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1500cbm Split Hopper Barge



Listing ID - 4180

Description 1500cbm Split Hopper Barge

Date June, 2022

Launched

Length 69.50m (228ft)

Location China

Broker Franklin Taylor
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Price USD 2.5 million

Ship Type

The ship is made of steel, with continuous single deck, raised fore and aft decks and aft deckhouses, inclined bow and mud tanks as longitudinal frame type, the head and tail are all-electric welding structure, single bottom, double propeller, double rudder, tail type, double diesel engine driven. Open body mud barge.

Navigation Area and Use

The navigation area of this ship is the sea navigation area, which is mainly applicable to major ports along the coast of my country (excluding navigation in B-class ice areas). load Transport engineering waste, construction sediment, etc., the stowage factor is 0.58 ~ 0.96m³/t.

Classification, Rules and Regulations

The design and construction of the ship's hull structure, outfitting equipment, electrical machinery and all installations shall be inspected by ZC. The hull, machinery and equipment of this vessel are maintained in accordance with the following rules, regulations and all amendments in force at the time of signing the construction contract Design and build:

China Classification Society (CCS) "Code for Construction of Sea-going Ships in Domestic Voyages" (2021). China Classification Society (CCS) Rules for Materials and Welding (2021).

Maritime Safety Administration of the People's Republic of China (CHINA MSA) Technical Regulations for Determining Inspections (2020).

Date Launched: June, 2022

Total Long: 69.50m

Tonnage Deck Length: 68.93m

Length Between Vertical Lines: 65.80m

Continued Sail Force: 96h

Ferry Member: 13P

Waterline length: 68.76

Length Between Two Columns: 66.36

Type Width: 14m

Type Deep: 5.15m

Eat Water: 4.05m

Rib Distance: 0.65m FR22-Fr88, 0.60m other

Row Water Quantity: 3399.7t

Square Coefficient: 0.8780

Waterplane Coefficient: 0.9913

Beam Arch: 0.20m

Main Engine: 808hp x 2

Host Model: 8170ZC450-1 Weichai

Host Speed: 1000 r/min

Tooth Wheel Box: JD600A Hangzhou is developed

Reduce Speed Compare: 4.7:1

Crew Number: 12 Persons

Main deck to fore and aft raised deck: 0.80m

Living Deck to Captain's Deck: 2.60m

Captain's Deck to Driving Deck: 2.40m

Flying Deck to Compass Deck: 2.40m

GT: 1550

NT: 868

Main Hull

The ship has 7 watertight transverse bulkheads: FR2, FR6, FR18, FR21, FR89, FR92, FR96. Longitudinal of the whole ship. The port and starboard sides are completely independent and separate, and one inclined mud bulkhead is provided on the starboard and starboard sides of the FR21~FR89 area. In the distance A vertical longitudinal bulkhead is to be provided at each point of 3000mm.

Below the main deck of the ship:

The middle of the stern-FR2 is the sundries tank (left and right), and the side is provided with fresh water tanks (left and right). FR2-FR6 platforms are equipped with NO.3 ballast water tanks (left and right) on the upper side, and upper deck stairway is set in the middle; cooling is provided under the platform Tanks (left, right). FR6-FR18 are engine rooms (left and right), of which FR15-FR18 are equipped with diesel tanks (left and right) from midship to 3.5m from midship. FR16+200-FR18 Escape port is provided at the side. The middle of FR18-FR21 is the rear cylinder compartment (left and right), and the No.2 ballast water tank (left and right) is set on the side. The middle of FR21-FR89 is the mud tank area. FR21-FR89 mud tank sloping plate is as follows:

FR21-FR38 are side ballast tanks 2 (left and right)

FR38-FR55 are NO.4 empty compartments (left and right)

FR55-FR72 are NO.3 empty compartments (left and right)

FR72-FR89 are side ballast tanks 1 (left, right)

The middle of FR89-FR92 is the front cylinder compartment (left and right), and the NO.2 empty compartment (left and right) is set on the side.

FR89-FR92 platforms are equipped with NO.1 voids (left and right), with chain lockers inside; under the platform are NO.1 ballast tanks (left, right) right).

FR92-The first forepeak cabin ((left, right).

Above the main deck of the ship:

FR2-FR5 is equipped with 1 CO2 room and 2 cabin sheds. The cabin sheds are provided with down-engine stairways.

FR5 main deck port and starboard Set up a life raft. FR6-FR18 has three deckhouses between deck height.

The living deck is equipped with 1 kitchen, dining room, toilet, stairway and 5 crew quarters. The ship's galley uses an electric stove. The captain's deck is equipped with the captain's room, the chief engineer's room, the chief officer's room, one toilet, one stairway, and three crew rooms. The driving deck is equipped with a driving cab and driving equipment, 1 reporting area, 1 stairway and 2 crew cabins. One signal mast and one main magnetic compass are set on the compass deck; one mast is set on the bow raised deck. FR21-FR89 The hatch coaming height of cargo hold area is 0.80m.

