

## SOLARIS 48



### **SOLARIS YACHTS**

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## 1 General

The following specification describes materials and the main production stages necessary to build a 14.90 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 48 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	14.90 m
LWL	13.38 m
Beam	4.40 m
Draft	2.80m as standard, optional 2.20m 2.40m and 2.60m
Waterline to masthead	23.98 m
Displacement	12,500 kg
Ballast	4,500 kg
Ballast/Disp Ratio	0.36

## 1.2 Sail area

Sail area	144 m <sup>2</sup>
Genoa 106%	68 m <sup>2</sup>
Mainsail	76 m <sup>2</sup>
I Genoa	20.20 m
P	20.23 m
E	6.70 m
J Genoa	5.60 m

## 1.3 Engine

Volvo Penta 55 hp D2 55 S/SR or Yanmar 55 hp 4JHSCE	optional 75 hp
Transmission	S-Drive

## 1.4 Generator

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

Water	500 l
Fuel	300 l

## 1.6 Certification

CE RINA	Open Sea Category A
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## 1.7 Drawings

- Bill Tripp (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 build 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  $\frac{1}{2}$  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 (Bill Tripp) 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 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.

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 (R.I.N.A.). RINA is also approving the yachts construction before issuing the CE certificate.

### 2.1 Hull and deck

- Hull and deck in sandwich construction (PVC Airex Core) of uni- and bidirectional fiberglass.
- 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 resin INFUSION is used for lamination.
- Where needed reinforcements are done in carbon or single skin lamination as in the keel area.
- The strength of resinbonded laminates conform to the designer's specifications and are regularly controlled by their competent technical departments.
- The transversal (floor) and longitudinal reinforcements of the hull are made in composite material and well resinbonded to the hull.
- Waterline and the yacht's name on the transom are painted with polyurethane varnish. Colour and type to be chosen by the owner.

### 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 chainplates are made in composite and fixed into the strong superstructure of the yacht.
- The deck area around the mast and the chainplates will be reinforced with carbon. 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.
- 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.
- Solimar steering system.
- Two Suunto compasses mounted in front of the helmstation.
- 900 mm steering wheels.



## 3 Interior

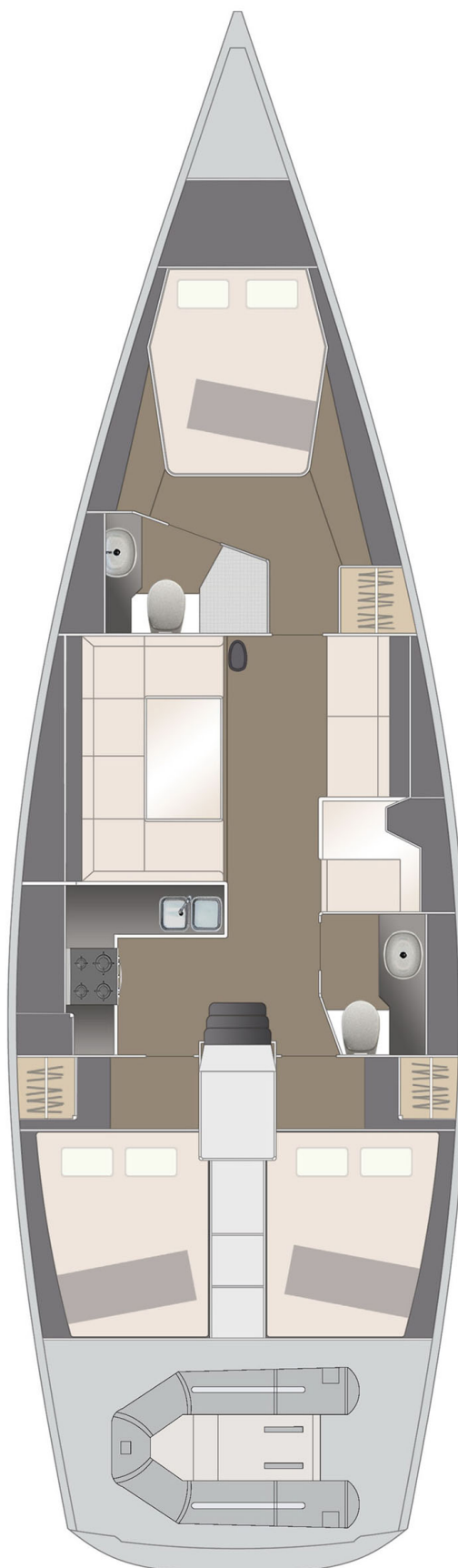
### 3.1 General arrangements

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 teak marine plywood.
- Galley and bathrooms topsides are made of wood. Optional Corian.
- High quality fabric is used for all cushions.
- All furniture is made in high quality teak, varnished with matt open pore finish. Oak interiors are available with price reduction.
- All woodwork is carried out with the best nautical tradition.
- Rounded edges for all hatches, bulkheads, seating, lockers, etc.
- Batteries are placed below the dinette seats. The main switchboard is placed below the seats near the mast and the other one 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 Standard layout



### 3.3 Layout

- A Solaris 48 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 where ever possible, there will be stowage areas as in best Solaris tradition.

