

SOLARIS 68



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1 General

The following specification describes materials and the main production stages necessary to build a 20.80 m Solaris sailing yacht. This specification gives a general view. Plans, materials, production and characteristic descriptions can be seen and examined by the owner whenever he wants.

The Solaris 68 is a true Cruiser Racer.

The boatyard guarantees professionalism and excellent work with the characteristics of the best nautical tradition.

All mentioned dimensions and data are given by the designers and have to be considered as executive dimensions.

Additional equipment can affect trim and displacement.

R - The boatyard reserves the right to make changes during construction, also replacing materials no longer available on the market.

1.1 General characteristics

LOA	20.80 m
LWL	19.50 m
Beam	5.50 m
Draft	3.40 m as standard - optional 3.00 m
Displacement	28.800 kg (light)
Ballast	10.400 kg

1.2 Sail area

Sail area	256 m²
Genoa 106%	110 m²
Mainsail	146 m²

1.3 Engine

VOLVO PENTA	150 hp - 180 hp optional
Transmission	Shaft line, bronze p-bracket

1.4 Generator

Optional a generator is available	Please see Price List and Options
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1.5 Tanks

Water	1000 l
Fuel	930 l

1.6 Certification

CE RINA	Open Sea Category A
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1.7 Drawings

- Javier Soto Acebal (naval designer): water lines, hull lines and sail plan.
- Solaris Design Team (Boatyard): Hull and deck construction, interiors, stability and weight calculation, water, hydraulic, electric and electronic system.

1.8 Materials and workmanship

All materials and manufactured articles furnished by the Builder shall be suitable for marine installation and are of the best quality for their respective purpose. It shall be the responsibility of the Builder to check its purchase orders and also check all materials delivered, to insure confirmation with the details of the specification and with all normal working requirements.

1.9 Inspection

The Architects and the Owners or their representatives shall have access to the vessel and everything pertaining to the vessel during the normal working hours. The yard will do the utmost to facilitate the work of the inspectors. All normal handling and materials necessary for the purpose of inspection shall be submitted by the builder.

1.10 Insurance

The builder will insure the yacht during the construction and all accessories supplied by the owner. The owner must insure the yacht at her delivery, ex works boatyard.

1.11 Accessibility for maintenance and cleaning

All installations and compartments are built to be easily accessed, cleaned and maintained.
The builder will keep the yacht reasonably clean at all times. Particular care will be taken to ensure that all dust, shavings etc. are removed and the surfaces are accurately cleaned before painting.
Upon delivery, the bilges and all sections of the yacht will be clean.

1.12 Weight and stability calculation

The Builder will make and check the weight calculation. The total displacement will be calculated in the following condition: fully loaded ½ tanks. Transversal stability to be made in accordance with the CE rules (MOC - Minimum Operation Condition) to obtain the A class "Open Sea".

1.13 Trim

The Builder reserves the right to add internal ballast to balance the yacht in the event of differences.

1.14 Mast and rigging

The Builder will check, with the Architect and mast manufacturer, the proper dimensions for the mast and rigging. Plans will be shown to the owner during construction.
Standard is a sloop rig, with light alloy mast and boom, designed for a full batten mainsail.

1.15 Documentation

The yard will issue drawings and plans regarding plumbing, electrical and ventilation systems, engine and whatever necessary to control and maintain all the on-board systems. The instructions of all the equipment will be delivered on board. A detailed owner's manual with pictures will be provided as standard in Italian or English language.

1.16 Systems descriptions

All systems are clearly labelled in English, German or Italian language. All cables are coded. We recommend labelling in English language.

1.17 Warranty

The Builder shall accept responsibility for any defective workmanship and/or materials up to two years after delivery, given that this is not the result of gross negligence or incorrect use of the yacht.

Should the Builder carry out warranty works on board, the Owner shall accept to pay travel and accommodation costs in case the Yacht is moored out of the European Community.

The Builder shall not be held responsible for equipment supplied by the Owner.

For additional equipment, the manufacturers warranty is held liable.

The warranty terms applied are those indicated in the sales contract signed at the time of the purchase.