Structure

This ship is a stern type steel self-propelled open-body mud barge in the coastal navigation area, with double engines, double propellers and double rudders. Longitudinal in the mud tank area of the Skeleton structure, the rest are horizontal skeleton structure. Main hull plates and sections are made of CCSA grade marine carbon steel. CCSD is used for special components such as bulkhead stools in oil tank compartments. Grade marine carbon steel. The bow post of this ship is welded with steel plates, and the stern post is welded with steel plates. The hull structure welding is carried out according to the "Hull Structure Welding Method and Welding Specification Table". Hull Structure Specification Calculation Book and related structural drawings.

Main Equipment

Anchoring and mooring equipment

Anchor Equipment

(1) Anchor: C-type Spek Anchor with 2 ports (one of which is for spare), one anchor for each of 1596kg and 1430kg.

(2) Anchor chains: 2 CCS AM3 ϕ 32 electric welding head anchor chains with gears, total length 412.5m, 15 sections in total.

(3) Windlass: 1 set of hydraulic windlass YMA-32 (split) from Wenling Bingang Windlass Factory.

Mooring equipment

(1) Towline: 1 piece of 24 ZAB 6*37S + FC 1570 ZS 298 fiber core galvanized steel wire rope, length 180m, Breaking load $\nless277$ KN.

(2) Mooring rope: 4 Φ 32*8 polypropylene filaments, each with a length of 140m and a breaking load of $\nless117$ kN.

Lifesaving Equipment

(1) Life raft

The ship's main deck is equipped with 15 inflatable self-righting life rafts each.

(2) Life jackets and buoys

The ship is equipped with 3 lifebuoys with self-lighting lights, 3 lifebuoys with lifebuoy lines, 19 life jackets (with life jacket lights), 13 immersion suits.

(3) Rope throwing equipment

The ship is equipped with 1 life-saving rope throwing gun, 4 rope throwing guns, rocket bodies and triggers, which are placed in the cab.

(4) Pyrotechnic signal equipment

The ship is equipped with 12 rocket parachute flame signals, which are placed in the wheelhouse.

(5) 3 two-way VHF telephones, placed in the cab.

- (6) One emergency position indicator, placed on the compass deck.
- (7) Two radar transponders, placed in the cab.
- (8) 1 day signal light, placed in the cab.
- (9) 2 sets of landing and recovery devices.

Firefighting equipment

- (1) Water cage with box

Equipped with 9 fire hydrants and hose boxes, arranged in the engine room and on each deck.

- (2) Fire extinguisher

The whole ship is equipped with 2 45L boat-type foam fire extinguishers, 2 20L portable foam spray guns, and portable dry powder fire extinguishers 17, portable CO2 fire extinguishers.

- (3) 2 fire pumps.

- (4) 5 sand boxes, 7 fire buckets, and 4 peace axes.

- (5) Fireman's Equipment

The ship is equipped with 1 set of fireman's equipment box, which is equipped according to the specifications and placed in the main deck room.

Rudder System

- (1) Rudder

Rudder Blade Area A: 4.07m²

Number of Rudders: 2

Aspect Ratio: 1.255

Balance Ratio: 0.243

- (2) Servo

The ship uses a hydraulic steering gear with a nominal torque of 30KN.m.

- (3) Rudder stock

The diameter of the rudder stock of this ship is 150mm.

Propeller

Propeller Diameter D: 2.10m

0.7R Pitch Ratio P/D: 1.273

0.6R Pitch Ratio P/D: 1.273

0.25R Pitch Ratio P/D: 1.489

Disk Ratio $A_d = A/A_0$: 0.43

Monitor Rate Ne: 330kW

Host Speed: 1000r/min

Propeller Speed ne: 212.766 r/min

Number of blades Z: 4 leaf

Blade caster angle ϵ : 5

Blade width b

b0.25R: 399.953 mm

b0.60R: 493.65mm

Material: Cu3Nickel Aluminum Bronze (CCS)

Blade Material Density G: 7.6 g/cm³

Blade Material Factor K: 1.38

Navigation Signaling Equipment

Navigation and signal equipment are in accordance with the "Statutory Inspection Rules for Ships and Offshore Installations" by the Maritime Safety Administration of the People's Republic of China Statutory survey technical rules for sea-going ships) in 2020, it is required to be equipped for ships in coastal shipping areas.

Navigation Equipment:

1. One voice phone is set on the driving console.
2. 1 set of fire alarm device.
3. A set of tail shaft tachometer is set on the cab.
4. One standard magnetic compass in the bridge and one steering magnetic compass.
5. A set of depth sounder is provided in the cab.
6. A set of GPS satellite navigator is provided on the driving console.
7. A set of ship navigation automatic identification instrument is provided on the bridge.
8. A set of rudder angle indicator on the bridge.
9. There is a radar in the cab, equipped with electronic marker and automatic tracker.
10. One VHF radio telephone is installed in the cab.
11. There are two two-way VHF radio telephones in the cab.
12. There are two radar transponders in the bridge.
13. A satellite emergency radio position indication beacon is installed in the cab.

