SOLARIS 50



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1 General

The following specification describes materials and the main production stages necessary to build a 15,40 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 50 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	15,40 m
LWL	14,25 m
Beam	4,55 m
Draft	2,80 m (2,6 - 2,35 optional)
Displacement	14.200 kg
Ballast	4.900 kg

1.2 Sail area

Sail area	160 m²
Genoa 106%	75 m²
Mainsail	85 m²
I Genoa	21.65 m
P	20.48 m
E	7.00 m
J	6.05 m

1.3 Engine

Volvo Penta 55 hp D2 55 S/SR	optional 75 hp
Transmission	S-Drive

1.4 Generator

Optional a generator is available (Please see Price List and Options)

1.5 Tanks

Water	500 l
Fuel	300 l

1.6 Certification

CE RINA	Open Sea Category A

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 Operating 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 aluminum 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 labeled in English, German or Italian language. All cables are coded. We recommend labeling 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. If necessary, the shipyard has the right to request of moving the yacht to the nearest maintenance centre.
The Builder shall not be held responsible for equipment supplied by the Owner.
For additional equipment, the manufacturer's 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 (R.I.N.A.). RINA is also approving the yachts construction before issuing the CE certificate.

2.1 Hull and deck

- Hull and Deck are in a sandwich composite construction using E-glass and PVC Airex core.
- This structure allows the construction of a light hull, which withstands the multi-directional loads much better and is far more rigid than other simple laminated constructions.
- The core consists of a closed cell Airex foam of different densities preventing moisture to enter into the construction in case of a damage.
- The lamination process and bonding with the sandwich is done through a vacuum bagging process.
- Vacuum bagging is also used for the lamination of the deck.
- In the high load areas reinforcements with unidirectional and bi-directional Carbon fabrics are used and the Airex core will be replaced with a higher density foam or marine plywood.
- The thickness of the laminate construction is carried out in accordance to the requirements of the design-engineer and checked prior to construction by an official approved Technical Authority.
- Transverse and longitudinal reinforcements are made to the correct dimensions in E-glass and laminated with epoxy resin to the hull.
- The main bulkhead and the forward bulkhead are in composite using an Airex core.
- The water lines are in Gelcoat or painted with polyurethane, colour grey.
- All the composite and plywood bulkheads will be well resin bonded and laminated to the hull and deck. This type of construction guarantees superior stiffness and strength compared to other silicone bonding systems. This represents a uniqueness of Solaris.

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.
- The keel is treated and protected by epoxy products.

2.3 Chain plates

- The central chain plates are made in composite and fixed into the strong superstructure of the yacht.
- The deck area around the mast and the chain plates will be reinforced with carbon. Where needed, the sandwich core will be made in marine plywood in lieu of Airex core.
- The aft chain plates are fixed to a marine plywood reinforcement and well resin bonded to the hull stringers and the deck.

2.4 Stays

- The dimensions of all shrouds and stays are defined by naval architects according to their working load.
- 1x19 stainless steel wire is chosen as a standard.
- Optional, rod rigging is available.

2.5 Structural bulkheads

- The main bulkhead and the forward bulkhead are in composite material. All the other bulkheads are made in teak 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 steelframes, welded to the shaft.
- Stainless steel shaft.
- Two compasses.
- 1.000 mm steering wheels.



