

Owner's Requirements, Specification, Parent ships Data (선주요구조건,사양서,기준 실적선 자료)

2008.3

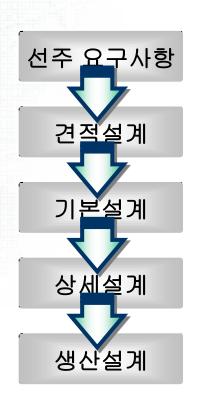
서울대학교 조선해양공학과 이규열

A dvanced
S hip
D esign
A utomation

aboratory

선박의 정의 : 바다에서 화물과 승객을 싣고, 떠서, 움직이는 대형 구조물

- 선박의 특성 : 적재성, 부양성, 이동성, 안전성
- 선박의 설계 과정



선박의 종류, 건조 척수, 선급, 국적, 화물의 종류, 재화중량, 선체 치수의 외적 제한의 유무, 항해 속력, 납기 등

선주와 협의용. 주요 요목 결정, 개략적인 요목표, 건조사양서 작성, 개략 일반배치도 작성

선주와 초기 합의부터 상세설계 전까지. 건조사양서, <mark>일반배치도, 기관실 배치도 등의 작성 및 선가 조정</mark>

건조 선박에 대한 실제 공사용 도면 작성 일반배치도 검토, 작업지시서 , 선박계산, 선각구조 상세설계

> 건조선의 공작에 모든 부재의 가공을 위한 부품도 및 조립도 작성

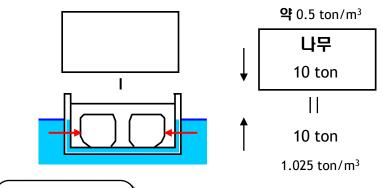


선박설계에서 고려해야 할 점

철의 밀도 = 7.85 ton/m³

■ 선박의 기본적인 요건

- 1) 물에 떠야 한다
 선박안정론
 - → 선박의 무게 = 밀어낸 물의 무게*
- 2) 원하는 목적지로 빨리 갈 수 있어야 한다
 - → 형상: 물의 저항이 작은 형태(ex. 유선형)
 - → 추진기관: 디젤 엔진, 나선형 프로펠러



선박형상설계, 선박유체역학, 추진기 설계



선박구획배치설계/선박계산

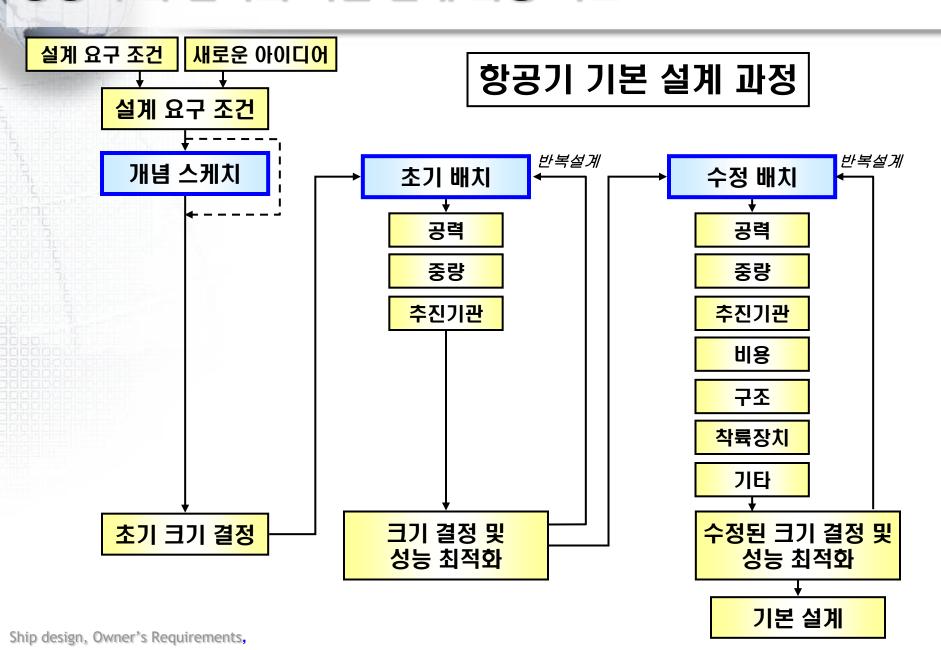
→ 최대한 많은 짐을 실을 수 있도록 내부가 비어있어야 함

- 4) 튼튼한 그릇으로서의 역할을 해야 한다
 - → 철판(약 10~30 mm두께)과 보강재를 용접한 구조물

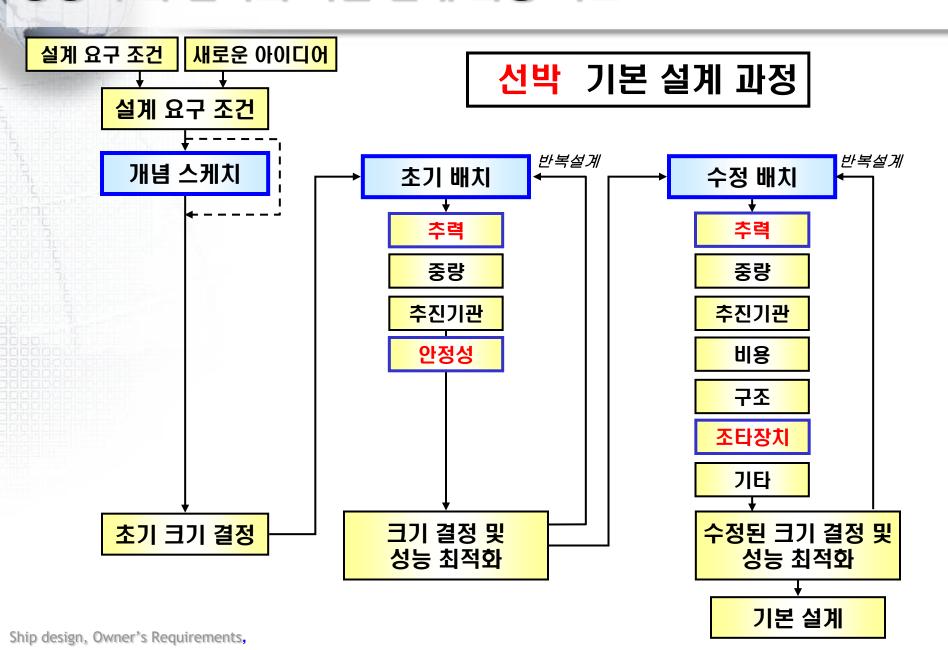
선박구조역학/구조설계.헤석

NAOE/SNU

항공기 와 선박의 기본 설계 과정 비교

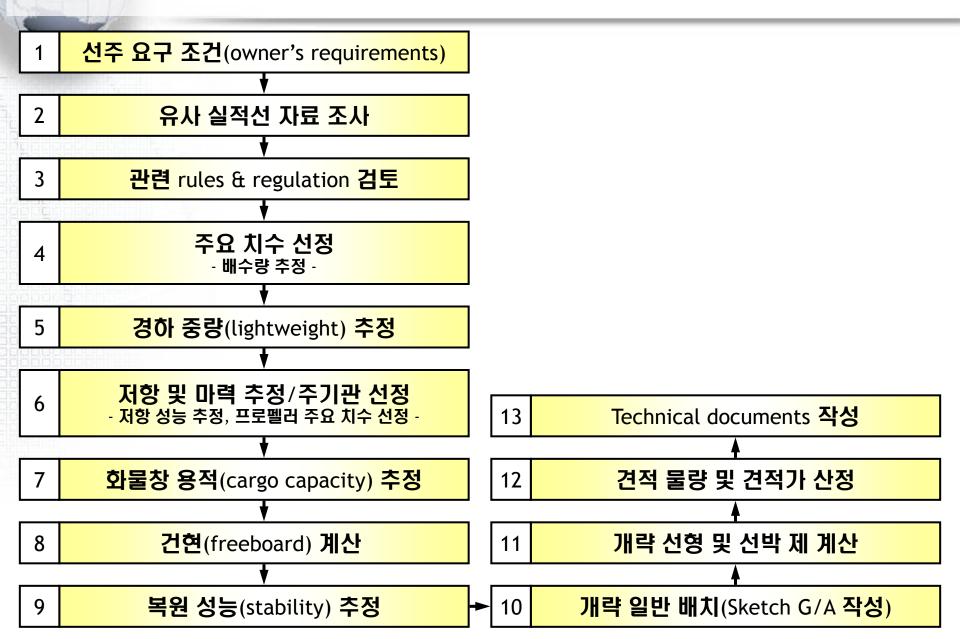


항공기 와 선박의 기본 설계 과정 비교



선박 기본 설계의 순서

선박의 개요 선박의 종류 조선 주요 과정 선박기본 설계 VLCC 기본 설계 예



1.선주의 요구조건

1. 선주 요구 조건 2. 유사 실적선 조사 3. 관련 규약 4. 주요 치수 선정 5. 경하 중량 추정

- 선주 요구 조건
 - 선종(Ship's Type)
 - 재화중량(Deadweight)
 - 최대 흘수(Max. Draft)
 - 화물용적(Cargo Capacity)
 - Cargo Capacity: Cargo Hold Volume/ Container in Hold & on Deck/ Car Deck Area
 - Water Ballast Capacity
 - 속력(Speed)
 - Service Speed at _Draft with _Sea Margin,_ Engine Power & _RPM , DFOC (Daily Fuel Oil Consumption)
 - 운하 및 수로 제한(Canal Limitations): Panama, Suez, Kiel, St. Lawrence Seaway, Port limitations
 - Special Requirements
 - Ice Class, Air Draft, Bow/Stern Thruster, Special Rudder, Twin Skeg

1. 선주의 요구조건 예 : SPECIFICATION FOR 4,100TEU CONTAINER SHIPS

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11. GENERAL DESCRIPTION AND PARTICULARS

General Description 111.

The Vessel shall have a continuous upper deck without forecastle, a raked stem with bulbous bow, a transom stern with open water type stern frame, a semi-balanced rudder and a fixed pitch propeller directly driven by a slow speed diesel engine.

The propulsion machinery and living quarters including navigation bridge shall be located semiaft as shown on the General Arrangement.

The Vessel shall be built generally as double skinned construction in way of cargo holds except No.1 hold and shall be arranged with eight(8) cargo holds.

The Vessel shall consist of eighteen(18) bays with seventeen(17) hatches, with three(3) panel hatch covers in way of each cargo hold (Except No.1 and 16 hatches).

The cargo holds shall be equipped with cell guides and support structure for the carriage of 20 ft (bay No.1 and 3) and 40 ft (other bays) ISO containers, eleven(11) rows and eight(8) tiers, with depth of holds suitable for containers of six(6) tiers with 8'-6" and two(2) tiers with 9'-6" high in general.

Loading of 20 ft containers up to six(6) tiers above inner bottom shall be considered in the 40 ft cell guide in general:

Containers on deck shall be generally carried with thirteen(13) rows in three(3) or four(4) tiers. Hatch covers, deck supports and lashing points shall be arranged for 20 ft and/or 40 ft containers in general.

One hundred(100) units of 45 ft containers on hatch cover shall be arranged from 2nd tier on deck aft accommodation.

One(1) bow thruster and one(1) stern thruster shall be arranged.

Pipe duct in double bottom shall be arranged.

arranged below the upper deck at both sides.

- Two hundred and fifty (250) electric sockets shall be arranged for the carriage of two hundred and twenty(220) FEU refrigerated containers on deck and thirty(30) FEU refrigerated containers in hold with 9'-6" high. In addition, fifty (50) FEU electric sockets shall be provided in holds for the flexibility of loading.
 - The arrangement for containers, cargo holds, water ballast tanks, fuel oil tanks, fresh water tanks etc. shall be as shown on the General Arrangement

Passageway from engine room to steering gear room and forward cargo hold space shall be

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Pri	ncipal Dimensions			
Let	ngth overall		approx.	294.0 m
Ler	ngth between perpe	endiculars		281.00 m
Bre	adth, moulded			32.26 m
Dep	oth, moulded			21.50 m
Des	signed/scantling dra	aft, moulded		10.78 m
Free	eboard type			"B" type
Free	eboard deck		approx.	13.952 m
Air	draft (from design 10.78 m to t	ed draft of the top of mast)	approx.	43.5 m
Dec	k Heights, Cambe	r and Sheer		
(1)	Deck height	er line, moulded		
	Upper deck	k	3.	4 m
	A deck to B uec	K	3.	4 m
	B deck to C dec		3.	4 m
	C deck to D dec			4 m
	D deck to E dec		3.	4 m
	E deck to nav. b		7.1	4 m
	Nav. bridge decl	k to compass deck	2.	8 m
(2)	Camber and shee	er of decks		
	Camber for uppe		0.2 m, trapezoid	
	Camber for super Sheer for upper		nil except straight	t camber for bridge wing

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114. Deadweight and Capacities

(1) Deadweight

The guaranteed deadweight of the Vessel shall be 47,790 metric tonnes at the designed/scantling draft of 10.78 m, without trim, with the Vessel afloat in sea water with specific gravity of 1.025.

(2) Capacities (100% full)

Water ballast tanks approx. $21,000 \, \text{m}^3$ Heavy fuel oil tanks including settling and service tanks approx. $4,300 \, \text{m}^3$ Diesel oil tanks including settling and service tanks approx. $300 \, \text{m}^3$ Fresh water tanks approx. $250 \, \text{m}^3$

(3) Container capacity

Containers eight(8) tiers x eleven(11) rows in hold and three(3) or four(4) tiers x thirteen(13) rows on deck generally shall be arranged as follows:

- No. of containers

On deck	approx. 1,758 TEU
In hold	approx. 2,322 TEU
Total	approx. 4,080 TEU

- Container unit

TEU : 8.5 ft(H) x 8 ft(B) x 20 ft(L) FEU : 8.5 ft(H) x 8 ft(B) x 40 ft(L)

- The above mentioned number of containers on deck shall be counted in accordance with IMO visibility requirement at the scantling draft (even keel).

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Dangerous Cargoes 115.

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No. 1, 2, 3, 4, 5, 6 and 7 holds (except on Bay No. 59) Location

1.4S, 2, 3, 4, 5.1, 6.1, 6.2, 7, 8 and 9 IMDG - classes

On upper deck (except on Bay No. 59) Location

All classes of dangerous goods as permitted by Classification Society IMDG - classes

The above mentioned dangerous cargoes shall be carried under the following conditions:

The cargoes shall be carried in the form of closed freight containers.

Dangerous cargoes which require certified electrical equipment with the protection grade II C, such as hydrogen, hydrogen mixture, acetylene, ethyl nitrite, ethyl nitrate and carbon disulphide, etc. shall not be loaded.

(c) Packing, storage and transportation, etc. governed by IAEA and/or port authority shall be properly performed by the Owner in consideration of all operational safety aspects.

Mixed loading of reefer containers and low grade dangerous cargoes (except IMDG -Classes 1.1-1.6, 2.1, 2.3, 3.1, 3.2, 4.3, 6.1, 6.2, 7 and 8) shall be considered in the cargo holds as permitted by Classification Society.

Dangerous cargoes in the No. 7 cargo hold shall be loaded at least 3 m away from the engine room bulkhead:

Trim and Stability 116.

- Preliminary trim and stability calculation shall be submitted to the Owner to demonstrate that the Vessel will have suitable trim and stability for the following loading conditions:
 - (a) Lightship.
 - (b) Ballast, departure and arrival.
 - (c) Average loaded containers at Europe departure condition (13.85 mt and 12.26 mt) (H.F.O. 2,500 mt and full supplies of other consumables).
 - (d) Average loaded containers at Montreal arrival condition (13.85 mt and 12.26 mt)
 - (H.F.O. 1,500 mt, D.O. 100 mt and other consumables 10% of departure condition). (e) Average loaded containers at Montreal departure condition (13.85 mt and 12.26 mt)
 - (approx. 50% supplies of bunkers and other consumables). Average loaded containers at Europe arrival (13.85 mt and 12.26 mt) (approx. 10%
 - supplies of bunkers and consumables).
 - (g) Homogeneous loaded containers with 14.0 mt/TEU at the designed/scantling draft, departure and arrival.
 - (h) Homogeneous loaded containers with 13.85 mt/TEU at the designed/scantling draft, departure and arrival.
 - Homogeneous loaded containers with 12.26 mt/TEU at the designed/scantling draft, departure and arrival.
 - Homogeneous loaded containers with 10.0 m/TEU, 11.0 mt/TEU and 14.0 mt/TEU at the designed/scantling draft departure condition (H.F.O. 2,500 mt and full supplies of other consumables).

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- (k) Pre-docking condition (H.F.O. 380 mt and 10% supplies of other consumables).
- (l) Dry docking, arrival.

"Departure condition" shall be based on the full supplies of bunkers and othe consumables, and "arrival condition" on approx. 10% supplies of departure condition or approx. 50% supplies of departure condition.

- (2) Unit weight of containers at the designed/scantling draft of 10.78 m for average loader conditions are as follows:
 - (a) Average loaded containers with 13.85 mt

Item	No. of containers#	Unit weight (MT)		
	100	7		
20 ft container (TEU)	161	13		
(IEO)	927	23		
	174	8		
40 ft container	356	18		
(FEU)	476	26		

(b) Average loaded containers with 12.26 mt

Item	No. of containers#	Unit weight (MT)
	130	6
20 ft container (TEU)	447	16
(IEO)	575	23
	208	7
40 ft container (FEU)	317	15
(FEO)	670	24

[#] Number of containers may be modified according to the design development.

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The number of loaded containers based on average container unit weight of approx. 13.85 mt/TEU shall be 3,190 TEU on the following conditions:

- (a) Vertical center of gravity of loaded container shall be assumed to be 45% of 8'-6" height and 9'6" height.
- (b) Transverse metacentric height (GoM) after the corrections due to free surface shall be not less than 0.60 m at Montreal arrival condition with H.F.O. 1,500 mt, D.O. 100 mt and other consumables 10% of departure condition (icing effect shall not be considered).
- (3) For the adjustment of trim, stability, visibility, bending moment and shear force at the above loading conditions, ballast water may be fully or partially filled, if necessary.

A.P.TK & F.P.TK shall be used as water ballast tank within the designed criteria (Allowable S.W.B.M: Hogging +310,000 T-M Sagging -25,000 T-M).

Final trim and stability calculation for above loading conditions shall be made on the basis of the center of gravity and the light weight of the Vessel obtained from the inclining experiment and deadweight measurement, and shall be submitted to the Owner.

If the final trim and stability booklet is under process of approval by the Classification Society and/or other assigned Authority, the Builder shall provide the provisional trim and stability booklet upon the delivery of the Vessel.

The icing allowance shall be based on the requirement of British Loadline A5-10.22.

Specific gravities of water and oil for the trim and stability calculation shall be as follows:

 Sea water
 1.025

 Fresh water
 1.000

 Heavy fuel oil
 0.980

 Diesel oil
 0.850

 Lube oil
 0.900

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117. Speed, Daily Fuel Oil Consumption and Cruising Range

(1) Speed

The guaranteed speed of the Vessel at the designed draft of 10.78 m on even keel shall be 23.0 knots with the main engine running at 85% MCR (42,230 PS) with 20% sea margin.

The above speed shall be based on the Vessel with clean hull in infinitely deep and the weather condition of Beaufort Scale 3 with no currents.

The actual speed performance of the Vessel at the designed draft shall be based on the model test results which shall be corrected by applying the same correlation between the trial prediction by model test and the actual results obtained from the speed trials at trial condition.

Type and rating of the main engine are as follows:

Type and number : B&W 8K90MC-C x 1 set

Maximum continuous rating (MCR) : 49,680 PS x 104.0 rpm

Normal continuous rating (NCR) : 42,230 PS x 98.5 rpm

(2) Daily fuel oil consumption of main engine

* Approx. 125.8 metric tonnes per day at NCR of the main engine on the basis of the fuel oil with lower calorific value of 10,200 kcal/kg and ISO standard reference conditions.

The above daily fuel oil consumption has been calculated by applying the specific fuel oil consumption of 124.1 g/BHP.h at NCR of the main engine according to the main engine manufacturer without considering the tolerance margin of 5%.

(3) Cruising range

Approx. 15,000 nautical miles on the basis of the following conditions:

- Service speed of 23.0 knots at the designed/scantling draft.
- Main engine running at NCR.
- Fuel oil with specific gravity of 0.980 and lower calorific value of 9,700 kcal/kg.
- Fuel oil tanks 98% full, 2% unpumpable with reserve for three(3) days.

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118. Hull Form

(1) Hull form

The Builder shall decide the hull form and the propeller of the Vessel in view of the performances of the Vessel with regard to:

- Resistance and propulsive efficiency.
- Propeller induced vibration.
- Seakeeping.
- Manoeuvrability.
- Stability.

(2) Model tests

Model tests with the following test scope shall be carried out in HSVA according to the Builder's practice and the results shall be submitted to the Owner for reference:

- Resistance tests at the designed draft and ballast draft.
- Self-propulsion tests with stock propeller at the designed draft and ballast draft.
- Streamline test with paint at the designed draft.
- Wake measurements at the designed draft.
- Open water tests with the designed propeller model.
- Self-propulsion tests with the designed propeller at the designed draft and ballast draft.
- Cavitation tests at the designed draft.

Hull form including bulbous bow shape shall be optimized with the draft range from 9 m to 10.78 m to achieve optimum speed performance by using CFD (Computational Fluid Dynamics) and the only selected hull form(s) shall be tested in the model basin.

Owner's representative will be absolutely welcome and the Builder will fully discuss the model test results with the Owner during the model testing, and in the event that the tested hull form and propeller require further improvements, the Builder shall make all reasonable efforts including additional tests to achieve optimum Vessel's speed performance.

(3) Propeller

The propeller shall be designed to absorb 42,230 PS (which corresponds to the power of the normal continuous rating) at approx. 104.4 rpm (which corresponds to the revolution of the normal continuous rating with approx. 6.0% margin) on the basis of the Vessel at the designed draft and with clean hull in calm sea.

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Total		27 persons
Passenger		3
Crew		7
Petty officer		4
Junior officer (including two	(2) pilots and two(2) cadets)	9
Senior officer		2
Captain		2
Class		No.
Complement		

Guaranteed Figures **120.

Complement

The Builder shall guarantee the specified figures of the following items under the conditions mentioned in this section.

These guaranteed figures shall be subject to adjustment due to the modification and/or alternation to the Specifications mutually agreed after the execution of the Contract.

Deadweight:

Vessel's speed:

47,790 metric tonnes, at the designed/scantling draft of 10.78 m. 23.0 knots at the designed draft of 10.78 m even keel with clean

hull in infinitely deep and BF Scale 3 at 85% MCR (42,230 PS)

of main engine with 20% sea margin.

Main engine specific: fuel oil consumption

126.0 g/BHP.h +5% tolerance at MCR based on the marine diesel oil with lower calorific value of 10,200 kcal/kg and ISO standard reference conditions (measured at shop test bed).

Nominal container:

4,080 TEU in total

capacity

Homogeneous 14 MT/TEU container capacity at scantling draft of

10.78 m:

2,760 TEU

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121. Classification

The Vessel, including her hull, machinery, equipment and outfits shall be constructed under the survey of Det Norske Veritas (herein called the "Classification Society"), and shall be distinguished in the register by the symbols of:

+1A1, "Container Carrier", E0, NAUTICUS (Newbuilding), ICE-1C, W1-OC, DG-P

The provisions for in-water survey shall be applied.

122. Rules and Regulations

The Vessel shall be registered in a port of Bermuda and shall comply with the following Rules and Regulations (edition and amendments thereto being compulsory as of the date of signing the Contract):

- (a) International Convention on Load Lines, 1966 with the Protocol of 1988.
- (b) International Convention for the Safety of Life at Sea, 1974 with the Protocol of 1978/ 1988 and Amendments up to 2000 (herein called "SOLAS").
- (c) International Convention for the Prevention of Pollution from Ships, 1973 (Annex I, IV, V & VI (Regulation 12, 13 and 16)), as modified by the Protocol of 1978 and Amendments up to 1999. (herein called "MARPOL 73/78").
- (d) Convention on the International Regulations for Preventing Collisions at Sea, 1972 with the Amendments up to 1993.
- (e) International Convention on Tonnage Measurement of Ships, 1969.
- (f) International Telecommunication Union(ITU) Radio Regulation, 1997.
- (g) Rules of Navigation of the Suez Canal Authority including Regulations for the Measurement of Tonnage.
- (h) Rules and Regulations Governing Navigation of the Panama Canal and Adjacent Waters and Rules for the Measurement (Panama Canal Universal Measurement System) of Vessels.
- (i) Rules and Regulations of USCG for Foreign Vessels Operating in the Navigable Waters of the United States (CFR Title 33 - Navigation and Navigable Waters, Part 155, 156, 159 and 164 without Certificate nor Inspection).
- (j) Requirements of the Maritime Union of Australia (MUA).
- (k) IMO Res. A.468(12) Code on Noise Levels on Board Ships.
- ISO Draft Proposal No. 6954 "Guidelines for Overall Evaluation of Vibration in Merchant Ships. 1984".
- (m) ILO Convention Concerning Crew Accommodation on Board Ships (No. 92 and 133).
- (n) Standard Specification and Regulations of International Maritime Satellite Organization (INMARSAT).

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- (o) IMO Resolution A. 749(18) Code on Intact Stability for all Types of Ships Covered by IMO Instruments.
- (p) IMO Resolution A. 830(19) "Code on Alarms and indicators".
- (q) IMPA recommendation for Pilot Ladder.
- (r) British Factory Act for Cargo handling/safety (with reference to newbuilding only).
- (s) Canadian Arctic Shipping Pollution Prevention Regulation as type B (without certificate).
- (t) USCG CFR Title 29 Part 1918, US Safety and Health Regulations for Longshoring (for permanent fitting only, without Certificate nor Inspection).
- (u) USCG Weather Criterion for Safety (CFR Title 46-170).
- ** (w) Marine Orders Part 32 Issue 2 (Order No. 14 of 1997) by AMSA Cargo Handling Equipment.
- (x) The requirement of OSHA for Container Fittings.
- ** (y) ILO Convention concerning Food and Catering for Crews on Board Ships (No. 68, physical requirements only).
- ** (z) ILO Convention concerning Minimum Standards in Merchant Ships (No. 147, physical requirements only).
- * (aa) IMO Res. A.868(20) Guidelines for the Control and Management of Ship's Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens.
- * (bb) Implementation of the National Invasive Species Act of 1996 (NISA).
- ** (cc) Australian New Mandatory Ballast Water Requirements.
 - (dd) Paris Memorandum for Accommodation (physical requirements only).
 - (ee) National Maritime Regulations.

123. Certificates

The Builder shall obtain the following certificates and deliver to the Owner at the time of the Vessel's delivery in triplicate, one(1) original and two(2) copies:

- (a) Builder's Certificate issued by the Builder.
- (b) Classification Certificate issued by the Classification Society.
- (c) International Load Line Certificate issued by the Classification Society.
- (d) International Tonnage Certificate issued by the Classification Society or other assigned Authority.
- (e) International Oil Pollution Prevention Certificate issued by the Classification Society or other assigned Authority.
- (f) Cargo Ship Safety Radio Certificate issued by the Classification Society or other assigned Authority.
- (g) Cargo Ship Safety Construction Certificate issued by the Classification Society or other assigned Authority.
- (h) Cargo Ship Safety Equipment Certificate issued by the Classification Society or other assigned Authority.
- Suez Canal special Tonnage Certificate issued by the Classification Society or other assigned Authority.
- (j) Documentation for the Issuance of Panama Canal PC/UMS Certificate issued by the Classification Society or other assigned Authority.

