



# **TECHNICAL SPECIFICATION**

## **for G-FFF7 type FREEFALL LIFEBOAT**

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### **1- INTRODUCTION**

G-FFF7 type GEP GRP Freefall Lifeboats are designed, constructed and tested according to the latest requirements, regulations and standards of 'Solas" and "IMO".

The hull, canopy, hatches, buoyancy tanks, water and provision containers and all main assemblies are of fire retardant GRP. The lifeboat is designed to provide the quickest and safest possible escape and a smooth entry into the water. A tunnel at the aft hull affects the hydrodynamic efficiency and helps to the protection of the propeller and the nozzle rudder. The lifeboat insures safe evacuation of crew at ships trim up to 10° and list 20° on either side. Control of the boat and engine is effected from the helmsman position at starboard of centerline and raised above the level of the lifeboat's other occupants. The Helmsman's console incorporates all navigational, engine, steering, release hydraulic pump controls and the dome has excellent all round visibility. A large watertight entrance door at the aft bulkhead speeds the embarkation, and the aft deck area allows recovery of people from the water and heli-lifting to safety and handling of hoisting slings. A round hatch at the fore roof of the canopy allows emergency escape, towing catch, throwing the sea anchor and has possible daylight visibility. The roof of the canopy is especially formed for the collecting of rainwater. Towing facilities are located in the fore roof of the canopy. At the inside of the lifeboat; the center aisle goes in the full length of the lifeboat. The lashing points of the stretcher are on the floor of the center aisle. Small steps on the floor of the aisle provide better walking conditions during the embarkation. Angle of the ramp with horizontal is 35°. The freefall lifeboat is designed for launching from max. 14 m. height.

### **2- CONSTRUCTION**

The lifeboat is entirely build of hand GRP laminated with use of selfextinguishing resins. Hull is one piece moulding and in round bilge form with square transom and rescue deck of the aft. A watertight, totally enclosed one piece of moulding superstructure makes the boat selfrighting. All applied materials are provided with certificates. The GRP construction is especially reinforced and thickness is increased on certain areas and the stem and transom are reinforced against collisions. The superstructure unit is bolted to the hull with stainless steel bolts and fastenings made watertight by means of marine sealant and matt laminates at the inside of the lifeboat. The inner floor is over the waterline and the engine is installed under the floor. There is a heeled bulkhead at fore ship. The spaces between floor, hull, canopy and the bulkhead is strengthened with frames and stringers and filled with polyurethane foam to absorb the impact during freefall launching. Usage of timber on the lifeboat is reduced to a minimum level. Only necessary items are made of marine plywood or oak.

### **3- BUOYANCY**

Large buoyancy tanks on starboard and portside of the hull and at fore peak are capable to float the lifeboat in damaged condition. The buoyancy tanks under the roof of the canopy (StB & P) and center tank under the roof of the helmsman dome ensure that the lifeboat is selfrighting in the flooded condition. All the buoyancy tanks and possible spaces between inner shell and hull or canopy are filled with rigid polyurethane foam of self-extinguishing type, resistant to oil derived products, ageing and shrinkage. The foam effects the general strength and better buoyancy and unsinkability in damaged conditions. In case of damage at buoyancy tanks, polyurethane foam is also a very good isolation material.

### **4- STABILITY**

The self-righting designed lifeboat provides good inherent stability and the sea keeping qualities are excellent. The boat is self-righting in both the intact and flooded conditions. Fully or partially loaded conditions do not effect the self-righting of the lifeboat.



## 5- FREEFALL & HOISTING

The lifeboat is equipped with hydraulic release arrangement that locks the lifeboat in its stowage position on the ship ramp. Release is carried out by means of hydraulic pump lever, located near the helmsman seat. In event of failure, the emergency release is realized by an occupant sitting aft, near the emergency hydraulic lifter level. The two release systems are totally independent of each other, out of hydraulic jack. The recovery of the lifeboat is provided with slings and lifting eyes on the canopy. Hoisting and gravity lowering by two double slings attached to four lifting eyes mounted on the top of the canopy. The slings are permanently attached to the boat also during a freefall. Freefall launch is possible with 20° list and 10° trim of ship and completely independent of any power supply.