3 Interior

3.1 General arrangements

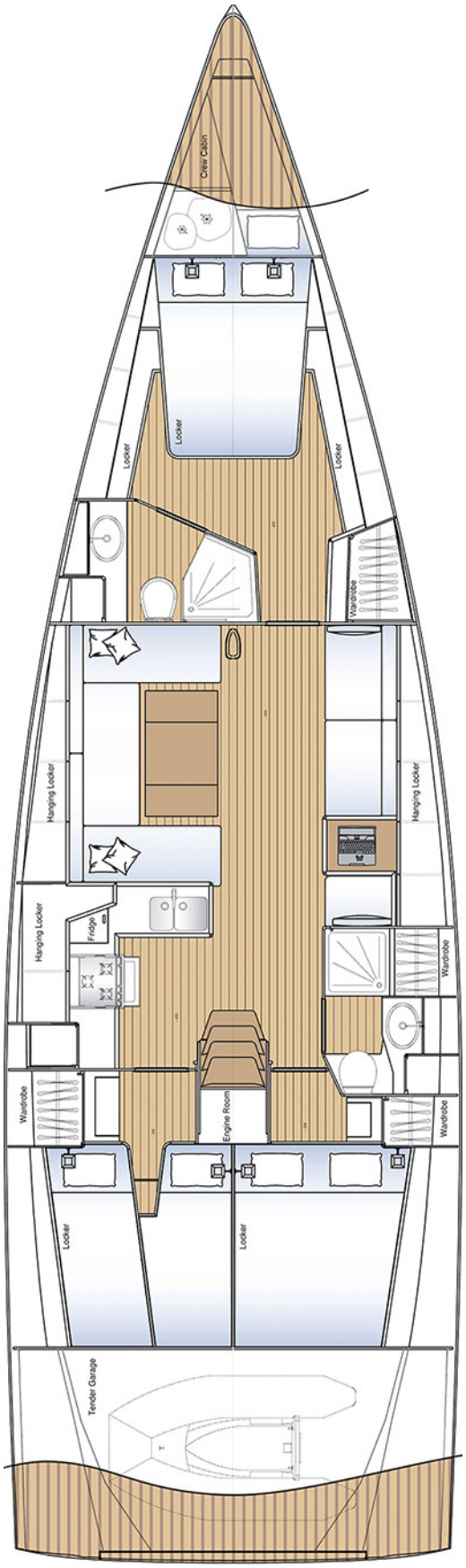
The standard price is based on the following description. Optional, the boatyard can build to individual owner's specifications. Every change has to be defined and calculated in the agreement and to be discussed with the owner.

- The boatyard is monitoring the optimum weight distribution.
- Stowage is maximised by using all spare space.
- The builder recommends Kaya wood (African mahogany) for internal, non-visible surfaces.
- Structural bulkheads in oak marine plywood.
- The galley and bathrooms topsides are fitted out in wood.
- High quality fabric is used for all cushions.
- All furniture is made in high quality oak, varnished with matt open pore finish.
- All woodwork is carried out with the best nautical tradition.
- Rounded edges for all hatches, bulkheads, seating, lockers, etc.
- Batteries are placed below the saloon seats. The switchboards are placed below the chart table.
- 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.

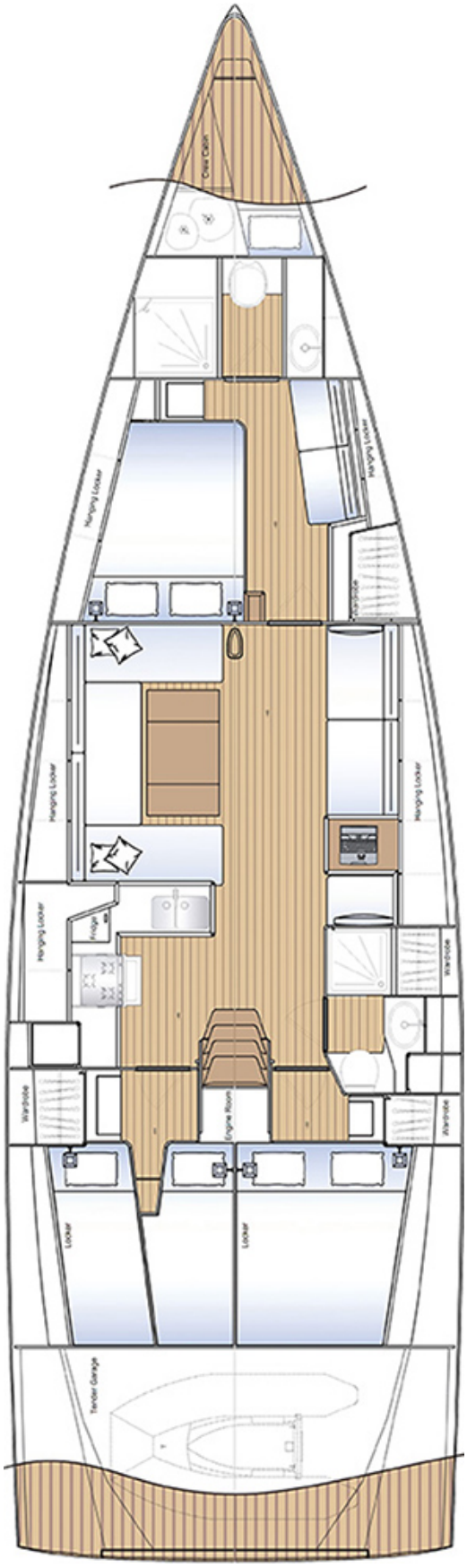


3.2 Layouts

3.2.1 Standard Layout



3.2.2 Extra Layout



3.3 Layout

- A Solaris 50 has a layout with three cabins, two bathrooms with a separated shower, a wide saloon with galley, a sofa, a dining table and a chart table. The chart table is practical and placed near the companion way.
- Every area to have space exploited at the best and wherever possible, there will be stowage areas as in best Solaris tradition.