### 3.4 Flooring

- 20 mm teak floorboards, varnished.
- 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

- Engine room with one entrance.
- The entrance is positioned to have an 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 forated 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 in teak, varnished.
- Composite sinks, headlocker with mirror front.
- Flooring in teak, shower cabin in polyethylene grating.
- Shower and basin are discharging outboards.
- Owner's bathroom with separated 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 Salon

- A wide U shape sofa for 6 people with drawer for stowage.
- Table to be of solid teak.
- 2-seat sofa in front of the dinette.
- Nav. station with seat, chartlocker.
- Locker for instruments.
- Electric panelboard 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.

## 4 Engine

### 4.1 Engine

- Volvo Penta 55 hp D2-55 S/SR or Yanmar 55 hp 4JH5CE (75 hp optional).
- 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 analog 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 in the engine room with remote control placed in the salon.

### 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

- Toilet aft discharges in a stainless steel black water holding tank, with drainage by discharging outboard, while the forward toilet discharges directly outboard.



## **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 and bathroom and in the sail locker.
- 1 electric pump with suction into 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 heatexchanger 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 80 l fridge can be installed.

## 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 aluminum.
- To be made in Solaris' quality.



## 8.1 Deckplan



- Optional according to Pricelist and Options: Deck walking surfaces covered with teak battens.

## 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
2 flush hatches	for fore bathroom and cabin
1 sliding hatch for the companion way	custom built by the yard with stainless steel frames and track. 15mm Perspex
2 Lewmar hatches	for aft cabin
1 hatch for salon	flush
2 hatches	for lockers in cockpit
1 hatch	for lazarette
1 hydraulic hatch for tender garage on stern	custom built by Solaris

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

## 8.5 Windows

- 2 fixed side windows for salon in tempered crystal.
- 4 fix salon windows in tempered crystal.
- The windows are made in shaded tempered glass.

## 8.6 Portholes

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

## 8.7 Tracks, slides and leading blocks

- Harken tracks, slides and leading blocks.
- High quality deck equipment chosen by naval architects.
- All halyards, reefinglines and holes are lead into the cockpit below the deck structure.

## 8.8 Winches

- 2 winches model 53.2 ST for jib sheets.
- 2 winches model 48.2 ST for mainsheet system.
- 2 mast winches model 48.2 ST for halyards.
- Standard supply of 2 aluminium 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 pullpit 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. Teak battens 37 mm wide, bonded onto the deck with epoxy resins.
- Forward deck surfaces and deck walking horizontal surfaces are painted with Awlgrip Anstiskid paint. Optional they can be fitted with teak.
- 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 support cylinder for the stowage of fenders and sails, equipped with two steps, a light and a stainless steel bar for lines.
- 1 wide aft peak with gas cylinder, hydraulic opening, for the stowage of a 2.4 m tender.
- 2 areas under cockpit seats, one for the life raft and one the gas bottles stowage. There will be enough space for other stowage.



## 9 Steering system

- The Solaris 48 is equipped with two GRP helmstations. Stainless steel steering wheels are covered in "Lorica".
- 2 SUUNTO compasses in front the helm stations.
- The steering system and equipment is by Solimar.
- Steering gear is protected, still easily accessible for inspection.
- Stainless steel emergency tiller to fit directly onto the rudder shaft.



