

*In*  *edible 45'*

*Technical specification*

**RIZZARDI**



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## 1. DIMENSIONS AND SPECIFICATIONS

### 1.1 - with engines MAN D 2876 LE 401 – 630 HP

• Length over all	m	14.80	
• Maximum beam	m	4.40	
• Depth	m	2.34	
• Draft fuel load	m	0.70	
• Draft below propellers (full load)	m	1.25	
• Displacement (full load)	tons	20	(approx.)
• Displacement (minimum)	tons	16	(approx.)
• Fuel capacity	l.	2.000	
• Fresh water capacity	l.	550	
• Guest berths	no.	5/6	
• Cabins	no.	3	
• Bathrooms	no.	2	

#### Engines:

- 2 x MAN type D 2876 LE 401  
2 x 463 kW. (630 HP) at 2200 rpm
  - Cruising speed: 30 Knots
  - Maximum speed: 35 Knots
  - Range: 250 N.M.

### 1.2 - with engines MAN R6-730 HP 730 Common Rail

• Length over all	m	14.80	
• Maximum beam	m	4.40	
• Depth	m	2.34	
• Draft fuel load	m	0.70	
• Draft below propellers (full load)	m	1.25	
• Displacement (full load)	tons	21	(approx.)
• Displacement (minimum)	tons	17	(approx.)
• Fuel capacity	l.	2.000	
• Fresh water capacity	l.	550	
• Guest berths	no.	5/6	
• Cabins	no.	3	
• Bathrooms	no.	2	

#### Engines:

- 2 x MAN type R6 – 730 Common Rail  
2 x 537 kW. (730 HP) at 2300 rpm
  - Cruising speed: 32 Knots
  - Maximum speed: 37 Knots
  - Range: 270 N.M.

#### Note:

Vessel speed is not granted, since the displacement may vary depending on vessel equipments and on the condition of cleaning of the hull.

The vessel is built in accordance to the safety essential requirements of the CE direction for pleasure motor-yachts.

## 2. CONSTRUCTION AND HULL SHAPE

The vessel is made of two parts:

- HULL
- DECK

The vessel is wholly designed and built according to the Standards of the Italian Naval Register who supervises all construction steps in the yard, granting that both the structural and the non structural parts are made with the most advanced techniques and materials.

Isophthalic polyester resin, approved by the major Registers of Shipping, is used for the lamination of the remaining parts. The vessel hull is a varied structure: the bottom is built with longitudinal and transverse stringers, bulwarks are built of sandwich as well as the deck. GRP of best quality and high mechanical features is used as core. Structural and partition bulkheads are made of sandwich and laminar plywood approved by the Italian Naval Register. The hull bottom is deep V type with 15.8° DEADRISE on the stern.

## 3. PROPULSION SYSTEM

### 3.1 - with engines MAN D 2876 LE 401 – 630 HP

<b>Main engines:</b>	<b>MAN D 2876 LE 401 630 HP</b> Common rail diesel engines, 6 in-line cylinders; displacement lt. 12,80; continuous rating 463 kW; at 2.200 rpm. .
<b>Reversing and reduction gears:</b>	ZF type 325 IV
<b>Drive:</b>	Flanged V-drive without universal joint
<b>Propellers:</b>	Alloy 4 blade propellers, progressive pitch, designed and built to optimize the vessel performance and to grant the highest cruising comfort.
<b>Shafts:</b>	Alloy MARINOX 17 or equivalent; brass alloy bearings and pipes. Mechanical seals double O- ring.

### 3.2 - with engines MAN R6-730 730 HP Common Rail

<b>Main engines:</b>	<b>MAN R6 – 730 (730 HP)</b> Common rail diesel engines, 6 in-line cylinders; displacement lt. 12,80; continuous rating 537 kW; at 2.300 rpm. .
<b>Reversing and reduction gears:</b>	ZF type 325 A
<b>Drive:</b>	Flanged V-drive without universal joint
<b>Propellers:</b>	Alloy 4 blade propellers, progressive pitch, designed and built to optimize the vessel performance and to grant the highest cruising comfort.
<b>Shafts:</b>	Alloy MARINOX 17 or equivalent; brass alloy bearings and pipes. Mechanical seals double O- ring.