## 6- STEERING

The steering system has a stainless steel nozzle rudder with flap at the aft side of the nozzle, provides good protection around the propeller and utmost maneuverability. The nozzle rudder also avoids injury to survivors in the water. The steering wheel actuates the rudder stock via a flexible cable. The steering cable can be quickly disconnected from rudder stock in the event of failure and an emergency tiller can be used for the steering without use of different tools. Steering control is done by the helmsman position, which has a good, all round vision. Location of fixed mounted compass, with electric lighting, ensures good visibility for the helmsman.

## 7- ENGINE & PROPULSION

The engine is a closed circuit, fresh water, keel cooled, electric start, 24 HP BUKH (Denmark) approved marine diesel lifeboat engine which is solid mounted. Engine compartment is located under the center aisle floor. The engine foundation is hot dipped galvanized steel frame which gives permanent and accurate alignment of the propeller shaft. All controls and control measuring apparatus are located in helmsman vicinity. The isolated engine cover is made of fire retardant GRP. Isolation reduces the levels of noise. The cover can easily be removed in case of emergency. The engine is able to run for a maximum of 4 minutes in the lifeboats permanent suspension position. Stainless steel dry exhaust system is isolated and opens to transom. Propeller shaft is made of marine grade stainless steel, the stern tube is brass and the propeller screw is manganese bronze. The propeller is protected with stainless steel nozzle rudder. Stainless steel fuel tank is located underneath the aisle floor and has a capacity of 140 lt. which is sufficient for 24 hours continuous engine operation at 6 knots speed. It is possible to provide speeds in excess of 6 knots in still water.

## 8- ELECTRIC INSTALLATION

12V/DC electric system is used on board and all cables and system are complying with the rules. 2 Dry cell lead acid batteries, each 12V/88Ah which are capable to work in capsized condition are installed in a sealed GRP box, secured to the lifeboat and vented to the exterior. Battery compartment is under the center aisle floor. Charge is maintained by an engine driven alternator. Wiring system ensures that supply and charge may be maintained from each battery separately as well as from both batteries. During the storage of the lifeboat on the board of the ship, the batteries can be charged from ship's network via a plug-in socket which is on the outside of the aft bulkhead of the canopy. The capacity of batteries ensures supply of the following receivers:

- Engine starter
- Engine control lights (electrical equipment provided on the engine and it's instrument panel)
- Two interior lights
- Top light on the canopy
- Searchlight socket
- Compass light
- Bilge pump

## 9- SEATS

Especially moulded GRP seats are designed for having minimum "G" forces acting to the persons during launching. The seats, lined with closed cell foam and PVC covers and provided with four point safety belts, of adjustable length, are facing to the aft end of the lifeboat and are provided to absorb the impact during freefall launching. Only the persons sitting in the helmsman dome are facing forward. All seats are permanently screwed to the floor. Non-skid surfaces are provided on the center aisle and on the outside of the aft rescue and embarkation deck.



## **10- PUMPS**

The electric and manual bilge pumps are located in appropriate places. Both pumps have flexible hoses. The electric bilge pump is controlled from helmsman's position. The use of the electric bilge pump is only when the lifeboat is afloat. Fixed mounted manual bilge pump of capacity min. 60 lt/min. is controlled by an occupant, which sits at one of the aft seats of the lifeboat.

## **11- FRESH WATER TANK & INVENTORY LOCKERS**

Fresh water compartment is under the center aisle floor at fore, made from GRP and isolated with polyurethane foam, sized for containers of 5lt. and capacity comprise with the rules. Storage lockers for inventory and provisions are located in suitable places.

## **12- NATURAL VENTILATION**

Natural ventilation system is provided for the occupants and for engine room. Manually controlled system is closing easily during launching, capsizing and on other emergency conditions like fire. This system prevents the cabin from becoming dangerously under pressured while engine is running.