11. GENERAL DESCRIPTION AND PARTICULARS

- 111. General Description
- 112. Principal Dimensions
- 113. Deck Heights, Camber and Sheer
- 114. Deadweight and Capacities
- 115. Dangerous Cargoes
- 116. Trim and Stability
- 117. Speed, Daily Fuel Oil Consumption and Cruising Range
- 118. Hull Form
- 119. Complement
- 120. Guaranteed Figures

- 121. Classification
- 122. Rules and Regulations
- 123. Certificates

- k) Statement of Compliance with USCG Rules and Regulations (including CFR Title 29 Part 1918 and CFR Title 46 part 170) for Foreign Vessels issued by the Classification Society.
- (I) Statement of Compliance of EIAPP for Main Engine and Auxiliary Engine issued by the Classification Society or other assigned Authority.
- (m) Statement of Compliance of MARPOL Annex VI for Incinerator issued by the Classification Society or other assigned Authority.
- (n) Statement of Compliance of IAPP for NOx *including technical files* issued by the Classification Society or other assigned Authority.
- (o) Statement of Compliance of International Sewage Pollution Prevention Certificate issued by the Classification Society or other assigned Authority.
- (p) International Garbage Pollution Prevention Certificate issued by the Classification Society or other assigned Authority.
- (q) Crew Accommodation Certificate corresponding to ILO Convention No. 92 and 133 issued by the Classification Society or other assigned Authority.
- * (r) Letter of Compliance for ILO Convention No. 68 concerning Food and Catering for Crews on Board Ships issued by Classification Society or other assigned Authority.
 - (s) Letter of Compliance for ILO Convention No. 147 concerning Minimum Standards in Merchant Ships issued by Classification Society or other assigned Authority.
 - (t) Deratting Exemption Certificate issued by the Korean Government.
 - (u) Cargo Gear Certificate corresponding to ILO forms issued by the Builder (Provision cranes and engine room crane only).
 - (v) Adjustment Certificates for magnetic Compass issued by the Builder.
 - (w) Document of Compliance for the Carriage of Dangerous Goods (SOLAS Chapter II-2/Regulation 54) issued by the Classification Society or other assigned Authority.
 - (x) Fixed container fitting Certificate issued by the Classification Society.
- (y) Deadweight Certificate issued by the Builder.
 - (z) Minor Certificates including shop test record, onboard test record, Manufacturers' Certificates and Builder's Certificates which are normally issued for Machinery, Equipment and Outfits of the Vessel.
 - (aa) Statement of Compliance for Lashing Gears issued by the Classification Society.
 - (bb) Statement of Compliance and Management Plan (DNV format for flow through method) for IMO Res. A.868(20) issued by the Classification Society.
 - (cc) Statement of Compliance for Implementation of the National Invasive Species Act of 1996 (NISA) issued by the Classification Society.
- * (dd) Statement of Compliance for Australian New Mandatory Ballast Water Requirements issued by the Classification Society.
 - Following manuals/drawings stamped by the Classification Society or other assigned Authority shall be provided:
 - Trim and stability booklet.
 - Cargo Securing Manual.
 - Approved drawings by both Panama and Suez Canal Authority.
 - Approved drawings of Australia marine order part 32 for hold ladder.

11. GENERAL DESCRIPTION AND PARTICULARS

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 - 118. Hull Form
 - 110. Hull 1 0HH
 - 119. Complement
 - 120. Guaranteed Figures

- 121. Classification
- 122. Rules and Regulations
- 123. Certificates

Should the formal certificate(s) not be obtained at the time of the Vessel's delivery, the Builder shall furnish the Owner with the provisional certificate(s).

In such case(s), the Builder shall deliver the formal certificate(s) to the Owner as soon as available after the Vessel's delivery.

11. GENERAL DESCRIPTION AND PARTICULARS

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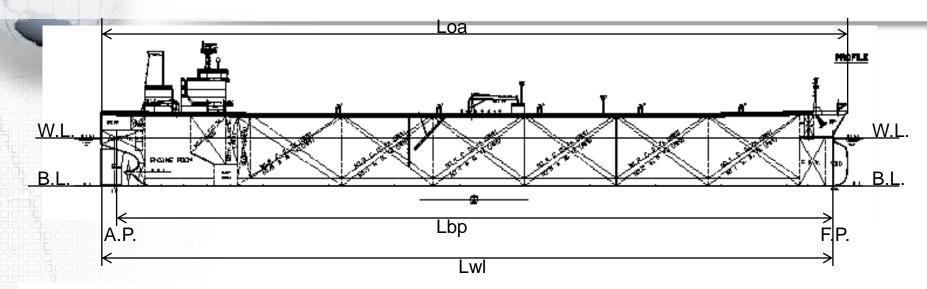
- 121. Classification
- 122. Rules and Regulations
- 123. Certificates



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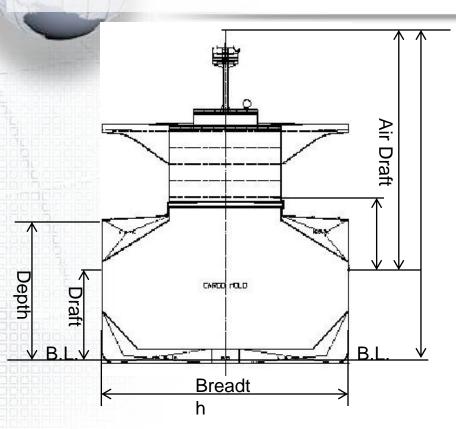
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1.2. 주요용어-Introduction to main terminology



- Loa (Length OverAll) (m) : Maximum Length of Ship
- Lbp (Length Between Perpendiculars (A.P. ~ F.P.)) (m)
 - A.P.: After Perpendicular (Normally, Center line of the Rudder Stock)
 - F.P.: Inter-section line between Designed draft and fore side of the Stem, which is perpendicular to the baseline
- Lf (Freeboard Length) (m): Basis of Freeboard assignment, Damage Stability Calculation
 - 0.96 Lwl at 0.85 D or Lbp at 0.85 D, whichever is greater
- Rule Length (Scantling Length) (m): Basis of Structural Design and Equipment selection
 - Intermediate one among (0.96 Lwl at Ts, 0.97 Lwl at Ts, Lbp at Ts)





- B (Breadth) (m)
 - * Maximum breadth of the ship, measured amidships
 - * moulded : excluding shell plate thickness
 - extreme : including shell plate thickness
- D (Depth) (m)
 - **X** Distance from the base line to the deck side line
 - **x** moulded : excluding keel plate thickness
 - **x** extreme : including keel plate thickness
- Td (Designed Draft) (m)
 - **X** Main operating Draft.
 - In general, basis of Ship's Deadweight and Speed/Power performance
- Ts (Scantling Draft) (m)
 - **★** Basis of Ship's Structural Design

Air Draft

Distance(height above water line only or including operating draft, see below for the detail) restricted by the

port facilities, navigating route, etc.

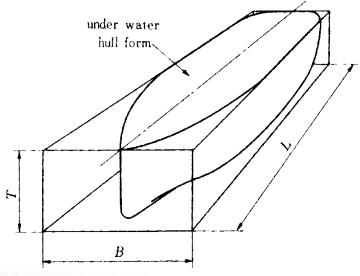
- **★** Air draft from base line to the top of the mast
- **★** Air draft from water line to the top of the mast
- * Air draft from water line to the top of hatch cover



- Displacement (tonnes)
- Weight of water displaced by the Ship's submerged part
- Deadweight (tonnes): Cargo payload + Consumables (F.O., D.O., L.O., F.W., etc.) + DWT Constant (Displacement Lightweight)
- Cargo Payload (tonnes): Weight of loaded cargo at the loaded draft
- DWT Constant (tonnes): Operational Liquid in the machinery and pipes, Provisions for crew, etc.
- LWT (tonnes): Total of hull steel weight and weight of equipment on board (Displacement - Deadweight)
- Trim: difference between draft at A.P. and F.P.
- Trim = {Displacement x (LCB LCG)} / (MTC x 100)
- LCB: Longitudinal Center of Buoyancy
- LCG: Longitudinal Center of Gravity

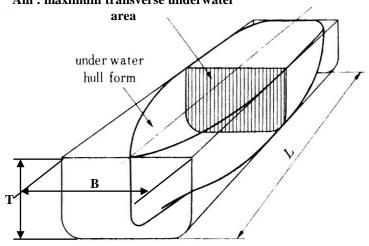






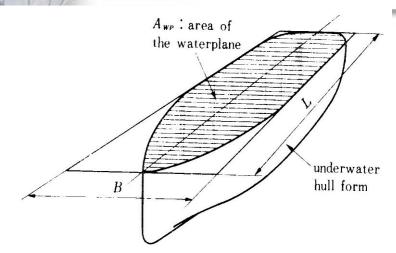
- Cb (Block Coefficient)
 - Displacement / (L x B x T x SG)
 - **SG** of Sea Water = 1.025 tonnes/m3





- Cm (Midship Section Coefficient)
 - \times (Am) / (B x T)
- Cp (Prismatic Coefficient)
 - > Displacement / {(Am) x L}





Cw (Water Plane Area Coefficient)× Awp / (L x B)

- MCR (Maximum Continuous Rating) (PS x rpm)
 - **×NMCR** (Nominal MCR)
 - **★DMCR (Derated MCR) / SMCR (Selected MCR)**
- NCR (Normal Continuous Rating) (PS x rpm)
- Trial Power (PS x rpm): Required power without Sea
 Margin at the service speed
- Sea Margin (%): Power reserve for the influence of storm seas and wind including the effects of fouling and corrosion.
- Service Speed (knots): Speed at NCR Power with the specific sea margin.

Ship design, Owner's Requirements, Specification, Parent ships Data, 2008.3

- **PHP:** Delivered Horse Power
 - **×**Power actually delivered to the propeller with some power loss in the stern tube bearing and in any shaft tunnel bearings between the stern tube and the site of the torsion−meter
- EHP: Effective Horse Power
 - **×**Required power to maintain intended speed of the vessel
- η_D : quasi-propulsive coefficient = EHP / DHP
- RPM margin
 - **★** To compensate for the expected future drop in revolutions for constant-power operation
- * To provide a sufficient torque reserve whenever whenever suppower must ship design, owbe attained under unfavorable, weather condition to http://asdal.snu.ac.kr

- Tonnage : normally, 100 ft³ = 1 ton
 - **×** Basis of various fee and tax
 - **CATE (Gross Tonnage)**: Total sum of the Volumes of every enclosed space
 - NT (Net Tonnage): Total sum of the Volumes of every cargo space
 - **CGT** (Compensated Gross Tonnage)
 - **×** Panama and Suez canal have their own tonnage regulations.

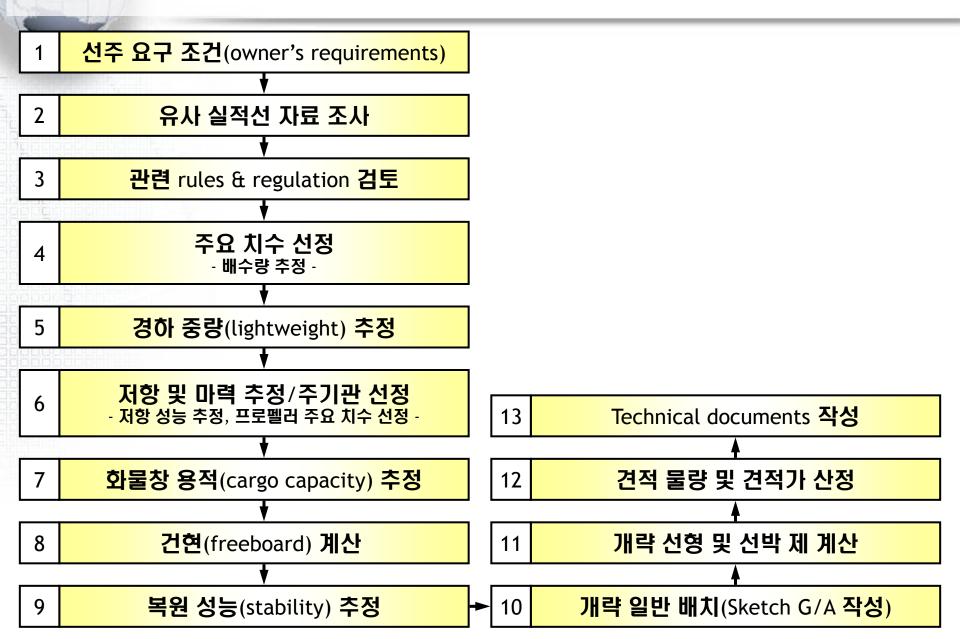


- Unit
 - **× API** (American Petroleum Institute) = (141.5 / S.G.) − 131.5 **• ex) API 40** → SG = 0.8251 tonnes/m3
 - \times 1 LT (Long Ton) = 1.016 tonnes
 - **×** SG (Specific Gravity) → tonnes/m3
 - SF (Stowage Factor) → ft3 / LT
 ex) SF = 15 ft3 / LT → SG = 2.4 tonnes/m3
 - \times 1 knots = 1 nm/hr = 1.852 km/hr = 0.5144 m/sec
 - **× 1 Barrel** = 0.159 m3
 ex) 1 mil. Barrels = 159.000 m3
 - \times 1 PS = 0.736 kW
 - ex) NMCR of B&W6S60MC : 12,240 kW = 16,680 PS

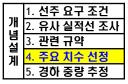


선박 개념 설계의 순서

PA선박의 개요소학의 종류조선 주요 과정1선박개념 설계VLCC 개념 설계 예



2. 유사 실적선 자료 조사



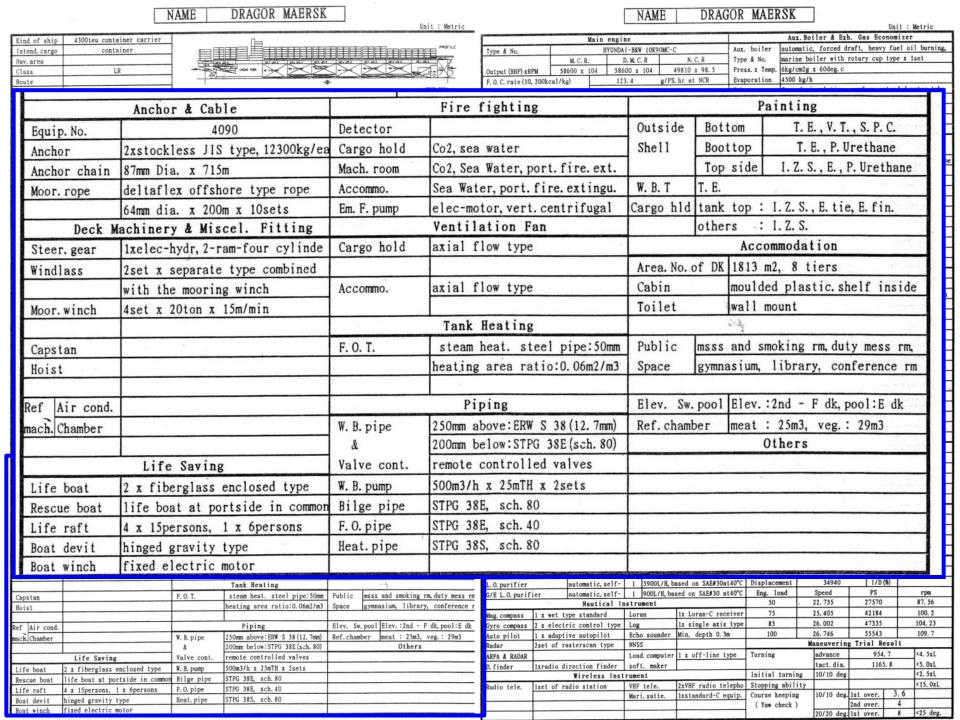
- 유사 실적선 자료 조사
 - "선박 설계는 무에서 유를 창조하는 혁신적인 업무라기보다는 실적 자료를 토대로 한 개선이다"
 - 유사 실적선 자료 조사
 - 주요 치수: L/B, L/D, B/D, D/T, C_B
 - 경하중량(Lightweight), Deadweight/Displacement
 - Capacity: Cargo, Ballast, F.O
 - Speed, Power, Propeller, etc.
 - 관련 선급, 모형 시험소, 선주 및 유관 기관과의 업무 협의 및 자료 입수



Container Carrier "Dragor Maersk" Outlined Specification

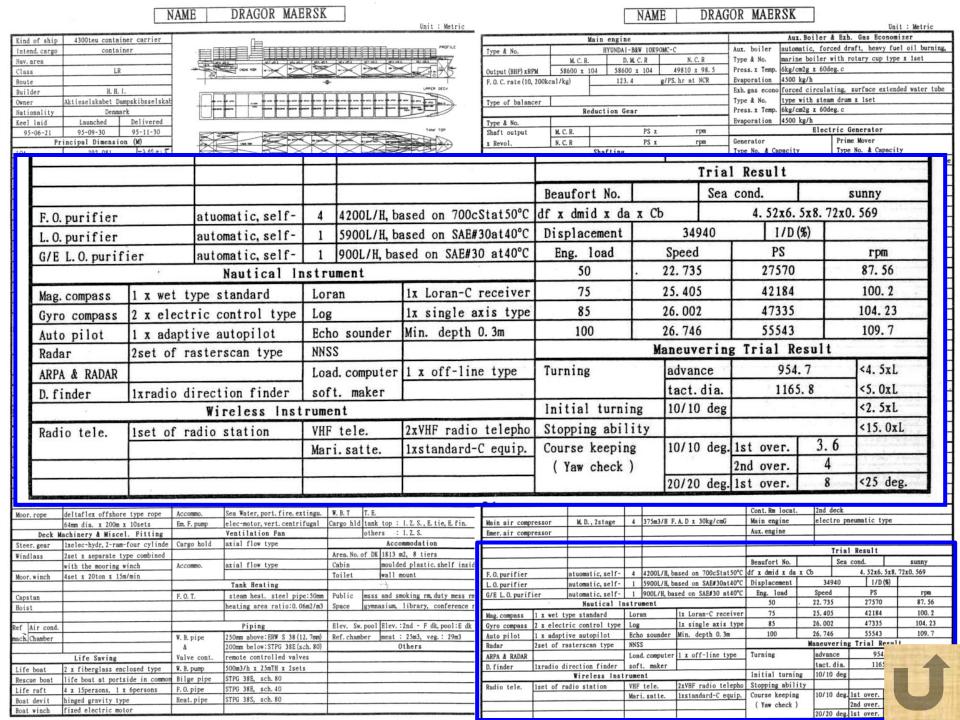
		NAME	DRAGO	R MAERSK		Un	nit : Metric					NAME	DRAGO	R MAERSK			Unit	: Metric
-		_			and the second second		iii . Motific	-	-					A	r Roiler A	Exh. Gas Ec	OWNERS OF THE	The second second
Kind of ship	4300teu container carrier	-					PACE II C			Main e						ed draft, heav		
Intend. cargo	container	- E						Type & No.				W 10K90MC-0						
Nav. area		包	- C1-C1	THE PERSON AND THE	6161	e-a1 e-a1 e-a		1		M. C. R.	D. M. C			***		ith rotary cup	type	x iset
Class	LR	-	1404 100	- 34		Till and the second	3.75	Output (BHP) xR	PM 58	8600 x 104	58600 x			ress. x Temp. 6kg/		g. c		
Route		1 -		-) -			F. O. C. rate (10,	200kca1/k	kg)	123. 4	g/PS			kg/h			
Builder	н. н. г.				7 7 7		PPCB DCC+						1	xh. gas econo force			xtende	d water tube
Owner	Aktieselskabet Dampskibsselska		+	-+-+-+-+-	-+-+-+			Type of balan	cer				1	Type & No. type	with steam	drum x 1set		
Nationality	Denmark	1 T								Reductio	on Gear			Press. x Temp. 6kg/	cm2g x 60de	g. c		
Keel laid	laid Launched Delivered							Type & No.					1	evaporation 4500	kg/h			
95-06-21	95-09-30 95-11-30	1 _					TANK TOP	Shaft output	M. C	C.R.		PS x	rpm		Elect	ric Generator		
	incipal Dimension (M)	· •		11 11 11 11 11 11 11 11 11 11 11 11 11		market and the second	245	x Revol.	N. C			PS x		Generator		Prime Mover		
LOA	292.081 =249+15	1 2	-					X Revol.	1 11.0	Shaft	ina	10 4		Type No. & Capacit	v	Type No. & Ca	pacity	
LBP	277									Inter. shat		Pr.		arine design, 1P44		4-stroke, trunk		
Bmld		rnational	Tonnage	Speed at d.	(des.)				_	inter, shai		1 1		rushless type				.,,,,
						15)		No.	_					000kw x 720rpm x 3	leete	2930ps x 720rp	m x 3-	ets
Dmld	21. 7 GT							Dia.		m				OOKW A /LUIPM X .		and a state		
dmld(d1, des.)	12. 2 NT		29707 Endura			─ ┤	101 16	Length			m		mm		rator	emerge	ncv ac-	erator
dext (d2, sum.)	13. 522	Rudder	F. O. co	nsump. 147.5			o LVI			Prope				emergency gen				
DWT at dl	52433 Af/A		P. T. 0		BHP	— IIII		Type & No.		1		pe x 1set		arine design, IP23	enclosure	4-stroke, trun	k pist	on type
DWT at d2		rea / (Lxd)	65. 0, 1. 889		mplement			blade NO.				6		rushless type		****		
△ at d2	Type x N	o. semi	i-balanced type x		28 + 6	MIDSHI	P SECTION	Dia. x pitch (7800 m	m x	7986. 2	mm 20	00kw x 1800rpm x	set	300ps x 1800rp	m x ls	et
Cb Cp				Capacit				Exp. area rat	io									
Cw	W. B	17732. 4	On DK. (TEU)	2206 TEU	13x5 (RxT) C. O. TK.		Material			N1, A	L, BR						
LCB (%LBP)	-5.449 (-1.967%) W. B. (hol		In hld. (TEU)	2116 TEU	11x8 (RxT) Slop TK.				Auxiliary	Machine	гу			Heat Excl	hanger & Misc	ellan	eous
L/B L/D	8. 59 12. 76		Total (TEU)	4322 TEU		Hold volume		Iter	1	Туре	No.		Capacity	Ite	m -	Type		No.
B/D B/d		6109.6	Reefer Cont.		(deck + ho			Sea water coo		M. D. V. C.	_	940m3/h x		Main L. O. coo	er	stainless ste.	1 2	924000kcal/h
Camber	200 D.O	416. 2	Dang, cargo hld			Car		Fresh water c		M. D. V. C.		780m3/h x		Main F. W. coo	er	titanium plate	2 1	2108200kca1/h
	- L.0	439.3	Lane length			Truck		Main lub. oil		M. D. C. deepwe	_	1020m3/h		Main F. O. heat		S&T, surface ex		
Sheer (F. A)			Car deck area			Trailer		Main 100.011	romp	AL D. C. GCCPWC		102011314		Diesel G. F. W.				
Fore		319. 2	car deck area			Itailei		P.O. Issued		+	_			Boiler F. O. he		maker's std	1	
Len- Hold	224. 8			B41// 1-/ 1	-1	- 1		F. O. burning		W 5 H C	-	9 6m2/L	100mTH	Aux. condense			+++	
gth Mach. Rm	30. 4		Cargo			r type, cargo p	ump, car ramp	Boiler feed w	ater pump	M. D. H. C.	2	8.6m3/h x	TOOMIN			S&T, surface ex	1 5	5 - 98°C
Aft	8.58 + 7.8			cargo gear,							-			Purif. L. O. her		oal, surface ex	1 3	70 C
Tween Deck				o. 1f 12480 x 1282				Hot water cir		м. р. н. с.	1	2m3 x 5mT	н	M. start.air			+	
Height				o. la 12480 x 2279				Forced draft	fan		_	-		A. start. air	ressel		+	
	Light Weight Data			o. 2f 12480 x 2805										A-C blender			+.+	
	LWT	MT.	N	o. 2a, 3f, 3a, 4f, 4a,	5f, 5a, 6f, 6a	, 7f, 7a, 8f, 8a 12480	0 x 23550	Heel pump						Fresh W. gener		M/E jacket hea	1 3	6ton/day .
KG	LCG		type: steel ponto	on, non-sequentia	al operation type			Sea W. service	pump					Bilge separat	or		\vdash	
Net Steel wt (HT			tightness: No. 1f,				Fire & G. S. pu	mp					Incinerator			\perp		
	Special Regulation					of side panels to	have packing	Bilge, fire &		M. D. V. C.	2	310/90m3/	h x 30/90mTH	Sewage treat.	device			
						anel and hatch con		Bilge pump		M. D. H. pisto	on 1	5m3/h x 3	.5kg/cm2g	1271				
							F 1.30	7								Tank		
								Fresh water p	ump					Item		. NO x C	AP. (cu	ab. M)
								F. O. trnasfer		M. D. H. G.	1	50m3/h x	3kg/cm2g	F. O. settl. /se	rv.	1 x 100m3, 1 x	50m3,	1 x 50m3
	tooken & Coh!	·	Fire fight	ine		Painting		D. O. transfer		M. D. H. G.		50m3/h x		D. O. settl. /se		1set x 23m3		
	Anchor & Cable		rire tight	ing	Outside I		, V. T. , S. P. C.			M. D. H. G.	_	15m3/h x				1x1, 1x64.5, 1	x 100	
Equip. No.	4090	Detector	1 00		Outside			L. O. transfer	pump	m. D. H. G.	+,	LJMJ/H X	ong/ cmag	Cyl. O. storage		1set x 120m3		
Anchor	2xstockless JIS type, 12300kg/ea				Shell		., P. Urethane	North Confession	1)	_	_			c/i.o. storage		Control		
Anchor chain	87mm Dia. x 715m	Mach. room		r, port. fire. ext.			, E., P. Urethane	Vent. fan (supp	17)	+	_	_		Cont. Rm locat	. 2nd d		_	
Moor. rope	deltaflex offshore type rope	Accommo.		rt. fire. extingu.	W. B. T	T. E.				W.D. 2.1		225-278 5	A D = 30kg/g=0			ro pneumatic t	vne	
	64mm dia. x 200m x 10sets	Em. F. pump		ert.centrifugal		tank top : 1. Z. S.,	E. tie, E. fin.	Main air comp		M.D., 2stag	e 4	3/3m3/H F	F. A. D x 30kg/cmG	Main engine	elect	ro pheumatic t	/ PC	
Deck Ma	achinery & Miscel. Fitting		Ventilation			others : I.Z.S.		Emer. air comp	ressor	-	_	-		Aux. engine	_			
Steer. gear	lxelec-hydr, 2-ram-four cylinde	Cargo hol	d axial flow t	ype		Accommodat						-				taial Bassit		
Windlass	2set x separate type combined				Area. No. o						_					Trial Result	_	
	with the mooring winch	Accommo.	axial flow t	уре	Cabin	moulded plast	ic. shelf insid							Beaufort No.		Sea cond.		sunny
	4set x 20ton x 15m/min	1			Toilet	wall mount		F. O. purifier		atuomatic, se			pased on 700cStat50			4. 52x6.		2x0. 569
			Tank Heat	ing		- 54		L. O. purifier		automatic, se			ased on SAE#30at40		349		(%)	
Capstan		F. O. T.	steam heat.	steel pipe:50mm	Public	msss and smoking r	m, duty mess rm	G/E L. O. purif	ier	automatic, se	lf- 1	900L/H, ba	sed on SAE#30 at40	O°C Eng. load	Speed			rpm
Hoist				ratio:0.06m2/m3		gymnasium, library				Nautical	Instru	ument		50	. 22. 735	27570		87. 56
HOISE			mout,ing area	ooma/ iii	Space	,	, John Steller 1	Mag. compass	1 x wet t		Lor		1x Loran-C receiv	ver 75	25. 405	42184		100. 2
Dec Min aced			Piping		Fley Sw	pool Elev. :2nd - F	dk pool:E dk			tric control ty			lx single axis ty		26. 002	47335		104. 23
Ref Air cond.		W 5 .		CDW C 20/12 7_1				Auto pilot		tive autopilot			Min. depth 0.3m	100	26, 746		-	109. 7
mach. Chamber		W. B. pipe		ERW S 38 (12. 7mm)	ket.chamb	er meat : 25m3,	veg.: 29m3	Radar		rasterscan type			and depth of Jan			ering Trial R		
		å		STPG 38E (sch. 80)		Others			aset of f	asterscan type	_		1 * off-11 1	Turning	advan		1.7	<4. 5xL
	Life Saving	Valve con						ARPA & RADAR					1 x off-line type	Jurning	tact.		5. 8	<5. 0xL
Life boat	2 x fiberglass enclosed type	W. B. pump	500m3/h x 25					D. finder	lxradio d	direction finde		t. maker		Initial turni			3. 0	<2. 5xL
Rescue boat	life boat at portside in common	Bilge pip								Wireless I			I			ueg		
Life raft	4 x 15persons, 1 x 6persons	F. O. pipe	STPG 38E, sc	h. 40				Radio tele.	lset of r	radio station		tele.	2xVHF radio telep			1-1-1-	1 2 4	<15. 0xL
Boat devit	hinged gravity type	Heat. pipe									Mar	i. satte.	1xstandard-C equi			deg. 1st over.		
Boat winch	fixed electric motor	1												(Yaw check		2nd over.	4	
Don't william															20/20	deg. 1st over.	8	<25 deg.