#### 4. STEERING SYSTEM

<b>Steering gears:</b>	Hydraulic power-assisted steering, electro-hydraulic gear-case with pump. Interlocking cylinder, type A rudder blade coupling rod, plug MB 43/16 MIBRAL
<b>Trim-tabs:</b>	One single-acting cylinder dimensions 700x450 mm. with electro-hydraulic gear-case, instruments and control panel.
<b>Bow Thruster (optional):</b>	Electric of 80 Kg. 4.5 kW, 24V DC

#### 5. ELECTRICAL SYSTEM

##### 5.1 - Specifications

The electrical system, made in accordance with the present I.E.C. and C.E.I. (Italian Electro-technical Committee) standards:

The rated voltage on board is:

- 220V AC mono-phase, 50 Hz, for motive power circuits.
- 24V DC for the lights, navigation instruments and for small motive power circuits
- 12V DC for start up circuits of the generators.

##### 5.1.1 Main switch panel

The main switch panel, on which all system lines are connected, is in the dinette. The lines are protected by magneto-thermic switches of suitable power.

##### 5.1.2 Electrical cables

FROR cables for the 220V AC section and double isolated cables for the 24V DC section

The electric cables are assembled in self extinguishing closed PVC raceways and are made with anti flame propagation materials; cross section of cables is suitably dimensioned with respect to the maximum allowed current load.

##### 5.1.3 Grounded system

- A copper stripe in the engine room collects the grounds of the water inlets, of the supports, of the rudders and the 24V equipment. This copper stripe is connected to a zinc anode fitted on the transom.
- The engines and their exchanges have a ground system connected to a second zinc anode fitted on the transom.
- The generator, the electrical panel and all the users of the alternate current are connected to a porous plates fitted under the hull.

#### 5.2 – Alternating Current Power sources

##### 5.2.1 Generator:

- No. 1 6.5 kW generator MASE, 220 mono-phase- 50Hz, located in the engine room, installed on silent blocks and fitted with a control panel and soundproof cabin. It is also possible to operate it from the dinette. The generator battery is charged by the generator (when operating). The system allows parallel use of the battery.

## 5.2.2 Shore power connection

- One 50-amp, 220 V mono-phase 50 Hz shore power connection.

## 5.3 – Direct Current Power sources

### 5.3.1 24V Batteries:

- Group of batteries of 300 Ah, 24 V for the services,
- Group of batteries of 200 Ah for engine start-ups
- One 27.5 volts, 80 A/h battery charger, a charge distribution system allows to automatically charge all battery groups.
- The battery cut out levers are operated manually from the aft cockpit
- The system allows parallel use of the start up batteries and the services batteries.

### 5.3.2 12V Batteries:

- One 100 A/h generator battery

### 5.3.3 Alternators

- Two 24 V – 55-amp alternators, connected to the main engines, to keep the batteries on board charged. The alternator on the left is connected to the engine start up batteries while the one on the right is connected to the service batteries.

## 6. ELECTRONIC EQUIPEMENT

### 6.1 Dashboard

- No. 1 Raymarine RAY 240 E VHF
- No. 1 Raymarine ST60 echo-sounder / Log
- No. 1 Raymarine C 80 Chart Plotter
- Main engines and reversing gears controls and instruments
- Compass
- Helm station switchboard (see Electrical System)
- Rudder angle indicator
- Trim-tab controls
- Rudder pump controls
- Wiper controls
- Horn controls
- Navigation lights controls
- Black water motor pump controls
- Anchor winch controls
- Automatic bilge pump controls and bar
- Alarms
- Air intake cut off remote control
- Fuel cut off remote control
- Fresh water and fuel level gauge

## 7. BILGE PUMP SYSTEM

- The system is composed by an electro-pump 24V DC connected to a manifold in engine room and connected to each watertight compartment by metallic piping.
- 24 V DC self priming electric motor pump, pumping capacity of 100 lt/m. controlled by a manual switch. Used to pump out each watertight compartment.
- Emergency manual bilge pump located in the engine room .

- Water level detector in each watertight compartment with alarm on synoptic display in the helm station.
- Emergency suction system in engine room bilge, operated by the sea water cooling pump system of the main engines.

## **8. FIRE-FIGHTING AND SAFETY SYSTEM**

- Portable powder extinguishers in each compartment.
- Ecologic gas stationary system in the engine room supplemented with the central fuel cut off system of main engines and generator and discharge signal in the helm-station; operation of safety devices and closing of fire-stop locks on ventilation intakes.
- Inert gas central system control through an emergency handle located in the cockpit.
- Fire sound and visual alarm, connected to the sensors located in the engine room.
- Fire sound and visual alarm located on the dashboard.