## **13- FITTINGS & ACCESSORIES**

All fittings and mounting hardware are made of corrosion resistant material. Marine grade stainless steel is used. All bolts and fastenings are made watertight, by means of a marine sealant. Lifting eyes of the hoisting slings, lashing equipment, bollards are made of stainless steel. They are fastened to the lifeboat with water tight bolts and by using stainless steel face plates from inside of the lifeboat. Nylon loops to form lifelines, are fitted on both sides (St B & Port) of the canopy. Stainless steel handrails at suitable places in inside of the cabin provides easier moving possibilities for the occupants, especially during the embarkation. One 6kg. capacity, portable fire extinguisher is located at aft of the lifeboat at a suitable place to handle easily. The radar reflector is stored in the equipment locker. Mounting socket is on the aft end of the canopy. Retro reflected tapes are provided on the canopy.

## **14- FIRE PROTECTED LIFEBOAT**

To comply with the requirements of Regulation 45 and 46 it is possible to equip the Gepa Freefall Lifeboats with water spray and air support systems.

### a) Fire Protection :

A water spray system is installed for fire protection. The spray system consists of an engine driven pump which takes sea water from an intake, location under the lifeboat, ensuring that no flammable is drawn into the system. The spray system provides water over the entire surface of the lifeboat. The system includes a fresh water connection to flush through the system after testing the sprinklers and an outlet valve to pump the water out of the lifeboat without using the water spray system.

### b) Air Support System :

The compressed air system has a sufficient capacity of 3x40 lt (200 bar) bottles to provide air for the maximum number of persons and engine combustion for a maximum of 10 minutes, to establish an over pressure inside the lifeboat to prevent ingress of toxic fumes or gas during fire. The pressure reducer and all the system can easily be controlled by the helmsman. It is possible to recharge the air cylinders from the ship's compressed air system without changing their places.

## **15- SIGN PLATES & MARKINGS & NAMES**

For all functions, plastic foil sign plates are provided in English language. The dimensions and capacity of the lifeboat, the name and port of registry of the ship are marked according to the rules. A name plate is supplied with the lifeboat.

## **16- GENERAL**

Every lifeboat is delivered with complete operation manual and maintenance instructions. Spare parts and tools are provided according to the requirements.



**17- SOLAS INVENTORY LIST**

LSA Code	NAME OF LOOSE EQUIPMENT	PIECE(S)
4.4.8.2	BOAT HOOKS	2
4.4.8.3	BUOYANT BAILER	1
4.4.8.3	BUCKETS	2
4.4.8.4	SURVIVAL MANUAL	1
4.4.8.5	COMPASS	1
4.4.8.6	SEA ANCHOR + HAWSER 10 meters	1
4.4.8.7	PAINTERS 15 meters	2
4.4.8.8	HATCHETS	2
4.4.8.10	DIPPER WITH LANYARD	1
4.4.8.11	DRINKING VESSEL	1
4.4.8.16	ELECTRIC TORCH (BATTERY + GLASS BULB)	1
4.4.8.17	DAYLIGHT SIGNALLING MIRROR	1
4.4.8.18	LIFE-SAVING SIGNALS CARD	1
4.4.8.19	WHISTLE	1
4.4.8.20	FIRST-AID OUTFIT	1
4.4.8.21	SEASICKNESS BAG	P/Persons
4.4.8.22	JACK KNIFE	1
4.4.8.23	TIN-OPENERS	3
4.4.8.24	BUOYANT RESCUE QUILTS + 30 m. BUOYANT LINE	2
4.4.8.25	MANUAL PUMP	1
4.4.8.26	FISHING TACKLE	1
4.4.8.27	SUFFICIENT TOOLS + TOOLS BAG	1
4.4.8.28	FIRE EXTINGUISHING EQUIPMENT	1
4.4.8.29	SEARCHLIGHT	1
4.4.8.30	RADAR REFLECTOR	1
4.4.8.31	THERMAL PROTECTIVE AIDS (TPA)	2
-----	LIFEBOAT OPERATION MANUAL	1
-----	ENGINE OPERATION MANUAL	1