					(All the last of the second of					
Processor and Pr	Kind of ship	4300teu container	carrier						nit : Metric	
Kind of ship Intend.cargo	Intend. cargo	container				Terrere	PROFILE	uel oil burning,		
Nav. area Class	Nav. area			100.00	107.10 h	orma mana mana	NO - 10 1 10 1 10 1		pe x 1set	
Route	Class	LR		IN.	IN POIN G' LIE ME	a 11) and all the all	an instant		nded water tube	
Builder Owner	Route				afaire and the	+		101	noed water tube	
Nationality Keel laid	Builder	н. н. г.			UPPER DECK					
95-06-21	Owner	Aktieselskabet Dampsk	ibsselskab							
LOA	Nationality	Denmark					2 023		ity ston, in-line type	
LBP Bmld	Keel laid	Launched De	livered							
Dmld dmld(d1, des.)	95-06-21		5-11-30	NO THE	SUMMER		T. There	ANK TOP	3sets	
dext (d2, sum.)	Pri	ncipal Dimension (in the	K 100	any of the state o			generator iston type	
DWT at d1 DWT at d2	LOA	292. 081	=217+15			$\times \times \times$			1set	
△ at d2	LBP	277					1.		iset	
Cw LCB (%LBP)	Bmld	32. 25		nal Tonnage	The second section with the section with the second section with the sec	peed at d. (des.)	d		aneous	
L/B L/D	Dmld	21. 7	GT	50698		24. 32 kts (85 15)			No. 2924000kca1/h	
B/D B/d Camber	dmld(d1, des.)	12. 2	NT	29707	Endurance	20000 NM			12108200kca1/h 100 - 150°C	
Sheer (F. A) Fore	dext (d2, sum.)	13. 522	Rud	der	F. O. consump.	147.5 t/day	LVL 13	10 101	100 - 150°C	
Len- Hold gth Mach.Rm	DWT at d1	52433	Af/A		P. T. 0	BHP				
Aft	DWT at d2	62441. 8	Area , Area / (L		, 1.88%	Complement	- Contract	Davet 170	55 - 98°C	
Tween Deck Height	△ at d2		Type x No.	semi-balanced	type x lset	28 + 6	MIDSHIP	SECTION		
	Cb Cp					Capacity	[0.0 W		36ton/day .	
KG	Cw		W. B 17732. 4				C. O. TK.		-	
Net Steel wt (HT	LCB (%LBP)	-5.449 (-1.967%)	W. B. (hold)	In hld. (TE			Slop TK.			
		8. 59 12. 76		Total (TEU)	4322		Hold volume			
		1. 49 2. 643	F. 0 6109. 6	Reefer Con		120 FEU (deck + hold)	Flood. hld. No		(cub. M) n3, 1 x 50m3	
	Camber	200 .	D. O 416. 2	Dang. cargo			Car		0	
Equip. No. Anchor	Sheer (F. A)		L. 0 439. 3	Lane lengt			Truck Trailer			
Anchor chain Moor. rope	Fore	13. 22 + 7. 2	F. W 319. 2	Car deck a	Car deck area					
Deck Ma	Len- Hold	224. 8				/				
Steer. gear	gth Mach. Rm	30. 4 8. 58 + 7. 8				ng (hatch size, cover t	ype, cargo pu	mp, car ramp,		
Windlass	Aft	8.58 + 7.8		6: 61	The second secon	rgo gear, etc.)			sunny -3, 72x0, 569	
Moor. winch	Tween Deck			Size of h	Size of hatch: No. 1f 12480 x 12820					
Capstan	Height	7: 14 W : 14 D-4-				2480 x 22792/18100			rpm 87.56	
Hoist		Light Weight Data		_	No. 2f 12480 x 28050/23358 No. 2a, 3f, 3a, 4f, 4a, 5f, 5a, 6f, 6a, 7f, 7a, 8f, 8a 12480 x 23550					
Ref Air cond. mach. Chamber		LWT	MT.	tumet eter				X 23330	104. 23	
	KG	LCG	N/T		type: steel pontoon, non-sequential operation type					
Life boat	Net Steel wt (HT		MT.	tightness:	tightness: No. 1f, 1a, 2f and 2a : weathertight Others : non-tight, but 3-faces of side panels to have packing					
Rescue boat Life raft		Special Regulat	1011	alastins:	Others: non-tight, but 3-faces of side panels to have packing cleating: manual quick acting cleat between panel and hatch coaming top plate					
Boat devit Boat winch				cleating:		acting clear between panel	and naten coal		3. 6	
pour vincu			Charles Control of the Park of the Control of the C	THE RESERVE THE PROPERTY OF THE PARTY OF THE	_			ZU/ZU deg.[1st over.	8 <25 deg.	



3-1	NAME DRAC	OR MAERSK		Unit : Metric			NAME	DR	AGOR M	MAERSK		11_1	t · Notein
Kind of ship	skat			PHOTILE SECTION TAKE TOP	Type & No Output (Bi F. O. C. rai Type of i Type & No Shaft out	. M. C. R. 58600 x 104 e (10, 200kca1/kg) alancer Redu		C N. C. R 49810 x 98. 5 S. hr at NCR	Evapora Exh. gas Type & Press. 1	No. marine x Temp. 6kg/cm ation 4500 kg s econo forced	ic, forced d boiler with g x 60deg.c g/h circulating, ith steam dru g x 60deg.c		el oil burning, e x 1set
Parameter and the same	Mair	n engine	S. 10 10. 10 10 10 10 10 10 10 10 10 10 10 10 10 10	MATERIAL SECTION SECTI	T		Aux. Boil	er & E	xh. G	as Eco	nomize		pe
Type & No.		HYUNDA I - B&W	10K90MC-	-с	A	ux. boiler	automatic,	forced	draft,	, heavy	fuel o	il burni	ng,
1,770 w 1.01	M. C. R.	D. M. C.	. R	N. C. R	T	ype & No.	marine boil	er wit	h rota	ry cup	ype x	1set	
Output (BHP) xRPM	58600 x 104	58600 x	104	49810 x 98.5	P	ress. x Temp.	6kg/cm2g x	60deg.	С				
F. O. C. rate (10, 200kc		123. 4		S. hr at NCR	E	vaporation	4500 kg/h						
1. 0. 0. 10. 0 (10, 200					E	xh. gas econo	forced circ	ulatin	g, sur	face ex	ended	water tu	be 📗
Type of balancer					_	ype & No.	type with a						
Type of barancer	Reduc	tion Gear			_		6kg/cm2g x	60deg.	С				
Type & No.					-		4500 kg/h						
Shaft output	M. C. R.		PS x	rpm				ectri	Gene	rator			-
x Revol.	N. C. R		PS x	rpm	G	enerator		P	rime Mo	over			
A REVOI.		afting	10 11		T	ype No. & Car	pacity	T	ype No.	& Capa	city		
	Inter.		Р	rop. shaft.		rine design,		ure 4-	stroke,	trunk	iston,	in-line	type
No	inter.	mar t.	·	Top: Unatt.		ushless type							
No.		mm		mm		00kw x 720rp		293	30ps x	720rpm	x 3set	s	
Dia.				mm	- 120	OOK# R /201P							
Length	Dec	mm opeller		11011	\dashv	emergency	generator		e	emergenc	v gener	rator	
	110		14			rine design,		1re 1-		trunk			
Type & No.		fixed typ				ushless type		10 14 .	s i i ono,	tronk	proton	· · · · ·	
blade NO.	7000	<u>-</u>				Okw x 1800rp		300	One v	1800rpm	v 1cet		
Dia. x pitch (0.7R)	7800	mm x	7986. 2	mm	120	OKM Y 1900Lbi	III A 15CL	300	ops A	10001 pili	A ISCL		
Exp. area ratio		N	, pp		+			_					
Material	1805 00	NI, AI	L, BK		L. O. Dur	ICI ISUTOMATIV	of Scii 1 Istooping						
Capstan				d smoking rm, duty mess rm um, library, conference r	G/E L. O. 1		c, self- 1 900L/H, b	ased on SAE#3	30 at40°C	Eng. load 50 .	Speed 22. 735	PS 27570	rpm 87.56
Hoist					Mag. compr		ard Loran	lx Loran-C		75 85	25. 405 26. 002	42184 47335	100. 2 104. 23
Ref Air cond. mach. Chamber		ve:ERW S 38 (12.7mm) F		ev.:2nd - F dk, pool:E dk at : 25m3, veg.: 29m3	Auto pile	t 1 x adaptive autop	ilot Echo sounder	Min. depth		100	26. 746	55543 g Trial Resul	109. 7
Life Saving		ow:STPG 38E(sch. 80) ntrolled valves		Others	Radar ARPA & RA		Load. compute	r 1 x off-lin	ne type Tu	urning	advance	954. 7	<4. 5xL
Life boat 2 x fiberglass enclosed type Rescue boat life boat at portside in com		25mTH x 2sets sch. 80			D. finder	lxradio direction t	finder soft. maker ss Instrument			nitial turning		1165. 8	<5. 0xL <2. 5xL
Life raft 4 x 15persons, 1 x 6persons	F. O. pipe STPG 38E,	sch. 40			Radio te	e. Iset of radio stat	ion VHF tele. Mari. satte.	2xVHF radio		topping abilit ourse keeping		1st over. 3	
Boat devit hinged gravity type Boat winch fixed electric motor	Heat.pipe STPG 38S,	SCR. 6U								(Yaw check)	20/20 deg.		4 8 <25 deg.

	NAME	DRAGOR MAE	RSK	Unit : Metric		NAM	IE	DRAGOR MAERSK		Unit : Metric	c
	of ship 4300teu container carrier d. cargo container rea LR	160X 1509	100 m	PAGINE STATE OF THE STATE OF TH	Type & No. Output (BHP) xRPM	Main engine HYUNDAI-B&W 10K9		Aux. boiler autom C.R Type & No. marin	atic, f	r & Exh. Gas Economizer orced draft, heavy fuel oil burn r with rotary cup type x lset Odeg.c	ning,
П		Auxiliary Mach	niner	у		He	at Exc	changer & Misc	el 1 a	neous	П
H I	Item	Туре	No.	Capacity		Item	-	Туре		No.	18
	Sea water cooling P.	M. D. V. C.	3	940m3/h x 20mTH		Main L. O. cooler		stainless ste.	1	2924000kca1/h	l H
i i	Fresh water cooling P.	M. D. V. C.	3	780m3/h x 25mTH		Main F.W. cooler		titanium plate	2	12108200kcal/h	H
1 1	Main lub.oil pump	M. D. C. deepwell	2	1020m3/h x 45mTH		Main F.O. heater		S&T, surface ex	2	100 - 150°C	1 8
11 1						Diesel G. F. W. cool	er				l A
H I	F.O. burning pump					Boiler F. O. heater		maker's std	1		ΙĦ
Ш	Boiler feed water pump	M. D. H. C.	2	8.6m3/h x 100mTH		Aux. condenser					IH
Н						Purif. L. O. heater		S&T, surface ex	1	55 - 98°C	IH
H	Hot water circ. pump	M. D. H. C.	1	2m3 x 5mTH		M. start. air vesse	1				l
H I	Forced draft fan					A. start. air vesse	1				H
H						A-C blender					Н
4	Heel pump					Fresh W. generator		M/E jacket hea	1	36ton/day .	H
	Sea W. service pump					Bilge separator				+ + +	l A
11	Fire & G. S. pump					Incinerator					l A
H	Bilge, fire & service P.	M. D. V. C.	2	310/90m3/h x 30/90mTH		Sewage treat. devi	се				I
	Bilge pump	M.D.H.piston	1	5m3/h x 3.5kg/cm2g						r - colemania	I
Н								Tank			- 1
H I	Fresh water pump					Item		. NO x CA	P. (cub. M)	. :
H I	F.O. trnasfer pump	M. D. H. G.	1	50m3/h x 3kg/cm2g		F.O. settl./serv.		1 x 100m3, 1 x	50m	3, 1 x 50m3	l
A I	D.O. transfer pump	M. D. H. G.	1	50m3/h x 3kg/cm2g		D. O. settl. /serv.		1set x 23m3			l H
H	L. O. transfer pump	M. D. H. G.	1	15m3/h x 6kg/cm2g		L. O. drain/settl. /	stor.	1x1, 1x64.5, 1x	100		l
H I						Cyl. O. storage		1set x 120m3			H
i I	Vent. fan (supply)			1				Control			ľ
H I						Cont. Rm locat.	2nd	deck			IA
H I	Main air compressor	M.D., 2stage	4	375m3/H F. A. D x 30kg/c	:mG	Main engine	elec	tro pneumatic ty	pe		l A
Ш	Emer. air compressor					Aux. engine					I H
	ir cond.	Piping				2 x electric control type Log	lx si nder Min.	ngle axis type 85 depth 0.3m 100		002 47335 104. 23 746 55543 109. 7	
mach. C	hamber W. B. pi	200mm below:STPG 38E(sc	h. 80)	ef.chamber meat: 25m3, veg.: 29m3 Others	Radar 2	eset of rasterscan type NNSS			Mane	uvering Trial Result	
Life	Life Saving Valve boat 2 x fiberglass enclosed type W.B.pu	ump 500m3/h x 25mTH x 2sets			D. finder	xradio direction finder soft. ma			ta	ct. dia. 1165. 8 <5. 0x1	xL
	e boat life boat at portside in common Bilge				Radio tele.	Wireless Instrument set of radio station VHF tele		Initial turnin radio telepho Stopping abili	ty	<15. 0:	
Boat Boat	devit hinged gravity type Heat.p					Mari. sat	te. lxsta	ndard-C equip. Course keeping (Yaw check)		/10 deg. 1st over. 3.6 2nd over. 4	
post	THOU ITAGO CIOCCITO MOTOL								20	/20 deg. 1st over. 8 <25 de	leg.





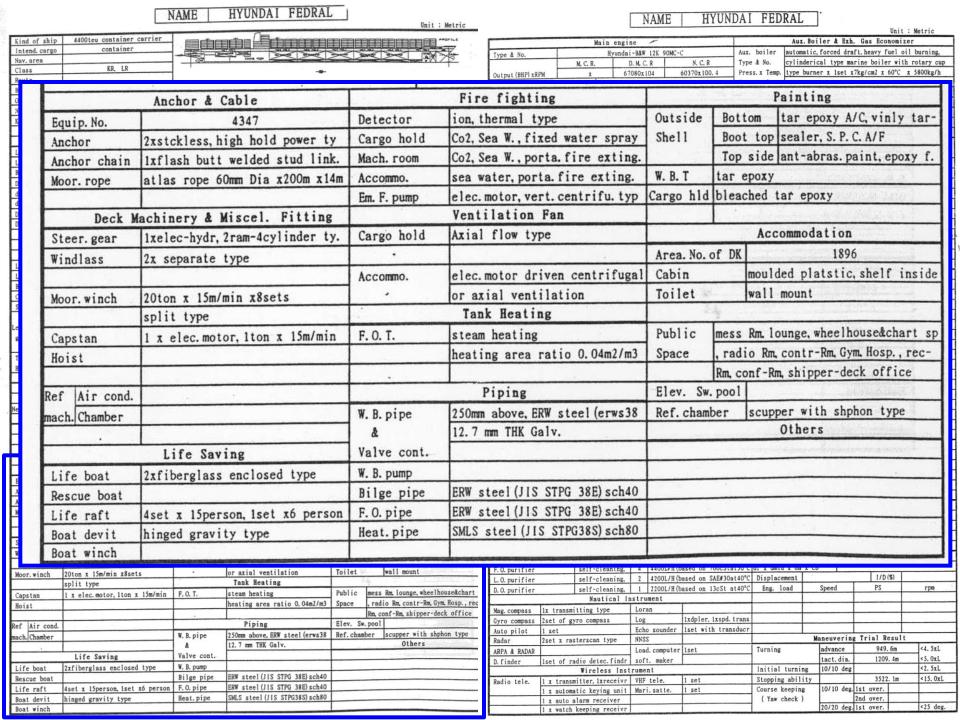
Container Carrier "Hyundai Fedral" Outlined Specification