2 Construction

The materials used and construction methods are designed to construct a light, yet strong and stable hull, without affecting the strength and stiffness. Hull and deck, as well as all other parts of the yacht, are designed to take high loads, providing maximum product durability.

Hull and deck are constructed in a negative mould.

All visible hull and deck surfaces are in high quality white gelcoat.

Materials and construction are controlled by Italian Shipping Registry (RINA). RINA is also approving the yachts construction before issuing the CE certificate.

2.1 Hull and deck

- Hull and deck in sandwich construction of uni- and bidirectional fiberglass and carbon.
- This kind of structure gives a light hull which is, however, far more resistant to dynamic stress and is far more rigid than a plain resinbonded laminate construction.
- Airex core, an expanded closed-cell vinyl polychloride preventing moisture from expanding into the construction in case of a damaged section.
- Vacuum system is used for gluing of the sandwich and vacuum infusion system for lamination of hull, deck and structures.
- Where needed carbon reinforcements will be applied, by the chainplates and the keel structure, and in the high load areas the core will be replaced with higher density foam or plywood.
- The strength of resinbonded laminates conform to the designer's specifications and are regularly controlled by their competent technical departments.
- The transversal and longitudinal reinforcements of the hull are made in composite and well resinbonded to the hull according to the calculated dimensions.
- Waterline and the yacht's name on the transom are painted with polyurethane varnish.
- The fore, mast and aft bulkheads are in composite. All others are in plywood and will be well resinbonded to both hull and deck. This kind of construction guarantees a greater stiffness than the silicone bonding and represents a uniqueness of the Yard.

2.2 Ballast

- The bulb keel is designed and built for high speeds and guarantees performance and stability.
- The keel ballast is made of lead /antimony.
- The keel fin is made of a resinbonded steel construction, which is attached to the hull by stainless steel bolts. Optional an extra steel plate in Weldox is available.
- The keel is treated and protected by epoxy products.

2.3 Chain plates

- The central chainplates are made in composite fiberglass and carbon and fixed outboard to the boat's structure through epoxy glues and following lamination.
- The deck area around the mast and the chainplates will be reinforced. Where needed, the sandwich core will be made in marine plywood instead of Airex core.
- The aft chain plates are fixed to a marine plywood reinforcement, well resinbonded to the hull bottom, stringers and the deck.

2.4 Stays

- The dimensions of all shrouds and stays are defined by naval architects according to their working load.
- Stays and shroud in rod rigging is standard.

2.5 Structural bulkheads

- The main bulkhead, the fore and forward bulkhead are in composite material. All the other bulkheads are made in plywood, well resinbonded to the hull and the deck.

2.6 Mast base

- The inox steel mast base is bedded on a GRP support which is connected to the floor and bottom, well resinbonded to the yachts superstructure.

2.7 Access to the bilge

- The tidy bilge is easily accessible.

2.8 Engine bed

- The engine bed is made of single skin GRP, well resinbonded to the hull and to longitudinal and transversal reinforcements.

2.9 Drain holes

- The bilge drainage system is designed to get all water to the lowest point of the bilge in order to discharge outboards.

2.10 Rudder

- Balanced rudder in GRP-Airex core.
- The rudderblade is reinforced by steel frames, welded to the shaft.
- Stainless steel shaft.
- Steering system with quadrant and stainless steel wires.
- Two compasses.
- 1200 mm steering wheels.