Signal Equipment:

(1) Radar mast

There is a radar mast on the top of the cab, steel plate welded structure, radar, lightning rod, siren, antenna cross-arm, mast light, Necessary signaling equipment such as out-of-control lights, signal lights, fog lights, etc.

(2) Front mast

The foremast is set on the bow raised deck, and the steel plate welded structure is equipped with foremast lights, anchor lights and other signaling equipment.

(3) Signal equipment

There are: 3 large spheres, 4 flags of No. 4, 1 set of No. 3 international signal flags, 1 hand flag, and No. 1 flag 1 flag, 1 large clock, 1 medium flute.

Ship Performance

Speed

The ship is in the design draft, the main engine is rated power, the deep water tide, the hull is clean and pollution-free, and the wind force does not exceed Beaufort. At level 3, its sea trial speed is not less than 10km/h.

Freeboard and Stability

Freeboard

When the design draft of this ship is 4.05m, the freeboard in summer is 1112mm, which complies with the "Ship and Offshore Facilities Legal Regulations" issued by China Maritime Safety Administration. Inspection Regulations Technical Regulations for Statutory Inspection of Sea-going Ships on Domestic Voyages Calculated minimum freeboard.

Stability

The stability of various loading conditions complies with the "Statutory Inspection Rules for Ships and Offshore Installations" of China Maritime Safety Administration (Domestic sailing sea Statutory Survey Technical Regulations for Ships) Requirements for Cargo Ships Navigating in Coastal Shipping Areas in Part 4 of 2020.

Spare parts and accessories

The spare parts and attachments specified in the specifications are complete, and the random spare parts of mechanical and electrical products that exceed the requirements of the specifications and the spare The shipyard is put in place.

Escalator, Handrail, Handrail

Escalator

The indoor inclined ladder on each deck adopts 55 0×700 steel inclined ladder and marine steel A-20 straight ladder, inclined ladder pedals are provided with anti-slip and equipped with steel pipe handrails.

Bulwarks, railings

Above the main deck, a high bulwark with a height of 1000mm and a plate thickness of 6mm shall be installed at the fore and aft ends. The deckhouse is surrounded by a height of 1000mm Railings, flat steel pillars, round steel handrails. The spacing of railings shall meet the requirements of 2.19.3 of the specification.

Armrests

All the inside and outside walkways of the ship are equipped with steel pipe wave-proof handrails.

Outfitting Part of the Cabin

Accommodation compartment

The crew room for the crew to live is equipped with beds, wardrobes, writing desks, chairs, etc. public premises. There is a kitchen and dining room as public spaces in the quarter deck interior.

Bathroom

There is a bathroom on the main deck aft, equipped with showers, washbasins, etc.

Toilets

There are toilets on the main deck aft, with washbasins and toilets.

Canopy and Canvas Cover

Part of the FRP canopy is provided at the rear of the aft deckhouse and on the starboard and starboard sides of the pilot deckhouse. Open deck machinery, life rafts, compasses, etc. shall be protected by canvas cloth cover.

Anti-corrosion

The ship adopts zinc anode corrosion protection.

Paint

The paint is in accordance with the practice of the construction factory, and the following regulations may also be referred to:

Hull: two degrees of aluminum powder primer below the waterline, one degree of anti-rust paint, two degrees of anti-pollution, waterline 12 hours before launching, anti-rust paint

Two degrees of rust paint, two degrees of waterline paint. Above the waterline: 2 degrees of anti-rust paint, the color of the topcoat is determined by the construction factory and the shipowner. The use of paint should be in accordance with the manufacturer's regulations, usually should not be diluted, and all pipeline identification signs are determined in accordance with CB3033.

Anti-pollution System

Engine room bilge water treatment system:

The ship's left and right engine rooms are equipped with a CYF-0.25 type bilge oil and sewage separation device. The bilge oil and sewage separation device will. The bilge water in the engine room can be discharged overboard after treatment, the discharge standard is ≤ 15 PPm, the discharge capacity is 0.25m³/h, and the automatic or drain the oil manually. In accordance with the "Revised Ship Machinery Space Bilge Water Pollution Prevention Equipment" adopted by resolution MEPC.107(49) Guidelines and Technical Conditions". The ship is also equipped with a slop oil tank with a capacity of 0.45m³. The slop oil is discharged into the slop oil tank. The slop oil in the oil tank is discharged to the designated place overboard by the slop oil hand pump.

