A
12.2	Capacity of F/D.W. Ts	[ton]	390.00
12.3	Daily Consumption	[ton/day]	8.00
12.4	Daily Evaporator Output	[ton/day]	20.00

1.13 BALLAST CAPACITIES AND PUMPS

A13	BALLAST CAPACITIES AND PUMPS	UNIT	CLIPPER VANGUARD	
13.1	Tank Capacities		Capacity [m3]	Tanks [Pcs]
13.1.1	Forepeak	[Col]	1 142.00	1
13.1.2	Wing or Side tanks	[Col]	6193	8
13.1.3	Aft Peak	[Col]	1060	1
13.1.4	Double bottom tanks	[Col]	10010	8
13.1.5	Other	[Col]		
13.1.6	Total	[Col]	18 405.00	18
13.2	Ballast Pumps			
13.2.1	Capacity per pump	[m3/h]	800	
13.2.2	Model	[Text]	SVS100	
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]	ECR/CCR/BRIDGE	

1.14 MOORING

A14	MOORING EQUIPMENT	UNIT	CLIPPER VANGUARD			
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]	6	2	2	6
14.2.2	Type	[Text]	TIMM Master 8 Tail	TIMM Master 8 Tail	TIMM Master 8 Tail	TIMM Master 8 Tail
14.2.3	Diameter	[mm]	80	80	80	80
14.2.4	Length	[m]	11	11	11	11
14.2.5	Maximum Breaking Load	[ton]	125	125	125	125
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]	Acera Amundsen	Acera Amundsen	Acera Amundsen	Acera Amundsen
14.3.3	Diameter	[mm]	36	36	36	36
14.3.4	Length	[m]	220	220	220	220
14.3.5	Maximum Breaking Load	[ton]	95.82	95.82	95.82	95.82
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]	D	D	D	D
14.4.3	Split drums	[Yes/No]	Yes	Yes	Yes	Yes
14.4.4	Motive power	[Text]	H	H	H	H
14.4.5	Heaving power	[ton]	20	20	20	20
14.4.6	Brake capacity	[ton]	89,6	89,6	89,6	89,6
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]		4		
14.5.2	Type	[Text]		Acera Amundsen		
14.5.3	Diameter	[mm]		36		
14.5.4	Length	[m]		220		
14.5.5	Maximum Breaking Load	[ton]		95,82		

A14	ANCHORS AND WINDLASSES	UNIT	CLIPPER VANGUARD
14.5.1	Windlass Motive Power (e.g. Steam, Hydraulic)	[Text]	Hydraulic
14.5.2	Hauling Power	[ton]	31,2
14.5.3	Brake Holding Power	[ton]	221,3
14.5.4	Anchor Type	[Text]	Stockless HHP
14.5.5	Weight	[kg]	8 325
14.5.6	Is Spare Carried	[Yes/No]	NO
14.5.7	Cable Diameter	[mm]	81
14.5.8	No of Shackles Port	[Pcs]	12
14.5.9	No of Shackles Starboard	[Pcs]	13
14.6	TOWING EQUIPMENT		
14.6.1	Is Ship fitted with a Towing Bracket AFT(drum)	[Yes/No]	YES
14.6.2	If Yes, state SWL	[ton]	204
14.6.3	Is Towing Chain provided	[Yes/No]	YES
14.6.4	Dimensions of Towing Wire – Diameter	[mm]	80
14.6.5	Length	[m]	85
14.7	Windage on Ballast Draught		
14.7.1	End-on	[m2]	949,63
14.7.2	Lateral	[m2]	4369,19

Mooring diagram is provided in the appendix.

1.15 NAVIGATIONAL EQUIPMENT

A15	NAVIGATIONAL EQUIPMENT	UNIT	CLIPPER VANGUARD
15.1	Magnetic Compass	[Yes/No]	YES
15.2	Off Course Alarm – Magnetic	[Yes/No]	YES
15.3	Gyro Compass	[Yes/No]	YES
15.3.1	Specify number	[Pcs]	
15.4	Off Course Alarm – Gyro	[Yes/No]	YES
15.5	Bridge Repeaters	[Yes/No]	YES
15.5.1	Specify Number	[Pcs]	
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
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]	N/A
15.22	Thruster (s) indicator	[Yes/No]	N/A
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	What chart outfit coverage is provided	[Yes/No]	
15.39.1	Worldwide	[Yes/No]	YES
15.39.2	Limited	[Yes/No]	NO
15.39.3	If Limited Please Indicate	[Text]	N/A
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 VANGUARD
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]	NO
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]	NO
16.8	Alarm Signal Generating Device	[Yes/No]	NO
16.9	VHF Radio (s)	[Yes/No]	YES
16.9.1	Specify Number	[Pcs]	3
16.10	Portable VHF/UHF Radios	[Yes/No]	YES
16.10.1	Specify Type and Number	[Pcs]	VHF[3PCS], UHF[10PCS]
16.11	Are Sets Intrinsically Safe	[Yes/No]	VHF[NO], UHF[YES]
16.12	Inmarsat Satellite System	[Yes/No]	YES
16.13	Specify System Type A, B, C, F or VSAT	[Text]	FBB, VSAT
16.14	Is the ship equipped as per GMDSS Requirements	[Yes/No]	YES
16.15	If Yes, which area of operation is vessel certified to operate in	[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