3 Interior

3.1 General arrangements

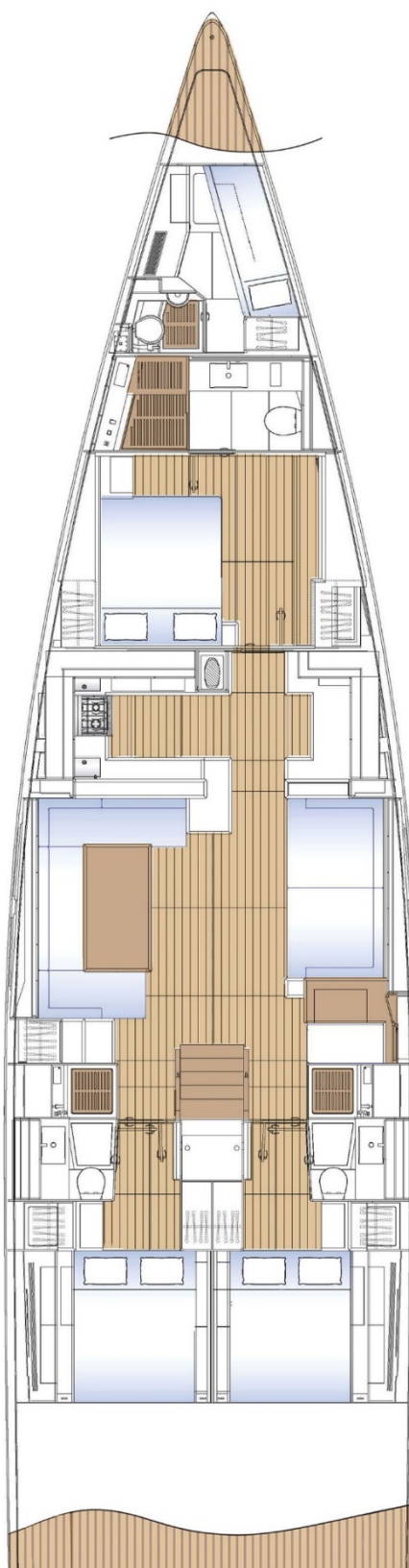
The standard price is based on the following description. Optional, the boatyard can build to individual owner's specifications. Every change has to be defined and calculated in the agreement and to be discussed with the owner.

- The boatyard is monitoring the optimum weight distribution.
- Stowage is maximised by using all spare space.
- The internal, non-visible surfaces are in marine plywood.
- Structural bulkheads in oak wood.
- Galley and bathrooms topsides are made of wood. Optional Corian.
- High quality fabric is used for all cushions.
- All the furniture is made in high quality oak wood, finished with open-pore varnish. With an extra charge it is possible to choose a different wood for the interiors.
- All woodwork is carried out with the best nautical tradition.
- Rounded edges for all hatches, bulkheads, seating, lockers, etc.
- The yard counts on comfort and quality. Special care is given to soundproofing insulation.
- The high production quality, the clear, simple lines of the interior corresponding to the Solaris design, making a Solaris a unique yacht.