## **9. FUEL SYSTEM**

The fuel system consists of n. 3 aluminium alloy connected tanks set in the engine room, with a total capacity of 2.000 litres; the whole system is provided with electric and optic level gauges. Fuel fills on port and on starboard. Fuel tanks can be separately filled. All piping is of approved anti-fire metal type (CARBOPOMP breather and fill).

## **10. FRESH WATER SYSTEM**

Fresh water is supplied by No. 2 aluminium tanks set for a total capacity of 550 litres, located in the binnacle. The 24V DC pressure water pump of suitable capacity is in the engine room. An optional shore water connection can be installed on the transom; it allows to supply fresh water to the system making use of the shore water system pressure. A 220V DC water heater of 30 litres capacity supplies hot water to the whole circuit.

## **11. BLACK AND GREY WATER SYSTEM**

Waste waters from showers, washbasins and galley are collected in two holding tanks fitted with level switch and emptying electric motor pump. Toilet waste waters are collected in a holding tank (capacity 88 lt.) fitted with a manually or automatically operated electric motor pump or discharged overboard. The pump control is in the helm station.

## **12. SEA WATER SYSTEM**

The main sea water inlets are in the bilge. Inlets in the engine room are fitted with on-off valve and stainless steel filter; they supply the main circuits on board, the engine and reversing gear cooling system, generator and fire pump. The cooling system of each engine is also used to cool the reversing gear and the exhaust gas RAISERS; part of the cooling water is discharged overboard.

## **13. MAIN ENGINES EXHAUST SYSTEM**

The exhaust pipes of the main engines are AISI 316 and sized up according to the engine manufacturer's directions. The main exhaust manifold is connected to the GRP underwater exhaust, which is part of the hull. The engine exhaust pipes are suitably insulated with ceramic material.

#### **14. AIR CONDITIONING (optional)**

The system is a 24.000 BTU and consists of cooling units, refrigeration and circulation pumps located in the engine room, fan coils almost in each room, with automatic control and regulation.

#### **15. HYDRAULIC SYSTEMS**

The hydraulic steering system operates the two propulsion systems. The system operates by one pump fitted on the power take-off gear-box. The pump pushes the oil to the hydro-guide box, fitted behind the steering-wheel that, ordered by the pilot, give direction towards starboard or port side.

The system is provided of an emergency system that permits to one of the two cylinders, in case of damage, to exclude the one damaged and continue the navigation with the other cylinder.

The trim hydraulic system is operated by the pilot to determinate the propeller draft. The trim action is done through an hydraulic gear-case that, operated by the pilot, send the oil in the direction chosen (up – down).

Two further gear-cases respectively control trim-tabs and gangway operations.

All gear-cases are in the engine room, each fitted with tank and independent circuit.

#### **16. INSULATION**

The whole engine room is insulated with sound-absorbing and sound-insulating material for a perfect soundproofing and a perfect heat insulation of the engine room and of the surrounding areas.

The main engine mufflers are suitably insulated with thermo-insulating and thermo-absorbing material.

#### **17. ENGINE ROOM**

##### **17.1 Ventilation**

Ventilation takes place through dynamic inlets sized up with respect to the combustion air quantity specified by the engine manufacturer.

#### **18. EQUIPMENT**

##### **18.1 Safety equipment**

- No. 1 approved rigid inflatable life-raft for 8 persons
- No. 1 approved inflatable bag life-raft for 4 persons
- No.1 lifebuoy
- Approved buoy light and floating line
- Portable fire extinguishers in each room
- Approved life jackets
- Radar reflectors
- Floating lines
- No. 1 thermo-resistant axe
- No. 1 first aid box
- Pharmacy kit (Tab.A)
- Binoculars
- Anti-fire blanket
- No. 1 clock, barometer, hygrometer
- No. 1 charting set
- No. 1 portable sound signal

## **18.2 - Loose equipment**

- Operation manual
- No. 1 boat-hook
- No. 2 mooring lines
- No. 8 fenders
- Flag
- Labels in engine room