2. SECTION B – CARGO SYSTEMS

2.1 GENERAL INFORMATION

B1	CARGO - GENERAL INFORMATION		CLIPPER VANGUARD	
1.1	List Products Which the Ship is Certified to Carry			
1.1.1	1.	Butane		
1.1.2	2.	Propane		
1.1.3	3.	Butane/propane		
1.1.4	4.	Propylene		
1.1.5	5.			
1.1.6	6.			
1.1.7	7.			
1.1.8	8.			
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+2+3+4
1.7.2	2.		[Tank]	1+3 & 2+4
1.7.3	3.		[Tank]	1+3+4 & 2

2.2 CARGO TANKS

B2	CARGO TANKS	UNIT	CLIPPER VANGUARD
2.1	Cargo Tanks		
2.1.1	Type	[Text]	Type A
2.1.2	Material	[Text]	Carbon Manganese LT
2.2	Maximum Allowable Relief Valve setting	[bar g]	0.4
2.3	Safety Valve Set Pressure – If Variable Give Range of Pilot Valves		
2.3.1	Seagoing setting	[bar g]	0.275
2.3.2	Harbour setting	[bar g]	0.45
2.4	Maximum Vacuum	[bar g]	0.05
2.5	Maximum Cargo Density (98% full)	[kg/m3]	610
2.6	Maximum Rate of Cool-Down	[C/h]	10

2.7	State any Limitations regarding Partially Filled Tanks	[Text]	
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 VANGUARD				
3.1	Capacity	Tank	1	2	3	4	Total
3.1.1	100 %	[m3]	17181	21070	21054	19664	78969
3.1.2	98 %	[m3]	16837	20649	20633	19271	77390
3.2	Cargo						
3.2.1	iso-butane	[ton]	10001	12265	12256	11447	45969
3.2.2	Propane	[ton]	9766	11976	11967	11177	44886
3.2.3	Butadiene	[ton]					
3.2.4	Propylene	[ton]	10271	12596	12586	11755	47208
3.2.5	Ammonia	[ton]					
3.2.6	Butylene/Butenes	[ton]					
3.2.7	n-butane	[ton]	10119	12410	12400	11582	46511
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 VANGUARD			
			REFRIGERATED		PRESSURE	
4.1	Cargo	[m3/h]	VR	W/O VR	VR	W/O VR
4.1.1	1 Butane	[m3/h]	4800	4800		
4.1.2	2 Propane	[m3/h]	4800	4800		
4.1.3	3	[m3/h]				
4.1.4	4	[m3/h]				
4.1.5	5	[m3/h]				
4.1.6	6	[m3/h]				
4.1.7	7	[m3/h]				
4.1.8	8	[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 VANGUARD
5.1	Cargo Pumps	[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]	600
5.1.4	Delivery Head	[mlc]	120
5.1.5	Maximum Density	[kg/m3]	
5.2	Booster Pumps		
5.2.1	Type of Pumps	[Text]	Centrifugal
5.2.2	Number	[Pcs]	2
5.2.3	Rate (per pump)	[m3/h]	600
5.2.4	Delivery Head	[mlc]	115
5.2.5	Maximum Density	[kg/m3]	

2.6 DISCHARGE PRESSURE

B6	DISCHARGE PERFORMANCE	UNIT	CLIPPER VANGUARD
6.1	Fully Refrigerated, Full Cargo Discharge Times (all pumps):		VR W/O VR
6.1.1	Manifold Back Pressure (1 kg/cm2) x	[h]	24
6.1.2	Manifold Back Pressure (5 kg/cm2) x	[h]	24
6.1.3	Manifold Back Pressure (10 kg/cm2) ^	[h]	35
6.2	Pressurized, Full Cargo Discharge Times (all pumps):		VR W/O VR
6.2.1	Manifold Back Pressure (1 kg/cm2) ^	[h]	
6.2.2	Manifold Back Pressure (5 kg/cm2) ^	[h]	
6.2.3	Manifold Back Pressure (10 kg/cm2) ^	[h]	

x = Based on largest single tank volume

^ = Based on discharging tanks one at a time

2.7 UNPUMPABLES

B7	UNPUMPABLES	UNIT	CLIPPER VANGUARD
7.1	Unpumpables, liquid		
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 VANGUARD
8.1	Process Used	[Text]	Hot Gas / Puddle heating
8.2	Time to Vaporize Liquid Unpumpables After Discharge:		
8.2.1	Propane	[h]	24
8.2.2	iso-Butane	[h]	24
8.2.3	n-Butane	[h]	26
8.2.4		[h]	

8.2.5

[h]