Domestic sewage treatment system:

Indoor basins, drain pipes of sinks, kitchens, toilets and other places where water is prone to accumulate, set up drains layer by layer from top to bottom. In the permitted sea area, it is discharged to the overboard through the

bypass pipe through the anti-wave valve, or stored in the domestic sewage storage in the forbidden area. Inside the tank (the volume of the domestic sewage storage tank of the ship is 9.5 m³, and it is located in the right engine room). The ship has life in the right engine room 1 sewage treatment device, the domestic sewage pipes of the whole ship are discharged down to the domestic sewage treatment device layer by layer. Discharge overboard below the waterline after treatment. If the port management authority prohibits the discharge of all domestic sewage from ships in port, it may. The domestic sewage is stored in the domestic sewage tank, and then discharged overboard by the sewage crushing pump in the allowed sea area.

Prevention system of ship garbage pollution

The ship has four 100L garbage collection boxes for collecting ship garbage. Garbage can be collected according to kitchen waste, recyclable Garbage (plastic, metal, waste paper, etc.), hazardous garbage (oily garbage, waste batteries, lamps, etc.) and other garbage (cigarettes) head, disposable tableware, etc.) are sorted and collected, and the collected ship garbage needs to be packaged to facilitate the berthing of ships. Recycling on shore, refuse collection bins should be located in a well-ventilated location.

Basic requirements for ship design:

The design and arrangement of the necessary mechanical equipment of the ship conform to the requirements of the ambient temperature in the following table of the specification, which can ensure its can operate normally.

Atmosphere

Indoor: 0 to 45°C

In specific premises or on machinery: According to the actual temperature of a specific space or equipment

Open Deck: -25 to 45

Seawater

All locations: 32

Absolute atmospheric pressure: 0.1MPa

Ambient temperature: 45°C

Relative humidity: 60%

Seawater temperature (at the inlet of the intercooler): 32°C

Main Machinery and Equipment of Turbine

Main Diesel Unit: 2 sets

Diesel Engine: 2

Type No.: 8170ZC450-1

Cylinder Diameter: 170mm

Piston Stroke: 200mm

Number of Cylinders: 8

Type: In-line, four-stroke, water-cooled, supercharged and intercooled

Continuous Power: 808kw

Continuous Speed: 1000rpm

Fuel: Light diesel oil (provides high pressure fuel leakage protection and fuel failure alarm device)

Fuel consumption rate at continuous power: ≤197g/KW.h

Oil consumption rate at continuous power: ≤0.5g/KW. h

Start mode: Compressed air start

Reduction Gearbox

Quantity: 2

Type No.: JD600A
Speed Ratio: 4.7 : 1
Transfer Ability: 0.460KW/r/min

Generator set
75KW diesel generator
Quantity: 1 set
a. Diesel Engine: 1
Model: WP4CD100E200
Continuous Power: 90 kW
Continuous Speed: 1500 rpm
Fuel: Light diesel oil
Fuel Consumption: $\leq 198\text{g/KW.h}$
Oil Consumption Rate: $\leq 1.36\text{g/KW.h}$

b. Generator
Quantity: 1 unit
Model: SB-HW4.D-75
Calibration Power: 75kW
Type: Three-phase AC
Voltage: AC400V
Current: 135A
Frequency: 50Hz

50KW Diesel Generator Set
Quantity: 1 set
a. Diesel engine:
Quantity: 1
Model: YC4D85Z-C22
Continuous Power: 60kW
Continuous Speed: 1500 rpm
Fuel: Light diesel oil
Fuel Consumption: $\leq 198\text{g/KW.h}$
Oil Consumption Rate: $\leq 1.36\text{g/KW.h}$

b. Generator
Quantity: 1 unit
Model: SB-HW4.D-50
Calibration Power: 50 kW
Type: Three-phase AC
Voltage: AC400V
Current: 90A
Frequency: 50 Hz

30KW Diesel Generator Set
Quantity: 1 set
a. Diesel engine
Quantity: 1
Model: WP2.3CD40E200
Continuous Power: 36KW

Continuous Speed: 1500rpm
Fuel: Light diesel oil
Fuel Consumption: $\leq 198\text{g/KW}\cdot\text{h}$
Oil Consumption Rate: $\leq 0.8\text{g/KW}\cdot\text{h}$

b. Generator

1 unit
Model: SB-HW4.D-30
Calibration Power: 30 kW
Type: Three-phase AC
Voltage: AC400V
Current: 54A
Frequency: 50 Hz

Shaft Generator

Quantity: 1
Model: STC2-30-4H
Calibration Power: 30 kW
Type: Three-phase AC
Voltage: AC400V
Current: 54.1A
Frequency: 50 Hz

Air Compressor

1 unit
Model: CZF-21.6/3
Displacement: 21.6 m³/h
Rated Pressure: 3.0 MPa

Oil and Sewage Separation Device

2 units
Model: CYSC107A-0.25
Processing capacity: 0.25m³/h
Emission standard: $\leq 15\text{PPM}$

