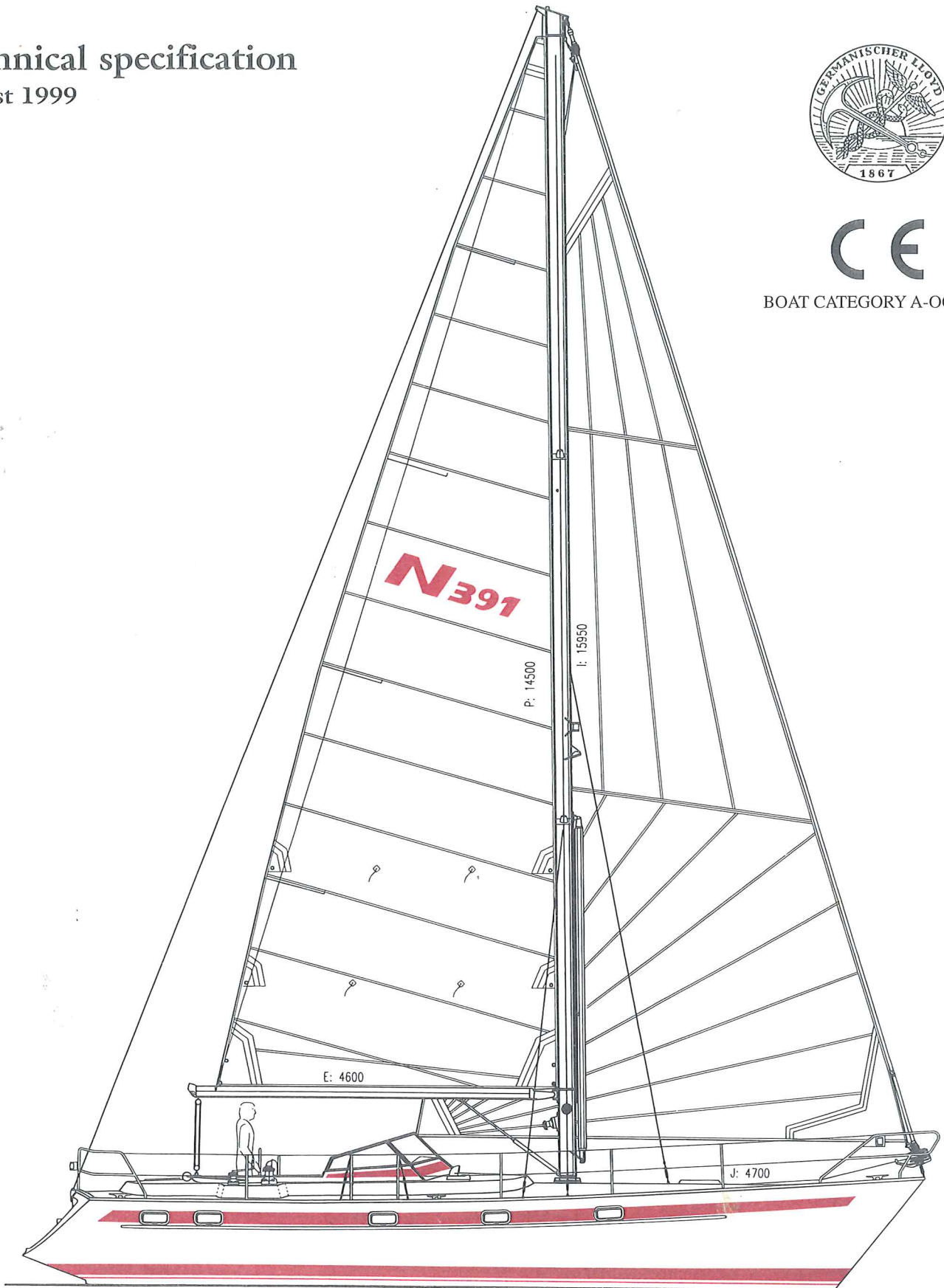


Technical specification
August 1999



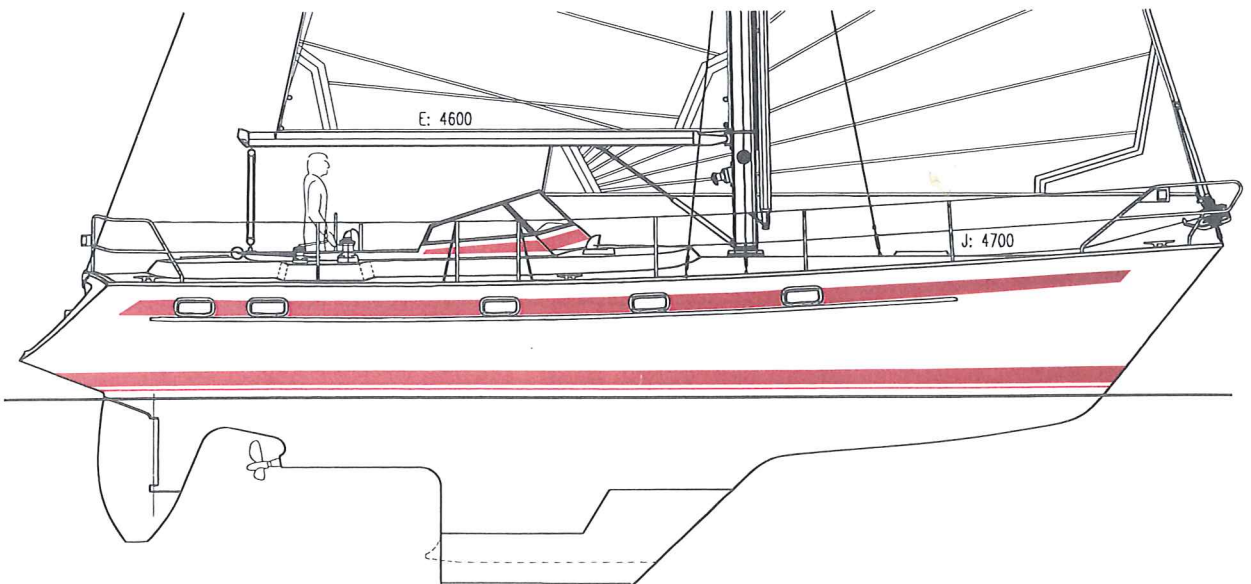