2.9 RELIQUEFACTION PLANT

B9	RELIQUEFACTION PLANT	UNIT	CLIPPER VANGUARD
9.1	Plant Design Conditions		
9.1.1	Air Temperature	[°C]	50
9.1.2	Sea Temperature	[°C]	36
9.2	Plant Type		
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]	YES
9.2.4	Coolant Type	[Text]	Seawater
9.3	Compressors		
9.3.1	Type	[Text]	Sulzer + Burckhardt
9.3.2	Model	[Text]	3K-160
9.3.3	Number	[Psc]	3
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 VANGUARD	
10.1	State Cooling Capacity (per compressor, 2-stage @ - 0.4 bar g)		SW 32 [°C]	SW 15 [°C]
10.1.1	1 Propane @ -42 [°C]	[kcal/h]		
10.1.2	2 Propane @ -20 [°C]	[kcal/h]		
10.1.3	3 Propane @ -5 [°C]	[kcal/h]		
10.1.4	4 Butane @ -42 [°C]	[kcal/h]		
10.1.5	5 Butane @ -20 [°C]	[kcal/h]		
10.1.6	6 Butane @ -5[°C]	[kcal/h]		
10.1.7	7	[kcal/h]		

2.11 CARGO TEMP. LOWERING CAPABILITY

B11	CARGO TEMPERATURE LOWERING CAPABILITY	UNIT	CLIPPER VANGUARD
11.0	Time taken to lower the temp of:		
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]	
11.4	+20[°C] to -0,5[°C]	[h]	
11.5	+10[°C] to -0,5[°C]	[h]	
11.6	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	Butadiene from +20[°C] to -5[°C]	[h]	
11.10	Propylene from -20[°C] to -47[°C]	[h]	
11.11	Ammonia from -15[°C] to -33[°C]	[h]	

2.12 INERT GAS

B12	INERT GAS	UNIT	CLIPPER VANGUARD
12.1	Main IG Plant		
12.1.1	Type of System	[Text]	Combustion
12.1.2	Capacity	[m3/h]	5300
12.1.3	Type of Fuel Used	[Text]	MGO
12.1.4	Composition of I.G.		
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]	Purging cargo tanks
12.4	Auxiliary IG or Nitrogen Plant		N2
12.4.1	Type of System	[Text]	N/A
12.4.2	Capacity	[m3/h]	N/A
12.5	Lowest Dewpoint Achievable	[°C]	N/A
12.6	Used for	[Text]	N/A
12.7	Nitrogen generator installed?	[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 VANGUARD
13.1	Time Taken From Fresh Air to Under 5% O2 at -25oC Dewpoint	[h]	21
13.2	Time taken from cargo Vapor to Fully Inert at - 25oC Dewpoint when:		
13.2.1	IG density less than product	[h]	39
13.2.2	IG density greater than product	[h]	N/A

2.14 GAS FREEING TO FRESH AIR

B14	GAS FREEING TO FRESH AIR	UNIT	CLIPPER VANGUARD
14.1	Plant Used	[Text]	Gas free fans
14.1.1	Number of fans	[Pcs]	2
14.1.2	Total capacity	[m3/h]	20000
14.2	Time taken from Fully Inert Condition to Fully Breathable Air	[h]	7,5 (41)

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 VANGUARD	
15.1	From propane to:		[h]	[m3]
15.1.1	Iso-butane	[COL]		
15.1.2	Ammonia	[COL]		
15.2	From Iso-butane to:		[h]	[m3]
15.2.1	Propane	[COL]		
15.2.2	Ammonia	[COL]		
15.3	From ammonia to:		[h]	[m3]
15.3.1	Propane	[COL]		
15.3.2	Iso-butane	[COL]		

2.16 DECK TANK CAPACITIES

B16	DECK TANK CAPACITIES	UNIT	CLIPPER VANGUARD
16.1	Deck tank	[Yes/No]	NO
16.2	Deck tank capacities		N/A
16.2.1	1 Propane	[ton]	N/A
16.2.2	2 Ammonia	[ton]	N/A
16.2.3	3 Ethylene	[ton]	N/A
16.3	Maximum Allowable Relief Valve Setting	[bar g]	N/A
16.4	Lowest Permissible Temperature	[°C]	N/A
16.5	Materials	[Text]	N/A

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 VANGUARD		
17.1	Product		Quantity [ton]	VPR [h]	W/O VPR [h]
17.1.1	Propane	[COL]	220	24	24
17.1.2	Butane	[COL]	220	12	12
17.1.3	Butadiene	[COL]			
17.1.4	Propylene	[COL]			
17.1.5	Ammonia	[COL]			
17.1.6	VCM	[COL]			

2.18 VAPORISER

B18	VAPORISER	UNIT	CLIPPER VANGUARD
18.1	Type of Vaporizer	[Text]	
18.2	Number Fitted	[Pcs]	
18.3	Capacity (per unit) – Propane	[Nm3/h]	4800
18.3.1	Liquid Supply rate	[m3/h]	10
18.3.2	Delivery temperature	[°C]	
18.4	Capacity (per unit) – Ammonia	[Nm3/h]	230
18.4.1	Liquid Supply rate	[m3/h]	< 350
18.4.2	Delivery temperature	[°C]	In - 33 / out > 0
18.5		[Nm3/h]	
18.5.1		[m3/h]	
18.5.2		[°C]	