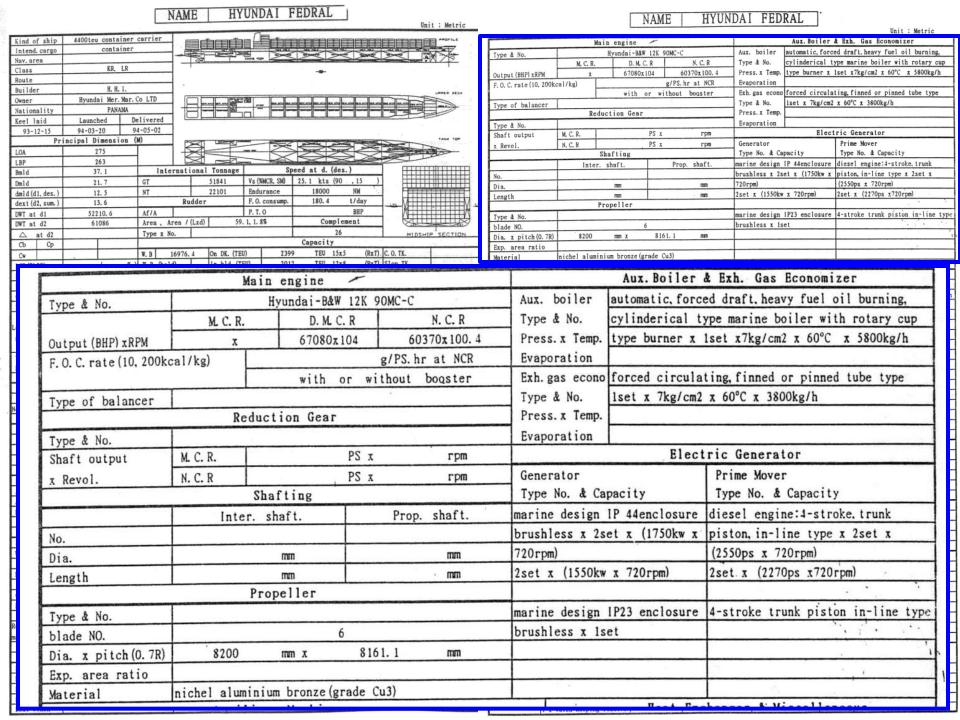
			NAME	HYU	NDAI I	EDRAL			Uni	it : Metric
Kind of ship	4400teu container	carrier								■ **orice
intend. cargo	container			2000	4	el sur o			W 41 W 41	
Nav. area			32	(m	N 100				*	W Z S
Class	KR, LR									
Route			١.							
Builder	H. H. I.	7. 170								
Owner	Hyundai Mer. Mar. (O LID				-		-		-
Nationality	PANAMA Launched De	livered								
93-12-15		4-05-02	1							
	incipal Dimension (1							TANK TOP
LOA	275			180	-	Service Services	Survivor 21		A STATE OF THE PARTY OF THE PAR	
LBP	263				\sim			\leq		
Bmld	37. 1	Inte	ernational	Tonnage	Sp	eed at d.	(des.)		THE STATE OF THE S	
Dmld	21. 7	GT		51841	s (%MCR. SM)	25.1 kts	(90 , 15)		
dmld(d1, des.)	12. 5	NT		22101	Endurance	18000	NM	7.		
dext (d2, sum.)	13. 6		Rudder		. O. consump.	180. 4	t/day	,		
DWT at d1	52210.6	Af/A			P. T. 0		BHP	- 1	A	THE PARTY OF THE P
DWT at d2	61086	Area , /	Area / (Lxd)	59. 1.	1.8%	Con	nplement		SIL	
△ at d2		Type x 1	lo.				26		MIDSHI	P SECTION
Cb Cp						Capacit				7
Cw		W. B	16976. 4	On DK. (TEU)	239			-	C. O. TK.	L
LCB (%LBP)	(%)	W. B. (ho	(d)	In hld. (TEU)			12x8		Slop TK.	21 to 11, 1-1
L/B L/D	7. 09 12. 12			Total (TEU)	.441			_	Hold volume	12 F 12 F 1
B/D B/d	1.71 2.968	F. 0	6827. 3	Reefer Cont.	_	TEU		_	Flood, hld. No	
Camber	350	D. 0	697. 4	Dang. cargo	nld			_	Car	-
Sheer (F. A)		L. 0	455. 4	Lane length				_	Truck	and the latest dealers
Fore	11.675 +	F. W	458. 1	Car deck are	a			- 1	Trailer	
en- Hold	211. 975			-	n - 117	/ 1-1-1	-7	4-		
gth Mach. Rm	26. 05			٠ ١				er ty	pe, cargo pu	imp, car ramp
	13.3 +						etc)			
Aft				NO 14 10 12		rgo gear,		26 1	NO 28 12 6+31	18/26
Tween Deck					6x20.86/15.	, NO. 2A 1	2. 6x26/20.		NO. 2B 12. 6x31.	
	Light Weight Date			NO. 3A, 3B, 4A,	6x20, 86/15, 4B, 5A, 5B, 6A,	, NO. 2A 1	2. 6x26/20.		NO. 2B 12. 6x31. 7A 6. 4x7. 94 (P&	
Tween Deck Height	Light Weight Data		NT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1	6x20. 86/15. 4B, 5A, 5B, 6A, 3. 4 (C)	6B, 7C, 7D 1	2. 6x26/20. 2. 6x31. 28	NO.	7A 6. 4x7. 94 (P&	ts)
Tween Deck Height			MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1 type:Non-ti	6x20. 86/15. 4 4B, 5A, 5B, 6A, 3. 4 (C) ght, steel por	6B, 7C, 7D 1	2. 6x26/20. 2. 6x31. 28	NO.	7A 6. 4x7. 94 (P&	
Tween Deck Height	LCG		MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1 type:Non-ti for hold NO.	6x20. 86/15. 4 4B, 5A, 5B, 6A, 3. 4 (C) ght, steel por 1 and 2)	6B, 7C, 7D 1	2. 6x26/20. 2. 6x31. 28 hatch cove	NO.	7A 6. 4x7. 94 (P&	ts)
Tween Deck Height	LCG T. %)	MT.	MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1 type:Non-ti for hold NO. cleat:Non-c	6x20. 86/15. 4B, 5A, 5B, 6A, 3. 4 (C) ght, steel poil 1 and 2) leat for hole	6B, 7C, 7D 1: atoon type 1	2. 6x26/20. 2. 6x31. 28 hatch cove	NO.	7A 6. 4x7. 94 (P&	tS)
Tween Deck Height	LCG	MT.	МТ.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1: type:Non-ti for hold NO. cleat:Non-c Manua	6x20. 86/15. 4B, 5A, 5B, 6A, 3. 4 (C) ght, steel poil 1 and 2) leat for hole	6B, 7C, 7D 1 toon type NO. 3, 4, 5, type cleat	2. 6x26/20. 2. 6x31. 28 hatch cove	NO. 1	7A 6.4x7.94 (På thertight stee and 2 for heav	tS)
Tween Deck Height	LCG T. %)	MT.	MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1 type:Non-ti for hold NO. cleat:Non-c Manua	6x20. 86/15. 4 4B, 5A, 5B, 6A, 3. 4 (C) ght, steel por 1 and 2) leat for hole	6B, 7C, 7D 1 toon type NO. 3, 4, 5, type cleat	2. 6x26/20. 2. 6x31. 28 hatch cove	NO. 1	7A 6.4x7.94 (På thertight stee and 2 for heav	tS)
Tween Deck Height	LCG T. %)	MT.	MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1 type:Non-ti for hold NO. cleat:Non-c Manua	6x20. 86/15. 4 4B, 5A, 5B, 6A, 3. 4 (C) ght, steel por 1 and 2) leat for hole	6B, 7C, 7D 1 toon type NO. 3, 4, 5, type cleat	2. 6x26/20. 2. 6x31. 28 hatch cove	NO. 1	7A 6.4x7.94 (På thertight stee and 2 for heav	tS)
Tween Deck Height	LCG T. %)	MT.	MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1: type:Non-ti for hold NO. cleat:Non-c Manua between	6x20.86/15. 4B, 5A, 5B, 6A, 3.4 (C) ght, steel por 1 and 2) leat for hold I heavy bolt en hatch pane	6B, 7C, 7D 1 toon type NO. 3, 4, 5, type cleat	2. 6x26/20. 2. 6x31. 28 hatch cove	NO. 1	7A 6.4x7.94 (På thertight stee and 2 for heav late	el pontoon type
Tween Deck Height	LCG T. %)	MT.	MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1: type:Non-ti for hold NO. cleat:Non-c Manua between	6x20.86/15. 4B, 5A, 5B, 6A, 3.4 (C) ght, steel por 1 and 2) leat for hold I heavy bolt en hatch pane	6B, 7C, 7D 1 toon type NO. 3, 4, 5, type cleat	2. 6x26/20. 2. 6x31. 28 hatch cove 6, 7 for hold h	NO. 1 itop p	7A 6.4x7.94 (På thertight stee and 2 for heav late Painting	el pontoon type
Tween Deck Height	LCG T. %) Special Regulat	MT.	MT.	NO. 3A, 3B, 4A, NO. 7B 6. 4x1: type:Non-ti for hold NO. cleat:Non-c Manua between Fire ion, the	6x20.86/15.4 4B, 5A, 5B, 6A, 3.4 (C) ght, steel poi 1 and 2) leat for hold heavy bolt en hatch pane fighting ermal type	i, NO. 2A 1 6B, 7C, 7D 1 atoon type i NO. 3, 4, 5, type cleat	2. 6x26/20, 2. 6x31. 28 hatch cover 6, 7 for hold h coaming	NO. 1 top p	7A 6.4x7.94 (På thertight stee and 2 for heav late Painting tom tar epox	el pontoon type ry sea water y A/C, vinly ta
Tween Deck Height LWT KG I Net Steel wt (H	LCG T.%) Special Regulat Anchor & Cable	MT.	Detector Cargo ho	NO. 3A. 3B. 4A. NO. 7B 6. 4x1' type:Non-ti for hold NO. cleat:Non-c Manua between Fire ion, the	6x20.86/15.4 4B, 5A, 5B, 6A, 3.4 (C) ght, steel poi 1 and 2) leat for hold heavy bolt en hatch pane fighting ermal type a W., fixed we	toon type in toon type if NO. 3, 4, 5, type cleat and hatch	2. 6x26/20. 2. 6x31. 28 hatch cove 6, 7 for hold h	NO. 1 : top p	7A 6. 4x7. 94 (På thertight stee and 2 for heav late Painting tom tar epox t top sealer, S	el pontoon type ry sea water y A/C, vinly ta
Tween Deck Height LWT KG I I Net Steel wt (H)	Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s	MT. ion power ty	Detector Cargo ho	NO. 3A, 3B, 4A, NO. 7B 6. 4x1' type:Non-ti for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, Se: m Co2, Se:	6x20.86/15.48.5A.5B.6A.3.4(C) sht. steel poil 1 and 2) leat for hold 1 heavy bolt en hatch panel fighting ermal type a W., fixed w. a W., porta. f	i, NO. 2A I 68, 7C, 7D I atoon type atoon type I NO. 3, 4, 5, type cleat I and hatch	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell	NO. 1 : top p Bott Boot Top	7A 6. 4x7. 94 (På thertight stee and 2 for heav late Painting tom tar epox t top sealer, S side ant-abra	el pontoon type ry sea water y A/C, vinly ta
Tween Deck Height LWT KG L Net Steel wt (H) Equip. No. Anchor	Anchor & Cable 4347 2xstckless, high hold	MT. ion power ty	Detector Cargo ho Mach. roo	NO. 3A. 3B, 4A, NO. 7B 6. 4x1' type:Non-ti; for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, See m Co2, See sea wa	6x20.86/15.4 4B.5A.5B.6A. 30.4 (C) sht. steel por 1 and 2) leat for hold 1 heavy bolt 2 heavy bolt 2 heavy bolt 3 heavy bolt 4 heavy bolt 5 heavy bolt 6 heavy bolt 6 heavy bolt 7 heavy bolt 8 heavy bolt 8 heavy bolt 9 heavy bo	i, NO. 2A 1 68, 7C, 7D 1 atoon type if NO. 3, 4, 5, type cleat el and hatc	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T	NO. 1 top p Bott Boot Top tar e	7A 6. 4x7. 94 (På thertight stee and 2 for heav late Painting tom tar epox t top sealer, S side lant-abra epoxy	y A/C, vinly ta .P. C. A/F s.s. paint, epoxy
Tween Deck Height LWT KG L Net Steel wt (H) Equip. No. Anchor Anchor chain Moor. rope	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x	MT. ion power ty tud link.	Detector Cargo ho	NO. 3A. 3B, 4A, NO. 7B 6. 4x1' type:Non-ti; for hold NO. cleat:Non-c Manua betwee Fire ion, the ld Co2, See m Co2, See sea wa p elec. m	6x20. 86/15. 48, 5A, 5R, 6A, 48, 5A, 5R, 6A, 48, 5A, 5R, 6A,	i, NO. 2A 1 68, 7C, 7D 1 atoon type if NO. 3, 4, 5, type cleat el and hatc	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T	NO. 1 top p Bott Boot Top tar e	7A 6. 4x7. 94 (På thertight stee and 2 for heav late Painting tom tar epox t top sealer, S side ant-abra	y A/C, vinly ta .P. C. A/F s.s. paint, epoxy
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x	MT. ion power ty tud link. 200m x14m	Detector Cargo ho Mach no Accommo	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, See m Co2, See sea wa p elec. m Ventil	6x20. 86/15. 48. 5A. 5R. 6A. 48. 5A. 5R. 6A. 5R. 5A. 5R. 6A. 9 sht. steel poor 1 and 2) leat for hold heavy bolt en hatch pane fighting rmal type a W., fixed wo W., porta. fi ter, porta. fi tor, wert.cellation Fan	i, NO. 2A 1 68, 7C, 7D 1 atoon type if NO. 3, 4, 5, type cleat el and hatc	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T	NO. 1 top p Bott Boot Top tar e	A 6. 4x7. 94 (PA thertight stee and 2 for heav late Painting tom tar epox t top scaler, S side ant-abra epoxy ched tar epoxy	el pontoon type ry sea water ry sea water .y A/C, vinly ta .P. C. A/F s. paint, epoxy
Tween Deck Height LWT KG	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x achinery & Miscel. lxelec-hydr, 2ram-4cyl	MT. ion power ty tud link. 200m x14m	Detector Cargo ho Mach. roo Accommo. Em. F. pum	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, See m Co2, See sea wa p elec. m Ventil	6x20. 86/15. 48, 5A, 5R, 6A, 48, 5A, 5R, 6A, 48, 5A, 5R, 6A,	i, NO. 2A 1 68, 7C, 7D 1 atoon type if NO. 3, 4, 5, type cleat el and hatc	2. 6x26/20. 2. 6x31. 28 hatch cove 6, 7 for hold h coaming Outside Shell W. B. T Cargo hld	NO. 1 : top p Bott Boot Top tar e	7A 6. 4x7. 94 (PA thertight stee and 2 for heav late Painting tom tar epox t top sealer, S side ant-abra epoxy ched tar epoxy Accommodat	y A/C, vinly ta. P. C. A/F is. paint, epoxy
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x	MT. ion power ty tud link. 200m x14m	Detector Cargo ho Mach.roo Accommo. Em. F. pum	NO. 3A. 3B, 4A, NO. 7B 6. 4x1 type:Non-ti; for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, See sea wa p elec. m Ventil ld Axial	6x20. 86/15. 48, 5A, 5R, 6A, 3.4 (C) ght, steel point 1 and 2) leat for hold 1 heavy bolt en hatch pane fighting ermal type 1 W., fixed wi N., fixed wi N. porta, fi ler, porta, fi	i, NO. 2A 1 68, 7C, 7D 1 atoon type if NO. 3, 4, 5, type cleat el and hatch ater spray ire exting.	2. 6x26/20. 2. 6x31. 28 hatch cover 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. c	NO. 1 : top p Bott Boot Top tar e	7A 6. 4x7. 94 (PA thertight stee and 2 for heav late Painting tom tar epox t top sealer. S side ant-abra epoxy ched tar epoxy Accommodat	y A/C, vinly ta .P. C. A/F s. paint, epoxy
Tween Deck Height LWT KG L Net Steel wt (H) Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x achinery & Miscel. lxelec-hydr, 2ram-4cyl 2x separate type	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum	NO. 3A. 3B, 4A, NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the ld Co2, See m Co2, See yentild Axial	6x20. 86/15. 48, 5A, 58, 6A, 51, 64, 67, 68,	i, NO. 2A 1 68, 7C, 7D 1 atoon type in NO. 3, 4, 5, type cleated and hatch at the street street in the street street street in the street stre	2. 6x26/20. 2. 6x31. 28 hatch cove 6, 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. 6 Cabin	NO. 1 r (weak NO. 1 r top p	7A 6. 4x7. 94 (Pd thertight stee and 2 for heav late Painting tom tar epox t top sealer, S side ant-abra epoxy ched tar epoxy Accommodat moulded plats	y A/C, vinly ta. P. C. A/F is. paint, epoxy
Tween Deck Height LWT KG	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x achinery & Miscel. lxelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach.roo Accommo. Em. F. pum	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, th ld Co2, See m Co2, See sea wa p elec. m Venti ld Axial elec. m or axie	6x20. 86/15. 48, 5A, 5R, 6A, 48, 6R, 6R, 48, 6R, 6R, 48, 6R, 6R, 48, 6R, 6R, 48,	i, NO. 2A 1 68, 7C, 7D 1 atoon type in NO. 3, 4, 5, type cleated and hatch at the street street in the street street street in the street stre	2. 6x26/20. 2. 6x31. 28 hatch cover 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. c	NO. 1 r (weak NO. 1 r top p	7A 6. 4x7. 94 (PA thertight stee and 2 for heav late Painting tom tar epox t top sealer. S side ant-abra epoxy ched tar epoxy Accommodat	y A/C, vinly ta .P. C. A/F s. paint, epoxy
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x fachinery & Miscel. lixelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, th ld Co2, See m Co2, See sea wa p elec. m Venti ld Axial elec. m or axi Tank	6x20. 86/15. 48, 5A, 58, 6A, 1 and 2) leat for hold leavy bolt en hatch pane fighting rmal type a W, fixed w w, porta, fi ter, porta, fi totor, wert. cel ation Fan rlow type otor driven al ventilating	i, NO. 2A 1 68, 7C, 7D 1 atoon type in NO. 3, 4, 5, type cleated and hatch at the street street in the street street street in the street stre	2. 6x26/20. 2. 6x31. 28 hatch cove hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. o Cabin Toilet	NO. 1 r (weak NO. 1 r top p	Accommodat moulded plats wall mount	y A/C, vinly ta P. C. A/F S. paint, epoxy ion 1896 tic, shelf insi
Tween Deck Height LWT KG L iet Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x achinery & Miscel. lxelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, See sca wa p elec. m Ventil d Axial elec. m or axi Tank steam	6x20. 86/15. 48, 5A, 5R, 6A, 3.4 (C) ght, steel point least for hold heavy bolt m hatch pane fighting ermal type W., fixed wi W., fixed wi at top file ter, porta.	i, NO. 2A 1 68, 7C, 7D 1 atoon type it NO. 3, 4, 5, type cleat el and hatch ater spray ire exting. re exting. atrifu. type	2. 6x26/20. 2. 6x31. 28 hatch cover 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. c Cabin Toilet	NO. 1 : top p Bott Boot Top tar e bleace	Accommodat moulded plats wall unge, whee	y A/C, vinly ta P. C. A/F S. paint, epoxy ion 1896 tic, shelf insi
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x fachinery & Miscel. lixelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua between Fire ion, the ld Co2, See sca wa p elec. m Ventil d Axial elec. m or axi Tank steam	6x20. 86/15. 48, 5A, 58, 6A, 1 and 2) leat for hold leavy bolt en hatch pane fighting rmal type a W, fixed w w, porta, fi ter, porta, fi totor, wert. cel ation Fan rlow type otor driven al ventilatin Heating	i, NO. 2A 1 68, 7C, 7D 1 atoon type it NO. 3, 4, 5, type cleat el and hatch ater spray ire exting. re exting. atrifu. type	2. 6x26/20. 2. 6x31. 28 hatch cove hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. o Cabin Toilet	NO. 1 r (weak NO. 1 r (weak NO. 1 r top p) Bott Boot Top tar e bleach of DK	Accommodat moulded plats wall mount Rm. lounge, wheie Rm. contr-Rm	ry sea water ry sea water y A/C, vinly ta .P. C. A/F .s. paint, epoxy ion 1896 ttic, shelf insi relhouse&chart . Gym. Hosp., rec
Tween Deck Height LWT KG L Net Steel wt (H) Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x fachinery & Miscel. lixelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the ld Co2, See m Co2, See sea wa p elec. m Ventil ld Axial elec. m or axi Tank steam heatin	6x20. 86/15. 48, 5A, 5R, 6A, 3.4 (C) 48, 5A, 5R, 6A, 3.4 (C) 1 and 2) leat for hold 1 heavy bolt en hatch pane fighting ermal type w. fixed w, aw. porta. fi totor, vert. aft flow type otor driven all ventilating Heating heating eating g area ratio	i, NO. 2A 1 68, 7C, 7D 1 atoon type it NO. 3, 4, 5, type cleat el and hatch ater spray ire exting. re exting. atrifu. type	2. 6x26/20. 2. 6x31. 28 hatch cove 6, 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. c Cabin Toilet Public Space	NO. 1 : top p Bott Boot Top tare bleace bleace , radii Rm. cc	Accommodat moulded plats wall unge, whee	ry sea water ry sea water y A/C, vinly ta .P. C. A/F .s. paint, epoxy ion 1896 ttic, shelf insi relhouse&chart . Gym. Hosp., rec
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist Ref Air cond.	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x fachinery & Miscel. lixelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho Accommo.	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the ld Co2, See sea wa pelec.m Yentil ld Axial elec.m or axi Tank steam heatin	6x20. 86/15. 48. 5A. 58. 6A. 48. 5A. 58. 6A. 48. 5A. 58. 6A. 54. 12. 1 and 2) leat for hold heavy bolt en hatch pane fighting rmal type a. W., fixed wo w., porta. fi ter, porta. fi ter, porta. fi tor, vert. cell ation Fan flow type botor driven al ventilati Heating meating g area ratio pring	No. 2A 1 68, 7C, 7D 1 atoon type I No. 3, 4, 5, type cleat el and hatch atter spray ire exting. ere exting. attrifu. typ centrifugal on. 0.04m2/m3	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. C Cabin Toilet Public Space Elev. Sw.	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer. S side ant-abra epoxy Accommodat moulded plats wall mounge, whe ion Rm. constribute	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist Ref Air cond.	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold lxflash butt welded s atlas rope 60mm Dia x fachinery & Miscel. lixelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach.roo Accommo. Em. F. pum Cargo ho Accommo. F. O. T. W. B. pipe	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the dCo2, See sea wa pelec.m Ventil dAxial elec.m or axi Tank steam heatin	6x20. 86/15. 48, 5A, 5R, 6A, 19, 48, 5R, 6A, 10, 48, 5R, 6A, 11, 48, 5R, 6A, 11, 48, 5R, 6A, 12, 48, 5R, 6A, 13, 48, 5R, 6A, 14, 5R, 6A, 14, 5R, 6A, 15, 5R, 6A, 16, 5R, 6A, 16, 5R, 6A, 18, 5R, 5R, 18,	No. 2A 1 68, 7C, 7D 1 atoon type I No. 3, 4, 5, type cleat el and hatch atter spray ire exting. ere exting. attrifu. typ centrifugal on. 0.04m2/m3	2. 6x26/20. 2. 6x31. 28 hatch cove 6, 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. c Cabin Toilet Public Space	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer, S side ant-abra epoxy Accommodat moulded plats wall mount Rm. lounge, whee io Rm. contr-Rm shipper scupper with	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist Ref Air cond.	Anchor & Cable 4347 2xstckless, high hold 1xflash butt welded s atlas rope 60mm Dia x achinery & Miscel. 2x separate type 20ton x 15m/min x8set split type 1 x elec.motor, lton x	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho Accommo. F. O. T.	NO. 3A. 3B, 4A, NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the ld Co2, See m Co2, See weel Co2, See and the co2 sea wa p elec.m Ventil d Axial elec.m or axi Tank steam heatin Pi 250mm: 12.7 m	6x20. 86/15. 48. 5A. 58. 6A. 48. 5A. 58. 6A. 48. 5A. 58. 6A. 54. 12. 1 and 2) leat for hold heavy bolt en hatch pane fighting rmal type a. W., fixed wo w., porta. fi ter, porta. fi ter, porta. fi tor, vert. cell ation Fan flow type botor driven al ventilati Heating meating g area ratio pring	No. 2A 1 68, 7C, 7D 1 atoon type I No. 3, 4, 5, type cleat el and hatch atter spray ire exting. ere exting. attrifu. typ centrifugal on. 0.04m2/m3	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. C Cabin Toilet Public Space Elev. Sw.	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer. S side ant-abra epoxy Accommodat moulded plats wall mounge, whe ion Rm. constribute Rm. lounge, whe	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist Ref Air cond. Chamber	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold 1xflash butt welded s atlas rope 60mm Dia x achinery & Miscel. 1xelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type 1 x elec.motor, lton x	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach.roo i Accommo. Em. F. pum Accommo. F. O. T. W. B. pipe & Valve co	NO. 3A. 3B, 4A. NO. 7B 6. 4x1 type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, th ld Co2, See m Co2, See w Yenti ld Axial elec. m or axi Tank steam heatin P: 250mm 12.7 m nt.	6x20. 86/15. 48, 5A, 5R, 6A, 19, 48, 5R, 6A, 10, 48, 5R, 6A, 11, 48, 5R, 6A, 11, 48, 5R, 6A, 12, 48, 5R, 6A, 13, 48, 5R, 6A, 14, 5R, 6A, 14, 5R, 6A, 15, 5R, 6A, 16, 5R, 6A, 16, 5R, 6A, 18, 5R, 5R, 18,	No. 2A 1 68, 7C, 7D 1 atoon type I No. 3, 4, 5, type cleat el and hatch atter spray ire exting. ere exting. attrifu. typ centrifugal on. 0.04m2/m3	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. C Cabin Toilet Public Space Elev. Sw.	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer, S side ant-abra epoxy Accommodat moulded plats wall mount Rm. lounge, whee io Rm. contr-Rm shipper scupper with	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist Ref Air cond. mach. Chamber Life boat	Anchor & Cable 4347 2xstckless, high hold 1xflash butt welded s atlas rope 60mm Dia x achinery & Miscel. 2x separate type 20ton x 15m/min x8set split type 1 x elec.motor, lton x	MT. ion power ty tud link. 200m x14m Fitting inder ty.	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho Accommo. F. O. T. W. B. pipe & Valve co W. B. pump	NO. 3A. 3B, 4A. NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, th ld Co2, See m Co2, See sea wa p elec.m Ventil ld Axial elec.m or axi Tank steam heatin heatin 12. 7 m nt.	6x20. 86/15. 48. 5A. 5R. 6A. 48. 5A. 5R. 6A. 5R. 5A. 5R. 6A. 9th, steel poor 1 and 2) leat for hold 1 heavy bolt en hatch pane fighting rmal type a W. fixed wn W. porta. fi ter,	i, NO. 2A 1 68, 7C, 7D 1 atoon type atoon type 3 NO. 3, 4, 5, type cleat bl and hatcl atter spray ire exting, tere exting, trifu. typ centrifugal on 0.04m2/m3	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. C Cabin Toilet Public Space Elev. Sw.	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer, S side ant-abra epoxy Accommodat moulded plats wall mount Rm. lounge, whee io Rm. contr-Rm shipper scupper with	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office
Tween Deck Height LWT KG I Net Steel wt (H Equip. No. Anchor Anchor chain Moor.rope Deck M Steer.gear Windlass Moor.winch Capstan Hoist Ref Air cond. mach. Chamber Life boat Rescue boat	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold 1xflash butt welded s atlas rope 60mm Dia x achinery & Miscel. 1xelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type 1 x elec. motor, 1ton x Life Saving 2xfiberglass enclosed	MT. ion power ty tud link. 200m x14m Fitting inder ty. s	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho Accommo. F. O. T. W. B. pipe & Valve co W. B. pump Bilge pi	NO. 3A. 3B, 4A. NO. 7B 6. 4x1 type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the d Co2, See sea wa pelec.m Ventil d Axial elec.m or axi Tank steam heatin 250mm nt.	6x20. 86/15. 48, 5A, 5R, 6A, 3A (C) 1 and 2) 1 and 2 and	i, NO. 2A I 68, 7C, 7D I atoon type is NO. 3, 4, 5, type cleatel and hatch atter spray ire exting. The exting atter spray ire exting. The exting atteristic type cleatel and hatch atter spray ire exting. The exting attribute is not	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. C Cabin Toilet Public Space Elev. Sw.	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer, S side ant-abra epoxy Accommodat moulded plats wall mount Rm. lounge, whee io Rm. contr-Rm shipper scupper with	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office
Tween Deck Height LWT KG L Net Steel wt (H Equip. No. Anchor Anchor chain Moor. rope Deck M Steer. gear Windlass Moor. winch Capstan Hoist Ref Air cond. mach. Chamber Life boat	Anchor & Cable Anchor & Cable 4347 2xstckless, high hold 1xflash butt welded s atlas rope 60mm Dia x achinery & Miscel. 1xelec-hydr, 2ram-4cyl 2x separate type 20ton x 15m/min x8set split type 1 x elec.motor, lton x	MT. ion power ty tud link. 200m x14m Fitting inder ty. s	Detector Cargo ho Mach. roo Accommo. Em. F. pum Cargo ho Accommo. F. O. T. W. B. pipe & Valve co W. B. pump Bilge pi	NO. 3A. 3B, 4A, NO. 7B 6. 4x1' type:Non-tip for hold NO. cleat:Non-c Manua betwee Fire ion, the ld Co2, See m Co2, See m Co2, See ap elec.m Ventil ld Axial elec.m or axi Tank steam heatin Pri 250mm: 12.7 m nt. pe ERW ste	6x20. 86/15. 48. 5A. 5R. 6A. 48. 5A. 5R. 6A. 5R. 5A. 5R. 6A. 9th, steel poor 1 and 2) leat for hold 1 heavy bolt en hatch pane fighting rmal type a W. fixed wn W. porta. fi ter,	in NO. 2A 1 68, 7C, 7D 1 atoon type in NO. 3, 4, 5, type cleated and hatch in the state of the s	2. 6x26/20. 2. 6x31. 28 hatch cove 6. 7 for hold h coaming Outside Shell W. B. T Cargo hld Area. No. C Cabin Toilet Public Space Elev. Sw.	NO. 1 : top p Bott Boot Top tare bleace bleace radius rad	Painting tom tar epox t top sealer, S side ant-abra epoxy Accommodat moulded plats wall mount Rm. lounge, whee io Rm. contr-Rm shipper scupper with	el pontoon type ry sea water y A/C, vinly ta .P. C. A/F s. paint, epoxy ion 1896 tic, shelf insi relhouse&chart t, Gym. Hosp., rec -deck office

	NAME	HYUNDAI	FEDRAL
_			
-	Name and Address of the Owner, where		Aug B

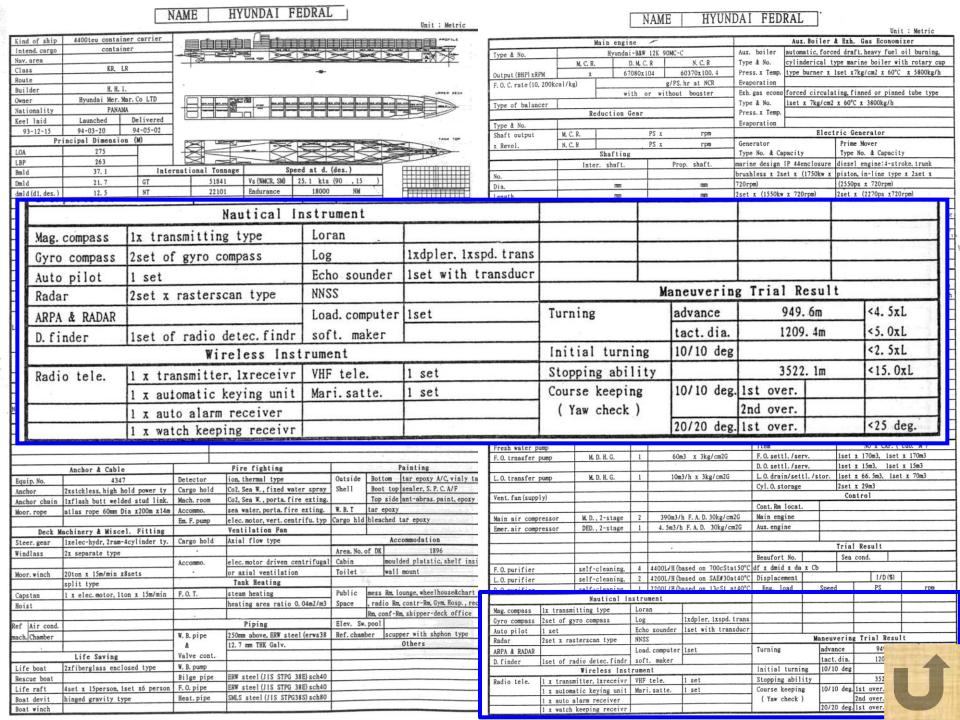
			l	N	AME	HYUN	UAI	FED.	KAL					w_ :	M	
		N.		-	-	THE PERSON NAMED IN	and or the last		Anz	Roil	er A	Erh	Gas Eco		t : Metric	
* A N			fain engir		12K 90MC-0		Aux	boiler						_	oil burning.	
Type & No.	_	M. C. R.		D. M. C.		N. C. R		& No.		_				_	th rotary cup	
Output (BHP) xRP	м 🗀	X		080x1		60370x100. 4	1000	s. x Temp.	$\overline{}$						x 5800kg/h	
F. O. C. rate (10,						hr at NCR	Evap	oration								
1101011011011			wi	th o	r without	bogster	Exh.	gas econo							d tube type	
Type of balance	er							& No.	lset	x 7kg/	cm2 x	60°(C x 3800kg	/h		
		Re	duction G	ear			1	ss. x Temp.								
Type & No.							Evap	poration								
Shaft output	M. C.				PS x	rpm	-			Е	_		enerator			
x Revol.	N. C.	R	01 01.		PS x	rpm	1	rator	:				ime Mover pe No. & Capacity			
		1-4-	Shafting	_	D==	p. shaft.	_	No. & Ca			-	e diesel engine:4-stroke, trunk				
	_	inte	r. shaft.	-	Pro	p. snart.	_				_					
No. Dia.	_		mm			mm	brushless x 2set x (1750kw x piston, in-line type									
Length	_		mm			· mn	_	x (1550kw	x 720	rpm)			x (2270ps		rpm)	
Length			Propeller	-												
Type & No.							marin	ne design	IP23 e	nclos	ure 4	-str	oke trunk	pist	on in-line type	
blade NO.				6			brushless x lset									
Dia. x pitch (C	. 7R)	8200	mm x		8161.1	mm										
Exp. area rati	area ratio											- , ,				
Material	erial nichel aluminium bronze(grade Cu3)						Heat I				Exal		- F Mi	110	naous.	
	Auxiliary Machinery											ange	Tune	No.	Cap.	
Item Type No. M3/h x m x kw						1	Item Plate						1728600kcal/h			
	water cooling P. M.D. V. C 3 1200m3/h x 20m sh water cooling P. M.D. V. C 3 1000m3/h x 25m											14015000kca1/h				
Lub. oil pump	oling r.	Ing P. M. D. V. C 3 1000m3/h x 25mT M. D. C. Deep well 2 1100m3/h x 45mT						_			-		urface ex	2	100-150°C	
Lub. 011 pump		pr D, C.	Deep werr	-				Main F. O. heater S&T surface ex 2 100- Diesel G. F. W. cooler								
F.O. burning p	oump							Boiler F. O. heater 2								
Feed water pun		M. I	D. H. C.	2	911	3/h x 110mTH		Aux. cond	enser							
								Purif. L.		_	S	&T s	urface ex	2	45 - 85°C	
Boiler W. circ.	pump	M. I	D. H. C.	2	33	m3/h x 40mTH		M. start.			-					
Forced draft f	an			_				A. start. air vessel			\rightarrow	_		_		
				_				A-C blender Fresh W. generator M/E jacket. hea 1				40ton/day				
Heel pump													10m3/h			
Sea W. service Fire & G. S. pun													500000kcal/h			
Fire, bilge & b		М. 1	D. V. C.	2	500m	3/h x 25kg/cm2G		Sewage treat.device								
Bilge pump			piston	1		3/h x 3kg/cm2G										
												T	ank			
Fresh water pu	ımp							Item			_				cub. M)	
F. O. trnasfer p	oump	M. I	D. H. G.	1	60m	3 x 3kg/cm2G		F. O. sett	_		_		x 170m3, 1			
								D. O. sett			_	_	x 15m3, 1			
L. O. transfer p	pump	M. I	D. H. G.	1	10m.	3/h x 3kg/cm2G	_	L. O. drai		1. /st	_		x 66.5m3,	ise	x /0m3	
V+ 6/1)			-				Cyl. 0. st	orage		14		x 29m3 itrol	_		
Vent. fan (suppl	у							Cont. Rm	locat.	\neg	_			_		
Main air compr	essor	M. D.	2-stage	2	390m3/	F. A. D. 30kg/cm	2G	Main eng								
Emer. air compr			2-stage	1		F. A. D. 30kg/cm		Aux. engi								
												_	Result	_		
								Beaufort	_		_	Sea	cond.			
F.O. purifier			cleaning,	4		ased on 700cSta				x Cb			1.00	(m)	Γ	
L. O. purifier			cleaning,	2	-	ased on SAE#30a						_	1/D	(%)		
D. O. purifier				ased on 13cSt a	t 40°C	Eng. 1	pad		Speed	-	PS		rpm			
Nautical Instrument Mag. compass 1x transmitting type Loran													-			
	tag. compass Ix transmitting type Lotan Log Ixdpler, Ixspd				ladpler lased	trans										
Auto pilot	1 set	TO COM	russ		sounder	lset with trans										
Radar	2set x ras	tersca	n type	NNSS						Ма	neuve	ring	Trial R	esul	t	
ARPA & RADAR				_	. computer	lset		Turning		$\overline{}$	advanc		949.		<4. 5xL	
	lset of ra	dio de	tec.findr		. maker					$\overline{}$	tact.d	$\overline{}$	1209	. 4m	<5. 0xL	
			less Inst	rumer	nt			Initial		_	10/10	deg			<2. 5xL	
Radio tele.	dio tele. 1 x transmitter, lxreceivr VHF tele. 1 set				Stopping ability 3522. lm <15. 0xL			<15. 0xL								
	1 x automa			Mari	. satte.	1 set	Course keeping 10/10 deg. 1st over.									
							(Yaw check) 2nd over. 20/20 deg. 1st over. <25 deg.									
	1 x auto alarm receiver 1 x watch keeping receivr											B-	.,, ,,,,,,	_	3	

Ā.					1000									Uni	it : Metric	
Kind of ship 4400teu conte	Kind of	of ship	4400te	u container	carri	er									E PROFILE	Metric
intend. cargo conta	Intend.			container												l burning,
Nav. area Class KR,	Nav. are						S		CHAINE FOOM	al man	5 47	STAGE.	a puedo	A.	W/S	rotary cup
Route Builder H. H	Class			KR, LR										A STATE		
Owner Hyundai Mer	Route															tube type
Nationality PAN Keel laid Launched	Builder	r		н. н. і.		,									UPPED DECK	
93-12-15 94-03-20	Owner		Hyund	dai Mer. Mar.	Co LTI	o [1							Cape and	
LOA 275	Nationa	ality		PANAMA		1 #	7				-					
LBP 263	Keel la		Launc	ched D	Deliver	red				11 11						e, trunk
Dmld 21.7	-	12-15	94-03-		94-05-0	02										2set x
dmld (d1, des.) 12.5 dext (d2, sum.) 13.6			ncipal D	Dimension ((M)					100.00	ماو بعد		1		TANK TOP	m)
DWT at d1 52210.6	LOA		Control of the Control	275		1	1		-				- Inner	XX		in-line type
DWT at d2 61086 △ at d2	LBP			263	1		X				25	2			V.	-
Сь Ср	Bmld			37. 1		Internati	onal	Tonnage	S	Speed at	t d. (de	es.)] F			
LCB (%LBP) (Dmld		2	21.7	GT			51841	Vs (%MCR, SM)	25. 1	kts (90	90 , 15)]			ous
L/B L/D 7. 09 12. 12 B/D B/d 1. 71 2. 968		11, des.)		12. 5	NT			22101	Endurance		18000	NM ·	1 7	H		Cap. 728600kcal/h
Camber 350		12, sum.)		13. 6		Ru	dder		F. O. consump.	1'	180. 4	t/day	V			4015000kcal/h
Sheer (F. A) Fore 11.675 +	DWT at		52'	210.6	Af/A				P. T. 0	2		ВНР	1			100-150°C
Len- Hold 211.975	DWT at			1086	Are	a , Area / ((Lxd)	59.	1, 1. 8%		Compl	lement	4			
gth Mach. Rm 26.05 Aft 13.3 +		at d2			_	e x No.					26	.6		MIDSHI	P SECTION	45 - 85°C
Tween Deck Height	СЬ	Ср								Capa	acity					
Light Weight	Cw				W. B	16976.	4	On DK. (TEU)	J) 239	19 "	TEU 15:	x5 (RxT)). C. O. TK.			40ton/day
KG LCG	LCB (%LI	BP)		(%)) W. B	(hold)		In hld. (TE	EU) 201	12	TEU 12:	x8 (RxT)	Slop TK.	ί.		10m3/h
Net Steel wt (HT. %) Special Re	L/B		7. 09	12. 12	1'			Total (TEU)	441	11	TEU		Hold vo	lume		500000kcal/h
Ороста, по	B/D		1. 71	2.968	F. 0	6827. 3	3	Reefer Con	it.		TEU	And the second	Flood. h	ıld. No		
	Camber	-	350		D. 0	697.4		Dang. cargo	hld				Car			ь. и)
1 1 1 1 0 1	Sheer (L. 0	455. 4		Lane lengtl					Truck			170m3 15m3
Anchor & Cab		Fore	11.675	+	F. W	458. 1		Car deck a	rea			and the state of t	Trailer			70m3
Anchor 2xstckless, high		Hold	211.975	Sellin Scall Comment								ST. Dear W			47g 10-100 F	
Anchor chain lxflash butt we Moor.rope atlas rope 60mm		Mach. Rm	26.05										ype, ca	rgo pu	ump, car ramp,	
Deck Machinery & Mis		Aft	13. 3	+					CI	argo ge	ear, et	tc.)	17 4 ME	424824	2 can - 19	
Steer. gear 1xelec-hydr, 2ra	Tween I	Deck							12. 6x20. 86/15.		-					
Windlass 2x separate typ	Height								1A, 4B, 5A, 5B, 6A	4 6B, 7C,	7D 12.6	5x31.28 NO	.7A 6.4x	7. 94 (P&	(S)	
Moor. winch 20ton x 15m/min			Light V	Weight Data	a			NO. 7B 6.4x								
capstan 1 x elec. motor,		LWT				MT.		type:Non-t	ight, steel po	ontoon t	ype hat	tch cover (we	athertigh	ht stee	el pontoon type	rpm
Hoist	KG	L	.CG					for hold No								
Ref Air cond.		eel wt (HT.			MT.				cleat for hol					9 1	a description	
mach. Chamber			Speci	ial Regulat	tion			Manu	ual heavy bolt	type c	leat fo	or hold NO. 1	and 2 fe	or heav	ry sea water	Let Syl
Life Saving								betw	veen hatch pan	nel and	hatch (coaming top	plate	1 ST 11	7701-12	<4. 5xL <5. 0xL
Life boat 2xfiberglass en Rescue boat												11 16 11 11 11 11			and the design	<2. 5xL <15. 0xL
Life raft 4set x 15person									A STATE OF			CANCELL S				13.000
Boat devit hinged gravity Boat winch															A CONTRACTOR OF THE	<25 deg.
THE RESIDENCE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN	Name and Address of the Owner, where the Owner, which is the Owner, which is the Owner, where the Owner, which is th							- Louisian -	NAME OF TAXABLE PARTY.	AND RESIDENCE TO SERVICE BY	SECTION S. P. LEWIS CO., LANSING	THE RESERVE TO SERVE THE PARTY OF THE PARTY		-		