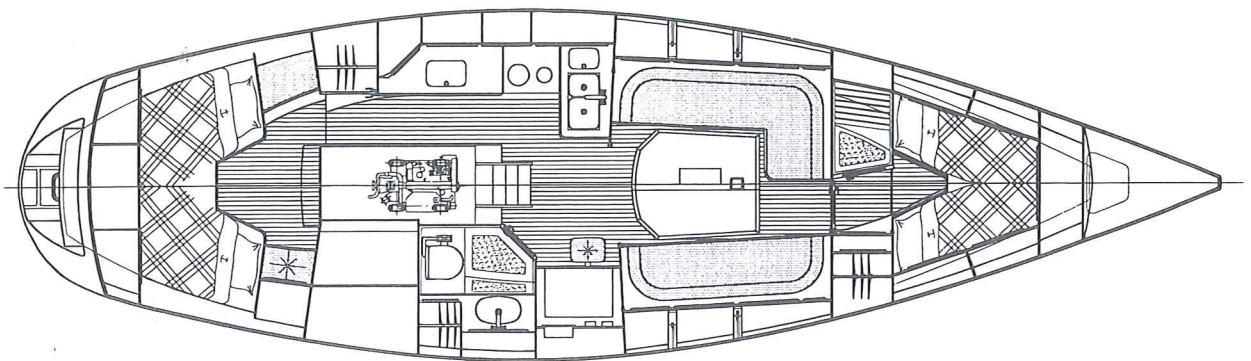
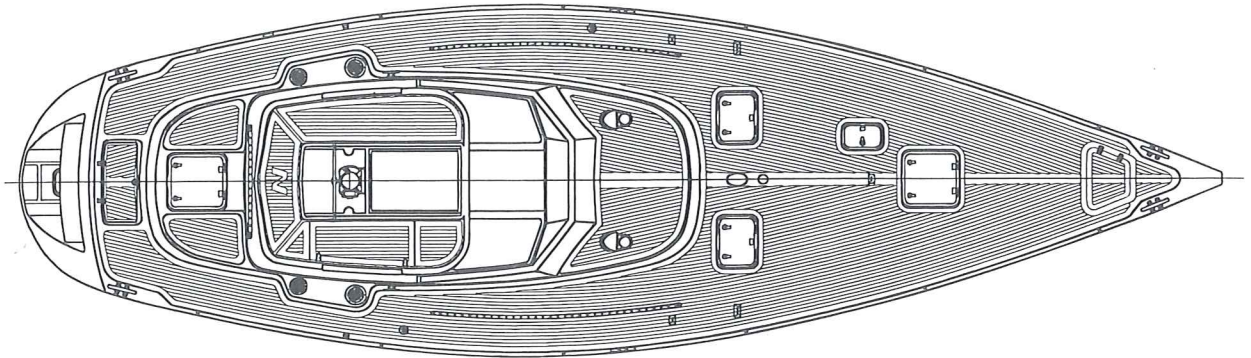
BOAT CATEGORY A-OCEAN