2.19 BLOWER

B19	BLOWER	UNIT	CLIPPER VANGUARD
19.1	Type of Blower	[Text]	Gas Free fans/Electric fans
19.2	Number fitted	[Pcs]	2
19.3	Rated Capacity (per unit)	[Nm3/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 VANGUARD
20.1	Type of re-heater	[Text]	Shell/tube
20.2	Number Fitted	[Pcs]	1
20.3	Heating Medium	[Medium]	Seawater
20.4	Discharge rates, SW = 15[°C], to raise product temperature:		
20.4.1	Propane from -42[°C] to 0[°C]	[ton/h]	300
20.4.2	Ammonia from -33[°C] to 0[°C]	[ton/h]	N/A
20.5	Cargo Heater Curve:	[Yes/No]	YES

2.21 HYDRATE CONTROL

B21	HYDRATE CONTROL	UNIT	CLIPPER VANGUARD
21.1	Type of Depressant	[Medium]	Ethanol
21.2	Depressant Freezing Point Temperature	[°C]	-114
21.3	Max capacity of depressant	[Liter]	1800
21.4	Means of Injection	[Text]	Hand pump
21.5	Any other system used	[Text]	Hot gas

2.22 CARGO MEASUREMENT

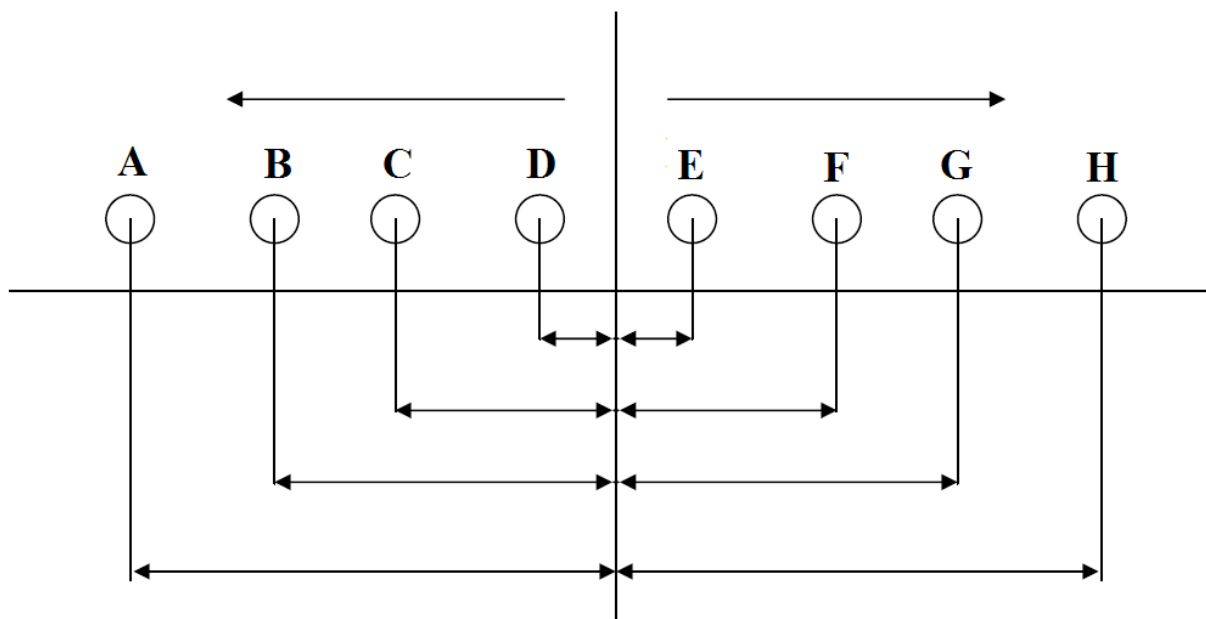
B22	CARGO MEASUREMENT	UNIT	CLIPPER VANGUARD
22.1	Level Gauges		
22.1.1	Are level gauges Local or Remote	[Text]	Both
22.1.2	Manufacturer	[Text]	Henri Systems Holland BV
22.1.3	Type	[Text]	FTLG 807
22.1.4	Rated Accuracy	[-]	1mm
22.1.5	Certifying Authority	[Text]	Intertek
22.2	Temperature Transmitter		
22.2.1	Manufacturer	[Text]	MRC Teamtrade
22.2.2	Type	[Text]	PT 100
22.2.3	Rated Accuracy	[-]	0.41 deg C
22.2.4	Certifying Authority	[Text]	Intertek
22.3	Pressure Transmitter		
22.3.1	Manufacturer	[Text]	Yokogawa Electronic Corp.
22.3.2	Type	[Text]	EJA530A
22.3.3	Rated Accuracy	[-]	0.005 bar
22.3.4	Certifying Authority	[Text]	Intertek
22.4	Oxygen Analyzer		

22.4.1	Manufacturer	[Text]	Riken Keiki
22.4.2	Type	[Text]	GX8000
22.4.3	Lowest Level Measurable		0%
22.5	Fixed Gas Analyzer		
22.5.1	Manufacturer	[Text]	Riken Keiki
22.5.2	Type	[Text]	Magnetic
22.6	Cargo Tank Calibration Tables		
22.6.1	Are Cargo Tank Calibration tables available	[Yes/No]	YES
22.6.2	Measuring Company	[Text]	H1 Total Marine Service
22.6.3	Certifying Authority	[Text]	Intertek
22.6.4	Calibration calculated tocm ½ cm.....	[Yes/No]	YES
22.6.5	Tables established tocmcm.....mm	[Yes/No]	YES
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 VANGUARD			
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	Can sample be drawn from?					
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	State connection					
23.3.1	Type	[Text]	male			
23.3.2	Size	[Inch]	1/2			

