

CV 2000^{PLUS} ISABELLE - BETTER BY DESIGN



Shipyards want a ship easy to build and light. Owners want a ship that has record-breaking total capacity, is easy to maintain and operate, inexpensive, safe, etc. Shippers/cargo owners want the cargo to reach its destination without any harm. Masters and crew wish a ship that is easy to operate, comfortable and also safe in the broadest sense of the word and certainly with respect to working environment.

All expect a ship that is able to transport safely huge number of containers especially reefer units, easy to maintain, easy to operate, comfortable and environmentally friendly.

The container vessel of 2000^{PLUS} type ISABELLE is designed with the target to meet these expectations in the best way.

TYPE OF VESSEL

The ISABELLE is flexible, user-friendly, safe and green container feeder designed especially for transport of the large number of reefer containers. She has five cargo holds, all forwards of the accommodation deckhouse. Total capacity is 2020TEU. Stability of the ship at scantling draft is sufficient to carry 1460TEU (14t, VCG=0.45H). The ship is equipped with three cargo cranes. With the emphasis on fast port turnarounds, the vessel is provided with two tunnel thrusters: the one aft and other one at the bow. This enables the vessel to track sideways and turn in its own length.

Conventional container vessels, in most cases, have only the large number of reefer plugs in order to be more flexible regarding stowage of reefer containers. In practice, they are unable to

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carry the full amount of reefer containers, because their electrical system and the cargo hold ventilation system are not laid out for this. The ISABELLE meets all requirements of GL's Class Notation RCP and can carry simultaneously up to 608 reefer FEUs. Maximum 50% of reefer boxes may be loaded with fruit/chilled cargoes. In order to provide electrical power for such large number of reefer boxes the ship is equipped with five Wärtsilä Auxpac alternators.

For comparison the 300m long Panamax 5060TEU vessel from Hanjin Heavy Industries can transport only 454 reefer FEUs.

Another outstanding feature of the vessel, is a total segregation of oil tanks from the sea: all HFO, DO and Lube Oil tanks are placed outside of double skin reducing the risk of oil spill.

In order to decrease building costs several measures have been adopted:

- simple and logical arrangement,
- excellent continuity of main structure which gives very good support of the accommodation deckhouse, decreases danger of vibration and eliminates costly reinforcements,
- only one frame spacing on the whole ship length,
- the identical arrangement of five accommodation decks.

Other important features of the design include:

- Possibility to accommodate 11 rows of 2500mm-wide containers on weather deck.
- Cell guides in holds are prepared for easy modification enabling transport of 2500mm-wide containers in future.
- Possibility to accommodate ten bays of 45ft containers on the hatch covers and on the Main Deck.
- Light communication platforms enabling safe access to three tiers of the reefer containers on hatch covers.
- Direct access from the Engine Room into holds for reefer containers.
- Anchoring/mooring equipment protected by a wave breaker against direct impact of green water.
- High degree of inbuilt safety (no easy to destroy gooseneck vents).
- Enhanced damage stability (double skin in way of the Engine Room).
- High standard of accommodation.
- User-friendly operational design.

PRINCIPAL DIMENSIONS

Length overall	L _{OA}	195.70m
Length between perpendiculars	L _{BP}	183.00m
Breadth moulded	B _{mld}	28.20m
Depth to Main Deck	D	17.50m
Design draught	d ₁	9.70m
Scantling draught	d ₂	12.00m

CLASS AND FLAG

The vessel can be designed and constructed according to the requirements of the Germanischer Lloyd, for the following class:

+ 100 A5 E "CONTAINERSHIP" NAV-O, IW, BWM-F, ERS, RCP 608/50, Environmental passport, SOLAS II-2, Reg.19 +MC E AUT

or to the equivalent class of any other Class Society.

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The vessel will meet all rules and requirements necessary to fly the Cyprus flag.

CARGO CAPACITY

Container Capacity

Equivalent container capacity:

On deck	1224 TEU (IMO visibility considered)
In holds	796 TEU
Total	2020 TEU

Container stowage

Containers are stowed in four holds optimized for max. 6 tiers (2x8ft6inch + 4x9ft6inch) containers and provided with cell guides designed for 9 rows of 2438/2500 wide containers. Vertical gaps between angle bars of cell guides allow proper airflow through hold. TEUs can be carried in holds in mixed stowage system. FEU/TEU (2438/2500mm wide) containers can be transported on the hatch covers in max. 11 rows amidships. Min. distance between TEU blocks is 750mm. 435 of 45-foot containers can be transported on open deck.

Transport of Reefer Containers

The ship shall is designed and equipped for simultaneous carriage of 608 40ft reefer containers; thereof a maximum 50% may be loaded with fruit/chilled cargoes.

Transport of reefer containers on open deck

1. 315 40ft reefer containers can be transported in three tiers on open deck as shown on the GAP, provided no dangerous cargoes are transported at the same time.
2. Reefer containers on open deck are located is such a way that there is no possible to suck heated air to cargo holds.