	NAME	HYUNDAI FEL	RAL	Unit : Metric			NAME	HYUNDAI FEDRA	L].	Walter Manada
Field	chin 4400teu container carrier	to the father								Unit : Metric
		Auxiliary Mach	-					hanger & Misc	_	
	Item	Туре	No.	M3/h x m x kw x rpm		Item		Type	No.	Cap.
	Sea water cooling P.	M. D. V. C	3	1200m3/h x 20mTH		Main L. O. cool	ег	plate	2	1728600kcal/h
	Fresh water cooling P.	M. D. V. C	3	1000m3/h x 25mTH		Main F. W. cool	er	plate	2	14015000kca1/h
	Lub.oil pump	M. D. C. Deep well	2	1100m3/h x 45mTH		Main F. O. heat	er ·	S&T surface ex	2	100-150°C
						Diesel G. F. W.	cooler			
	F.O. burning pump					Boiler F.O. he	ater		2	1
	Feed water pump	M. D. H. C.	2	9m3/h x 110mTH		Aux. condenser				
						Purif. L. O. hea	ter	S&T surface ex	2	45 - 85°C
	Boiler W. circ. pump	M. D. H. C.	2	33m3/h x 40mTH		M. start. air v	essel			45 - 85°C
	Forced draft fan					A. start. air v	essel			
						A-C blender				
	Heel pump					Fresh W. gener	ator	M/E jacket.hea	1	40ton/day
	Sea W. service pump					Bilge separat	or	gravity&filter	1	10m3/h
	Fire & G. S. pump			•		Incinerator		sludge. burning	1	500000kcal/h
	Fire, bilge & ballast P.	M. D. V. C.	2	500m3/h x 25kg/cm2G		Sewage treat.	device			1
	Bilge pump	M.D. piston	1	10m3/h x 3kg/cm2G					-	
								Tank		1
	Fresh water pump					Item	+	NO x C.	AP. (cub. M)
	F. O. trnasfer pump	M. D. H. G.	1	60m3 x 3kg/cm2G		F. O. settl. /se	rv.	1set x 170m3,	lset	x 170m3
						D. O. sett1./se	rv.	1set x 15m3,	lset	x 15m3
	L. O. transfer pump	M. D. H. G.	1	10m3/h x 3kg/cm2G		L. O. drain/set	tl./stor.	1set x 66.5m3,	1se	t x 70m3
	Di Oi (Tunot oi Pamp					Cyl. O. storage		2set x 29m3		
	Vent. fan (supply)							Control		
						Cont. Rm locat	.			-
	Main air compressor	M.D., 2-stage	2	390m3/h F. A. D. 30kg/cm2	2G	Main engine				
	Emer. air compressor	DED., 2-stage	1	4. 5m3/h F. A. D. 30kg/cm2		Aux. engine				
	Liner, arr compresser	2201 2 3 3 3								
								Trial Result		
						Beaufort No.		Sea cond.	Г	
1	F. O. purifier	self-cleaning,	4	4400L/H (based on 700cStat	t 50°C		x Cb			
	L. O. purifier	self-cleaning,	2	4200L/H (based on SAE#30at		Displacement	,	1/0	(%)	5.1
	D. O. purifier	self-cleaning,	1	2200L/H (based on 13cSt at		Eng. load	Speed		-	грт
Boat d	art 4set a toperson, iset at person 1.0. pr	PC DICE (VIC DICE DOC)	sch80	LEGGETH (ORSEG ON 1965) At		l x automatic keying unit			ug l	2nd over.
Boat w		2.301/2.301/2.300/			1	1 x auto alarm receiver 1 x watch keeping receivr		(law check		0/20 deg. lst over. <25 deg.





Container Carrier "Hamburg Express" Outlined Specification

H.NO.1097 Name

"HAMBURG EXPRESS"

	11.140.109			ишо	1117						Uni	: Metric
Kind of ship	CONTAINER	VESSEL		Accessed to the Parket	and the latest designation of the latest des		-					
Intend.cargo	20', 40'CONT.4 BULK C	ARGO IN NO	0.3 HOLD									1
Nav.area	OCEAN (301NG				-						
Class	Germanisch			=	2 200 000	山豐	00 10 m	-	a m/84	m /655	700 000 000 00	, m
Route	PAR EAST (間、裏		M ()				1		
Builder	SAMSUNG HI			田》图								
Owner	HAPAG-LLOYD AKTI		LSCHAFT	-14		-11		自用	新			
Nationality	GERM	Deliv	iarad			to short			11-3-3		4 0 - 1	· III
Keel laid 1994.01.25	Launched 1994.09.15	1994.1									~	
	incipal Dimension		12.10									
LOA	294.00	1										点
LBP	281.60										_4	
Bmld	32.25		Inter	national T	onnage		Sp	eed at d.(d				
Dmld	21.40	G	T		54000	_	HMCR,SM)	23.0 kts		5)		
dmld(dl,des.)	12.021	Ŋ	T		23499		rance		M/. 000	_	J##	
dext(d2,sum.)	13.521			Rudder			.consump.	121.	Og/PS.HR	-	_/H	
DWT at dl	55600		f/A	0.26	70	P.T.	.0	Con	BHP	-	- de	
DWT at d2	67686			ea /(Lxd)	72.				-	_		
△ at d2		T	уре х . Но		SEM1-SF	PADE X	1	Capacity	26 P			
Сь і Ср			.в	16738	On DK. (TE	EUV		TEU		RxT) T	C.O.TK.	
Cw : Cm	-1.8 %		.B. (hold	-	In hld.(1			TEU			Slop TK.	255
L/B L/D	8.73 13.1	_	.B. (nota		Total (TEL		4	422 TEU			Hold volume	
B/D B/d	1.507 2.6		0	7362	Reefer Co			452 . TEU			Flood.hld.No	-
Camber	1.507 2.0	D		355	Dang.carg						Car	
Sheer (F.A)	0.4M(:ON F'CLE			426	Lane leng						Truck	
Fore	16.650 M		.W	288	Car deck	area					Trailer	
en- Hold	235.440 M											
gth Mach.Rm	25.760 М					Carg				pe, c	argo pump, car	ramp,
Aft	16.150 M						cargo	gear, etc.)			
Tween Deck	17.66 N (2									-		harman de la característica
Height	17.00 M (E/R 3RD	DK)								
	Light Weight D	ata								1 1 1		
LWT				MT.	-							
KG 1	LCG	MT	. ,	%)	-		-			-	-	61.54
Net Steel wt(H)	Special Regu			* 1			-					77.7
- SBG 1984	Special nego		CONVENTI	ON								
- DSV	- ICLL 1966		2631,486									
- SOLAS 1974			. TONN . ME					1				
- MARPOL 1973		-IMO M	OISE A.3	43/A.468						100	A	100
	Anchor & Cable				Fi	re fig	hting				Painting	
Equip.No.	4197			Detector					Outside	Bott		(3,V/TXI,SPC A/FX
Anchor	13.5T X 2SETS	("SPEK"T	TYPE)	Cargo ho		CO			Shell	Boot		
Anchor chain	φ87×687.5 s			Mach.room	n	CO1			W D =	Тор	COAL TAR E	OLYURE THANEX2
Moor.rope	φ60 X 220M	X 10 L1	NES	Accommo.	-				W.B.T	-	EPOXY H	
		Birel		Em.F. pump		ntilati	on Fan		Cargo hld	-	Groat n	u a I
	achinery & Miscel. 3840 KN.M X			Steer.Gear			8000 M ³ /	Н			Accommodatio	n
Steer.gear	36.7T X 9M/M			0.001.0001	-		3000 A 1		Area.No.o	f DK		12 /7 DECK
Windlass Bow Thruster	2500 kw X C.								Cabin		New All to an	27
Moor.winch	20T X 28/ 10								Toilet	-	A landa a gran	24
nti-Suction Tunnel				1	T	ank Hea	iting					
ROVISION CRANE	9T X 10M /2.5			F.O.T.		HEAT	TING COIL	1491 m	Public		WNER'S RM.OF R	
E/R CRANE	8T X I SETS						EAM)		Space	(COMMUNICATION (
					NO.:		(P&S), OVERF	LOW TK(S)		L TIT	APPENTICE/TRA	
lef Air cond.						Pipir			Elev. Sw.	-		IN DOOR TYPE
				W.B.pipe			A X GRP :		Ref.chamb			70 M ³
ach Chamber				lk.				.40E BRANCH	FOOD LIFT		a pero rocca o	the property of the
ach Chamber				Valve cor	nt.	V/V C	ONTROL : S	SUS 304F			2 DEEP FREEZ R	М.
nach Chamber	Life Saving											
Life boat	Life Saving TOTALLY ENC	LOSED, 3	34P	W.B.pump				owness in-			2 VEG. RM.	استفاسين
Life boat Rescue boat	TOTALLY ENC			W.B.pump Bilge pi				STPG38, 40E		_	2 VEG. RM. 1 HANDLING RM	
Life boat Rescue boat Life raft	TOTALLY ENC 20P X 2, 16P	X 2, 6P	X 1	W.B.pump Bilge pig F.O.pipe		250A	X STPG38	SCH.40E				· Algebra
Rescue boat	TOTALLY ENC	X 2, 6P	X 1	W.B.pump Bilge pi		250A		SCH.40E				

H.NO.1097

Name M/V "HAMBURG EXPRESS"

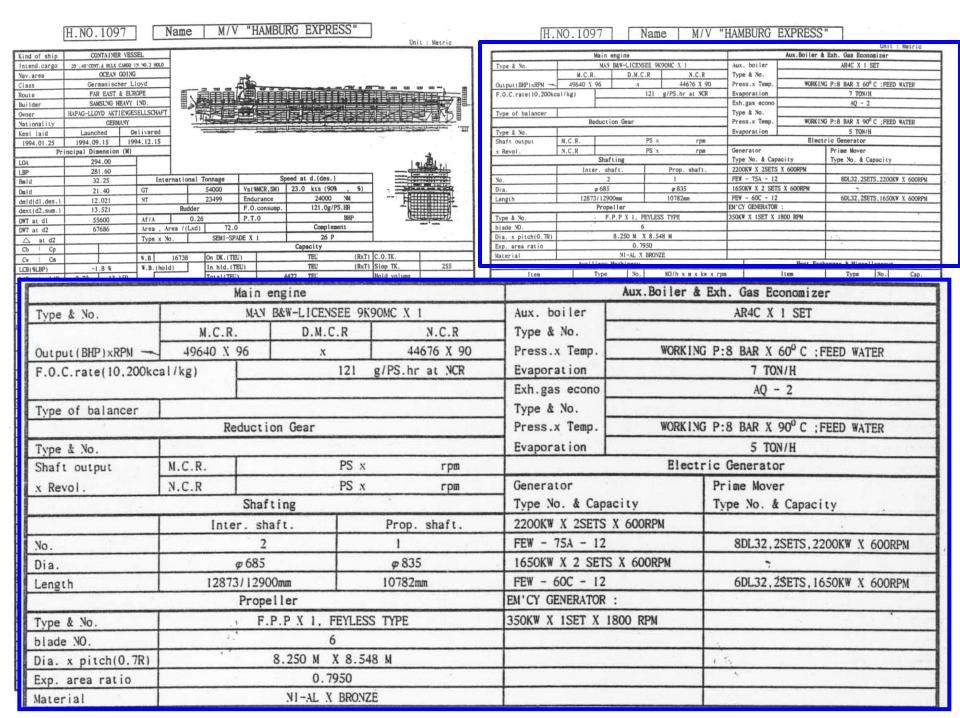
					_	1								it : Metric	
		Main e							Aux	.Boiler	& Exh.	Gas Econor	_		
Type & No.				ENSEE 9KS	90MC			. boiler				AR4C X 1 S	ET		
		M.C.R.	D.	M.C.R	_	N.C.R		e & No.	_	WORK	NC D.O	D10 K (0)	0 0	nee all man	
Output (BHP) xRI		19640 X 96		121	a / DC	44676 X 90 i.hr at NCR		ss.x Temp., poration		WORK!	NG P:8	BAR X 60°	C :F	EED WATER	
F.O.C.rate(10	,200kca1/k	g)		121	g/PS	nr at .vck	_	.gas econo				AQ - 2	-		
Type of balance	cer T				_		4	e & No.				NV - 2			_
Type or oaran	cei	Reducti	on Gear					ss.x Temp.		WORK	NG P:8	BAR X 900	C :F	EED WATER	
Type & No.							4	poration				5 TON/H	- ,		
Shaft output	M.C	.R.		PS x		rpm				Elec	tric (enerator			-
x Revol.	N.C	C.R		PS x		rpm	Gen	erator			Pri	me Mover			
		Shaf	ting			-	Typ	e No. & Cap	acity		Typ	e No. & Cap	paci	у	
		Inter. sh	aft.		Pr	op. shaft.		OKW X 2SETS		RPM					
No.		2						- 75A - 12				8DL32,2SET	S.22	OOKW X 600RF	PM
Dia.		φ 685		_		835		OKW X 2 SET		ORPM	_	1			
Length		12873/1290			10	782mm		- 60C - 12			-	6DL32,2SET	5,16	SOKW X 600RF	PM
		Prope			_		-	Y GENERATOR			+		_		
Type & No.		. F.	P.P.X	, FEYLESS	TY	PE	350K	W X 1SET X	1800 F	PM	+		_		
blade NO.	201		8.250		0 11		-				-		_		
Dia. x pitch((7950	0 M		-				1		_		_
Exp. area rati Material	10				Ė		_				+		-		_
Material	Auxiliary M			NI-AL X BRONZÉ chinery			Heat I				change	r & Miscell	aneo	us	
Iten	1	Туре		lo.	M3/	h x m x kw x rpm			Item	501-51	T	Туре	No.	Cap.	
PURIFIER		OSB 35 -		4		;4700 L/Hr		MAIN L.O		1		PLATE	1	808 N ³	
M/E L.O PURIFI	IER PUMP	OSB 35 -	02	2		6900 L/Hr		PORT USE	F.W CC	OLER		PLATE	1	450 M ³	/H
A/E L.O PURIFI	E L.O PURIFIER PUMP OSA - 20			2		4750 L/Hr		M/E JACKET	C.F.V	COOLER		PLATE	1	251 M ³	/H
MAIN C.S.W P/F				1 3000 X 5MTH				SCOOP COO	LER			SCOOP	1	2150000 Kd	cal /
LOW TEMP.F.W.F	PLMP	FBWV - 45		2		1850 X 25MTH		DUMP COND	_			ELL & TUBE	1.	4 M ³ /1	
HARBOUR USE C.		NIM 200 -		1		550 X 17MTH		M/E CAMSHA		COOLER	-	•	1	17.6 M ³	
HARBOUR USE L.	T.F.W.P/P	NIM 150 -		1		450 X 20MTH		DRAIN COO	_			•	1	7.3 M ³ /	
BALLAST PLMP		NIM 200 -		2		600 X 25MTH		FEED W.SA		COOLER	+		1	0.25 M ³	
FIRE & G.S PLN		NIM 125 -		1	90	250 X 80/20MTH		M/E F.O H			+	.	2	16.7 M ³	
BOIL. FEED. W. MA		ANS 40/1		2	_	5 X 15MTH 8.8 X 120MTH		A/E F.O H			+	ELECTRIC	1	6.6 M ³	
ALX.BOIL.F/W P		L 25/4		2	_	6.6 X 130MTH	-	A/E L.O P	_	EATED	_	LL & TUBE	2	6.6 M ³ /	
F.W. GENERATOR		NIM 65 - 3		1	_	80 X 38MTH		M/E JACK.				LL & TUBE	1	25 M ³ /	
HOT W.CIRE. PU		NB 25-16		2	_	4 X 10MTH	_	H.F.O PUR				LL & TUBE	4	4.7 M ³ /	
F.W HYDRO PHOR		AOV 223/W			TK:2	.0N3.P/P:5M3/Hr		MAIN L.O				LL & TUBE	2	6.9 M ³ /	
H.F.O TRANS. P		L3 MG 125/	210	1		100 X 5 BAR					TANK			. 1/1	
D.O TRANS. P/P		L3 MG 125/2	210	1		100 X 5 BAR			Item			No.×C	ap.	(cub.m)	
H.F.O PUR.BOOS	T. P/P	L3 MF 45/9	90	3		4.7 X 4 BAR		F.O.settl	./serv					1EA X 89.4	-
M/E L.O PUR.BO	OST. P/P	L3 MF 52/8	35	2		6.9 X 4 BAR		D.O.settl	./serv			1EA X 73	4 /	1EA X 35.3	
M/E, A/E F.O SU		L3 MF 60/1		2		11.0 X 5 BAR		L.O.drain		./stor.	2EA			66.2/1EA X	30.5
M/E F.O BOOSTE		L3 F 70/14		2		16.4 X 6 BAR		Cyl.O.sto	rage				X	27.7	
M/E CAMSHAFT L		L3 MF 70/1	_	2	_	17.3 X 4 BAR						ntrol			
L.O TRANS PLMP		L3 MF 60/9		1	_	10 X 3 BAR	_	Cont.Rm le		-	IST SU			& ENG.CONT	.RM
MAIN AIR COMPR		WP150L WP295L		5	_	180 X 30 K 360 X 8K	-	Main engi		-		BRIDGE REA			_
WORKING AIR CO		VERT		2		13 M ³ X 30K	-	Aux.engin	-	-		E/R,&	ш	AL	_
CONTROL AIR DR		DOM 100		1	-	150 NM ³ /HR	_				Trial	Result	_		_
F.W. GENERATOR		RXT20	_		_	30 TON/DAY	-	Beaufort :	to T	2	_	cond.		BALLAST TRI	M
OILY W. SEPARAT		TF10			-	10 (;15RPM)		df x dmid		Cb	500	cone.	_	Drieday INT	nL.
E/R SUPPLY FAN		N8L5	-	5	9	5000 X 55MMAQ.		Displaceme		-		1/0	4)	53.24%	
ETH GETTET THE		1.000	\neg	1		DOGO IL DOSSELLO		Eng. los		Spee	d	PS	~,	грт	
		Nautical	Instru	ment				%							
Mag.compass	R	EFLECTA 1	L	oran	,	LR 771		4	1						
Gyro compass		NDARD 4/12	L	og		ATLAS DOLOG	23	q.							14.0
Auto pilot	NAU	TOPILOT 4		ho sound	er	ATLAS ECHOGRAPH	481	9,							7
Radar		S 7600 AC/TM	N	VSS		RS S100				Maneu	vering	Trial Resu	it		
ARPA & RADAR		S 8600 ARPA		oad.compu		PS Q 16S		Turning			ince			<4.5xl	L
D.finder	G	PE 277.3		oft. make	r	RS 4000CC					.dia.			<5.0xl	
		Wireless In			_			Initial to			0 deg			<2.5xL	
Radio tele.		T 9	_	F tele.		RT 2047		Stopping a					_	<15.0	xL
T 905 Mari.satte. ARII			ARIES 3	Course keeping 10/10 deg 1st over. 2nd over.		206									
			-		_			(taw che	CK)	2015	O dec	2nd over.	_	<25 de	ea
	MINE PARTY NAMED IN	-		DESCRIPTION OF THE PARTY OF THE	-				-	(201)	o deg	i.a. over.	_	1-25 de	-E-

	Kind of ship	CONTAINER VES		-						1
H.NO.109	Intend.cargo	20'.40'CONT.& BULK CARGO	N NO.3 HOLD	1						1
	Nav.area	OCEAN GOING				-br				1
Kind of ship CONTAINER Intend.cargo 20:,40:CONT.4 BULK 0	Class	Germanischer L	loyd				-	a model a fi		- m
Nav.area OCEAN Class Germanisch	Route	FAR EAST & EUR		I E						
Route FAR EAST Builder SAMSLNG H	Builder	SAMSUNG HEAVY								
Owner HAPAG-LLOYD AKT1	Owner	HAPAG-LLOYD AKTIENGE	SELLSCHAFT				国民民			
Keel laid Launched	Nationality	GERMANY		1 17	· Park					-
1994.01.25 1994.09.15 Principal Dimension	Keel laid		elivered	1 '			1	William Property Market Street, or	- Carlos - Carlos	- III
LOA 294.00 LBP 281.60	1994.01.25		94.12.15							1
Bmld 32.25 Dmld 21.40	Pr	incipal Dimension (M)		1						4
dmld(dl,des.) 12.021	LOA	294.00							1 21	A
dext(d2,sum.) 13.521 DWT at d1 55600	LBP	281.60				-				
DWT at d2 67686 △ at d2	Bmld	32.25	Acres de la constitución de la c	ernational '	THE RESIDENCE AND ADDRESS OF	CONTRACTOR OF STREET	peed at d.(de	CONTRACTOR STATEMENT STATEMENT	-	Part of the last o
Cb Cp Cw Cn	Dmld	21.40	GT		54000	Vs(%MCR,SM)	23.0 kts		-	DOM A COL
LCB(%LBP) -1.8 %	dmld(dl,des.)	12.021	NT		23499	Endurance	240		I III	
L/B L/D 8.73 13.1 B/D B/d 1.507 2.6	dext(d2,sum.)	13.521		Rudder		F.O.consump.	121.0	Og/PS.HR	1	
Camber Sheer(F.A) 0.4M(:ON F'CLE	DWT at dl	55600	Af/A	0.26		P.T.0	-	BHP		
Fore 16.650 M Len- Hold 235.440 M	DWT at d2	67686		rea /(Lxd)	72.0		-	lement		
gth Mach.Rm 25.760 M Aft 16.150 M	△ at d2		Type x N	lo.	SEMI-SPAI	DE X 1		5 P	L	
Tween Deck 17.66 M (Сь Ср				T		Capacity	(D. 7)	To 0 711	
Height 17.00 M (Light Weight D	Cw Cm		W.B	16738	On DK.(TEU		TEU	(RxT)		255
LWT LCG	LCB(%LBP)	-1.8 %	W.B. (hol	(d)	In hld.(TE		TEU	(RxT)		255
Net Steel wt(HT.%) Special Regu	L/B L/D	8.73 13.159			Total (TEU)		4422 TEU 452 TEU		Hold volume Flood.hld.No	
- SBG 1984 - DSV - ICLL 1966	B/D B/d	1.507 2.683	F.0	7362	Reefer Con		452 . TEU		Car	
- SOLAS 1974 / 78.83	Camber		D.0	355	Dang.cargo				Truck	
- MARPOL 1973 / 78 Anchor & Cable	Sheer (F.A)	0.4M(:ON F'CLE DK)	L.0	426	Lane length				Trailer	
Equip.No. 4197 Anchor 13.5T X 2SETS	Fore	16.650 M	F.W	288	Car deck a	rea			Italier	
Anchor chain \$\phi 87 \times 687.5 to Moor.rope \$\phi 60 \times 220M	Len- Hold	235.440 M				Cargo Mondlin	an/ batch sis	e cover type	cargo pump, car	ramp
Deck Machinery & Miscel.	gth Mach.Rm	25.760 M			1		gear, etc.		cargo pump, car	ramp,
Steer.gear 3840 KN.M X	Aft	16.150 M	1		-	- Cur ge	Bear, etc.		-	
Windlass 36.7T X 9M/N Bow Thruster 2500 kw X C.	Tween Deck	17.66 M (2ND I		D DK)						
Moor .winch 20T X 28/ 10	Height	Light Weight Data	DK:E/K SKL	J DK)					35	
PROVISION CRANE 9T X 10M /2.5 E/R CRANE 8T X 1 SETS		Light weight Data		MT.	-	_			2.1	The second series
	LWT	CC.	T	м1.						and the same of the same of
Ref Air cond. mach Chamber	The second secon	LCG	MT. (%)		-			de la companya de la	27.57 1 9
Life Saving	Net Steel wt(HT	Special Regulation		/		-				
Life boat TOTALLY ENG	SDC 1094	THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IN COLUMN	LO CONVENT	TION					- Day	
Life raft 20P X 2, 16P	- SBG 1984 - DSV		SO 2631,48							SUR Y
Boat devit GRAVITY, TO HAND Boat winch EL. HYD.	- SOLAS 1974 /		TER. TONN. N				3		United States and Stat	
	- SOLAS 1974 /			.343/A.468				47.50	ATR CONTRACTOR	JES BEEN
	- MARPUL 1913	7 10		1	0:	# Andrews			Dointing	WAY WATER BUT

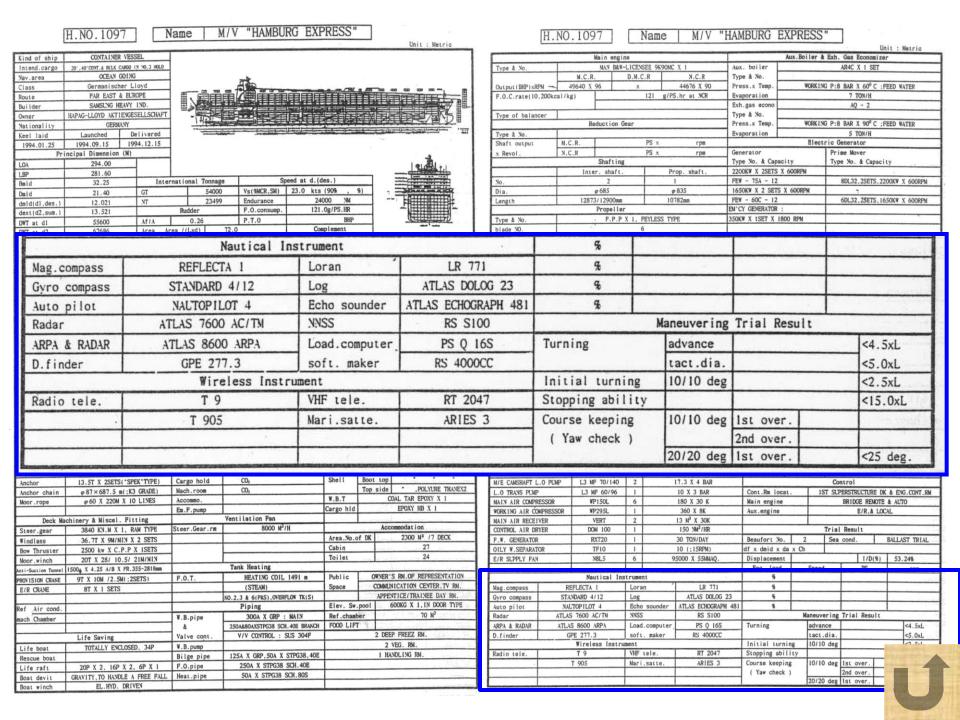
	Anchor & Cable		Fire fighting	1 4 410	F	Painting
Equip.No.	4197	Detector		Outside	Bottom	EPOXY A/AX3, V/TX1, SPC A/FX1
Anchor	13.5T X 2SETS("SPEK"TYPE)	Cargo hold	CO ₂	Shell	Boot top	
Anchor chain	φ87×687.5 m(;K3 GRADE)	Mach.room	CO ₂		Top side	* ,POLYURE THANEX2
Moor.rope	φ60 X 220M X 10 LINES	Accommo.		W.B.T	C	COAL TAR EPOXY X 1
		Em.F.pump		Cargo hld		EPOXY HB X 1
Deck Ma	schinery & Miscel. Fitting	1907	Ventilation Fan		and the straight	Language and the same
Steer.gear	3840 KN.M X 1, RAM TYPE	Steer.Gear.rm	8000 M ³ /H		Acc	ommodation
Windlass	36.7T X 9M/MIN X 2 SETS			Area.No.	of DK	2300 M ² /7 DECK
Bow Thruster	2500 kw X C.P.P X ISETS			Cabin		27
Moor . winch	20T X 28/ 10.5/ 21M/MIN			Toilet	Large Marien	24
	1500 X 4.25 A/B X FR.355-2818mm		Tank Heating			
PROVISION CRANE	9T X 10M /2.5M(;2SETS)	F.O.T.	HEATING COIL 1491 m	Public	OWNER'	S RM.OF REPRESENTATION
E/R CRANE	8T X 1 SETS		(STEAM)	Space	COMMU	NICATION CENTER.TV RM.
ETR CIVIL			NO.2,3 & 6(P&S), OVERFLOW TK(S)		APPE	NTICE/TRAINEE DAY RM.
Ref Air cond.			Piping	Elev. Sw	.pool	600KG X 1, IN DOOR TYPE
mach Chamber		W.B.pipe	300A X GRP : MAIN	Ref.chaml	per	70 M ³
macii ciiamoci		8	250A&80AXSTPG38 SCH. 40E BRANCH	FOOD LIF	r a les	
	Life Saving	Valve cont.	V/V CONTROL : SUS 304F		2 DEE	P FREEZ RM.
Life boat	TOTALLY ENCLOSED, 34P	W.B.pump			2	VEG. RM.
Rescue boat		Bilge pipe	125A X GRP, 50A X STPG38, 40E		1 HA	ANDLING RM.
Life raft	20P X 2, 16P X 2, 6P X 1	F.O.pipe	250A X STPG38 SCH.40E			al (1, o da)
Boat devit	GRAVITY, TO HANDLE A FREE FALL	Heat.pipe	50A X STPG38 SCH.80S			* Charles of the contract of t
Boat winch	EL.HYD. DRIVEN					