3.4 Flooring

- 20 mm oak floorboards, varnished, with transversal grain.
- 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.
- Drawers made in teak plywood. Front in solid teak and fitted with press button locks.

3.7 Berths and sofas

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

3.8 Companionway

- Teak companionway ladder.

3.9 Handrails

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

3.10 Access to engine compartment

- The engine room has one main access door and one additional side access panel.
- The entrance is positioned to have easy access to all technical equipment at sea.

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 perforated aluminum panels white varnished.

3.12 Galley

- Stainless steel 3-burners oven on gimbals.
- All surfaces in wood.
- One stainless double basin sink.
- Polycarbonate protection between galley and sofa.
- Galley with lockers and drawers to store dishes, glasses, pots and galley accessories.

3.13 Toilet

- Bathroom lockers are easily accessible for maintenance.
- Wooden topsides.
- Composite sinks, headlocker with mirror front.
- Flooring with shower cabin in polyethylene grating.
- Shower and basin are discharging outboards.
- Both bathrooms have a separate shower.
- Shower door made of plexor.
- Manual toilet type Jabsco Regular.



3.14 Black out screens

- Hatches, portholes and windows with Ocean Air mosquito and sun screens.

3.15 Fore cabin

- Wide double berth with big drawers underneath.
- Spacious wardrobe.
- Side shelves.



3.16 Saloon

- A wide U shape sofa.
- Table joinery in solid teak.
- The navigation area has a built-in chart storage compartment and the chart table is fitted facing outboard.
- Locker for instruments.
- Electric panel with hinged door for inspection at chart table.

3.17 Stern cabins

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


NO.1

4 Engine

4.1 Engine

- Volvo Penta 55 hp D2-55 S/SR.
- S-Drive.
- 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. 300 lt.
- Copper tubing for fuel lines.
- RACOR fuel filter and 1 water separator easily accessible.
- Tanks fitted with an analogue level indicator.

4.3 Fire-fighting system

The whole yacht including the engine room, the electric and technical systems comply to RINA certification.

- Fire extinguisher for the cabins and engine room.

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

- Rigid polyethylene fresh water tanks. Access for inspection and cleaning.
- Total water capacity of 500 lt.
- Tanks located below the seats in salon.

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 wastewaters are collected in a black holding tank (one for each bathroom) which discharges outboard by gravity.

6.5 Deck cockpits

- The water on deck is drained by rubber pipes and valves on the bottom of the hull.

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 with suction in the bow shower, bathroom and in the sail locker.
- 1 electric pump with suction in the aft bathroom and the lazarette.
- 1 fresh water pressure pump, serving all water systems of a pressurized tank. Mounted easily accessible in the engine room.
- All bilge pumps are discharging outboards above the waterline.

6.7 Boiler

- 220 V AC Boiler for hot water, capacity 20 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

- One 12 V 130 l refrigerator as standard.
- Optional a second 90 l fridge can be installed.



8 Deck equipment

8.1 Deckplan



8.2 Fairleads

- 2 forward and 2 aft.

8.3 Mooring cleats

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

8.4 Hatches

1 hatch for anchor locker	flush, custom built by Solaris
1 hatch for sail locker	flush mount
1 hatch for owners cabin	flush Lewmar
2 hatches	for fore bathroom and cabin, Lewmar, flush
1 sliding hatch for the companion way	custom built by the yard with stainless steel frames and track. 15mm Perspex
2 hatches	for aft cabin Lewmar, flush
1 hatch for salon	flush Lewmar
1 hatch	for locker in cockpit
1 hatch	for lazarette
Stowage for 8 persons liferaft	in front of companionway in cockpit

8.5 Windows

- Opening side windows for salon in tempered crystal.
- Two fixed hull ports in saloon.
- The windows are made in shaded tempered glass.

8.6 Portholes

- 2 Lewmar opening portholes in cockpit for the stern cabins.
- 4 BSI opening portholes on coachroof for galley, stern bathroom and saloon.

8.7 Tracks, cars and lead blocks

- Harken tracks, cars and lead blocks.
- High quality deck equipment chosen by naval architects.
- All halyards, reef lines and outhole are lead under deck into the steering cockpit.
- Recessed track for the self-tacking jib.