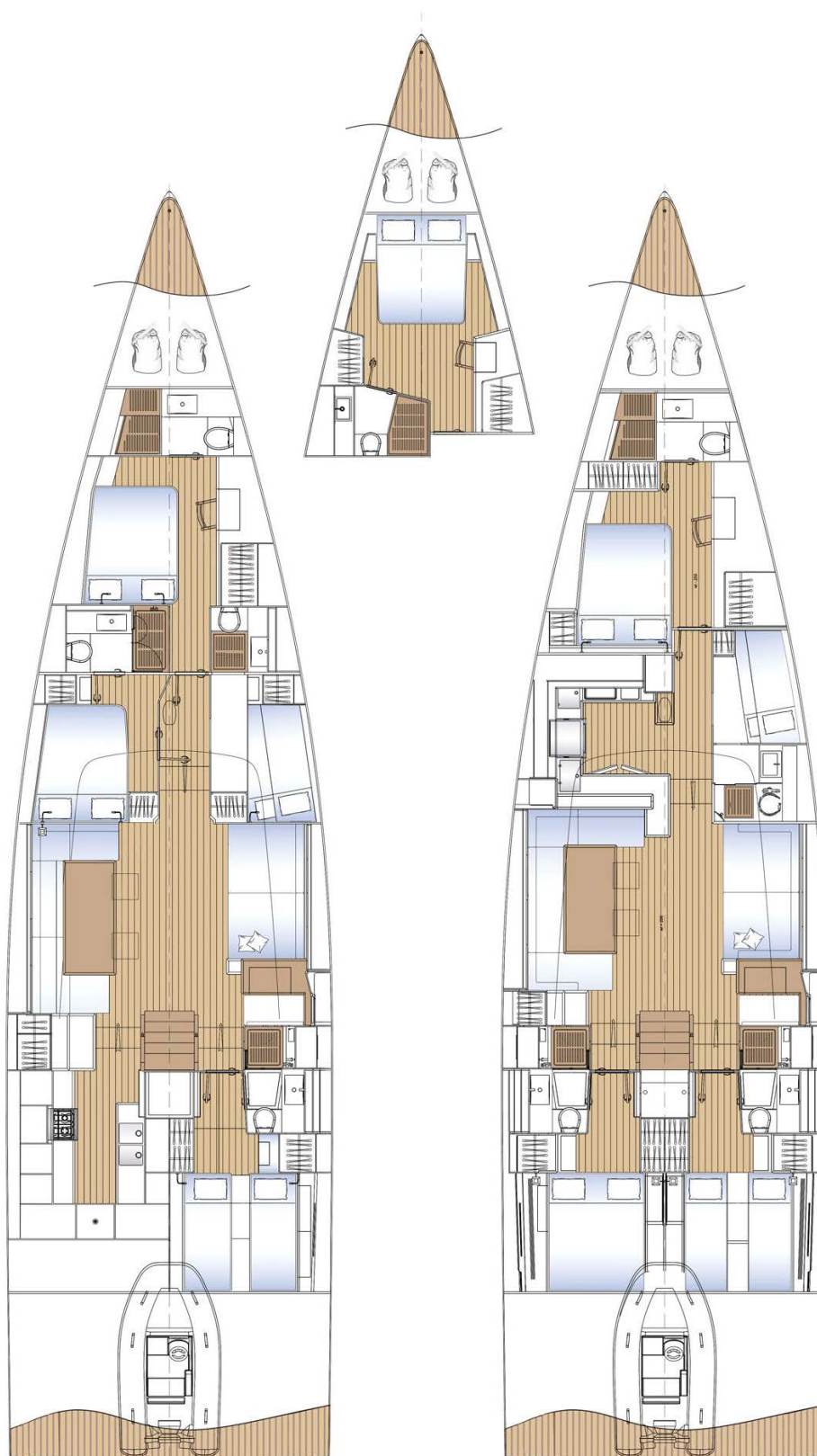


3.2 Standard Layout and optional

3.2.1 Standard Layout - 3 cabins, 3 bathrooms, owner cabin forward with outboard bed



3.2.2 Extra Layout - 4 cabins



3.3 Layout

- The Solaris 68 has a standard layout with 3 cabins and 3 bathrooms, each one with a separate shower, a crew cabin in the peak, a wide saloon with galley forward, a large settee, and an extra settee in front of the chart table. The chart table is conveniently positioned near the companionway.
- Every area to have space exploited at the best and where ever possible, there will be stowage areas as in best Solaris tradition.
- For the Solaris 68 we have different internal layouts available, the interior layout can be tailored to the owner's wishes.

3.4 Flooring

- The floorboards are made in oak with horizontal grains. They will be varnished and will be 20 mm thick.
- Built to be completely removable for bilge inspections.



3.5 Ceiling

- Marine mahogany plywood ceiling panels, covered with white vinyl upholstery treated against mould.
- To be fixed with velcro. All removable for inspection.

3.6 Cabin doors and drawers

- All doors are fitted with a door lock.
- The front panels of the drawers are made in oak plywood and are provided with locks to avoid their opening while sailing.

3.7 Berths and sofas

- Berths and sofas to have drawers or lockers wherever possible.

3.8 Companionway

- Companionway ladder in oak wood.
- To have shaped steps with antiskid.

3.9 Handrails

- Polished stainless steel handrails in various parts of the yacht.

3.10 Access to engine compartment

- The engine room has a main access door on the saloon floor.
- The entrance is positioned to have access to all technical equipment.

3.11 Soundproofing

- Soundproofing is a strong characteristic of a Solaris yacht.
- The soundproofing of the engine room is made of high quality sound insulation material and forated aluminium panels white varnished.

3.12 Galley

- Stainless steel 4-burners oven on gimbals.
- All surfaces in wood. On request in Corian.
- One stainless double basin sink.
- Top-loading freezer and a big fridge on starboard. A third fridge with 2 drawers on the central island.
- Extractor hood in the cupboard over the oven.
- Galley with lockers and drawers to store dishes, glasses, pots and galley accessories.
- Galley area on the starboard side of the mast with big storage space.

