
Section 1- General

1.1 Intent & Definition

This specification together with the drawing, G-100-01, is to describe the construction of a double hull and double bottom manned oil barge suitably equipped for carrying product oil for unrestricted service.

1.2 General Description

The vessel shall be all welded steel construction. It shall be of flush deck and twin skegs. The hull is divided by eight (8) transverse watertight bulkheads and one (1) longitudinal watertight bulkhead to form twelve (12) cargo tanks and two(2) slop tanks.

1.3 Principal Particulars

Length: 82.35 M (270Ft)

Beam: 22.32 M (73Ft)

Depth: 6.10 M (20Ft)

Draft: 4.35 m

Deadweight: abt.

Capacity: abt. 5750m³ (INCLUDE SLOP TANK)

1.4 Flag

The barge shall be registered under the INDONESIA Flag by the Owner. The Builder shall assist the Owner in providing information and data on vessel, required by relevant Authorities for the registration.

1.5 Classification

The vessel is designed to be register as a Oil Barge and constructed in accordance with the latest rules and regulation of BV (hereinafter referred to as Classification)

Class notation : I ✕ HULL

● MACH

OIL BARGE, FLASH POINT > 60°C

UNRESTRICTED NAVIGATION

UNMANNED

1.6 Certification & registration

The following Original certificates are to be supplied to the Owner in duplicate at the time of delivery of the vessel. Should original and duplicated copies not available, certified true copy is acceptable:

Builder Certificate
Classification Certificate
Safety Construction Certificate
Tonnage Certificate
Load line Certificate

1.7 Welding

Except where specified otherwise, electric welding shall be employed in the construction of the vessel. All welded constructions shall be shown on the approved plans and in accordance with the requirements of the Classification Society for construction of steel vessels. The entire internals shall be fully welded both sides. All electrodes used shall be of type approved by the Classification Society.

1.8 Materials & Workmanship

All materials and workmanship are of good quality. All steel plates and sections shall meet Classification requirements and supplied with certificates where required by Classification. All rough edges to be around ground smooth.

1.9 Inspection

Throughout the construction period and at any time prior to the delivery, the Classification's Surveyors and Owner's Representatives are to be given free access, within normal working hours, to the builder's yard for supervision and inspection.

1.10 Test

Prior to the delivery, the hull and other fittings are to be tested to the satisfaction of the Classification's attending surveyor.

1.11 Stability

A stability booklet is to be prepared based on estimated lightship weight or results from lightship survey if required by the Classification and/or by Buyer.

Section 2 – Structure

2.1 General

The steel hull and deck house are of all welded construction. Longitudinal framing system is used. Double hull and double bottom are to be arranged in cargo tank area. Listed herein under is a general guide. Refer to structure drawings for size of structure.

2.2 Plating

Bottom	:	12mm
Double Bottom /Tank Top	:	9mm
Main Deck	:	10mm
Side Shell	:	12mm
Round bar (Double Chine)	:	Dia 50mm
Inner Side Shell	:	9mm
Longitudinal/Transverse Bulkhead	:	9mm
Deck House	:	8mm
F.W Tank & F.O Tank	:	6mm

2.3 Stiffener

Deck Longitudinal	:	L100x75x9
Bottom Longitudinal	:	L150x90x9
Side Longitudinal	:	L125x75x10
Long. Bhd Longitudinal	:	L125x75x9/125x75x10
Transverse Bhd	:	L125x75x9

2.4 Transverse Webs

Deck transverse	:	380x100FLGx9
Deck Girder	:	380x100FLGx9
Bottom Girder (Fr0-3)	:	460x150FLGx9
Bottom Girder	:	16/12.5
Bottom Floor	:	12
Side Floor	:	9
Transverse Bhd VERT.WEB	:	460x150FLGx9
Transverse Stringers	:	460x150FLGx9
Longitudinal Bhd	:	460x150FLGx9
Stanchion	:	HW150X150X7/10

Section 3 – Piping and Machinery

3.1 General

Machinery and equipment installed on the barge shall meet Classification's requirements.