2.24 CARGO MANIFOLD



B24	CARGO MANIFOLD	UNIT	CLIPPER VANGUARD			
24.1	Distance from center of manifold to:					
24.1.1	Stern	[m]	111.9			
24.1.2	Bow	[m]	118.21			
24.1.3	A	[mm]				
24.1.4	B	[mm]	5625			
24.1.5	C	[mm]	3362			
24.1.6	D	[mm]	1125			
24.1.7	E	[mm]	1125			
24.1.8	F	[mm]	3375			
24.1.9	G	[mm]	5625			
24.1.10	H	[mm]				
24.2	Flange		Duty [Bar]	ASA	Size ["]	[R]aised/[F]lat
24.2.1	A	[COL]				
24.2.2	B	[COL]				
24.2.3	C	[COL]		300	14	
24.2.4	D	[COL]		150	10	
24.2.5	E	[COL]		150	10	
24.2.6	F	[COL]		300	14	
24.2.7	G	[COL]		300	14	
24.2.8	H	[COL]		150	10	
24.3	Height above uppermost continuous deck	[mm]	926			
24.4	Distance from ship side	[mm]	4275			
24.5	Height above load waterline	[mm]	11950			
24.6	Height above light waterline	[mm]				

2.25 CARGO REDUCERS

B25	CARGO REDUCERS	CLIPPER VANGUARD
25.0	ANSI 300	ANSI 300 -150
25.1	2 off 16"NB 300# ' 14"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# ' 14"NB 150#
25.3	2 off 14"NB 300# ' 10"NB 300#	2 off 14"NB 300# ' 12"NB 150#
25.4	2 off 14"NB 300# ' 8"NB 300#	2 off 14"NB 300# ' 10"NB 150#
25.5		2 off 14"NB 300# ' 8"NB 150#
25.6		
25.7		
25.8		
25.9		
25.0	ANSI 150	FUEL
25.1	2 off 10"NB 150# ' 12"NB 150#	12" x 8"
25.2	2 off 10"NB 150# ' 8"NB 150#	10" x 8"
25.3	2 off 10"NB 150# ' 6"NB 150#	8" x 8"
25.4		8" x 6"
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 VANGUARD
26.1	Is ESD connection to Shore available?	[Yes/No]	YES
26.1.1	System	[Text]	Electrical & Pneumatic
26.1.2	Type of plug	[Text]	SIGTTO
26.3	Is Hose or cables Available on Board	[Yes/No]	YES
26.3.1	Specify Length	[m]	TBC
26.3.2	Specify type	[Text]	Electrical

2.27 MANIFOLD DERRICK/CRANE

B27	MANIFOLD DERRICK/CRANE	UNIT	CLIPPER VANGUARD
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]	NO
27.3.1	If NO, give details	[Text]	Center
27.3.2	Maximum outreach	[m]	20
27.3.3	Capacity at max. Outreach	[ton]	10

2.28 STORES HANDLING

B28	STORES HANDLING	UNIT	CLIPPER VANGUARD
28.1	Number of cranes	[Pcs]	2
28.1.1	Location(s)	[Text]	P/S Bridge deck

3. SECTION C – Machinery

3.1 NOX FACTOR TIER II

C1.1	NOx factor	UNIT	CLIPPER VANGUARD
1.1.1.0	Main engine		Tier II
1.1.1.1	Power	[kW]	0
1.1.1.2	RPM	[RPM]	0
1.1.1.3	NOx limit	[g/kWh]	0
1.1.1.4	NOx factor	[g/kWh]	0
1.1.1.5	EIAPP	[Ref]	0
1.1.1.6	Issued	[Date]	00.01.1900
1.1.2.0	Auxiliary engine 1		Tier II
1.1.2.1	Power	[kW]	0
1.1.2.2	RPM	[RPM]	0
1.1.2.3	NOx limit	[g/kWh]	0
1.1.2.4	NOx factor	[g/kWh]	0
1.1.2.5	EIAPP	[Ref]	0
1.1.2.6	Issued	[Date]	00.01.1900
1.1.3.0	Auxiliary engine 2		Tier II
1.1.3.1	Power	[kW]	0
1.1.3.2	RPM	[RPM]	0
1.1.3.3	NOx limit	[g/kWh]	0
1.1.3.4	NOx factor	[g/kWh]	0
1.1.3.5	EIAPP	[Ref]	0
1.1.3.6	Issued	[Date]	00.01.1900
1.1.4.0	Auxiliary engine 3		Tier II
1.1.4.1	Power	[kW]	0
1.1.4.2	RPM	[RPM]	0
1.1.4.3	NOx limit	[g/kWh]	0
1.1.4.4	NOx factor	[g/kWh]	0
1.1.4.5	EIAPP	[Ref]	0
1.1.4.6	Issued	[Date]	00.01.1900
1.1.5.0	Auxiliary engine 4		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]	