NAJAD
391

NAJAD

391



Specification

Design: Najadvarvet

Dimensions and data

Length overall	39'8"	(12.10 m)
Length waterline	33'2"	(10.10 m)
Beam	11'11"	(3.63 m)
Draught	6'3"	(1.90 m)
* Shallow draught	5'6"	(1.69 m)
Displacement	10 000 kg	(10,0 t)
Bolted lead keel	4 200 kg	(4.2 t)
Mast height above water line	59'5"	(18.10 m)
Headroom in saloon	6'4"	(1.93 m)
Total height for transportation	13'5"	(4.10 m)

Gelcoat

hull	Neste GN 10000
deck	Neste GN 12050
rim and water lines	Jotun GE 2001

Engine

Yanmar 4 JH3-TBE	
prop. shaft output	71.5 h.p., 52.6 kW
Flexible shaft connection	

Volume of tanks

Fuel tank in stainless steel.	
Water and holding tanks in acid resistant stainless steel.	
Water capacity	67 gal. 305 l
Hot water heater	9 gal. 40 l
Fuel capacity	60 gal. 275 l
Holding tank capacity	32 gal. 145 l

Sail areas

Cruising	780 sq.ft. (72.5 m ²)
Main	404 sq.ft. (37.5 m ²)
Working jib 110%	377 sq.ft. (35.0 m ²)
* Full-batten main	420 sq.ft. (39.0 m ²)
* Furling main, (mast)	388 sq.ft. (36.0 m ²)
* Furling Genoa, 140%	570 sq.ft. (53.0 m ²)
* Hard wind jib	269 sq.ft. (25.0 m ²)
* Storm jib	129 sq.ft. (12.0 m ²)
* Spinnaker	1 378 sq.ft. (128.0 m ²)
* Cruising chute	1 130 sq.ft. (105.0 m ²)

* = Extra equipment

Mast and rig

Masthead rigged with two pairs of spreaders, twin lower shrouds and baby stay. Prepared for inner forestay (cutter stay). Seldén mast in silver anodised aluminium profile 224/150 mm, height 52'12" (16.5 m) above deck, stepped on the coachroof and supported by a galvanised steel pillar that is placed on the longitudinal and transverse bottom reinforcements. 19-ply stainless steel wire standing rigging. 10 mm forestay, backstay, lower shrouds and cap shrouds. 8 mm intermediate shrouds and baby stay. Stainless steel rigging screws. 3/4" for top shrouds, 1/2" for intermediate shrouds and baby stay, all others 5/8". Head sail furling system, Seldén Furler 310S, with control line on port side, drawn through blocks on the stanchions and stopper on the cap rail to cockpit. Backstay adjuster, mechanical.

Seldén rodkick and topping lift

The mast is fitted with deck light, steaming light and prepared for spinnaker equipment. 2 x stainless steel selftailing halyard winches Andersen 28ST, winch handle pocket, stainless steel reefing winch, Windex and flag halyards. Rope to wire main and Genoa halyards. Ample cleats.