Domestic Sewage Treatment Device

1 unit
Model: SWCM-15
Applicable people: ~15 people
Rated processing capacity: 1.05m³/d Organic load: 0.53 kg/m³·d

Other Equipment

Total pump: 2 x 80CBZ-42 60m³/h, 0.42MPa, 2900rpm, 15KW
Bilge Ballast Master Pump: 2 x 80CBZ-21 60m³/h, 0.21MPa, 2900rpm, 7.5KW
Domestic water pump: 2 x 32CBZ-21 , 8m³/h, 0.21MPa, 2900rpm, 1.5KW
Fuel transfer pump: 2 x KCB-55 , 3.3m³/h, 0.33Mpa, 1400rpm, 1.5KW
Engine room ventilation unit: 4 x CZ-50B, 9000m³/h 685Pa (full pressure), 3KW
Crushing Pump: 1 x 0.5PWF-25 5m³/h, 0.25MPa, 2845rpm, 2.2KW

Cabin layout

1. Engine room location: The left and right engine rooms are respectively located between the #2 bulkhead ~ #18 bulkhead of the left and right pieces, with a length of 9.60 meters.
2. There are 2 entrances and exits in the engine room: one escalator is installed at the rear of the engine room for the left and right engine rooms to lead to the main deck, and the escalator is located at the #2~#5 rib. Longitudinal arrangement between the other left and right engine rooms, one engine room emergency escape channel is set at the front of the engine room to lead to the main deck, located in engine room #16 # 18 Between the ribs, the escape passage is equipped with a self-closing fire door.
3. A subsea valve box is installed on the left and right sides between the ribs #14~#15 of the left and right engine rooms to connect with the seawater main pipe.
There is a seawater collecting tank in the middle of the cabin, which is connected to the seawater main pipes on the left and right sides of each engine room.
4. The main engine and gear box are arranged at a distance of 3.50m from the midship, and are arranged longitudinally symmetrically between #8~#14 ribs; the telegraph bell is placed in the main engine above the control mechanism.
5. The left engine room is equipped with: main engine, gear box, shafting, 75kW diesel generator set, main pump, bilge ballast main pump, fuel oil transport feeding pump, fuel hand pump, daily fuel tank, oil-water separator, dirty oil hand pump, dirty oil tank (located under the steel plate), lubricating oil storage, storage cabinet, main switchboard, air compressor, miscellaneous air bottle, daily fresh water pump, starting battery pack for main and auxiliary engines, tail shaft lubricating oil tank, tail shaft Axle oil pump, etc. The right engine room is equipped with: main engine, gearbox, shafting, 50kW diesel generator set, 30kW diesel generator set, shaft generator, total use pump, bilge ballast master pump, fuel oil transfer pump, fuel hand pump, fuel daily tank, oil-water separator, dirty oil hand pump, slop oil tank (located under the steel plate), lubricating oil storage tank, main switchboard, domestic sewage treatment device, crushing pump, domestic sewage storage cabinets, daily fresh water pumps, starting battery packs for main and auxiliary engines, stern shaft lubricating oil tanks, stern shaft lubricating oil pumps, machine repair equipment (benchtop drilling machines, sand Turbines, bench vices, workbenches, etc.), etc.
6. The left and right engine rooms are equipped with 2 portable dry powder fire extinguishers, 2 portable carbon dioxide fire extinguishers, and cart-type foam fire extinguishers (45L) 1, 1 portable foam spray gun device.

Shafting

The ship's propulsion shafting is double engine and double propeller. The main engine drives the shaft system and the propeller after the gear box is decelerated through the elastic coupling. Shafting The centerline is parallel to the hull baseline, 1150mm from the baseline. Each set of shafting consists of an intermediate shaft and a propeller shaft. stern tube shaft

The bearing is oil-lubricated, and lubricating oil is provided by the stern shaft gravity oil tank. There are two white metal bearings in the stern shaft tube, and the skeleton oil seal is adopted. Axle and bow and stern seals. The complete set of shafting products and components are to be approved by the corresponding surveyor or certificate of ship inspection. The ship's propulsion system is installed with a reliable grounding device.

Power Piping System

1. Fuel piping system

The fuel systems of the left and right panels of the ship are independent of each other. The main engine and 3 auxiliary diesel units all use light diesel oil. The ship is equipped with fuel oil tanks and daily fuel oil tanks. The fuel tank and daily fuel tank are equipped with quick-closing valve, and the fuel quick-closing valve control box cloth placed outside the cabin exit for remote closing. When the main engine needs to supply fuel, the fuel pump in the fuel tank is sent to the daily fuel tank through the conveying function of the electric fuel pump/fuel hand pump. The fuel oil is supplied from the daily fuel tank to the main engine and the auxiliary diesel engine in the engine room by means of gravity through the double filter; drain the dirty oil to the dirty oil tank. The main engine fuel pump of this ship is also equipped with a complete set of spare pumps which is easy to install and connect, which is convenient for the main engine. Replace the fuel pump quickly when it fails. Main and auxiliary engine manufacturers should provide high pressure fuel leakage protection and fuel failure alarm devices.