3.2 NOX FACTOR TIER III

C1.2	NOx factor	UNIT	CLIPPER VANGUARD
1.2.1.0	Main engine		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	Auxiliary engine 1		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	Auxiliary engine 2		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	Auxiliary engine 3		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
1.2.5.0	Auxiliary engine 4		Tier III
1.2.5.1	Power	[kW]	
1.2.5.2	RPM	[RPM]	
1.2.5.3	NOx limit	[g/kWh]	
1.2.5.4	NOx factor	[g/kWh]	
1.2.5.5	EIAPP	[Ref]	
1.2.5.6	Issued	[Date]	

3.3 EGCS/SCRUBBER

C2	EGCS/SCRUBBER	UNIT	CLIPPER VANGUARD
2.1.0	Main engine		
2.1.1	Scrubber installed	[Yes/No]	YES
2.1.2	Maker	[Text]	Wärtsila
2.1.3	Type	[Text]	Open-loop
2.1.4	VGP compliant	[Yes/No]	YES
2.2.0	Auxiliary engines		
2.2.1	Scrubber installed	[Yes/No]	YES
2.2.2	Maker	[Text]	Wärtsila
2.2.3	Type	[Text]	Open-loop
2.2.4	VGP compliant	[Yes/No]	YES
2.3.0	Tank capacity closed loop		
2.3.1	NaOH tank	[Days]	0
2.3.2	NaOH tank	[m ³]	0
2.3.3	Sludge tank	[Days]	0
2.3.4	Sludge tank	[m ³]	0
2.3.5	Scrubbing water holding tank	[Days]	0
2.3.6	Scrubbing water holding tank	[m ³]	0

3.4 HEAT RECOVERY

C3	HEAT RECOVERY	UNIT	CLIPPER VANGUARD
3.1.0	Main engine		
3.1.1	Economizer installed	[Yes/No]	YES
3.1.2	Type	[Text]	0
3.1.3	Capacity	[kW]	0
3.1.4	Auxiliary engines		
3.1.5	Economizer installed	[Yes/No]	NO
3.1.6	Type	[Text]	0
3.1.7	Capacity	[kW]	0

3.5 OTHER RELEVANT TECHNICAL INFORMATION

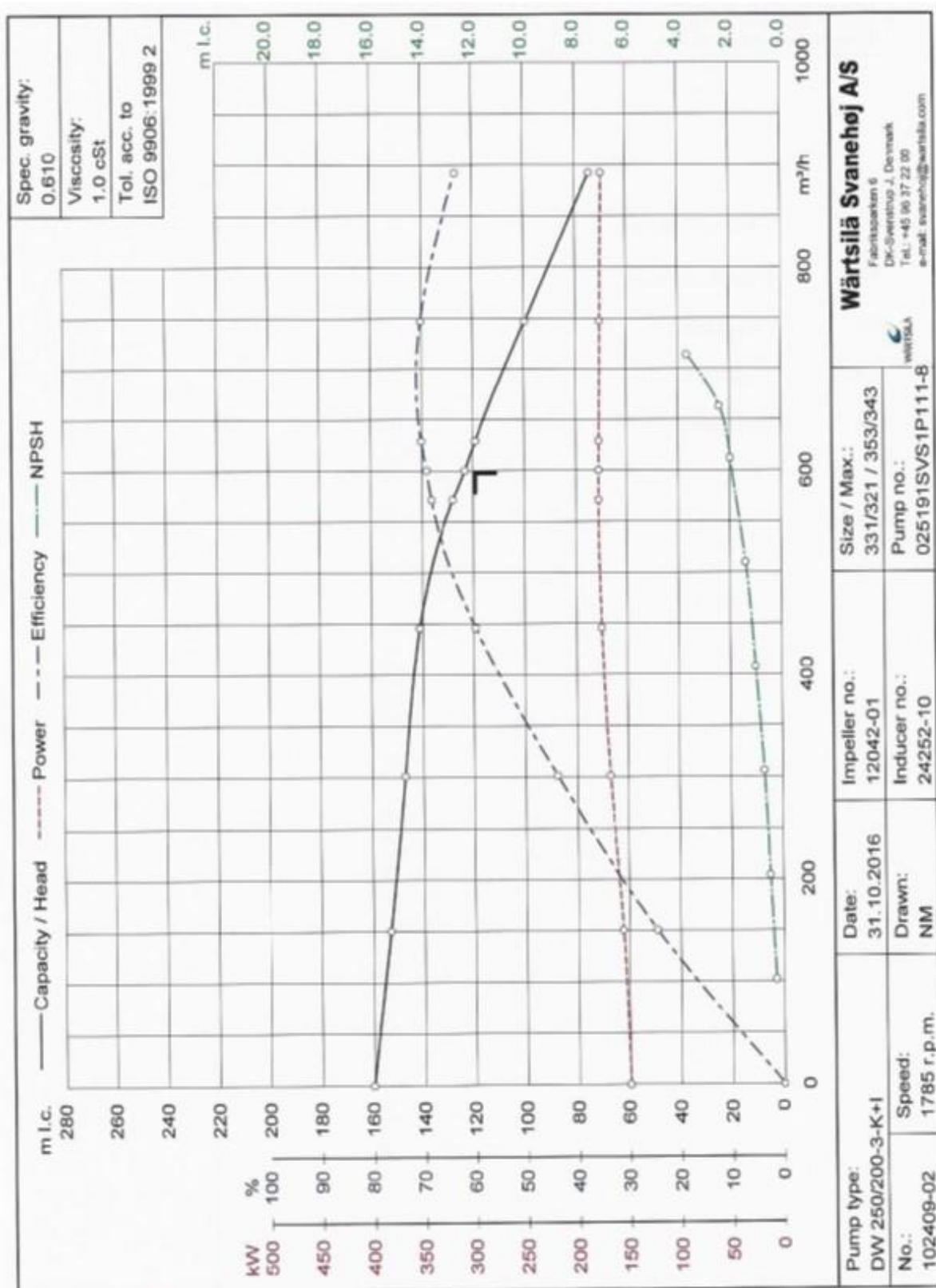
C4	OTHER RELEVANT TECHNICAL INFORMATION	UNIT	CLIPPER VANGUARD
4.0	Rudder type	[Text]	Becker rudder
4.0.1	Number of rudders	[Pcs]	1
4.1	Type of propeller	[Text]	Fixed propeller
4.1.1	Blades	[Pcs]	4
4.2	Mewis Duct	[Yes/No]	NO
4.3	Ballast Water Treatment System	[Yes/No]	0
4.3.1	Type	[Text]	0
4.4	Oily Water Separator	[Yes/No]	0
4.4.1	Type	[Text]	0
4.4.2	Concentration	[ppm]	0