Stainless steel chain plates, bolted to transverse bulkheads laminated on both sides to the hull (see drawing at the end of specification).

Seldén boom in silver anodised aluminium profile 171/94 mm with internal outhaul and twin reefing lines with stoppers.

Six-to-one cut main sheet with ball bearing car, on a sheet track with trim lines.

Sails

Mainsail with sliders on luff and bolt rope on foot in 400 g/m² high quality Dacron cloth. The mainsail is fitted with sail number, battens, telltales and two reefs.

The working jib in 400 g/m² high quality Dacron cloth with telltales.

Sailbags.

Deck fittings

2 x stainless steel Genoa sheet winches, self-tailing Andersen 52 ST.

2 x 10" (25 cm) lockable winch handles.

4 x 13" (35 cm) mooring cleats, through bolted.

2 x 12" (30 cm) spring cleats, midships, through bolted.

Stemhead fitting with integrated anchor roller below deck for a 20 kg Bruce anchor. Pulpit and pushpit in acid resistant steel through bolted.

A teak step is fitted to the pulpit.

Double lifelines with four pairs of stanchions screwed to fittings, which are through bolted to the rail below the capping (see drawing at end of specification).

Folding safety ladder fitted in the integral swimming platform.

Main sheet track with trimlines to ball bearing car.

9'10" (3 m) long Genoa tracks and 2 x sheet blocks with trimlines adjustable from cockpit.

Windscreen of toughened glass in aluminium frame.

5 x skylights, two of these (320x450 mm) over the saloon, two (500x500 mm) over forward and aft cabins and one (200x340 mm) over the shower cabin.

10 x stainless steel portholes in the hull sides, 4 are to be opened.

2 x Dorade deck ventilators with stainless steel protection bars.

Deck fillers for water and fuel.

One stainless steel deck fitting to run all cables to mast. All mast cables are connected below deck.

Additional deck fittings

• Internationally by approved navigation lights.

- Illuminated compass.
- Sprayhood from the top of the windscreen.
- Shower at the swimming platform.
- 15 kg folding anchor, 3 m chain and 40 m 16 mm warp.
- 4 x 10 m, 18 mm mooring lines.
- 4 x 8"x 27" fenders with lines.
- Ensign staff and boat hook.

Deck and superstructure

Deck and coachroof are built in sandwich construction in glass fibre reinforced polyester.

The colour is white with carmine red trim line.

Hull and deck are laminated together.

Strengthened glass fibre laminate beneath stressed areas.

Substantial teak capping.

The deck, the coachroof and the swimming platform are laid with solid caulked teak, screwed with acid resistant screws and laid in silicon.

Large self-draining locker forward for chain, warps, fenders and gas bottles. Large self-draining locker aft for stern anchor, ropes, etc.

One 32 mm and one 16 mm internal deck drain on each side of the deck, with outlets at the waterline.

Winch brackets on both sides of the cockpit leading to support both Genoa and Spinnaker sheet winches.

Cockpit

Spacious cockpit with a large navigation table and sliding hatch in unvarnished teak below fixed windscreen.

Integrated grab rails in the curved angles of the navigation tables.

Seats covered in caulked untreated teak. Helmsman's seat with inlaid Najad logo behind the wheel.

Removable teak grating.

Steering pedestal with stainless steel protection bar for the compass which also supports the cockpit table.

Flush recesses in the coamings port and starboard with ventilation to the engine room.

The starboard one also contains the engine control panel.

Behind the windscreen and in the cockpit recesses there is space for additional instrumentation.

The sprayhood is splash-proof and fitted in a groove to the top edge of the windscreen. The sprayhood offers a protected area at the forward end of the cockpit. A sprayhood extension can be fitted to cover the whole cockpit (extra equipment).