Transport of reefer containers in holds

1. 293 40ft reefer containers can be accommodated in specially constructed and ventilated holds N°2A, 2B, 3A, 3B and 4. These holds are equipped with mechanical supply/natural exhaust ventilation system providing 4500 m³/h for each of the 40ft reefer container.
2. A separate air duct serves each container stack.
3. Air ducts have adjustable openings or elastic hoses to direct air to the lower part (1/3 height) of the container independent of the stowage pattern.
4. Supply air fans and air ducts are located in the middle of the hold. Each duct is served by its own fan.
5. In any loading condition it is possible to replace the motor of any fan.
6. The ship is provided with the efficient ventilation system able to prevent any cargo harm even if a part of venting opening are closed due to bad weather.

Transport of Dangerous Cargoes

1. Containers loaded with dangerous cargoes can be transported on open deck and in holds N° 1A, 1B equipped with explosion-proof reversible fans.
2. Transformers and switchboards for electric equipment located in the holds N° 1A, 1B, are placed outside of these holds.

SEGREGATION OF FUEL TANKS FROM THE SEA

Contrary to many new vessels, oil tanks are arranged according to the new revised MARPOL Annex I, Regulation 13A, in order to decrease the risk of oil spill in the case of shell damage. Fuel is stored in box-shaped deep fuel tanks between holds, which do not need extensive heating and are simpler for cleaning and maintenance.

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With 100% of oil tanks located outside of double skin, the ISABELLE is the ship of totally new class and cannot be compared with old vessels.

The capacity of HFO storage tanks ensures a cruising range of appr. 10,000 Nm at service speed with 10% allowance for real fuel, unpumpable rest in tanks and bad weather. Capacity of ship's tanks is sufficient to accommodate the following quantities of liquid stores:

No		Volume [m ³]	Spec. gravity	Capacity (t)
1	HFO		0,980	
2	MDO		0,870	
3	Lubrication oil (LO)		0,900	
4	Fresh water		1,000	
5	Ballast water		1,025	

ACCOMMODATION

Improper accommodations design can adversely impact the crewmember ability to reliably perform their duties, fully relax, sleep and recover from mentally and physically demanding work activities. This in turn may impact their ability to carry out duties on succeeding watches with the required diligence and accuracy. The 6-tier accommodation deckhouse is designed with particular care in order to provide an on-board environment that increase crewmember alertness and well-being. At the same time high degree of standardization has been achieved and living quarters on five decks have the identical arrangement.

Accommodation is arranged for 30 + 4 Suez crew.

Access to the ship and stairs

1. Short accommodation ladders, for the use only when ship is moored, are located on the Poop Deck. In this way the access to the ship in the port does not interfere with cargo handling operations.
2. When the ship is in the port, the access to accommodation deckhouse and spaces below is possible only through one controlled entrance leading directly to the reception area on the 1st Accommodation Deck separated from other spaces.
3. There are no external doors leading from the Main Deck to spaces below.

Cabins

1. There are only three types of cabins: apartments for Senior Officers, cabins for Petty Officers and ordinary single cabins. Each type of cabin has an identical arrangement in order to facilitate production.
2. Captain's and Chief Engineer's cabins are usually located on the highest deck. There is no problem onboard vessel provided with a crew lift, however to economise money lifts are not so often installed nowadays. In case of any alarm the Chief Engineer should go down to the Engine Room, similarly all representatives of Authorities or class surveyors shall go high up to visit the Captain. On board the ISABELLE the apartment for Chief Engineer is located at 2nd AD. The Captain Office is placed on the 1st AD near the Deck Office.
3. Sanitary units (WC/shower) are arranged in vertical lines, with easy access to pipe connections (small doors in corridors).

Galley and Provision Stores

The galley with the adjacent small provision store, the pantry and messrooms are located at the Poop Deck. Direct stairs connects the galley with the main provision stores below.

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Recreation

The following items are arranged:

1. Two Recreation Rooms
2. Sport Room
3. Internet Cafe
4. Large sun deck with a rounded swimming pool of 5m-diameter.

Access to life-saving equipment

1. A large embarkation deck is arranged to enable fast and easy embarkation to free-fall lifeboat.
2. Easy embarkation of injured person on the stretcher is possible.
3. Easy access to the rescue boat and davit launched liferaft is arranged.
4. A store for safety equipment is arranged near the rescue boat.

WORK ON DECK

Safety for stevedores

Very often the lack of suitable and safe access to lashing workstations creates costly delays in stevedoring operation. More important, it is also the most common cause of accidents of stevedores onboard container ships. The financial implications of any such accident are obviously profound.

To minimise the risk for those who have to work on these vessels hatch covers and lashing platforms will create one continuous plan. In addition fixed railings protected by high guides against damages by containers will be arranged.

Loading of stores and provisions

1. The ship will be equipped with combined lifesaving/store crane located on the Poop Deck PS.
2. The arrangement of storerooms, provision stores and garbage bins enables direct and easy transport using a/m crane.

ENGINE ROOM

Depending of required speed the ship can be provided with different common-rail engines. The 8RT-flex60C is foreseen for the vessel basic version.

The Engine Control Room (ECR) with the emergency escape on the fore bulkhead is located on PS.

Five diesel generators are located in the aft of the engine room in order to simplify exhaust pipes. Transport way is foreseen to take out any generator through the maintenance hatch in the Main Deck.

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Note: All data preliminary and subject to further design development.