2. Oil piping system

The lubricating oil systems of the left and right fins of the ship are independent, and there is a lubricating oil storage tank in the left and right engine rooms. Oil tank with quick closing The valve, the quick-closing valve control box is arranged outside the engine room outlet for remote closing. The lubricating oil systems of the main and auxiliary diesel engines of the ship are of wet sump type, the lubricating oil is stored in the oil sump of the diesel engine, and the machine is sucked by the oil pump to form a closed circulation pipeline. It only needs to check the oil level regularly, and replenish and replace the lubricating oil. host of the ship. The lubricating oil pump is also provided with a complete set of spare pumps that are easy to install and connect, which is convenient for quick replacement when the main engine lubricating oil pump fails. Before starting the main engine, use the hand pump (with random belt) for priming oil. The system is equipped with low-pressure and over-temperature alarm devices for lubricating oil. The gearbox lubricating oil is an independent lubricating system, and it only needs to check the oil level regularly and replenish and replace the lubricating oil. The stern shaft and stern tube of the shaft system are supplied with lubricating oil by gravity from the stern shaft gravity oil tank, and the hand pump can fill the stern tube with oil. The ship's dirty oil is stored in the dirty oil tank. The dirty oil in the dirty oil tank is discharged to the designated place overboard by the dirty oil hand pump.

3. Cooling water piping system

The cooling water systems of the left and right panels of the ship are independent, and the left and right engine rooms are equipped with two seawater doors, equipped with corresponding subsea valves and filters. The seawater door is connected by the seawater main pipe. The flow area of the seawater inlet grille shall not be less than 4 times the cross-sectional area of the seawater main pipe seawater. The top of the box is provided with a vent pipe leading to the open deck.

Main and auxiliary seawater cooling system:

The seawater pump of the main engine sucks water from the seawater main pipe, and the water from the pump goes all the way to the intercooler of the main engine, and the seawater from the intercooler passes through oil cooler and fresh water cooler to outboard. Another way to gearbox oil cooler to outboard. The auxiliary engine is equipped with a seawater pump, and the seawater is sucked by the auxiliary seawater pump to cool the diesel engine of the generator set and then discharged outboard.

Main and auxiliary fresh water cooling system:

The fresh water circuit for cooling the main engine is composed of coolers, water pumps, etc., and the cooling water circulates in the circuit. The host comes with fresh water 1 expansion tank, the whole system should be filled with fresh water before work. Make sure the host is running safely. A drain valve is installed at the lowest position of the fresh water cooling pipe system to prevent the pipe system from freezing and cracking during shutdown in severe winter. The diesel engine of the generator set comes with a fresh water pump, a fresh water cooler and an expansion water tank. As long as enough fresh water is added, it can work. The consumption water for cooling the main and auxiliary machines is supplemented by the fresh water expansion tank. When the main sea water pump is damaged, the general service pump can be used for temporary emergency water supply. The main engine sea and fresh water pump of the ship is also equipped with a complete set of spare pumps that are easy to install and connect, which is convenient for the main engine sea and fresh water pump. Quick replacement in case of failure.

4. Exhaust pipe system

Each main engine and auxiliary diesel engine is equipped with an independent exhaust system. The exhaust of the main diesel engine is exhausted to the rear through the expansion joint and the dry muffler. Atmosphere; auxiliary diesel exhaust is discharged to the atmosphere through expansion joints and dry-type fire extinguishing star mufflers. Main and auxiliary diesel exhaust pipes are wrapped Insulating material so that its surface temperature does not exceed 60°C. There is a drain plug at the lowest level of the exhaust pipe. Expansion joints and elastic supports are arranged at appropriate pipe sections of the exhaust pipe. There are rainwater, Condensate discharge pipe, so

that water can be discharged directly to the bilge. There is a water outlet at the lower end of the muffler to discharge the sewage accumulated in the muffler to cabin bilge.

Ship Piping System

Water fire extinguishing system

The whole ship is equipped with water fire extinguishing system. There is a main pump (model: 80CBZ-42, 60m³/h, 0.42MPa, 15kw), supply water for the whole ship's water firefighting system, the left engine room fire pump is powered by the left engine room switchboard, and the right engine room fire pump is powered by the right engine room. The electric panel is powered, and the discharge pipes of the main pump in the left and right engine rooms are connected by hoses on the main deck. The fire in the left engine room will not cause the right engine room. The fire pump is disabled, and a fire in the right engine room will not disable the fire pump in the left engine room. The fire pump draws water from the seawater main. on-board. Fire hydrants are provided in the cabin, main deck and driving deck, and the hydrants meet the requirements of the specification. The general pumps of the left and right slices are spare for each other. The whole ship is equipped with 2 international shore connection joints for fire water on the main deck. In addition, fire water can also be used for flushing decks and anchor chains.