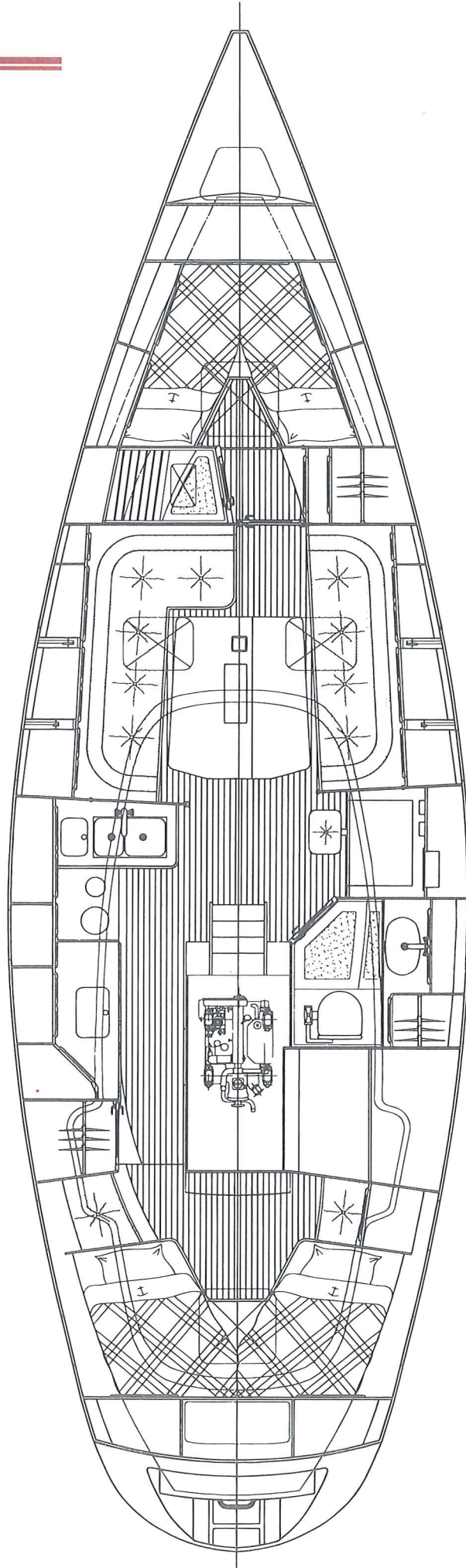
Spacious cockpit locker under the starboard seat containing cockpit table, washboards and fire extinguisher.

Below the cockpit locker, space for the hot water boiler, holding tank, pumps, etc.

Manual bilge pump operated from the cockpit.

2 x 32 mm cockpit drains with drains from the seats.

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Interior

The interior is handcrafted in selected and unstained African Mahogany, hand polished and varnished to a satin finish.

Cupboards and doors in solid Mahogany with profile-milled frames.

Hull sides above berths are lined in Mahogany.

Flooring of varnished teak plywood with holly inlay.

Removable hatches for the bilge and tank gauges.

Headlining of white vinyl covered panels with Mahogany strips.

Layout

The standard layout in the Najad 391 is built according to drawing in this specification. Each boat is built to order, with the possibility of choosing other fixed layout alternatives to additional price. Changes in layouts and prices have to be confirmed by Najad before the building starts.

Saloon

The spacious saloon is the central living area in the boat. Two wide settees with removable backrests and curved edges surround the saloon table. Folding table top on starboard side. Bottle stowage in centre of table.

Shelves and overhead cupboards above the sofa backrests.

Watertank under starboard settee.

Fuel tank under port settee.

Ample overhead lights and reading lights for settees and berths.

Grab rail in the ceiling on starboard side and on both sides of the companionway.

Fire extinguisher under the saloon table.

Galley

The L-shaped galley is located amidships to allow free passage between the cockpit and saloon.

Stainless steel twin sinks.

Pressure system with accumulator tank for hot and cold fresh water. Foot pump for manual operation.

Single lever tap for hot and cold water.

Gimballed twin burner gas cooker with oven.

Gas pipes with remote controlled shut off valve between cooker and gas bottle.

Work top over cooker, easy to stow.

Large work areas in durable laminate, easy to clean.

Well insulated ice box 100 ltr with refrigeration unit, 3 suspended baskets and space for standing bottles.