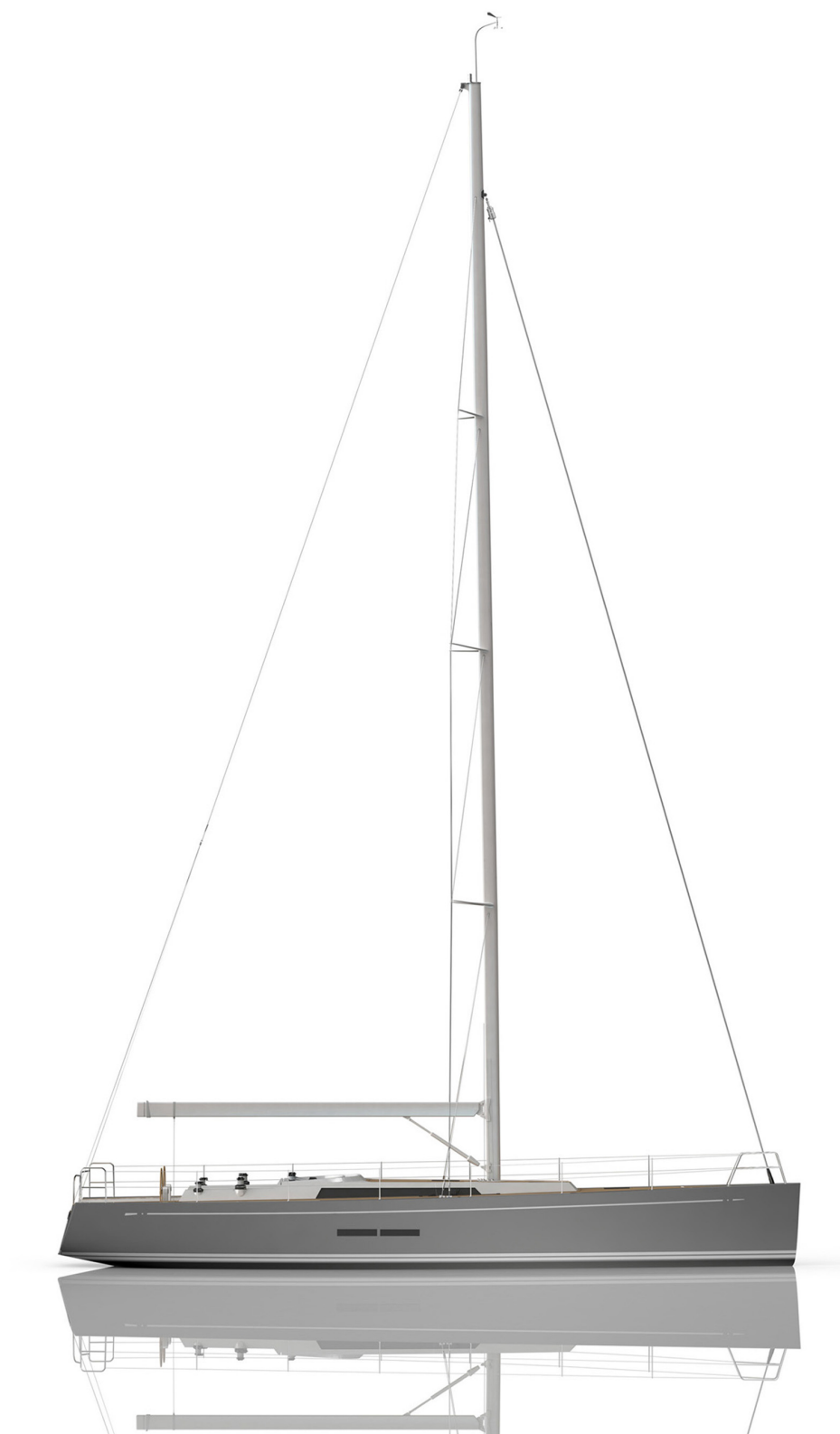
## 10 Rig/Sails

### 10.1 Rig

- Aluminum mast.
- Mast is build one piece and designed for a fully battened mainsail and 106% genoa.
- Harken manual jib furler, mounted below deck.
- Harken tracks, slides and leading blocks.
- Standard is a 9/10 sloop rig.



## 10.2 Sail plan





### 10.3 Mast

- Mast is stepped through deck, 3 pair of spreaders as standard.
- Tapered on masthead.
- Equipped with blocks and tracks for 1 mainsail, 2 genoa 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.

### 10.4 Boom

- Manual outhaul system.
- Solid vang, 6 to 1 gear transmission ratio.
- 1 mainsheet attachment.
- Equipped for 3 reefing lines.
- Equipped for lazy jacks.

### 10.5 Rigging

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

### 10.6 Furling system

- Manual of Harken.

### 10.7 Hydraulic set

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

### 10.8 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 halyards and sheets are in spectra, 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 6V AGM batteries, connected in series and then in parallel, with a total capacity of 360A/h.
- Starter batteries, 12 V AGM batteries of 55 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 saloon.

### 11.3 Electric panelboard

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.
- Panelboard to be set near the chart table.

### 11.4 Lighting

- Interior lighting with recessed ceiling lights and 4 reading lights for cabins.
- One night-light installed at companion way, lightswitch close to the hatch.
- Cockpit light below the boom.
- Forward deck light on mast.



### 11.5 Navigation lights

- Navigation light switches on the interior panelboard.
- Led green navigation light model Lopolight 300-001.
- Led red navigation light model Lopolight 300-002.
- Led stern light model Lopolight 300-006.
- Led anchor light on masthead model Lopolight 200-012.
- Led steaming light model Lopolight 200-011.

### 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 20m mooring lines.
- 6 fenders.
- 1 boat hook.







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