3.2 Machinery equipment

Engine room is located aft on main deck. Following equipments to be located in engine room:

- (1) Two oil cargo pumps : Capacity:350m³/h, head:40m, 1450rpm
- (2) Two diesel engines: to drive the oil cargo pumps, capacity: 99Kw, 1500rpm.
- (3) Two clutch and transmission box: connect cargo pump and diesel engine.
- (4) Two generators: capacity: 30Kw. AC415V,50Hz, IP22
- (5) One GS / fire pump: capacity: 40 m³/h, head:45m, self priming, drive by electric motor
- (6) One bilge pump: capacity: 40 m³/h, head:45m, self priming, drive by electric motor
- (7) Two reversible axial-flows fan, to supply air to the engine room and pump room space.
- (8) One fuel oil day tank: capacity: 12m³
- (9) One electrical panel: including AC415v, AC220v and DC24v

3.3 Piping System

Oil cargo pipe: manifold dia 12" x sch80 1 set
suction cargo pipe dia 8" x sch40 1 lot

F.O pipe : dia 1 1/4" x sch40 carbon steel pipe to be fitted for F.O tank.
1 m3 dirty oil tank is fitted in void tank. It can be transferred to dirty oil tank by hand pump, also be pumped to shore.

Sounding pipe: dia 2" x sch40 carbon steel pipe to be fitted for each void tank.

Air Vent pipe: dia 8" x sch40 carbon steel pipe to be fitted. Each oil tank and void space is to be fitted with at least one vent pipe, which is located at the highest part of the tank. The header is to be fitted with an approved flame arrestor. The header is to be fitted at least 760mm above main deck.

Fresh Water cooling and filling pipe: A fresh water tank of 4 m³ shall be arranged on top of deck house. Diesel engine located in the engine room is to be fresh water cooled.

Fire Fighting pipe: dia 2" x sch40 hot-dipped galvd. m.s. pipe shall be fitted on main deck. Materials readily rendered ineffectively by heat shall not be used for fire mains and hydrants unless adequately protected.

Exhaust pipe: Exhaust pipe shall be arranged. Exhaust piping penetrate the watertight bulkheads, decks or tank tops through methods to maintain watertight integrity.

Ventilation: one axial-flows fan to be arranged for engine room

Valve:

Gate valve (Manifold) dia 12"x10k	1 lot
Gate valve (Suction Cargo) dia 8"x10k	1 lot
Gate valve (Sea/FWT) dia 4"x5k	1 lot
Hydrant valve (Fire) dia 2"x5k	1 lot
Globe valve (Sea water) dia 4"x5k	1 lot
Swing check valve dia 4"x5k	1 lot
Ball valve (F.W / F.O) dia 1 "	1 lot

Section 4 – Outfitting

4.1 General

All outfitting are supplied and installed to meet Classification's requirements.

4.2 Deck Fittings

- Mooring Bollards

Six (6) double bollards of 10" B.N. heavy pipe are fitted on main deck as shown on drawing.

Two (2) single bollards of 10" B.N. heavy pipe are fitted on main deck as shown on drawing.

- Fenders

Fifties(50) pieces of lorry tyres c/w 1000mm dia. Galvanized chain, plastic cover and shackles steel are to be provided.

Fifty (50) small lugs of 15.8mm c/w doublers 15.8mm for lashing of portable tyre fenders welded to deck are to be provided along the side of the vessel.

- Towing Bracket

Tow (2) 50 SWL Schmitt towing brackets are fitted in main deck Fwd (P&S). These brackets shall be fitted with 10ft. x50mm galvanized wire rope.

- Anchor Winch

One (1) diesel engine driven single chain gypsy winch. Diesel Engine Capacity with approximately 10 tones capacity. 110M x 32mm dia. U2 chain.

- Anchor

One (1) 1920kg Stockless bower anchor.

- Manhole

One (1) manhole is to be provided for each void tank, size of manhole to be 600 x 400mm clear opening oval mounted type, studs and nuts to be of stainless steel.

- Hatch

One (1) hatch is to be provided for each oil cargo tank, size of manhole to be dia. 800mm clear opening, height is 600mm, the weight counter should be fitted on the hatch cover.

- Navigation Lights

A complete set of electrical (Low voltage charging/discharging panel or battery operated) navigation lights fitted c/w stands are to be provided as follows. One (1) port light, One (1) starboard light, One (1) stern light, Two(2) anchor lights.