Anchor chain	Ø8/×08/.3 m(;k3 UKADE)	Macn.room	COI		Top State	
Moor.rope	\$\phi\$60 X 220M X 10 LINES	Accommo.		W.B.T		OAL TAR EPOXY X 1
		Em.F.pump		Cargo hld		EPOXY HB X 1
Deck Ma	schinery & Miscel. Fitting		Ventilation Fan		in the second	
Steer.gear	3840 KN.M X 1, RAM TYPE	Steer.Gear.rm	8000 M ³ /H		Acc	ommodation
Windlass	36.7T X 9M/MIN X 2 SETS			Area.No.o	f DK	2300 M ² /7 DECK
Bow Thruster	2500 kw X C.P.P X ISETS			Cabin	-	27
Moor , winch	20T X 28/ 10.5/ 21M/MIN	1		Toilet	and the land	. 24
	1500 X 4.25 A/B X FR.355-2818mm		Tank Heating			
PROVISION CRANE	9T X 10M /2.5M(;2SETS)	F.O.T.	HEATING COIL 1491 m	Public	OWNER'	S RM.OF REPRESENTATION
E/R CRANE	8T X 1 SETS		(STEAM)	Space	COMMU	NICATION CENTER. TV RM.
ETR CIVILE	01 /1 1 0010		NO.2.3 & 6(P&S).OVERFLOW TK(S)		APPE	NTICE/TRAINEE DAY RM.
Ref Air cond.			Piping	Elev. Sw.	pool	600KG X 1, IN DOOR TYPE
mach Chamber		W.B.pipe	300A X GRP : MAIN	Ref.chamb	er	70 M ³
mach Chamber		1 4	250A&80AXSTPG38 SCH. 40E BRANCH	FOOD LIFT	19	The second of the
	Life Saving	Valve cont.	V/V CONTROL : SUS 304F		2 DEE	P FREEZ RM.
Life boat	TOTALLY ENCLOSED, 34P	W.B.pump			2	VEG. RM.
Rescue boat	TOTALLI ENGLOSIE V	Bilge pipe	125A X GRP,50A X STPG38,40E		1 HA	NDLING RM.
Life raft	20P X 2, 16P X 2, 6P X 1	F.O.pipe	250A X STPG38 SCH. 40E			
Boat devit	GRAVITY, TO HANDLE A FREE FALL	Heat.pipe	50A X STPG38 SCH.80S			
Boat winch	EL.HYD. DRIVEN					
THE RESERVE AND PERSONS NAMED IN	The second secon					

L.O TRANS PLMP		L3 MF 60/96	1		10 X 3 BAR	Cont.Rm locat		121 201	PERSTRUCTURE	DK 8	ENG.CONT.R
MAIN AIR COMPRE	SSOR	WP150L	6	22	180 X 30 K	Main engine			BRIDGE REMO	TE &	AUTO
WORKING AIR COM	PRESSOR	WP295L	1		360 X 8K	Aux.engine			E/R,& I	OCAL	
MAIN AIR RECEIV	ER	VERT	2		13 M ³ X 30K						
CONTROL AIR DRY	ER	DOM 100	1		150 NM3/HR			Trial	Result		
F.W. GENERATOR		RXT20	1		30 TON/DAY	Beaufort No.	2	Sea	cond.	B	ALLAST TRIAL
OILY W. SEPARATO	R	TF10	1		10 (;15RPM)	df x dmid x da	x Cb				
E/R SUPPLY FAN		N8L5	6	9	5000 X 55MMAQ.	Displacement			1/0(%	1	53.24%
						Eng. load		Speed	PS		грт
		Nautical Ins	trumen	it		%				1	-
Mag.compass	RE	FLECTA 1	Loran	n ,	LR 771	4				\top	
Gyro compass	STA	NDARD 4/12	Log		ATLAS DOLOG 23	4				T	
Auto pilot	NAU	TOPILOT 4	Echo	sounder	ATLAS ECHOGRAPH 481	9.				T	
Radar	ATLAS	7600 AC/TM	NNSS		RS S100		M	laneuver ing	Trial Resul		
ARPA & RADAR	ATLAS	8600 ARPA	Load.	computer	PS Q 16S	Turning		advance			<4.5xL
D. finder	GF	E 277.3	soft.	maker	RS 4000CC			tact.dia.			<5.0xL
		Wireless Instru	ment			Initial turni	ng	10/10 deg			<2.5xL
Radio tele.		T 9	VHF t	tele.	RT 2047	Stopping abil	ity				<15.0xL
		T 905	Mari.	satte.	ARIES 3	Course keepin	3	10/10 deg	Ist over.		1 1 2
						(Yaw check)		2nd over.		
						AL MARKATONIA		20/20 deg	Ist over.		<25 deg.



	Auxiliary Machi	nery		Heat E	xchanger & Miscell	aneo	us
Item	Туре	No.	M3/h x m x kw x rpm	Item	Туре	No.	Cap.
PURIFIER	.OSB 35 - 01	4	;4700 L/Hr	MAIN L.O COOLER	PLATE	1	808 M ³ /H
M/E L.O PURIFIER PUMP	OSB 35 - 02	2	⁶ 6900 L/Hr	PORT USE F.W COOLER	PLATE	1	450 M ³ /H
A/E L.O PURIFIER PUMP	OSA - 20	2	4750 L/Hr	M/E JACKET C.F.W COOLE	R PLATE	1	251 M ³ /H
MAIN C.S.W P/P	PGFA - E500G	1	3000 X 5MTH	SCOOP COOLER	SCOOP	1	2150000 Kcal
LOW TEMP.F.W.PLMP	FBWV - 450	2	1850 X 25MTH	DUMP CONDENSER	SHELL & TUBE	15	4 M ³ /H
HARBOUR USE C.S.W.PUMP	NIM 200 - 250	1	550 X 17MTH	M/E CAMSHAFT L.O COOLE	R "	1	17.6 M ³ /H
HARBOUR USE L.T.F.W.P/P	NIM 150 - 250	1	450 X 20MTH	DRAIN COOLER	•	1	7.3 M ³ /H
BALLAST PUMP	NIM 200 - 315	2	600 X 25MTH	FEED W.SAMPLING COOLE	R "	1	0.25 M ³ /H
FIRE & G.S PUMP	NIM 125 - 400	1	90/250 X 80/20MTH	M/E F.O HEATER	•	2	16.7 M ³ /H
BOIL.FEED.W.MAKE UP P/P	ANS 40/1	1	5 X 15MTH	A/E F.O HEATER		1	6.6 M ³ /H
AUX.BOIL.F/W PUMP	L 25/4	2	8.8 X 120MTH	A/E F.O HEATER	ELECTRIC	1	6.6 M ³ /H
EXH.GAS BOILER F/W PUMP	L 25/4	2	6.6 X 130MTH	A/E L.O PURIF.HEATER	SHELL & TUBE	2	1.75 M ³ /H
F.W.GENERATOR EJEC.P/P	NIM 65 - 315	1	80 X 38MTH	M/E JACK.F.W PREHEATE	R SHELL & TUBE	1	25 M ³ /H
HOT W.CIRE. PUMP	NB 25-160	2	4 X 10MTH	H.F.O PURIF.HEATER	SHELL & TUBE	4	4.7 M ³ /H
F.W HYDRO PHORE UNIT	AOV 223/W2	1	TK:2.0M3,P/P:5M3/Hr	MAIN L.O PURIF.HEATER	SHELL & TUBE	2	6.9 M ³ /H
H.F.O TRANS. P/P	L3 MG 125/210	1	100 X 5 BAR		TANK		. In make
D.O TRANS. P/P	L3 MG 125/210	1	100 X 5 BAR	Item	No.×C	ар.	(cub.m)
H.F.O PUR.BOOST. P/P	L3 MF 45/90	3	4.7 X 4 BAR	F.O.settl./serv.			1EA X 89.4
M/E L.O PUR.BOOST. P/P	L3 MF 52/85	2	6.9 X 4 BAR	D.O.settl./serv.	1EA X 73	.4 /	1EA X 35.3
M/E, A/E F.O SUPPLY PUMP	L3 MF 60/120	2	11.0 X 5 BAR	L.O.drain/settl./stor	. 2EA X 108.5/11	EA X	66.2/1EA X 30
M/E F.O BOOSTER PUMP	L3 F 70/140	2	16.4 X 6 BAR	Cyl.O.storage	2E	A X 1	27.7
M/E CAMSHAFT L.O PUMP	L3 MF 70/140	2	17.3 X 4 BAR		Control		
L.O TRANS PUMP	L3 MF 60/96	1	10 X 3 BAR	Cont.Rm locat.	IST SUPERSTRUCTUR	E DK	& ENG. CONT.RM
MAIN AIR COMPRESSOR	WP150L	6	180 X 30 K	Main engine	BRIDGE RE	OTE	& AUTO
WORKING AIR COMPRESSOR	WP295L	1	360 X 8K	Aux.engine	E/R,&	LOC	AL.
MAIN AIR RECEIVER	VERT	2	13 M ³ X 30K				
CONTROL AIR DRYER	DOM 100	1	150 .NM ³ /HR		Trial Result		1 11 12
F.W. GENERATOR	RXT20	1	30 TON/DAY	Beaufort No. 2	Sea cond.		BALLAST TRIAL
OILY W.SEPARATOR	TF10	1	10 (;15RPM)	df x dmid x da x Cb			
E/R SUPPLY FAN	N8L5	6	95000 X 55MMAQ.	Displacement	1/0	(%)	53.24%
					ed PS		грт

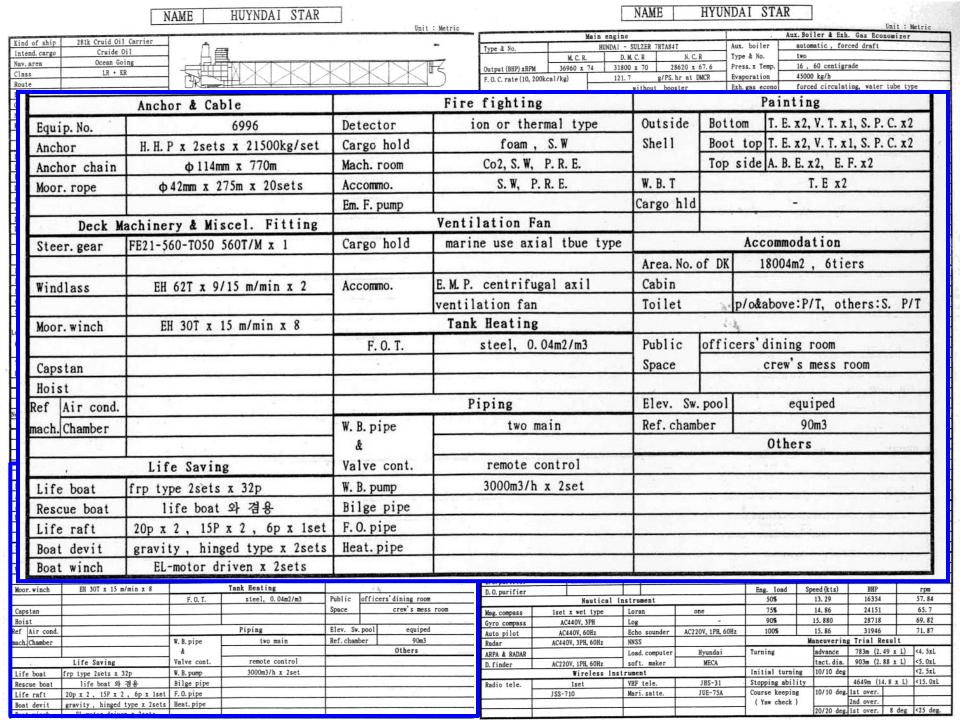


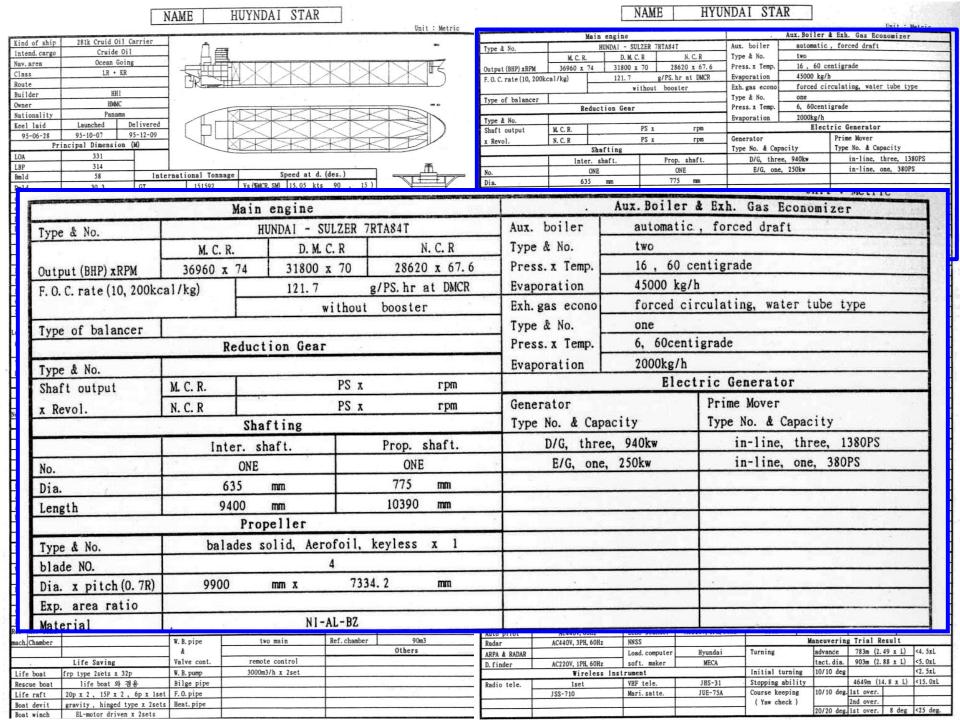


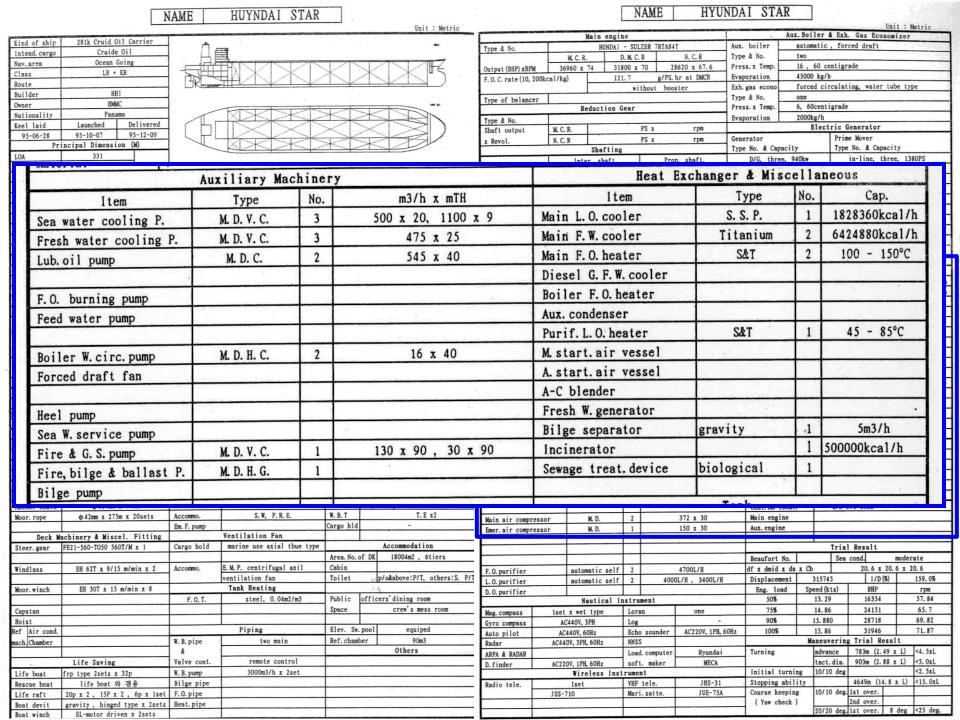
Crude Oil Carrier "Hyundai Star" Outlined Specification

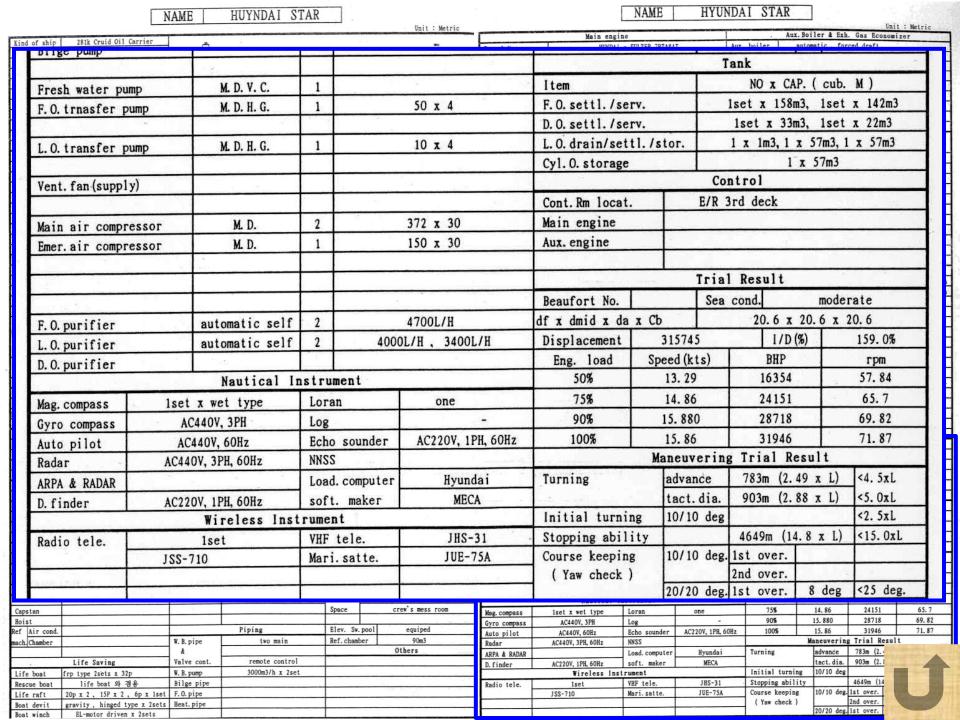
	185	N.	AME	HUYNDAI STAR].			Œ	.1	[NAME	HYUN	DAI STAR			lini e	
					MATERIAL PROPERTY.	Uni	t : Metric			Main engin	10	7	An	x. Boiler	Exh. Gas Ec		: Metric
Kind of ship	281k Cruid Oil Carri	ier	-				**				- SULZER 7RTA8	AT.	Aux. boiler		, forced draft	_	er es
Intend. cargo	Cruide Oil		116	=				Type & No.	-		D. M. C. R		Type & No.	two	, lorces state		
Nav. area	Ocean Going	-			TZK	TACTA	114		_				Press. x Temp.	16 , 60 ce	entigrade		
Class	LR + KR				\times \Box	\times \mid \times	15	Output (BHP) xRPh		1			Evaporation	45000 kg/h	The second secon		
Route			148					F. O. C. rate (10, 2	00kcal/kg	g) 121	-		Exh. gas econo		culating, water	r tuhe	type
Builder	HHI										without bo			TOTCEU CIT	culating, water	1 Lube	Сурс
Owner	HMMC				-			Type of balance	г				Type & No. Press. x Temp.	6, 60centi	arade		
Nationality	Panama			MALA	*	*	T			Reduction G	ear			2000kg/h	Igrauc		
Keel laid	Launched Deliv	vered	/Lr					Type & No.	_				Evaporation		ric Generato		
95-06-28	95-10-07 95-12				\sim	\times	1)	Shaft output	M. C.		PS x	rpm		Blect			
	incipal Dimension (M)	-	1		*	* 7		x Revol.	N. C.		PS x		Generator		Prime Mover		
LOA	331			P						Shafting			Type No. & Capacit		Type No. & Ca		
LBP	314	- 1				*	*			Inter. shaft.	Pr	op. shaft.	D/G, three, 9		in-line,		
Bmld	58	Inter	national Ton	nage Speed at d.	(des.)			No.		ONE		ONE	E/G, one, 25	0kw	in-line,	one, 3	80PS
	30. 3 GT		151592	Vs (%MCR, SM) 15.05 kts		15.)		Dia.		635 mm		75 mm					
Dmld	20.6 NT		103291	Endurance 26000	NM		7	Length		9400 mm	10	390 mm					
dmld(d1, des.)		1	Rudder	F. O. consump. 83	t/day		AAL			Propeller							
dext (d2, sum.)	20.6	b		nced : P. T. O	BHP	HIVI.	\times IVIF	Type & No.		balades solid,	Aerofoil, keyl	ess x 1					
DWT at d1		ype x No.	ea / (Lxd)		nplement	H ILMZ	MAJI	blade NO.			4						
DWT at d2			ea / (LXG)	120m2, 1. 80%	30P		T V	Dia. x pitch (0.	7R)	9900 mm x	7334. 2	mm					
△ at d2	316156 Af	f/A		Capacit			-	Exp. area ratio									
Cb Cp			20072		7	C. O. TK.	320, 391	Material	1.		NI-AL-BZ						
Cv	W.			K. (TEU) TEU						Auxiliary Mach	ninery			Heat Exc	hanger & Mis		
LCB (%LBP)		. B. (hold		ld. (TEU) TEU		Slop TK.	11350	ltem		Туре	No.	m3/h x mTH	lte	n	Туре	No.	Cap.
L/B L/D	5. 41 10. 36			1 (TEU) TEU		Hold volume	331, 741	Sea water cool	ng P.	M. D. V. C.	3 500	x 20, 1100 x 9	Main L. O. cool	er	S. S. P.	1	1828360kcal/h
B/D B/d	1.91 2.82 F.			er Cont. TEU		Flood. hld. No	No. 4 C. C. O. T	Fresh water coo		M. D. V. C.	3	475 x 25	Main F. W. cool	ег	Titanium	2	6424880kcal/h
Camber	1. 5 D.			cargo hld		Car		Lub. oil pump		M. D. C.	2	545 x 40	Main F. O. heat	er	S&T	2	100 - 150°C
Sheer (F. A)	Nil L.	_		length		Truck		Doct of the party					Diesel G. F. W.	cooler			
Fore	12.6 + 10 F.	W	649 Car	deck area		Trailer		F.O. burning po	mp				Boiler F. O. he	ater			
Len- Hold	249. 1							Feed water pump					Aux. condenser				
gth Mach. Rm	38. 7			Cargo Handling (hatch		er type, cargo pu	mp, car ramp,	reed water pun					Purif. L. O. hea	ter	S&T	1	45 - 85°C
Aft	6.2 + 13.6			cargo gear,	etc.)			Boiler W. circ.	NIED.	M. D. H. C.	2	16 x 40	M. start. air v	essel		\Box	- 17
Tween Deck		19		cargo pump : 3sets				Forced draft f		DE DI III CI			A. start. air v	essel			
Height				type : vertical cen		igle stage		roiced diait is					A-C blender			\Box	
	Light Weight Data			capacity: 5000m3/h	x 150mTH			Heel pump					Fresh W. gener	ator			
LWT		1	MT.					Sea W. service	NIMO.				Bilge separat		gravity	-1	5m3/h
KG LCG				cargo gear : 20MT x 2set				Fire & G. S. pum		M. D. V. C.	1 130	x 90 , 30 x 90	Incinerator			1 5	00000kca1/h
Net Steel wt (H				10m/min , 360d	egree			Fire, bilge & b			1	270 1 20 2 70	Sewage treat.	device	biological	1	
	Special Regulation	n							illast r.	BL D. H. G.	-		- Consider the consideration				
							The state of the s	Bilge pump		-					Tank	-	
SOLAS 199	1							P	_	M. D. V. C.	1		Item		NO x (CAP. (c	ub. M)
000,10 177						-		Fresh water pur		M. D. H. G.	1	50 x 4	F. O. settl. /se	rv.			set x 142m3
								F. O. trnasfer p	mp	M. D. H. U.		JU A 4	D. O. settl. /se				set x 22m3
	Anchor & Cable			Fire fighting		Painting		1.0.4====		M. D. H. G.	1	10 x 4	L. O. drain/set				3, 1 x 57m3
Equip. No.	6996		Detector	ion or thermal type	Outside	Bottom T. E. x2, V.	T. x1, S. P. C. x2	L. O. transfer p	шр	n. v. n. v.	· · ·	10 A 4	Cyl. O. storage			1 x 57r	
Anchor	H. H. P x 2sets x 21500k	kg/set	Cargo hold	foam , S.W	Shell	Boot top T. E. x2, V.		Vest for female			 		cyr. o. storage		Control		
Anchor chain	ф 114mm х 770m		Mach. room	Co2, S. W. P. R. E.		Top side A. B. E. x2,		Vent. fan (suppl	"				Cont. Rm locat	. 1	E/R 3rd deck		
Moor, rope	ф 42mm х 275m х 20se	ets	Accommo.	S. W. P. R. E.	W. B. T		E x2	Wala ala an		M. D.	2	372 x 30	Main engine				
moor. rope	V		Em. F. pump		Cargo hld	-		Main air compr		M. D.	1	150 x 30	Aux. engine				-
Deck W	achinery & Miscel. Fit	tting		Ventilation Fan				Emer. air compre	1022	M. U.		100 A 30	Aux. cugine				
Steer. gear	FE21-560-T050 560T/M x 1		Cargo hold	marine use axial thue type	<u> </u>	Accommodati	on				_		-		Trial Result		
otcor. Bear	,			7/7-	Area. No. o								Beaufort No.		Sea cond.	per	oderate
Windlass	EH 62T x 9/15 m/min	T 2	Accommo.	E.M.P. centrifugal axil	Cabin						1	4700L/H	df x dmid x da	r Ch			x 20.6
#indiass	En 041 A 9/13 m/mln		ACCOUNT.	ventilation fan	Toilet	p/o&above:P/T,	others:S P/T	F. O. purifier		automatic self	2 400	4700L/H 00L/H , 3400L/H	Displacement	31574		0 (%)	159.0%
Moon -ih	EH 30T x 15 m/min x	. 8		Tank Heating	101161	apromatore III,	Jane 19 19 17 1	L. O. purifier		automatic self	2 400	JUL/H . 3400L/H		Speed (k		-	
Moor. winch	EN SUI X 13 m/min X	. 0	F 0 7	steel, 0.04m2/m3	Dublic	officers' dining roo		D. O. purifier			<u> </u>		Eng. load			$\overline{}$	57.84
1			F. O. T.	Steel, U. U4m2/m3	1 1	crew's me				Nautical In			50%	13. 29		-	
Capstan					Space	crew s me	55 T UUIII	Mag. compass		x wet type	Loran	one	75%	14. 86			65. 7
Hoist				Die iee	Plan C	1	4	Gyro compass		C440V, 3PH	Log	-	90%	15. 88			69. 82
Ref Air cond.				Piping	Elev. Sw.			Auto pilot		C440V, 60Hz	Echo sounder	AC220V, 1PH, 60H	z 100%	15. 86			71. 87
mach. Chamber			W. B. pipe	two main	Ref. chamb		5	Radar	AC44	10V, 3PH, 60Hz	NNSS				ering Trial		
			å			Others	VICTOR 1	ARPA & RADAR			Load. computer		Turning	adva			L) <4. 5xL
	Life Saving		Valve cont.	remote control				D. finder	AC22	20V, 1PH, 60Hz	soft. maker	MECA				. 88 x	L) <5. 0xL
Life boat	frp type 2sets x 32p		W. B. pump	3000m3/h x 2set						Wireless Inst			Initial turni		0 deg		<2. 5xL
Rescue boat	life boat 와 겸용		Bilge pipe					Radio tele.		1set	VHF tele.	JHS-31	Stopping abil				L) <15. 0xL
Life raft	20p x 2 , 15P x 2 , 6p	x iset	F. O. pipe						JSS-7	710	Mari. satte.	JUE-75A	Course keepir		0 deg. 1st over.		
Boat devit	gravity, hinged type x	x 2sets	Heat. pipe										(Yaw check		2nd over.		125 1
Boat winch	EL-motor driven x 2s	sets												20/2	0 deg. 1st over.	1 8 0	ck 143 deg.