3.6 ENVIRONMENTAL/PERFORMANCE TECHNOLOGIES INSTALLED

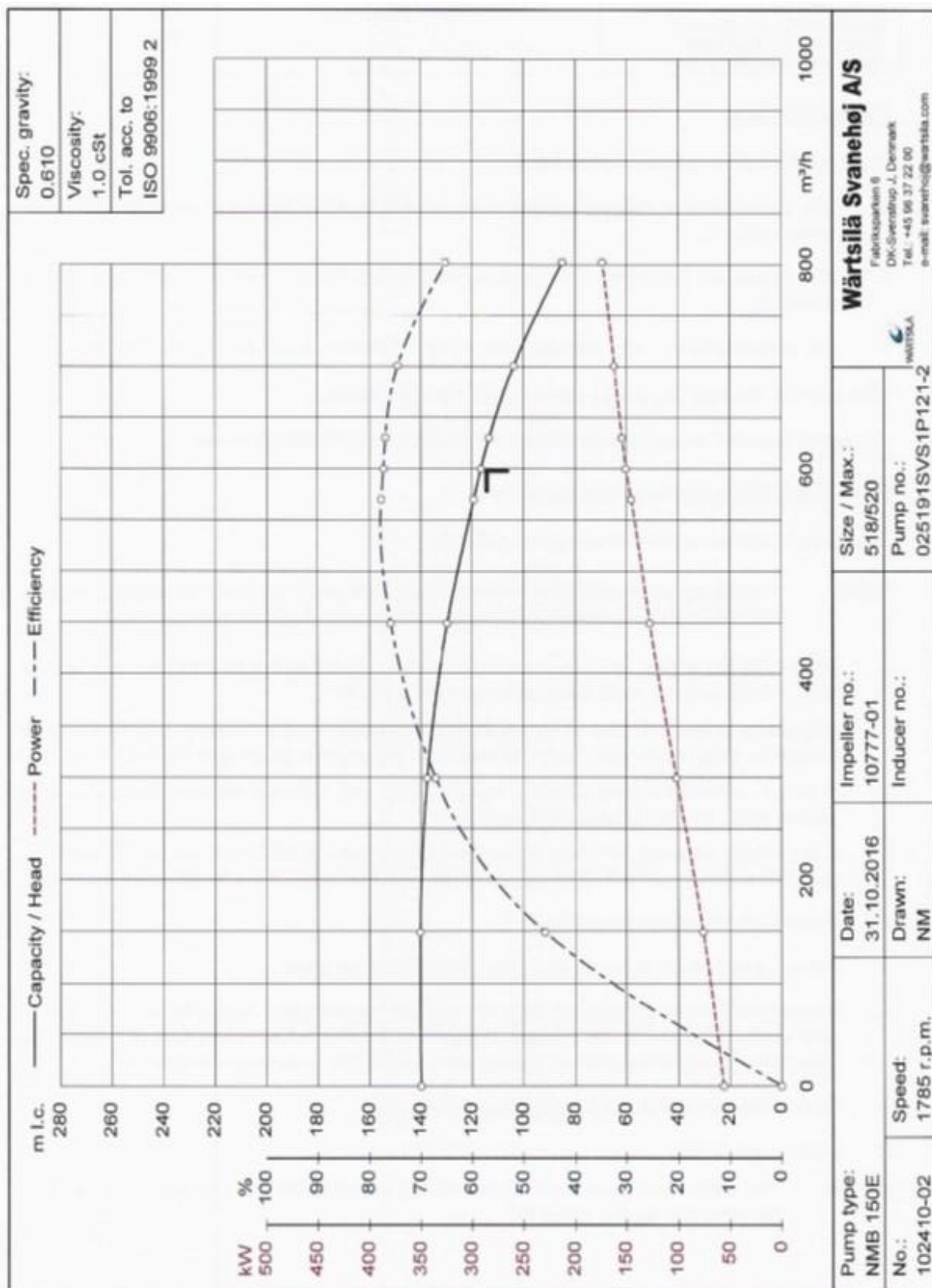
CODE	C5 ENVIRONMENTAL/PERFORMANCE TECHNOLOGIES INSTALLED	UNIT	CLIPPER VANGUARD
5.0	EEDI (Energy Efficiency Design Index)	[-]	0.00
5.1	ESI (Environmental Ship Index)	[-]	0.00
5.2	Electronic Vessel Performance Monitoring	[Yes/No]	0
5.3	Selective Catalytic Reduction	[Yes/No]	0
5.3.1	Urea Storage Tank Capacity	[Days]	0
5.3.2	Urea Storage Tank Capacity	[m ³]	0
5.4	Trim optimization tests	[Yes/No]	0
5.5	Antifouling	[Text]	0