3.13 Toilette

- Bathroom lockers are easily accessible for maintenance.
- Wooden topsides.
- Composite sinks, headlocker with mirror front.
- Shower cabin in polyethylene grating.
- Shower and basin are discharging outboards.
- The cabins' bathrooms have a separate shower.
- Shower door made of plexiglass.
- Manual toilets type Jabsco Regular for all cabins. Electric toilet Planus or Tecma in owner cabin.



3.14 Black out screens

- Hatches, portholes and windows are provided with blinds. All hatches have blinds fixed with Tenax fastener.

3.15 Fore cabin

- Wide double bed outboard with big drawers underneath.
- Spacious wardrobe with integrated drawers.
- Upper lockers and book shelves.
- With an extra charge it is possible to arrange the fore cabin with an outboard bed and fore bathroom (see Extra Layout).

3.16 Saloon

- A wide sofa with table on the portside.
- Table to be of solid wood and marine plywood.
- Linear sofa in front of the dinette.
- Chart table with seat, chartlocker.
- Locker for instruments.
- Electric panelboard with hinged door for inspection at chart table.

3.17 Aft cabins

- One double berth per cabin.
- All cabins are fitted with wardrobes.
- Lockers in the main central bulkhead.

4 Engine

4.1 Engine

- VOLVO PENTA 150 hp (180 hp optional).
- Shaft line transmission.
- Engine is mounted on shock absorbers.
- Instruments control panel to be mounted at the helm station.
- Engine hours counter, rpm-meter, throttle type Morse, are mounted in cockpit at helmstations.

4.2 Fuel tanks

- 15/10 stainless steel tank.
- Total fuel capacity approx. 930 lt.
- Copper tubing for fuel lines.
- RACOR fuel filter and 1 water separator easily accessible.
- Tanks fitted with an analog level indicator.

4.3 Fire-fighting system

- The whole yacht including the engine room, the electric and technical systems comply with RINA certification.
- Automatic fire extinguisher in the engine room with remote control placed in the saloon.

4.4 Propeller

- Fixed blade propeller.

5 Generator

- Optional a generator can be fitted.(please see Price list and Options).

6 Water systems

6.1 Sea cocks

- All flush seacocks are made of nickel-plated brass, quick operational, easily accessible.

6.2 Fresh water tanks

- The fresh water tanks are made in stainless steel and are provided with a hatch for inspection and cleaning.
- Total water capacity approx. 1000 l.
- Tanks located below the seats in saloon.

6.3 Piping

- Approved special non-odour rigid PVC tubing for hot and cold drinkable water.
- The drainage hoses of bilge pumps, sinks, and showers are made of non-odour, solid rubber pipes.
- Stainless steel hose clamps and rubber muffs.

6.4 Black water holding tanks

- The toilets discharge into a black water tank, whose outboard discharge works through an electric macerator pump.

6.5 Deck cockpits

- Storage space for auto-inflatable liferaft in front of the entrance with outboard discharges.

6.6 Pumps

- All pumps are easily accessible for maintenance.
- 1 manual double action bilge pump in cockpit with suction in the main bilge.
- 1 electric bilge pump with large capacity with suction in the main bilge.
- 1 electric bilge pump for the forward shower.
- 1 electric bilge pump for the crew cabin.
- 2 electric pumps with suction in the aft showers.
- 1 fresh water pressure pump for hot and cold water, serving all water systems of a pressurized tank.
- All bilge pumps are discharging outboards above the waterline.

6.7 Boiler

- 220 V AC Boiler for hot water, capacity circa 50 lt.
- Water is also heated by heat exchanger of the engine.

6.8 Cockpit shower

- Fresh water shower at the stern section of the cockpit.

7 Heating and Cooling Systems

7.1 Cooling systems

- The standard 24V top-loading fridge has a capacity of 220 liters. The top-loading freezer has a capacity of 80 liters. The third fridge is in stainless steel with 2 drawers.
- As option a wine cooler/ fridge in the cockpit or up right in the saloon.

8 Deck equipment

- The standard deck equipment is designed for a sloop rig.
- All chosen dimensions are inspected by naval architects, functionality and safety guaranteed.
- High quality brands deck equipment, in stainless steel or anodized aluminium.
- To be made in Solaris' quality.