	711177	THINDAL OF	AD		,		NAME	ATS LAGRIDAN	D	
	Kind of ship	281k Cruid Oil C	arrier		m.					it : Metric
Kind of ship 281 Intend. cargo	Intend. cargo	Cruide Oil							-	5 828
Nav. area	Nav. area	Ocean Goin					1 2K 1 2K 1	75	7111 7	
Class Route	Class	LR + KR		-	TTT XI '	\mathbb{A}	* 1 3 4 1 3 4			ibe type
Builder Owner	Route			FIR						
Nationality	Builder	HHI								
Keel laid Lau 95-06-28 95-	Owner	HMMC							em 11	
Principal LOA	Nationality	Panama			TXI"	> < >	*<>><		1	ty e, 1380PS
LBP Bmld	Keel laid	Launched [elivered		4				4)	380PS
Dmld	95-06-28	95-10-07	5-12-09		-LU				1/	
dmld(d1, des.) dext(d2, sum.)		ncipal Dimension	(M)			><	*<>>			
DWT at d1 DWT at d2	LOA	331								
△ at d2	LBP	314						1	產	
Cb Cp	Bmld	58	Inter	-	Tonnage		eed at d. (des.)			aneous
LCB (%LBP) 11.6 L/B L/D 5.41	Dm1d	30. 3	GT	15		s (%MCR, SM)	15.05 kts 90 , 15)	1 #		. Cap. 1828360kcal/h
B/D B/d 1.91	dmld(d1, des.)	20.6	NT			Endurance	26000 NM	1 压水	1 1	6424880kcal/h
Camber 1.5 Sheer (F. A) N	dext (d2, sum.)	20.6		Rudder	I	F. O. consump.	83 t/day	1-HIV/IN	$\vee \cap \cap \vdash$	100 - 150°C
Fore 12.6	DWT at d1	281074	Type x No	. semi		P. T. 0	- BHP - P	4 X	$\triangle X $	
gth Mach. Rm 38.7	DWT at d2	281074	Area, Ar	ea / (Lxd)	120m2,	1. 86%	Complement		\mathbb{A}^{V}	45 - 85°C
Aft 6.2 Tween Deck	△ at d2	316156	Af/A				30P			
Height Light	Cb Cp						Capacity	<u>, </u>		
LWT	Cw		W. B	08763	On DK. (TEU)		TEU	C. O. TK.	320, 391	5m3/h
Net Steel wt (HT. %)	LCB (%LBP)	11.653 (3.71 %)	W. B. (hold	1)	In hld. (TEU)		TEU	Slop TK.	11350	500000kcal/h
Spe	L/B L/D	5. 41 10. 36		17379	Total (TEU)		TEU	Hold volume	331, 741	
SOLAS 1991	B/D B/d	1. 91 2. 82	F. 0	7318	Reefer Cont.		TEU	Flood. hld. No	No. 4 C. C. O. T	(cub. M)
	Camber	1. 5	D. 0	478	Dang. cargo	hld		Car		1set x 142m3 1set x 22m3
Ancho	Sheer (F. A)	Nil	L. 0	336	Lane length			Truck		57m3, 1 x 57m3
Equip. No. Anchor H. H. P	Fore	12.6 + 10	F. W	649	Car deck are	ea		Trailer		57m3
Anchor chain Moor.rope	Len- Hold	249. 1								
	gth Mach. Rm	38. 7			C	AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	ng (hatch size, cover t	ype, cargo pu	ump, car ramp,	
Deck Machiner Steer. gear FE21-56	Aft	6.2 + 13.6					rgo gear, etc.)			
Windlass EH	Tween Deck				cargo j	pump : 3sets		X.		moderate .6 x 20.6
	Height					type : ve	ertical centriugal single	stage		159.0%
Moor. winch EH		Light Weight Dat				capacity	: 5000m3/h x 150mTH			57. 84
Capstan	· LWT			MT.						65. 7 69. 82
Hoist Ref Air cond.	KG LCG		1		cargo g		x 2set			71. 87
mach. Chamber	Net Steel wt (HT		MT.			10m/	min , 360degree			1 t x L) <4.5xL
Life		Special Regula	tion					-		x L) <5. 0xL
Life boat frp typ Rescue boat li										<2. 5xL x L) <15. 0xL
Life raft 20p x	SOLAS 1991									
Boat devit gravit Boat winch EL-moto	r driven x 2sets								20/20 deg. 1st ove	r. 8 deg <25 deg.



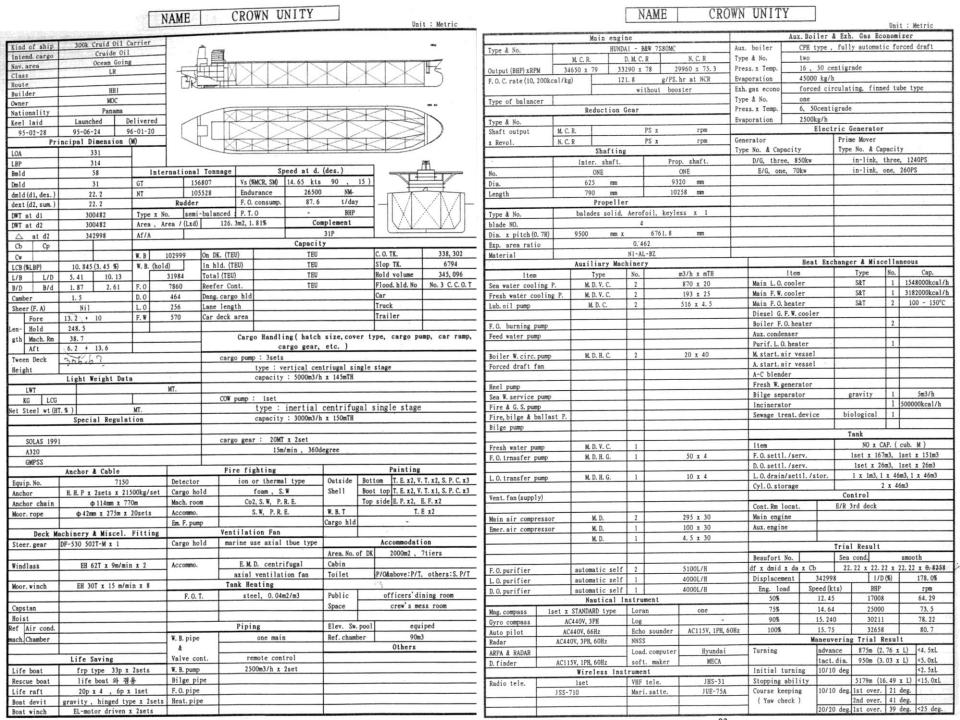




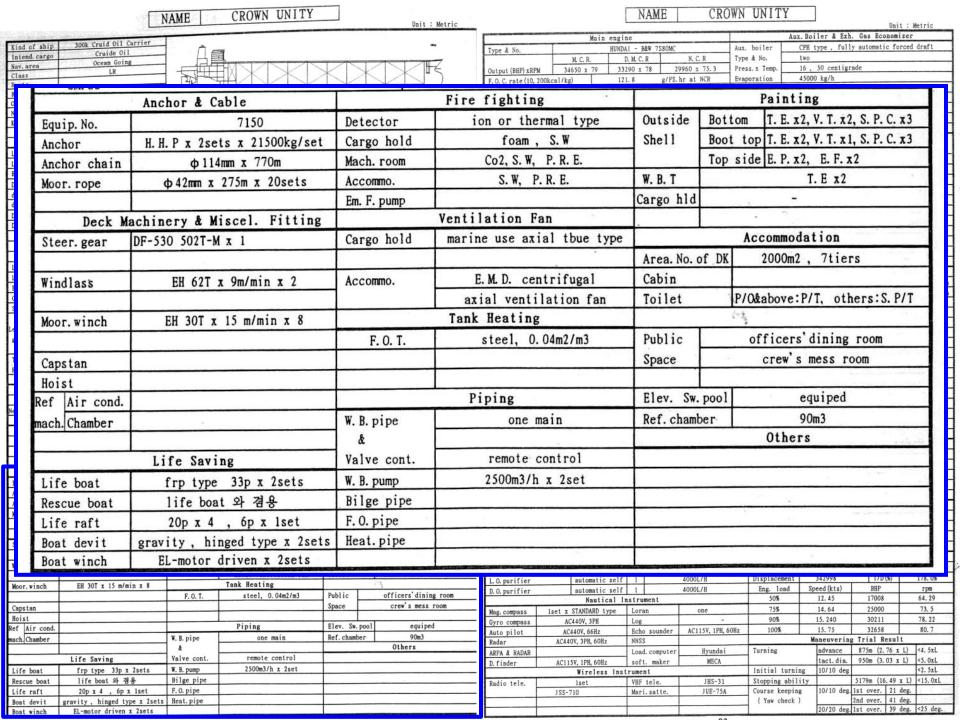


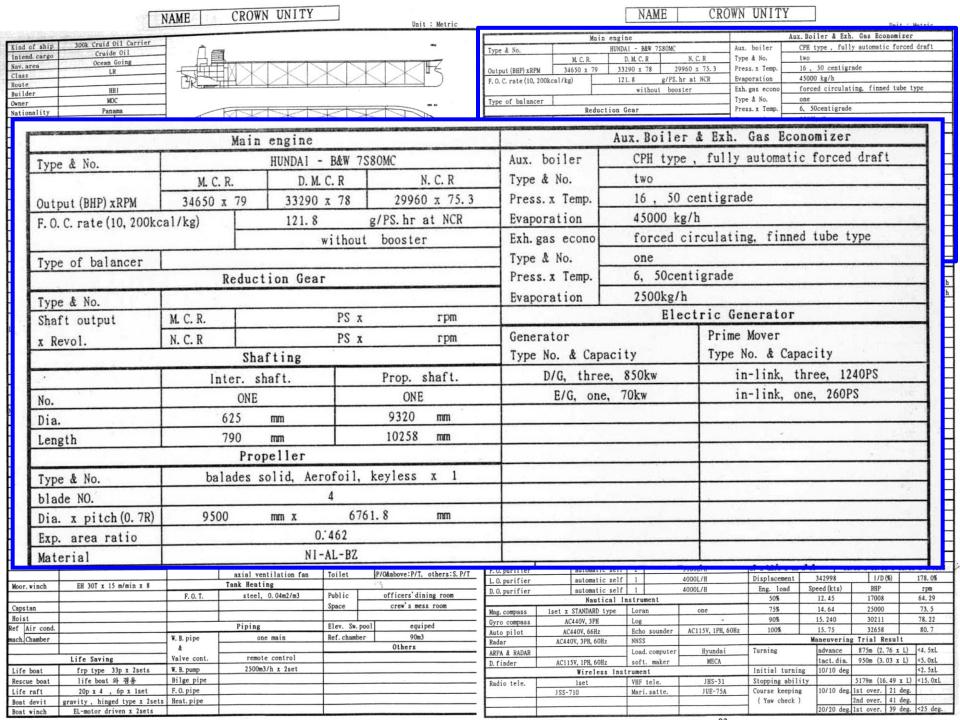


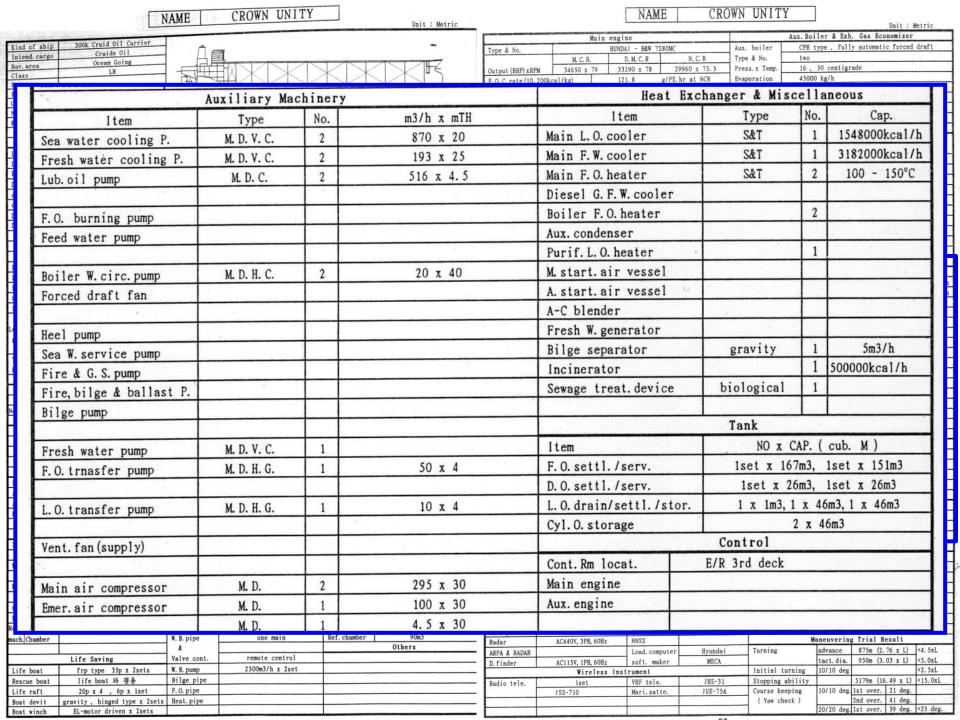
Crude Oil Carrier "Crown Unity" Outlined Specification

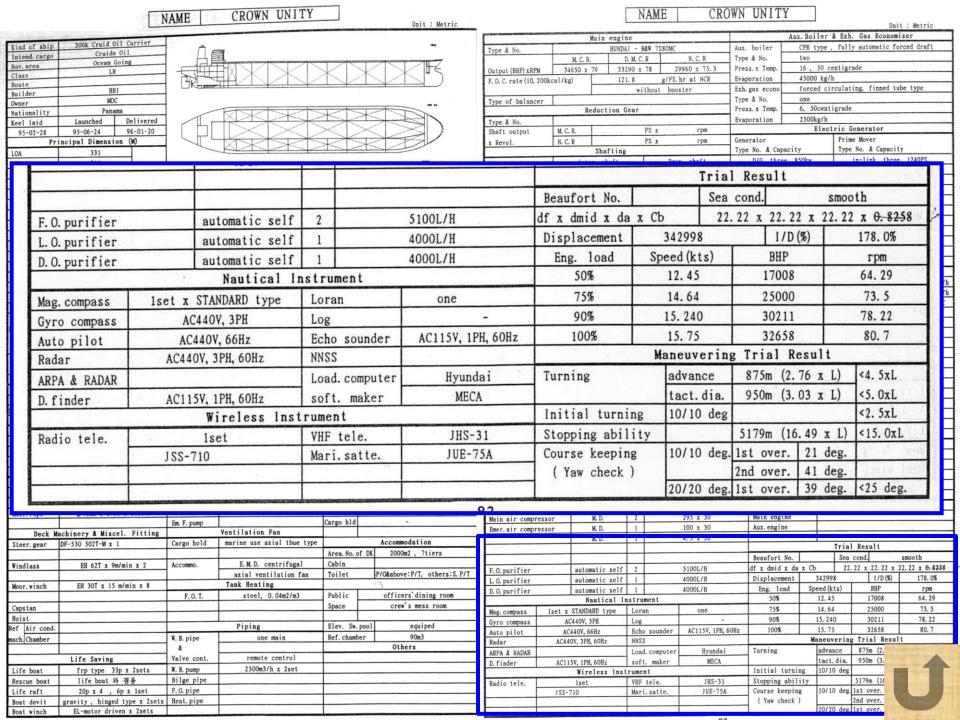


	STATE OF THE STATE		Co Che Une	Maritan Cent					V.,		3
	- Substitution	300k Cruid Oil	Carrier								it : Metric
Kind of ship 300k Cruid O Intend. cargo Cruide	Kind of ship	300k Cruid 011 Cruide 0i		I						mu	orced draft
Nav. area Ocean G	Intend. cargo	Ocean Goin	the first of the control of the cont	1	ㅓ볼		76			7	
Class LR	Nav. area	Ocean Goin	5							111-6	
Builder HH	Class	LR		77			\wedge				abe type
Owner MOC Nationality Panas	Route	ННІ		I LIK					<u> </u>		
Keel laid Launched	Builder			1				•			I
95-02-28 95-06-24 Principal Dimensio	Owner	МОС		1						IND XII	
LOA 331	Nationality	Panama		1		$\times >$	*			1	ty e, 1240PS
LBP 314 Bm1d 58	Keel laid		Delivered		LHHH					-	260PS
Dmld 31	95-02-28	70 00 0.	96-01-20	1 1		\times	<				1
dmld (d1, des.) 22. 2 dext (d2, sum.) 22. 2	Pri	ncipal Dimension	(M)								1
DWT at d1 300482	LOA	331									1
DWT at d2 300482 △ at d2 342998	LBP	314							•	严	
Cb Cp	Bm1d	58	Inte	rnational	Tonnage	St	peed at d. (des.)			
Cw LCB (%LBP) 10. 845 (3. 45 %)	Dmld	31	GT	150	5807 V	s (%MCR, SM)	14.65 kts 90	, 15)			neous
L/B L/D 5.41 10.1	dmld (d1, des.)	22. 2	NT			ndurance	26500	NM-			Cap 1548000k
B/D B/d 1.87 2.6 Camber 1.5	dext (d2, sum.)	22. 2	1	Rudder		. O. consump.	87. 6	t/day		. /\/ L	1548000k 3182000k
Camber 1. 5 Sheer (F. A) Nil		300482	Type x N			. T. O	-	ВНР	$1 \mid \mid \vee \mid \cdot$	\times \times \times	100 - 1
Fore 13.2 + 10	DWT at d1			rea / (Lxd)			Complem		t ItAlz	\cap \cap \cap \cap	
Len- Hold 248.5 gth Mach. Rm 38.7	DWT at d2	300482		Ica / (LXG)	120. 31112	, 1. 01/0	31P		CA AC	TWV)	
Aft 6.2 + 13.6	△ at d2	342998	Af/A			/*	Capacity				1
Tween Deck 30600	Cb Cp		-		(==::)				O O TV	120 200	1
Light Weight	Cw			102999	On DK. (TEU)		TEU		C. O. TK.	338, 302	
KG LCG	LCB (%LBP)	10. 845 (3. 45 %)	W. B. (hol	d)	In hld. (TEU)		TEU		Slop TK.	6794	5m3/
Net Steel wt (HT. %)	L/B L/D	5. 41 10. 13		31984	Total (TEU)		TEU		Hold volume	345, 096	500000kca
Special Regu	B/D B/d	1. 87 2. 61	F. 0	7860	Reefer Cont.		TEU		Flood, hld. No	No. 3 C. C. O. T	
SOLAS 1991	Camber	1. 5	D. 0	464	Dang. cargo h	ıld			Car	16	cub. M)
A320	Sheer (F. A)	Nil	L. 0	256	Lane length				Truck -		1set x 151
Anchor & Cable	Fore	13. 2 + 10	F. W	570	Car deck are	a			Trailer		1set x 26m 6m3, 1 x 46m
Equip. No. 7 Anchor H. H. P x 2sets x		248. 5	1					-	-		6m3
Anchor chain \$\phi 114mm :	Len- Hold	38. 7	+ $+$		Ca	reo Handli	ing(hatch size	cover to	vpe, cargo pi	ump, car ramp.	1
Moor. rope	gth Mach. Rm	6.2 + 13.6	+		٠, ١	-	argo gear, etc.		P.	, ,	
Deck Machinery & Misco	Aft										1 —
Steer. gear DF-530 502T-M x 1	Tween Deck	300.60			cargo p	oump : 3sets		al circl-	stage		1
Windlass EH 62T x 9m	Height				-		ertical centriug		stage		smooth 22. 22 x θ-
		Light Weight Dat	.a			capacity	: 5000m3/h x 14	MINC			178.0
Moor. winch EH 30T x 15	LWT			MT.							64. 2
Capstan	KG LCG				COW pur	p: 1set					73.
Hoist Ref Air cond.	Net Steel wt (HT	.%)	MT.				inertial cent		single stage		78. 2
Ref Air cond. mach.Chamber		Special Regula	tion			capacity	: 3000m3/h x 15	OmTH			l t
Life Saving								And the second			(L) <4.5
Life boat frp type 33	SOLAS 1991				cargo g	ear : 20MT	x 2set				t L) <5.0:
Rescue boat life boat 2					34.60		/min , 360degree				x L) <15.
Life raft 20p x 4 , 6 Boat devit gravity , hinged	A320				 	1 Jill	, Journal of the				deg.
Boat winch EL-motor driv	GMPSS										deg. <25











Bulk Carrier "World Action" Outlined Specification

Name WORLD ACTION

Unit : Metric Kind of ship BULK CARRIER COAL ORE Intend. cargo Nev. area OCEAN GOING GENERAL ARRANGEMENT Class M/V WORLD ACTION Route WORLD-WIDE SERVICE Builder DHI WORLD-WIDE Owner Nationality HONGKONG Delivered Launched 94. 5. 21 94. 7. 29 94. 2. 7 Principal Dimension (M) LOA 274,000 LBP 264.000 Bald 45, 000 International Tonnage Speed at d. (des.) Vs (994CR, SM) 14.0 kts (90', Deld 23, 200 77211 16, 900 NT 49261 26000 dmld (dl, des.) Endurance NM Rudder F. O. consump dext (d2, sum, 16, 900 t/day P. T. O DWT at d1 150790 Af/A 0.261 BHP Area , Area / (Lxd) 69.3 , 0.016 150790 Complement DWT at d2 Type x No. SEMI-SPADE x 1SET △ at d2 26 + (6) Сь Ср 0.8235 Capacity 0.8999 W. B On DK. (TEU) Cw 48361 TEU (RxT) C. O. TK. LCB (%LBP) 8.481 (3.21%) W. B. (hold) In hld. (TEU) TEU (RxT) Slop TK L/B L/D 5, 967 11, 379 19215 Total (TEU) TEU Hold volume 169379 B/D B/d 1.940 2.663 F. 0 Reefer Cost. TEU Flood, hld. No NO. 4 HOLD Camber 0.800 D. 0 278 Dang, cargo hid Car 0.0 / 0.0 LO 168 Lane length Sheer (F. A) Truck F. W Fore 11.28 + 6.0 395 Car deck area Trailer Hold 216, 72 gth Mach. Rm 24.80 Cargo Handling (hatch size, cover type, cargo pump, car ramp, Aft 11.20 + 4.00 cargo gear, etc.) (HATCH COVER) Tween Deck Height NO. 1 : 13, 76 x 15, 30 M Light Weight Data NO. 2 - 9 : 13. 76 x 20. 40 M MT. TYPE : WEATHER TIGHT SIDE ROLLING (CHAIN DRIVEN TYPE) LNT KG LCG Net Steel wt (HT. %) 5) Special Regulation HXXID ICLL, 1966 SOLAS, 1974 (1978) 1981, 1983, 1989, 1990 AND 1988 AMEND MARPOL 1973 (ANNEX 1&V), PROTOCOL 1978 Fire fighting Anchor & Cable Painting Equip. No. 5276.7 Detector Outside Bot tom Anchor JIS x 2SET x 1600KG/ST Cargo hold Shell Boot top Anchor chain 97mm x 742.5M GRADE3 Mach, room CO2, S. W, PORTABLE Top side S. W. PORTABLE W. B. T 2 x BISCONEB-200 x 250MC Moor, rope 14SET x 36mm x 250M FOAM Cargo hid 2 x BISCONHB-200 x 250MC Em. F. pump Deck Machinery & Miscel. Fitting Ventilation Fan Steer. gear ELEC-HYD, 2RAM-4CYL, 207TON Cargo hold Accommodation Windlass. 2SET x 45/20T x 9/15M/MIN Area, No. of DK 1460M2, 6TIER Ассонню. Cabin 27 EA 6SET x 20T x 15M/MIN Toilet Moor, winch 31 EA Tank Heating F. O. T. HOSPITAL, TALLY OFFICE, GYMNASIUM Capstan Public Hoist B. C RM. DK OFFICE, MESS RM. RECREA RM CONFER. RM Ref Air cond. ISET x 154066 KCAL/H Piping Elev. Sw. pool nach Chamber 2SET x 440V x 3PH x 60HZ W. B. pipe 125A STPG370 ERW SCH80 Ref. chamber MEAT, FISH, VEGET, ROBBY 400A STPG370 ERW 12, 7T Others à Life Saving Valve cont. Life boat 2SET x 30P W. B. pump VERT. CENT. 2500M3/Hx30MWC COMBINED WITH L/B Bilge pipe 50/250A, STPG370ERW SCH. 40 Rescue boat 50A STPG370 SCH40-E 4SET x 15P, 1SET x 6P F. O. pipe HINGED GRAVITY x 2SET Heat. pipe 25/50A STPG38 SCH. 40-S Boat devit