8.8 Winches

- 2 primary winches model 50.2 STA for jib sheet.
- 2 mast winches model 50.2 STA for halyards.
- Standard supply of 2 aluminum handles with locking system.
- All winches are made in anodised light alloy, in black.

8.9 Anchor winch

- 1.500 W electric anchor winch, below deck with capstan drum.
- Chain is automatically feeded into the chain locker.
- 25 kg Delta anchor with 75 mt 10mm galvanized chain.

8.10 Steamhead

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

8.11 Pulpit, pushpit and stanchions

- Stanchions in stainless steel, diameter 25x2 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.

8.12 Toe rail

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

8.13 Deck

- Cockpits, included seats and aft surfaces covered with 10 mm laid teak, bonded onto the deck with epoxy resins.
- The forward deck and side deck surfaces are painted with non-slip paint. An optional Teak deck can be fitted.
- Stainless steel handrails mounted on the sides of the coachroof.
- Removable bathing ladder at the stern.

8.14 Peaks

- 1 fore peak to stow anchor chain, with discharge above the water line.
- 1 wide fore peak with a large hatch fitted with a supporting gas strut. Providing ample of stowage for fenders and sails. Equipped with two steps, a light and a stainless steel bar for lines stowage.
- 1 wide aft lazarette accessible via a hatch fitted with a supporting gas strut.
- 1 storage locker under the starboard cockpit seat.
- 1 storage for an 8-person liferaft under the cockpit floor in front of the companionway.
- Closed stern with an integrated bathing ladder. (Optional an electric opening bathing platform can be chosen).



9 Steering system

- The Solaris 50 is equipped with two GRP helmstations. Stainless steel steering wheels are covered in "Lorica".
- 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

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

10.2 Mast

- Mast is stepped through deck, 3 pair of spreaders.
- 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.
- Solid vang, 6 to 1 gear transmission ratio.
- 1 mainsheet attachment.
- Equipped for 3 reefing lines.
- Equipped for lazy jacks.

10.4 Rigging

- 1x19 wire rigging and stays.
- Stainless steel wire rigging and stays.
- Optional rod rig.

10.5 Furling system

- Manual of Furlex.

10.6 Hydraulic set

- Hydraulic manual backstay cylinder NAVTEC with integrated pump of proper dimensions for backstay.

10.7 Running rigging

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

- Main - and Genoa halyard are in Dyneema. Main sheet and self-tacking jib sheet are also in Dyneema. All halyards and sheets are spliced and if necessary fitted with a shackle.

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 12 V system

- The main electric system will be 12 V.
- Charging of batteries by generator (optional), shore power or main engine alternator. Alternators:
- 1 engine driven alternator capacity 115 Ah 12 V to recharge the batteries.

11.1.1 Batteries

- Lighting system, bilge pumps, pressure pumps, anchor windlass, refrigerator, discharge pumps, autopilot, navigation lights and electronics are powered by 12 V batteries, with a total capacity of 360 A/h.
- Starter batteries, 12 V AGM batteries of 75 A/h, charged by main engine.
- Mastervolt battery charger Mass 12/80 capacity of 80 A/h.
- New generation AGM gel batteries as standard.

11.2 220 V / 50 Hz system

- The 220 V 50 Hz group supplies the AC-users such as: boiler, battery charger, sockets.
- The 220 V 50 Hz group is supplied by shore power through a stern mounted socket: boiler, battery charger, sockets. Supplied also, by generator (optional) or an inverter (optional).
- 220 V AC socket in galley and at Nav. station.

11.3 Electric switchboard

Electric switchboard is split into 2 parts.

- 1 switchboard for AC, protection and distribution control with automatic thermomagnetic switches and functioning lights. Automatic main power switch.
- 1 switchboard for DC, protection and distribution control with automatic thermomagnetic switches and check lights for all consumers.
- 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.
- Switchboard to be set near the chart table.

11.4 Lighting

- Interior lighting with recessed ceiling lights and 6 reading lights for cabins.
- One night-light installed at companionway, light switch close to the hatch.
- Cockpit light below the boom.
- Forward deck light on mast.

11.5 Navigation lights

- Navigation light switches on the interior switchboard.
- Led green navigation light.
- Led red navigation light.
- Led stern light.
- Led anchor light on masthead.
- Led steaming light.

11.6 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.
- 1 flag pole with national flag.
- 4 x 20m mooring lines.
- 6 fenders.
- 1 boat hook.





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