8.1 Fairleads

- 2 forward and 2 aft.

8.2 Mooring cleats

- Stainless steel mooring cleats: 2 forward, 2 aft and 2 midships.

8.3 Hatches

1 hatch for anchor locker	flush, custom built by Solaris
1 hatch for sail locker/crew cabine	flush mount
2 hatches for owners cabin	flush
2 flush hatches	for fore bathroom
2 flush hatches	for the galley and the area on the starboard side
2 flush hatches	for the saloon on the coachroof
1 sliding hatch for the companion way	for the companion way, custom built by the yard with 15mm Perspex
2 hatches	for the cockpit locker behind the steering pedestals
1 hatch	for aft locker
1 hydraulic hatch	for tender garage on stern

- NOTE: the flush hatches are made in GRP, firmly resin bonded to the deck and provided with integrated drainage system.

8.4 Windows

- 3 fixed side windows for saloon.
- 4 fixed hull windows.
- The hull windows are made in double-layered unbreakable tempered glass.

8.5 Portholes

- 2 Lewmar opening portholes in cockpit for the aft cabins.
- 4 opening portholes on coaming for the aft cabins and bathrooms.

8.6 Tracks, slides and leading blocks

- Harken tracks, slides and leading blocks.
- High quality deck equipment chosen by naval architects.
- All the halyards are lead into the cockpit below the deck through the use of organizers. In this way the boat can be handled only with 2 winches on each side. This solution has been studied and widely tested at sea on all newest Solaris yachts.

8.7 Winches

- 4 halyard winches model 70 ST.
- Standard supply of 2 aluminium handles with locking system.
- All winches are made in anodised light alloy, in black.

8.8 Anchor winch

- 2.000 W 24 V W6 Lewmar electric anchor winch, below deck with capstan drum.
- Chain is automatically feeded into the chain locker.
- 40 kg Delta anchor with 75 mt galvanized chain.

8.9 Steamhead

- Anchor fairlead is welded in one piece stainless steel.
- Nylon chain rollers for Delta anchor.

8.10 Pulpit, pushpit and stanchions

- Stanchions in stainless steel, diameter 30x2 mm.
- Stainless steel wire lifelines diameter 5 mm. with turnbuckles.
- Height of pulpit, pushpit and stanchions 610 mm.
- Pushpit to be built in two pieces.
- The pulpit allows easy entrance off the dock.

8.11 Toe rail

- Toe rail to be integrated in the hull with gelcoat finishings. To have reinforcements for stanchions, pulpit and pushpit attachments.

8.12 Deck

- Cockpits, included seats and aft surfaces covered with 10 mm laid teak. Teak battens bonded onto the deck with epoxy resins.
- The forward deck surfaces and the side decks are sprayed with Antiskid paint. With an extra charge they can be covered with teak.
- Stainless steel handrails mounted on the sides of the coachroof.
- Removable bathing ladder at the stern.

8.13 Peaks

- 1 fore peak to stow anchor chain, with discharge above the water line.
- 1 big aft locker, accessible from the deck through a hatch provided with supporting gas strut and from the transom door with hydraulic opening system. With an extra charge it will be possible to realize a tender garage, completely watertight, with longitudinal access way including an electric winch and rollers to move the tender.
- 2 lockers behind the steering pedestals, provided with hatches, one to store various equipment and one for the gas bottles.

9 Steering system

- The Solaris 68 is equipped with two GRP helmstations. Stainless steel steering wheels are covered in "Lorica".
- 2 compasses.
- Steering gear is protected, still easily accessible for inspection.
- Stainless steel emergency tiller to fit directly onto the rudder shaft.

10 Rig/Sails

10.1 Rig

- Aluminium mast.
- Mast is build one piece.
- Furlex manual jib furler, mounted below deck.
- Harken tracks, slides and leading blocks.
- Standard is a 9/10 sloop rig.

10.2 Mast

- Mast is stepped through deck, 3 pair of spreaders as standard.
- Tapered on masthead.
- Equipped with blocks and tracks for 1 mainsail, 2 genua and 2 spinnakers, 1 topping lift.
- 3 Pairs of spreaders, bolted through the mast.
- Equipped for lazy jacks.
- Boom attachment on mast, toggle and boom attachment of aluminium and stainless steel.
- All power lines are covered in pvc material.
- Fittings for navigation lights and lighting.