Bilge water system and ballast water system

Each of the ship's left and right hulls is equipped with a total pump (model: 80CBZ-42, 60m³/h, 0.42MPa, 15kw), total bilge ballast 1 pump (model: 80CBZ-21, 60m³/h, 0.21MPa, 7.5kw), there are fixed bilge suction and pipes in each bottom tank of the ship. The engine room is also provided with a suction port leading directly to the bilge pump, and the bilge water suction port of each cabin is equipped with a filter screen (the engine room bilge water branch suction pipe and the straight. The bottom pump suction port is provided with a mud box, without a filter). The number and arrangement of suction ports of the bilge water system are to be set in accordance with the requirements of the specification. bilge water The bilge ballast general pump of each piece is discharged overboard, and the general pump of the same piece is used as a backup pump.

Domestic water pipe system

The ship's seawater tank is located on the compass deck for daily use such as flushing toilets, domestic sewage treatment devices, and domestic sewage storage cabinets. The fresh water tank is located on the compass deck, for the main and auxiliary engine expansion tanks and the kitchen, toilet, crew room, oil-water separator, domestic sewage For daily use such as water treatment devices, the ship is equipped with electric water heaters on the main deck and captain deck to provide daily needs on board hot water.

Engine room ventilation piping

The ship's left and right engine rooms are mechanically ventilated, and two CZ-50B ventilators are installed on the starboard and starboard sides of the main deck, with a total of 4 2, 2 serving the left cabin and 2 serving the right cabin, with an air volume of 9000 m³/h, the total pressure is 685Pa, and it passes through the air duct And the tuyere, send fresh air to the side of the main machine, for the main machine to burn. It is reversible and can be used for ventilation when necessary.

Drainage piping system of the whole ship

All exposed decks of the main hull of the ship are provided with deck drains, which can fully drain water and ensure the safety of ship navigation. Relevant normative requirements of "Code for Construction of Sea-going Ships on Domestic Voyages" (2021).

The whole ship injection, air and measurement piping system

All airtight compartments and containers of this ship are equipped with ventilation and measurement piping systems, which can monitor and ensure the safety of airtight compartments and containers. Fresh water, fuel oil and lubricating oil tanks are also provided with corresponding injection and suction piping systems, which can fully meet

the use requirements of ship navigation and meet the Comply with the relevant normative requirements of the Rules for the Construction of Sea-going Ships on Domestic Voyages (2021).

Carbon dioxide fire extinguishing system

The ship's carbon dioxide fire extinguishing system (fixed) is used for fire extinguishing in the left and right engine rooms. In the event of a fire in the engine room, use a portable fire extinguisher. When the fire extinguisher can no longer put out the fire, use the fixed carbon dioxide fire extinguishing system to put out the fire, close the inlet and outlet of the fan and the cabin, and cut off the oil circuits. There are visual and audible automatic alarms for release of extinguishing agent, which can be set so that they can be adjusted with all machines running.

Can be heard from every cabin. The sound of this alarm is different from other alarm sounds.

Engine room fire extinguishing is equipped with 4 68L CO₂ cylinders, and the cylinders are assembled in the CO₂ room on the main deck.

Anti-pollution System

Engine room bilge water treatment system

The ship's left and right engine rooms are equipped with a CYSC107A-0.25 type bilge oil and sewage separation device. The bilge oil and sewage separation device will be the bilge water in the engine room can be discharged overboard after treatment, the discharge standard is $\leq 15\text{PPm}$, and the discharge capacity is $0.25\text{m}^3/\text{h}$, automatic or manual oil drain. It complies with the "Revised Guidelines and Specifications for Anti-pollution Equipment for Bilge Water in Machinery Spaces of Ships" adopted by resolution MEPC.107(49) own ship. There is also a dirty oil tank with a capacity of 0.45m^3 , the slop oil is discharged into the slop oil tank, and the slop oil in the slop oil tank is discharged from the ship by the slop oil hand pump designated location outside.

Domestic sewage treatment system

Indoor basins, drain pipes of sinks, kitchens, toilets and other places where water is likely to accumulate, set drains from top to bottom layer by layer downwards. The permitted sea area is discharged to the overboard through the bypass pipe through the anti-wave valve, or stored in the domestic sewage storage tank in the prohibited area (the ship's domestic sewage. The volume of the sewage storage tank is 9.5 m^3 , located in the right cabin). The ship is equipped with one domestic sewage treatment device in the right engine room. The domestic sewage pipe is discharged layer by layer down to the domestic sewage treatment device, and the domestic sewage is discharged overboard under the waterline after treatment. such as port management The management agency prohibits the discharge of all domestic sewage from ships in port, and can store the domestic sewage in the domestic sewage tank, and then store it in the allowed sea area. It is discharged overboard through the sewage crushing pump.