## **19. EXTERIOR**

### **19.1 - Anchor chain locker**

- No. 1 30 Kg. Bruce anchor, with safety catch and 75 mt. of 10 mm. galvanized chain
- Stainless steel anchor nose
- No. 1 1500W – 24V DC anchor winch with waterproof control and push-buttons
- Chain locker with drainage
- No. 2 stainless steel cleats
- No. 2 stainless steel fairleads

### **19.2 - Deck / cockpit**

- Stainless steel rubbing strake
- No. 2 stainless steel mooring cleats
- No. 2 stainless steel fairleaders
- No. 1 water fill
- No. 2 fuel fills (port and starboard)
- Bow sunbathing area with cushions
- No. 2 windows (saloon – galley)
- Round openable hatch (master cabin)
- Stratified crystal windshield, built in the GRP structure
- No. 2 windshield wipers with washing device
- PRFV outside deck and cockpit surface, fitted with anti-skid surface
- Steps on side walkways, port and starboard
- Navigation lights
- Outside GRP dashboard
- Sliding GRP companionway to below deck with lock
- No. 2 watertight stereo loudspeakers
- No. 2 lights on pole
- Stainless steel and canvas manually operated sliding soft top
- GRP soft top structure with roll-bar and stainless steel flagpole with navigation lights
- Pilot seat (right side), with cushion
- Extensible, height adjustable table
- Cockpit settee with complete cushion set
- No. 1 storage locker under seats
- GRP furniture for outside refrigerator
- GRP bar furniture with sink and fresh water tap
- Aft sunbathing area with cushions
- Fender storage locker
- Inflatable life-raft storage
- Engine room access hatch
- Cockpit access with safety gate
- Built-in hot and cold water shower
- Shore water connection on transom
- Shore power connection (220 V).

- Hydraulic revolving gangway/davit with stainless steel frame and teak grating with remote control (150 kg max).
- Adhesive name of vessel and port of registry on transom
- Swim platform with double GRP ladder
- Night lights on steps
- Manually operated, disappearing swimming ladder
- Chain washing system

## 20. INTERIOR

### 20.1 Main Deck

#### 20.1.1 - Saloon

- “L” shaped cloth settee
- Bookcase
- Galley storage for dishes, glasses and cutlery with built-in switchboard
- Curtains and carpeting
- No. 7 halogen overhead lights
- Wall cupboards
- Extensible, height adjustable table
- Ladder with steps
- Stereo with CD player
- No. 1 stainless steel porthole
- No. 1 TV 17” LCD

#### 20.1.2 - Master cabin

- No. 6 lights
- Access through saloon
- King size bed with mattress and cover-bed
- Drawers under the bed
- No. 2 bedside tables
- No. 2 side storage lockers with shelf
- Hanging locker and drawers
- Curtains and carpeting
- No. 2 stainless steel portholes
- Reading lights
- Radio CD.

#### 20.1.3 - Master bathroom

- Electric toilet
- Vanity with sink
- Mixer tap
- Shower stall with GRP bottom
- Shower mixer tap
- Lockers and mirrors
- No. 2 watertight halogen overhead lights
- No. 1 clothes hook
- No. 1 toilet paper holder
- No. 1 towel rack
- Curtain
- No. 1 stainless steel porthole

#### **20.1.4 - VIP Cabin**

- King size bed (or No.2 single beds) with mattress
- Bedside table
- Drawers under the bed/s
- Hanging locker
- No. 1 stainless steel porthole
- Curtains and carpeting
- No. 6 halogen overhead lights
- Reading lights
- Radio CD

#### **20.1.5 - Guest bathroom**

- Electric toilet
- Vanity with basin
- Mixer tap
- Shower stall with GRP bottom
- Shower mixer tap
- Locker with wall cupboard
- No. 2 watertight halogen overhead lights
- No. 1 clothes hook
- No. 1 toilet paper holder
- No. 1 towel rack
- Curtains
- No. 1 stainless steel porthole

#### **20.1.6 - Guest cabin**

- King size bed (or No. 2 single beds) with mattress
- Drawers under the bed/s
- No. 3 halogen overhead lights
- Bedside table
- Hanging locker
- Curtains on portholes
- No. 1 Stainless steel porthole
- Reading lights
- Radio CD

#### **20.1.7 - Galley**

- Wooden floor
- Top in Pral
- Stainless steel sink with mixer tap
- Electric 2-burner pyrocer hob
- Refrigerator (115 l)
- No. 3 halogen overhead lights
- Storage locker with drawers
- No. 1 stainless steel porthole