10.3 Boom

- Manual outhaul system.
- Hydraulic Navtec vang.
- 1 mainsheet attachment.
- Equipped for 3 reefing lines.
- Equipped for lazy jacks.
- Boom light.

10.4 Rigging

- Rod rigging.

10.5 Furling system

- Manual of Furlex.

10.6 Hydraulic set

- Harken hydraulic manual 4-ways backstay cylinder with integrated pump of proper dimensions for backstay.

10.7 Running rigging

Main halyard	1
Traveller sheets	2
Jib halyard	1
Spinnaker halyards	2
Reefing line	2
Mainsheet	1
Genoa sheet	2
Topping lift	1
Outhaul	1

- All the halyards are in spectra, spliced and if necessary fitted with snap shackles and shackles. The pre-pressed ropes are spliced with snap shackles where necessary.



11 Electrical system

All installations are proofed in maritime use. All installations are inspected by an external organisation to be EU and RINA conform.

11.1 24 V system

- The main electric system will be 24 V.
- The recharging of the batteries is provided either by a 220V battery charger or by an alternator driven by the main engine.
- The following alternator will be installed: 1 alternator 110 Ah/24V on the main engine for the service batteries.

11.1.1 Service group

- The service group is powered by 24V batteries for a total capacity of 540 Ah.
- Mastervolt battery charger for the service batteries group, capacity 200 Ah/24V.
- The following equipment is connected to this system: lighting, navigation lights, all pumps, fridge system, autopilot, navigation instruments, communication and entertainment.

11.1.2 12 V system

- 2 batteries, each one with a capacity of 75 Ah/12V, for the starting of main engine and generator. The recharging of the two 12V batteries is provided by the standard alternator of the engine.
- Mastervolt charger for the generator and for the main engine starting batteries, type 12/15 and capacity 15Ah/12V.

11.2 220 V / 50 Hz system

- The 220V 50 Hz group is supplied by shore power through a proper connector and it supplies different devices i.a. boiler, battery charger, sockets).
- The 220 V 50 Hz group is supplied by shore power through a stern mounted socket: boiler, battery charger, sockets.
- 220 V socket in every bathroom, galley and saloon.

11.3 Inverter

- 1 inverter 2.500 Watt Mastervolt for the current conversion from 24 V to 220 V.

11.4 Electric panelboard

The electric switchboard is split into 2 parts.

- 1 switchboard for control, protection and distribution of the 220V alternating current (AC) with automatic circuit breakers and functioning lights for every single switch.
- 1 switchboard for control, protection and distribution of the 24V direct current (DC) with automatic circuit breakers and functioning lights for every single switch.
- Digital control instruments as voltmeters and ammeters for alternating (AC) and direct current (DC) and for the constant control of batteries and battery chargers.
- DC electric system protected from overload and short circuit by general thermomagnetic switches mounted near the batteries, one for every battery group and each consumer.

11.5 Lighting

- Interior LED lighting with recessed ceiling lights and 4 reading lights for cabins.
- One night-light installed at companion way with light switch close to the hatch. A Led red light under the 3 steps of the saloon.
- Cockpit light below the boom.
- Forward deck light on mast.

11.6 Navigation lights

- Navigation light switches on the interior panelboard.
- Led green navigation light stb.
- Led red navigation light, bb.
- Led stern light.
- Led anchor light on masthead.
- Led steaming light.

11.7 Miscellaneous

- Approved marine use electric cables.
- All electric installations are properly fused.
- As far as possible leads do not pass through the bilges or in areas which may be dangerous because of dampness, heat or vibrations.
- All alternate current services and consumers are grounded with proper connections.
- All electric installations are tidy and easily accessed for maintenance.

12 Navigation/Electronics

- Not standard (please see Price list and Options).

13 Entertainment

- Not standard (please see Price list and Options). The boatyard follows the owner's wishes and makes an offer for supplying and installing the equipment, requested of the owner.

14 Miscellaneous

- Mattresses lined in light colour fabric with zips.
- 8 fenders.
- 1 flag pole.



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