4. APPENDIX/DRAWINGS

4.1 CARGO PUMPS

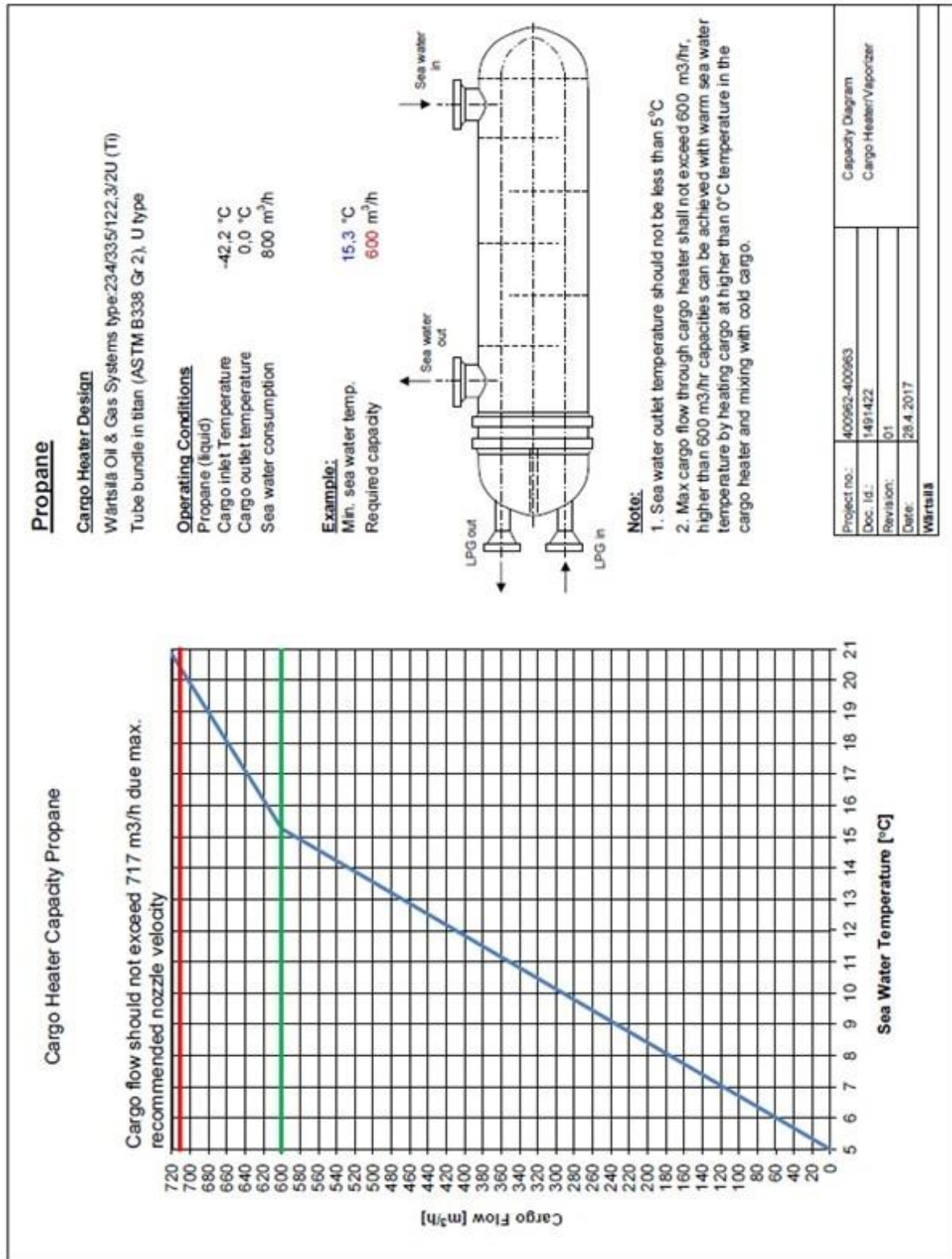


4.2 BOOSTER PUMPS



4.3 RE-HEATER CAPACITY, AMMONIA

4.4 RE-HEATER CAPACITY, PROPANE



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)