Air pollution prevention system

Diesel engines with rated power greater than 37kW must meet GB15097-2016 "Marine Engine Exhaust Pollutant Emission Limits and Measurements"

Main and Auxiliary Machine Remote Control, Detection and Alarm

The main engine of this ship is equipped with a main engine remote control device. The device can meet the requirements of the remote control propulsion main unit in the cab and the manual control propulsion beside crew requirements. The main engine remote control mechanism and monitoring instruments are installed on the console of the cab. The main engine group can be accessed from the cab speed regulation, reversing, stopping and other operations are performed, and the start of the main engine is completed in the engine room. At the same time, after the conversion, the host can be operated locally next to the host Group speed, reversing and stopping, and a set of emergency clock device is set between the cab and the engine room.

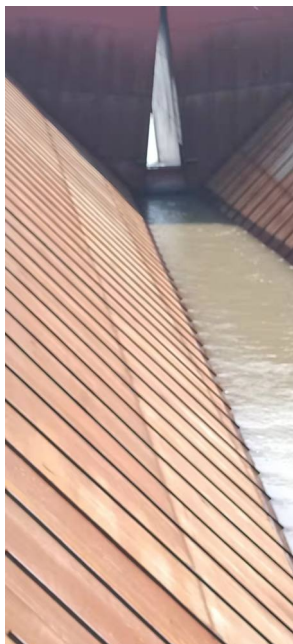
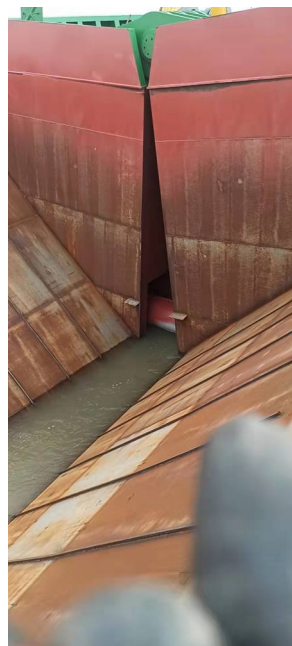
Steering Gear

This ship adopts Xinghua Haida Hydraulic Machinery Co., Ltd.DYB-30/28STwo sets of swing cylinder type electro-hydraulic steering gear, the nominal torque is 30KN.m. The system uses a solenoid valve to control the open

hydraulic circuit, and the oscillating piston and oil cylinder are respectively rotated through the tiller rod. Move two rudder blades to achieve the purpose of maintaining and manipulating the ship's navigation. This ship is provided with auxiliary steering gear which is operated by a man force operation. In the event of an emergency, the manual isolation valve can be closed and the steering can be turned to manpower assistance. The steering system shall have a synchronizing device, make it control the two rudder blades the same. The rudder oil pump, piping and other related components are to be arranged independently; the power piping is to be arranged so that each the switching capability between sets is to be carried out effectively; the steering gear compartment is to be properly arranged to ensure that there is a working passage leading to the steering machinery and controls. The ship is equipped with failure alarms such as power failure, phase failure and overload of the steering gear. In addition to the sound and light alarms set in the bridge, the alarms are also set in the main engine. Visual and audible alarm signals are also arranged at obvious positions in the space. The steering gear is equipped with controllers in both the cab and the steering gear compartment. Between the steering gear compartment and the cab1A voice phone.

This ship is a new-build ship, which is an open-body mud barge propelled by steel, double-piece body, and double-machine and double-propeller. The ship's engine Partly complies with MSA "Technical Regulations for Statutory Surveys of Sea-going Ships on Domestic Voyages("2020) and CCS Rules for Construction of Sea-going Ships on Domestic Voyages (2021) for the design of the relevant normative requirements. The ship is propelled by two engines and two propellers. The indirect transmission mode in which the propeller is driven by the diesel engine through the reduction gear box through the shaft system, The main engine can be operated remotely from the cab and beside the machine. The ship is equipped with 2 main diesel generator sets, 1 mooring diesel generator set, and 1 main engine shaft generator as the ship's electricity Station, power supply to the electrical equipment of the whole ship, and serve various operational requirements of navigation and berthing conditions.



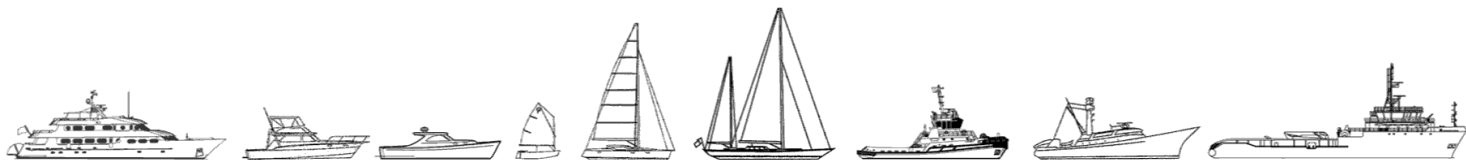








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