Boat winch EL MOTOR DRIVEN x 2SET

WODID ACTION

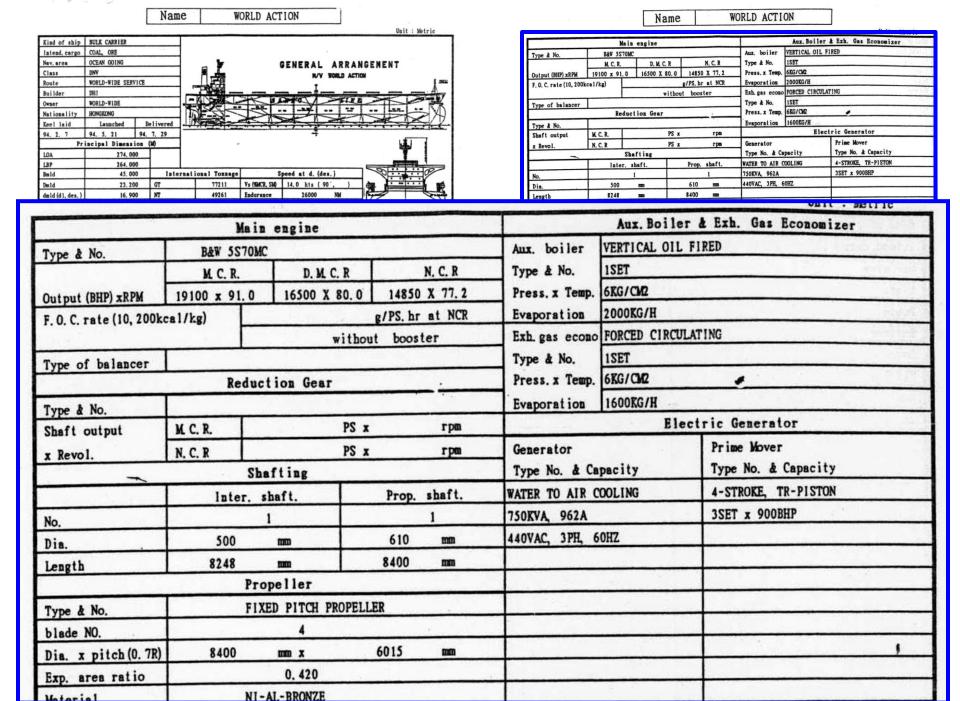
				Na	me	WC	IKLD	ACTI	UN							
			.1				_		11							etric
			ain engin	e			-						Gas Ec	DIOE	izer	7: LIGH.
Type & No.	1	BAW 55					1	boiler	VERTI	CAL O	IL FII	RED		-	- 11	o beat III
		M. C. R.		M.C.	_	N. C. R	4	& No.	ISET					_		* 1
Output (BHP) xRPM		$\overline{}$	0 1650	0 X 8		50 X 77.2	4	s, x Temp.	2000K		-			-	_	
F. O. C. rate (10, 20	Okcal/kg) }			ithout bo	hr at NCR		gas econo			CTIL AT	INC	-	-	-	
					ithout bo	oster	-	gas econo à No.	ISET	CIR	COLA	1110			-	1
Type of balancer		D.	duction G					s. x Temp.	-	M2						2.174
		Ke	duction o	081			-	orat ion	1600R			_				
Type & No. Shaft output	M.C.	p			PS x	rpm	1			_	lect	ric G	enerator			
x Revol.	N. C.	$\overline{}$			PS x	rpm	Gene	rator		1		Prime	Mover			
X REVOI.	14, 6.		Shafting				Туре	No. & Ca	pacity			Туре	No. & Ca	paci	y	
		Inter	shaft.		Pro	p. shaft.	WATER	TO AIR C	OOLING			4-STI	ROKE, TR-	PIST	N	
No.			1			1	750KV	A 962A				3SET	x 900BHP			
Dia.		500	-		610) 100	440V	AC, 3PH, 6	OHZ							
Length		8248	-		8400) mm										
			Propeller													
Type & No.			FIXED PITC	H PRO	OPELLER		_			_				_		
blade NO.			4				-				_					
Dia. x pitch (0.		8400	mm x		6015		-			_	_				_	
Exp. area ratio			0, 42				-				-	_		_		
Material			NI-AL-BRON	_			_				_			- 11		
		_	iary Mach				_			_	Exc		r & Misc	No.	neou	
Item			Гуре	No.		x m x kw x rp	in .	*	Item		-		Type TUBUL	No.	7015	Cap.
Sea water cooling	-		CENTRI	_ 1	550M3/H x		-	Main L.O	_				TUBUL	 '	_	OOKCAL/H
Fresh water coo			CENTRI	2	96M3/H x		-	Main F. W			_	_	TUBUL	1	_	13KCAL/H
Lub. oil pump	_	CENTRI	FUGAL	2	303M3/H x	4. 2KG/CM2 -	_	Diesel G			-		TUBUL	1	_	OORCAL/H
		1100 1 70	NTAL GEAR	-	6. 5M3/H x	6VC/CND	_	Boiler F			_	HONTE	1000	<u> </u>	1	, outer and it
F.O. burning pu	-		CENTRI	2	4M3/H x			Aux, cond			-	SHELL	& TUBE	1	1001	60KCAL/H
Feed water pump		HUK I Z.	CENTRI		48D/B X	Homin		Purif. L.		er	1.00		TUBUL	2	400	95KCAL/H
Boiler W. circ. p	_	UOP17	CENTRI	2	19M3/H x	40MTH		M start.					CYLINDE	2		x 30KG/CM
Forced draft fa	_	nok12.	CENTEL	-	1730711 X	400111		A start.	_	_			CYLINDE	1	1103	x 7KG/CM2
Porced drait is	-			-				A-C bles								
Heel pump		_						Fresh W.		tor		M/E W	ASTE	1	30T/I	DAY AT NCR
Sea W. service p	ump							Bilge se	parato	г		AUTO (DIL DISCH	1	510	H/H
Fire & G. S. pump		VERT.	CENTRI		(BILGE PU	MP)		Incinere	tor			SOLID	& OIL	1	3000	OORCAL/H
Fire, bilge & ba								Sewage t	rest. d	evice	e	VACUU	И	1	6W	3
Bilge pump		VERT.	CENTRI	2	210/360M3	/H x 90/30MWC								L		
												Te	nk			
Fresh water pum	p	CENTRI	FUGAL	2	SMB/H x	50MTH		Item					NO x C	_		
F. O. trnasfer pu	тр	HORIZO	NTAL GEAR	1	25M3/H x	3KG/CM2		F. O. sett	1./ser	v.		-	1 x 53.6	_		
D. O. trnasfer pu	mp	HORIZO	NTAL GEAR	1		3KG/CM2		D. O. set t					1 x 10.7			
L. O. transfer pu	mp	HORIZO	NTAL GEAR	1	5M3/H x	3KG/CM2		L. O. drai			tor.			31.9	/ 24.	1 / 32.2
				_				Cy1. 0, st	orage	_	-		1 x 68,0	_		
Vent. fan (supply)	VERT. A	XIAL FLOW	4	800M3/MIN	x 40MMAQ	-			_			trol			-
				-		*****		Cont. Rm		-	-	_	E ROOM OL ROOM	-		
Main air compre	_	_	LED PIST		215MB/H x		-	Main eng		-	-	_	NERY SIDE	_	-	
Emer. air compre	SSOT	AIR CO	OLED PIST	-	8. 5M3/H x	/KG/CM2		Aux, engi	ne	_	_	MACHI	MEKI SIDE	_		
		_		-					_		_	Trial	Result	_	-	
				\vdash			_	Beaufort	No.	-	-	Sea		Т		
F. O. purifier		CENTRI	EUGAI	,	29001 /H 6	OOCST AT 50oC		df x dmid		x Cb		-		_		
L. O. purifier		CENTRI		-	2200L/H ,			Displace					1/1	(%)		
D. O. purifier		CENTRI	room	-	,			Eng. 1		7	Speed		PS	-		rpm
D. O. pai ii iei		No	utical In	stru	ment											
Mag. compass G	ILLIE SR3			Lor		JNA-761 x 1SE	T									
Gyro compass T	G-5000 x	1SET		Log		TOKIMEC TD-50										
	R-8457-L				o sounder	JEE-570S x 1S										
	-BAND, S-			NNS						M	aneuv	ering	Trial 1	esu	11	
	OMBINED S		x 1SET	Los	d. computer	LOCAS		Turning	- 3		advan		2.8			<4.5xL
	LD-10 x 1	Y-0.00			t. maker	(OFF-LINE)					tact.		2, 6	x L		<5.0xL
		Vire	less Inst					lnitial	_	_	10/10	deg				<2.5xL
	SS-720 x	1SET			tele.	JHS-31 x 1SET		Stopping	_	_	_		22.8			<15. 0xL
Radio tele. J	00 .ee n					JUE-45AMII x	1 CET	Course I	in		110/10	dea	1st over.	1	7	
Radio tele. J				Mar	i. satte.	JUE-43MMII X	ISEI			27	107.10			-		
Radio tele, J		•		Маг	1, satte.	JUE-43AMIT X	1361	(Yaw		27			2nd over. 1st over.	1		<25 deg.

	Nam	ne l	WOR	0.00						200							Uni	it : Metric
	Ivan		WOK	Kin	d of shi	p BUL	K CARRI	ER										
Kind of ship BULK CARRIER		1		Int	end. carg	o COA	L, ORE		200	3								
Intend. cargo COAL, ORE Nev. area OCEAN GOING		1	L	Nev	, area	\neg	AN GOIN	NG				No.		CF	MEDAL	ADDAS	GEMENT	
Class DNV		1 8.	I.	Cla		DNV					届	I		UE	NEKAL			
Route WORLD-WIDE SERVI Builder DHI	CE	-	₫	Rou		_		SERVICE			П	-1			W/V	WORLD ACTIO	COL	1 2001
Owner WORLD-WIDE						_		SERVICE		-	-	1		-	I			
Nationality HONGKONG				Bui	lder	DHI				-	- 1		10	75		ET N.		1
Keel laid Launched 94. 2. 7 94. 5. 21	Delivered 94. 7. 29	11/1/2		Own	er	_	LD-WIDE	<u> </u>				7	1.00					
Principal Dimensio	n (M)	1	-	Nat	ionality	HON	GKONG			_	DE	77			1			K K
LOA 274, 000 LBP 264, 000	\dashv			Kee	l laid		Launche	ed De	eliver	ed .	- Par			-		-	-	
Bmld 45.000		rnational		94.	2. 7	94.	5. 21	94.	7. 29						+			
Dm1d 23. 200 dm1d (d1, des.) 16. 900	GT NT		77211 Vs 19261 Es			Princi	pal Di	mension ((M)								نا	
dext (d2, sum.) 16.900		Rudder	F.	LOA	1	T	2	74. 000										
DWT at d1 150790 DWT at d2 150790	Af/A	0, 261 Area / (Lxd)		LBP		1		64. 000	1	1								
△ at d2	Type x N		SPADE x 1SET	Bm 1		_		45. 000		Intern	ational	Tonnage		Spee	d at d. (d	es.)	201:	1:09
Cb Cp 0.8235 Cw 0.8999	V. B	48361	De DK (TEU)	Dm 1		+-		23, 200	GT			77211	Vs (90MCR, SM		4.0 kts (- T	
LCB (%LBP) 8. 481 (3.21	_	(d)	in hld. (TEU)			1		16, 900	NT		_	49261	Endurance	*	26000	NM		
L/B L/D 5.967 11.379 B/D B/d 1.940 2.663			Total (TEU) Reefer Cost.		d (d1, des			A STATE OF THE STA	MI		Rudder		Patentine and the second	_	20000	t/day		- 1
B/D B/d 1.940 2.663 Camber 0.800	D. 0		ang. cargo hi		t (d2, sum	./ -		16, 900	-				F. O. consum	up.				
Sheer (F. A) 0. 0 / 0. 0	LO.		ane length		at d1	+-		50790	Af / A		0. 2		P. T. 0	-		ВНР		-
Fore 11, 28 + 6, 0 Len- Hold 216, 72	F. W	395	Car deck area	DWI	at d2	4	1	50790			a / (Lxd)		0.016	-		lement	1	
gth Mach. Rm 24, 80			Ca		at d2				Туре	x No.	SEMI	-SPADE x 1S	ET			+ (6)		
Aft 11.20 + 4.00			(HATCH COVER	СР	Ср			0. 8235							Capacity			
Height			NO. 1 : 13.	Cw		0.	8999		W. B	48	8361	On DK (TEU	0		TEU	(RxT)	C. O. TK.	
Light Weight I	ata	MT.	NO. 2 - 9 : TYPE : WEAT	LCB	(%LBP)	8.	481 ((3.21%)	W. B.	(hold)		In hld. (TE	IU)		TEU	(RxT)	Slop TK.	22 CONTRACTOR (1112-222)
KG LCG				L/B		5.9	67	11. 379		19	9215	Total (TEU)			TEU		Hold volume	169379
Net Steel wt (HT. %) Special Regu	MT. (5)		B/D				2, 663	F. 0		3962	Reefer Con			TEU		Flood, hld, No	NO. 4 HOLD
HIOMO						1	0. 800		D. 0		278	Dang. cargo			120		Car	NO. 4 HOLD
ICLL, 1966 SOLAS, 1974 (1978) 1981, 1983, 1989.	1000 AND 108	8 AMEND			ber (C. 4)	+												
HADROI 1073 (ANNEY LAV) PROTTOCOL	1078	o reactio		She	er (F. A)	-	0.0 /		L.O		168	Lane lengt					Truck	and the second section
Anchor & Cable Equip. No. 5276. 7		Detector	Fire f		Fore	11		+ 6.0	F. W		395	Car deck a	rea				Trailer	10/05 (349
Equip. No. 5276. 7 Anchor JIS x 2SET x	1600KG/ST	Cargo hold	S. ¥	Len-		-	216.7											6
Anchor chain 97mm x 742.51		Mach, room	CO2, S. W	gth	Mach. R	n	24.8	0					Cargo Hand	dling	(hatch s	ize, cover t	ype, cargo pu	mp, car ramp,
Moor, rope 14SET x 36mm	X 230M	Accommo. Em. F. pump	S. W. POR		Aft	11	. 20	+ 4.00				de company de la company de		carg	o gear, e	tc.)		1000Ec E22
Deck Machinery & Misce Steer, gear ELEC-HYD, 2RAM-4CY		Connec half	Ventila	Twe	en Deck							(HATCH COV	ER)				7 8 3	Comment to the green
Steer. gear ELEC-HYD, 2RAM-4CY Windlass 2SET x 45/20T x 9		Cargo hold		Hei	ght							NO. 1 :	13. 76 x 15.	30 M				Olto C
		Ассонию,				Li	ght We	ight Date	1			NO. 2 - 9	: 13.76 x	20, 40	М	-		
Moor, winch 6SET x 20T x 15M/1	an		Tank B		LWT		T			М	Γ.	TYPE : W	EATHER TIGH	T SID	E ROLLING	CHAIN DRIVEN	TYPE)	with the second is
Capstan		F. O. T.			KG .	LCG	_				-	1112			- HODDING	CHERT PATTE		
Hoist			-		Steel wt		_		MT.	7 -	%)		•					
Ref Air cond. ISET x 154066 KCAL			Pip	Ne t	steel wt		Page 1 c			1	70				-	Printed Printed	The state of the state of	
nach Chamber 2SET x 440V x 3PH	x 60HZ	W. B. pipe	125A, STP 400A, STP				opec 1a	l Regulat	101					-	20 20 A			marii X.2 A. mi
Life Saving		Valve cont.		HKMD									de la	-	-			all July di
Life boat 2SET x 30P		W. B. pump	VERT. CE	ICLL	1966								- 11-2		1,10		13.3	Percent W.
Rescue boat COMBINED WITH L/B Life raft 4SET x 15P, 1SET	x 6P	F. O. pipe	50/250A S 50A STPC	SOLA	S, 1974 (1978) 1	981, 198	3, 1989, 199	O AND	1988 A	AMEND		1.1				100	Hord Sweet
Boat devit HINGED GRAVITY x 2	SET	Heat. pipe	25/50A ST	MARP	OL 1973 (ANNEX I	&V), PR	OTOCOL 197	8				edin L		/ a1		31.5	Shows a second

Deck Mach Steer. gear ELE Windlass 2SE	5276.7 JIS x 2SET x 1600KG/ST 97mm x 742.5M GRADE3 14SET x 36mm x 250M ninery & Miscel. Fitting EC-HYD, 2RAM-4CYL, 207TON ET x 45/20T x 9/15M/MIN	Detector Cargo hold Mach. room Accommo. Em. F. pump Cargo hold	S. W CO2, S. W, PORTABLE S. W, PORTABLE FOAM Ventilation Fan	Outside Shell W. B. T Cargo hld	2 x BIS	op de CONHB-200 x 25 CONHB-200 x 25	
Anchor chain Moor. rope Deck Mach Steer. gear ELE Windlass 2SE Moor. winch 6SE Capstan	97mm x 742.5M GRADE3 14SET x 36mm x 250M ninery & Miscel. Fitting EC-HYD, 2RAM-4CYL, 207TON	Mach. room Accommo. Em. F. pump	CO2, S.W, PORTABLE S.W, PORTABLE FOAM	W. B. T	Top sid 2 x BIS 2 x BIS	de CONHB-200 x 25 CONHB-200 x 25	
Moor. rope Deck Mach Steer. gear ELE Windlass 2SE Moor. winch 6SE Capstan	14SET x 36mm x 250M ninery & Miscel. Fitting EC-HYD, 2RAM-4CYL, 207TON	Accommo. Em. F. pump	S. W, PORTABLE FOAM		2 x BIS	CONHB-200 x 25	
Deck Mach Steer. gear ELE Windlass 2SE Moor. winch 6SE Capstan	ninery & Miscel. Fitting EC-HYD, 2RAM-4CYL, 207TON	Em. F. pump	FOAM		2 x BIS	CONHB-200 x 25	
Deck Mach Steer. gear ELE Windlass 2SE Moor. winch 6SE Capstan	ninery & Miscel. Fitting EC-HYD, 2RAM-4CYL, 207TON			Cargo hid			50MC
Steer. gear ELF Windlass 2SE Moor, winch 6SE Capstan	EC-HYD, 2RAM-4CYL, 207TON	Cargo hold	Ventilation Fan				THE SHARE STREET
Windlass 2SE Moor. winch 6SE Capstan		Cargo hold			A	CONTRACTOR DESCRIPTION	
Moor, winch 6SE Capstan	ET x 45/20T x 9/15M/MIN					ccommodation	1172
Capstan				Area. No.	of DK	1460M2, 6T	IER
Capstan		Accommo.		Cabin		27 EA	\$1.676
	ET x 20T x 15M/MIN			Toilet	9.4	31 EA	
			Tank Heating		0.00		
		F. O. T.		Public	HOSPITAL	L TALLY OFFICE	GYMNAS IUM
				Space	-	DK OFFICE, ME	
						RM, CONFER. R	77.012 had -4800 had 2011
Ref Air cond. ISE	ET x 154066 KCAL/H		Piping	Elev. Sw.		982-07 1 78	ry gound Allies
mach Chamber 2SE	ET x 440V x 3PH x 60HZ	W. B. pipe	125A, STPG370 ERW SCH80	Ref. chami	ber ME	AT, FISH, VEGET,	ROBBY
		å	400A, STPG370 ERW 12, 7T	1990		Others	KINEKE -
	Life Saving	Valve cont.		the same	- STATE OF	V- 2 X0 764	Tarif da
Life boat 2SE	ET x 30P	W. B. pump	VERT. CENT. 2500M3/Hx30MWC	100 192	U Kyo In	1. 新色的	Mark T
	MBINED WITH L/B	Bilge pipe	50/250A, STPG370ERW SCH. 40	Tetamerist	1 - 620	aria di	
	ET x 15P, 1SET x 6P	F. O. pipe	50A STPG370 SCH40-E	-MY 177		3.4 100	SEE F.
	NGED GRAVITY x 2SET	Heat. pipe	25/50A STPG38 SCH. 40-S	TOWN INC.	and Down		
	MOTOR DRIVEN x 2SET				a Lalida S		
Moor, winch 6SET x 20T x 15M/MIN		31 EA		JGAL 2 2200L/H ,		Displacement	1/0/90
Capstan	Tank Heating F.O.T. Public	HOSPITAL TALLY OFFICE, GYMN	L. O. purifier CENTRIFI D. O. purifier	JGAL 2 ZZZUOL/H ,		Eng. load Speed	PS rpe

MOOT, WINCE	OSEI A ZUI A ISMUMIN			Torret		31 CA
			Tank Heating		- 1	
Capstan		F. O. T.		Public	HOSP	ITAL, TALLY OFFICE, GYMNASIUM
Hoist				Space	B. C 1	RM, DK OFFICE, MESS RM,
					RECR	EA RM, CONFER. RM
Ref Air cond.	1SET x 154066 KCAL/H		Piping	Elev. St	r. pool	1 1 2 stil 800 mass
mach. Chamber	2SET x 440V x 3PH x 60HZ	W. B. pipe	125A STPG370 ERW SCH80	Ref. chan	ber	MEAT, FISH, VEGET, ROBBY
Ś.,		à	400A, STPG370 ERW 12, 7T			Others
	Life Saving	Valve cont.				A CONTRACTOR OF THE PARTY OF TH
Life boat	2SET x 30P	W. B. pump	VERT. CENT. 2500M3/Hx30MWC			
Rescue bost	COMBINED WITH L/B	Bilge pipe	50/250A, STPG370ERW SCH. 40			crist P
Life raft	4SET x 15P, 1SET x 6P	F. O. pipe	SOA, STPG370 SCH40-E			2 77 77
Boat devit	HINGED GRAVITY x 2SET	Heat. pipe	25/50A STPG38 SCH. 40-S			
Bost winch	EL MOTOR DRIVEN x 2SET					
						14

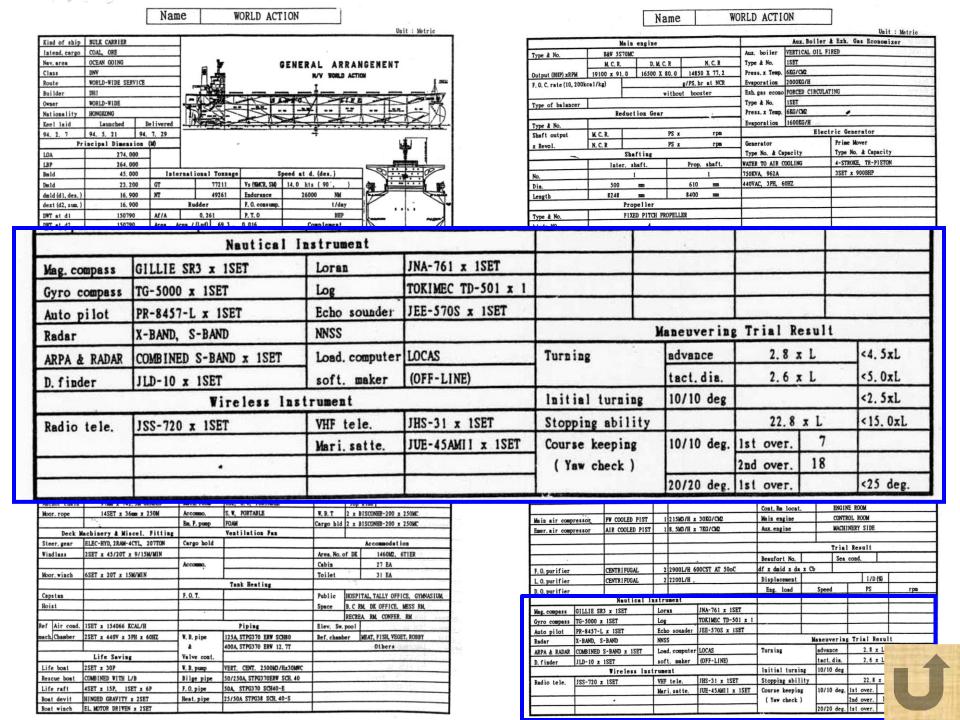
L. O. purifier		CENTR I FUGAL	2	2200L/H ,		Displ	acement		1/1	(%)	
D. O. purifier						Eng.	load	Speed	PS		rpm
		Nautical	nstru	ment							
Mag. compass	GILLIE S	R3 x 1SET	Lor	an	JNA-761 x ISET						
Gyro compass	TG-5000	x ISET	Log		TOKIMEC TD-501 x 1						
Auto pilot	PR-8457-	L x 1SET	Ech	sounder	JEE-570S x 1SET						
Radar	X-BAND,	S-BAND	NNS	S				Maneuverin	g Trial I	lesult	
ARPA & RADAR	COMBINED	S-BAND x 1SET	Los	d. computer	LOCAS	Turni	ng	advance	2.8	x L	<4.5xL
D. finder	JLD-10 x	ISET	sof	t. maker	(OFF-LINE)			tact, dia.	2,6	x L	<5.0xL
		Vireless las	trume	nt		lniti	al turning	10/10 deg			<2.5xL
Radio tele.	JSS-720	x 1SET	VHF	tele.	JHS-31 x 1SET	Stopp	ing ability		22.8	x L	<15.0x
			Mar	i. satte.	JUE-45AMII x 1SET	Course	e keeping	10/10 deg.	1st over.	7	
						(Ya	w check)		2nd over.	18	
			\top					20/20 deg.	1st over.		<25 de



20/20 deg. 1st over.

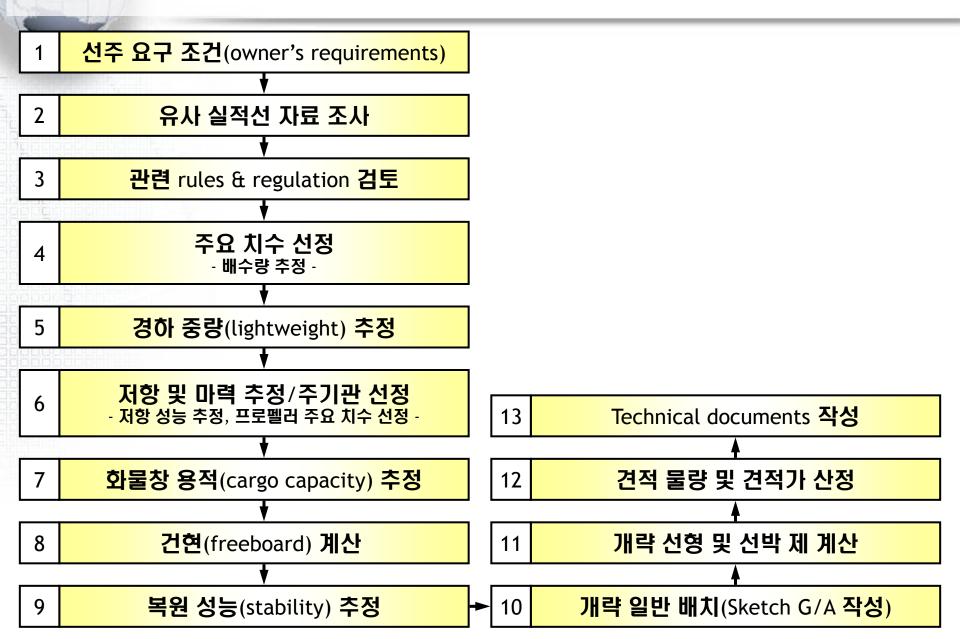
Boat winch | EL MOTOR DRIVEN x 2SET

	Auxiliary Macl	hine	ТУ	Heat Ex	changer & Misc	_	
Item	Туре	No.	M3/h x m x kw x rpm	Item	Туре	No.	Сар.
Sea water cooling P.	VERT. CENTRI	1	550M3/H x 20MTH	Main L. O. cooler	HORIZ. TUBUL	1	791200KCAL/H
Fresh water cooling P.	VERT. CENTRI	2	96M3/H x 25MTH	Main F. W. cooler	HORIZ. TUBUL	1	1573800KCAL/H
Lub. oil pump	CENTR I FUGAL	2	305M3/H x 4.2KG/CM2 -	Main F. O. heater	HORIZ, TUBUL	2	1477713KCAL/H
				Diesel G. F. W. cooler	HORIZ, TUBUL	2	399000KCAL/H
F.O. burning pump	HORIZONTAL GEAR	2	6.5M3/H x 6KG/CM2	Boiler F. O. heater			
Feed water pump	HORIZ, CENTRI	2	4M3/H x 110MTH	Aux. condenser	SHELL & TUBE	1	1001760KCAL/H
				Purif. L. O. heater	HORIZ, TUBUL	2	40095KCAL/H
Boiler W. circ. pump	HORIZ. CENTRI	2	19M3/H x 40MTH	M. start. air vessel	VERT. CYLINDE	2	7M3 x 30KG/CM2
Forced draft fan				A start, air vessel	VERT. CYLINDE	1	1M3 x 7KG/CM2
				A-C blender			
Heel pump				Fresh W. generator	M/E WASTE	1	30T/DAY AT NCR
Sea W. service pump				Bilge separator	AUTO OIL DISCH	1	SM3/H
Fire & G. S. pump	VERT. CENTRI		(BILGE PUMP)	Incinerator	SOLID & OIL	1	300000KCAL/H
Fire, bilge & ballast P.				Sewage treat.device	VACUUM	1	6M3
Bilge pump	VERT. CENTRI	2	210/360M3/H x 90/30MWC				
7					Tank		
Fresh water pump	CENTR I FUGAL	2	5M3/H x 50MTH	Item	NO x C	AP. (cub. M)
F. O. trnasfer pump	HORIZONTAL GEAR	1	25M3/H x 3KG/CM2	F. O. settl. /serv.	1 x 53.6	/ 1	x 53, 6
D. O. trnasfer pump	HORIZONTAL GEAR	1	SM3/H x 3KG/CM2	D. O. settl. /serv.	1 x 10.7	/ 1	x 10.7
L. O. transfer pump	HORIZONTAL GEAR	1	5M3/H x 3KG/CM2	L. O. drain/settl. /stor.	EACH 1EA	31. 9	/ 24.1 / 32.2
b. o. transfer pump				Cyl. O. storage	1 x 68.0		
Vent. fan (supply)	VERT. AXIAL FLOW	4	800M3/MIN x 40MMAQ		Control		
to an in the first of the first				Cont. Rm locat.	ENGINE ROOM		
Main air compressor	FW COOLED PIST	1	215M3/H x 30KG/CM2	Main engine	CONTROL ROOM		
Emer. air compressor	AIR COOLED PIST		8.5M3/H x 7KG/CM2	Aux. engine	MACHINERY SIDE		
Davi. uii coapicosoi							
					Trial Result		
				Beaufort No.	Sea cond.		
F. O. purifier	CENTR I FUGAL	2	2900L/H 600CST AT 50oC	df x dmid x da x Cb			
L. O. purifier	CENTRI FUGAL		2200L/H ,	Displacement	1/0	(%)	
D. O. purifier				Eng. load Spe	ed PS		rpm



선박 개념 설계의 순서

PA선박의 개요소학의 종류조선 주요 과정1선박개념 설계VLCC 개념 설계 예



3. 관련 Rules & Regulation 검토

- Internationa Maritime Organizations(IMO)
 - International Labour Organizations (ILO)
 - Regional Organizations (EU,...)
 - Administrations (Flag, Port)
 - Classification Societies
 - Internationa Standard Organizations (ISO)

Rules and Regulations - IMO





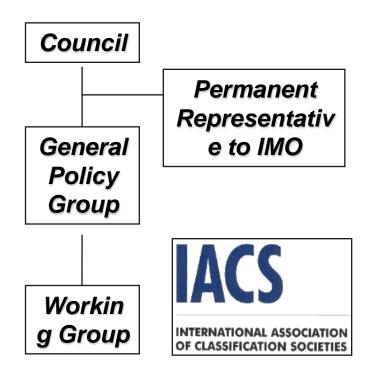
Rules and Regulations - IMO Instruments

- Conventions
 - SOLAS / MARPOL / ICLL / COLREG / ITC / AFS / BWM
- Protocols
 - MARPOL Protocol 1997 / ICLL Protocol 1988
- Codes
 - ISM / LSA / IBC / IMDG / IGC / BCH / BC / GC
- Resolutions
 - Assembly / MSC / MEPC
- Circulars
 - MSC / MEPC / Sub-committees



Rules & Regulations - IACS

- 10 Members
 - ABS (American Bureau of Shipping)
 - DNV (Det Norske Veritas)
 - LR (Lloyd's Register)
 - BV (Bureau Veritas)
 - GL (Germanisehaßlaloggdi)ation 검토
 - KR (Korean Register of Shipping)
 - RINA (Registro Italiano Navale)
 - NK (Nippon Kaiji Kyokai)
 - RRS (Russian Maritime Register of Shipping)
 - CCS (China Classification Society)



- 2 Associate Members
 - CRS (Croatian Register of Shipping)