Section 5 Electrical

5.1 Electric system and its prime parameters

Main electric power supply system: AC415V, 50Hz, 3-phase, 3-wire insulation system.

Low voltage system: DC24V, two wires insulation system.

Normal lighting system and navigate lighting system: AC220V, 50Hz, single-phase, 2-wire insulation system. Low voltage lighting system and navigate lighting system: DC24V, two wires insulation system.

5.2 Power supply equipment

Generator

2 Generator sets (30kW/AC 415V/3 ϕ /50Hz, 0.8 PF) is fitted in engine room for power supply to electrical equipment.

The generators are to be able to run in parallel by manual.

Transformer

1 transformer set (10KVA, 415V/220V) is fitted in engine room.

Shore connection

Shore power supply is arranged on main switchboard. AC 415V//3 ϕ /50Hz, 50A.

battery

Two batteries set (24V、400Ah) for general use shall be fitted. The battery set shall provide power for the low voltage lighting, navigation light etc.

Two batteries set(24V、400Ah) for each diesel starting.

5.3 Electrical power system

Main switchboard

The main switchboard is located in control room.

The main switchboard to be included following as:

- synchronizing system (manual type)
- alarm and control system
- AC415V distribution switch
- AC220V distribution switch

Low voltage charging/discharging panel

- The Low voltage charging/discharging panel is located in control room.

5.4 Motors & Starters

Motors are generally to be of squirrel cage with totally enclosed fan cooled construction.

All motor starters are to be suitable for marine use and provided with single phasing and overload protection.

An approved earthing arrangement should be in place to protect all electrical devices onboard the vessel.

5.5 Lighting system

The lighting system is divided into normal lighting system, and low voltage lighting system.

Two electrical circuits are fitted for the following lighting: machinery spaces, passageways.

normal lighting system

Incandescent pendant light: engine room , rooms & outside passageways.

AC 220V sockets are fitted in rooms.

Floodlight is fitted on main deck top front.

low voltage lighting system

Low voltage lighting system is fitted in the engine room, outside & rooms.

Navigation Lights

One (1) port light

One (1) starboard light

One (1) stern light

Two (2) anchor lights

Power Supply AC 220V and DC 24V.

5.6 CABLES

CABLE

Copper cables, EPR insulation, PCP interior insulation, polyester adhesive tape and PVC exterior insulation.

Installation of Cables

Cables are generally supported by perforated galvanized steel cable trays and secured by brass/aluminum cable clips or similar. Cables in the accommodation are to be concealed. Where cables passed through watertight/oil tight bulkheads, deck or tanks, a watertight type of cable sealing glands is to be fitted. Cables run on exposed deck are to be run through conduits.

Section 6 – Painting & Cathode Protection

- 6.1** All steel plates of hull (out of bottom/side/deck plates) and all steel materials of sideboard are to be sand blasted.

All part of steel materials are to be cleaned to as a high standard as possible in order to remove all the dust prior to painting with marine primer. All steel surfaces are to be free from grease and free from moisture before priming coats are applied. All coats are to thoroughly dry before further coats are applied on top.

6.2 Painting Schedule

Brand of paint shall be of IP or Jotun only. Builder shall obtain recommendation from paint supplier and get approval from Owner prior purchase and application.

The following paint schedule is for guidance only.

Full Blast SA 2.0

Flat bottom up to 0.8m waterline:

1st Coat : Primer – 50mic

2nd Coat: Coal tar Epoxy – 125mic

3rd Coat: Coal tar Epoxy – 125mic

4th Coat: Antifouling – 75mic

Wheel House and Engine Room:

1st Coat : Primer – 50mic

2nd Coat: Finishing Coat – 100mic

Top side, Fwd, Aft Slope:

1st Coat : Primer – 50mic

2nd Coat: Coal tar Epoxy – 125mic

3rd Coat: Coal tar Epoxy – 125mic

Cargo tank

No painting in the cargo tank, only use oil to wipe.

6.3 Cathode Protection

36 numbers of 15 kg of Aluminum anodes shall be welded onto the immersed hull as catholic protection.