Deep stowage area outboard of sinks.

Plenty of storage cupboards for plates, cups and glasses.

Cupboard under cooker for pans, etc.

Waste basket under sink.

Drawers.

Lights over work area.

Opening porthole over the cooker.

Navigation area

The navigation area is located amidships to starboard forward of the heads, separated from the saloon by a bulkhead with integrated grab rail.

Folding stool.

Chart table with stowage for charts.

Drawers and a separate chart stowage under the deck.

Flexible chart lamp.

Ample space for individual instrumentation and modern navigation equipment.

Folding switchboard for easy access, equipped with circuit breakers and prepared for additional circuits.

Heads/Shower

Large heads compartment, amidships to starboard, standing headroom 6' (1.85 m) with white laminated bulkheads together with matching Corian® on the bench surface and the sole. Large wash basin built into the worktop.

The WC is placed longitudinal with supporting bulkheads on each side, easy to use at sea.

Manually operated toilet pump, discharged straight out or to holding tank, and deck evacuation.

Hot and cold pressurised water with single lever tap.

Separate hand shower.

Below the sole a shower sump drained to the sea with an electrical pump.

Mirror on upper part inside the door.

Internal lights.

Cupboards and ventilated wet locker.

Opening porthole in the hull and to cockpit.

Aft cabin

A passageway on the port side at the galley leads to the aft cabin.

Wide berths on each side, wardrobe and a seat to starboard. Seat and wardrobe to port side. Door to galley/saloon.

The berth bottoms are unvarnished and ventilated with holes to avoid dampness.

Four portholes, whereof two opening, and a skylight which also can be used as emergency exit.

Forward cabin

Two wide full length berths 6'7" (2 m).

Numerous cupboards and hanging wardrobe. The berth bottoms are unvarnished and ventilated with holes to avoid dampness.

Skylight which also can be used as an emergency exit.

Shower cabin

Separate shower forward on port side.

Shower control with thermostat mixer tap and electrical drain pump. Grating in Corian®. Seat in teak.

The space can be built into a toilet (extra equipment).

Opening deck hatch.

Textiles

Saloon settees: 125 mm cushion with raised forward edge made up from 75 mm, 35 kg/m³ polyeter and topped with 50 mm, 26 kg/m³ foam.

Berths: 120 mm cushion made from 100 mm, 35 kg/m³ polyeter and topped with 20 mm fibre fill.

Infill cushion in the forward cabin included.

Upholstery: All cushions are covered with strong, hardy blue Corduroy. Flame-proof BS 5852.

Ventilation

Forward cabin: Opening skylight.

Shower cabin: Opening skylight.

Saloon: Two opening skylights. Ventilation louvres in washboards and two Dorade ventilators.

Galley: Opening porthole.

Toilet: 2 opening portholes and ventilator to cockpit.

Aft cabin: Opening skylight, two opening portholes and two ventilators.

Hull

The hull is hand-laid in a sandwich construction of triaxial Rowing with ISO polyester.

The surface layer is of NGA gelcoat for maximum protection against water penetration.

An integral swimming platform with swimming and safety ladder in the transom.

① It is reinforced with a longitudinal and transverse floor plate construction. This supports keel fittings, mast pillar, engine frame, tanks and the cabin floor.

There are additional longitudinal reinforcements (stringers) in the hull.

All main bulkheads are laminated on both sides to the hull. Transverse chain plate fittings laminated to the hull.

② The galvanised steel mast pillar is bolted to the floor plate construction.

The rubbing strake is an integral part of the hull and is fitted with a brass capping.

10 x stainless steel portlights in the hull (4 opening).

The colour is white with carmine red trim line and water line laid in the gelcoat.

Below the water line the hull is treated with epoxy primer and antifouling paint.

The hull is topcoated internally.

Keel

③ The entire keel is made up by NACA profiles.

The lead keel is bolted on with 13 x 20 mm acid resistant stainless steel bolts. A small wing at the bottom of the keel reduces the water flow beneath the keel which results in less drag.

The join between the hull and lead ballast is stepped up to eliminate the shearing forces when going aground.

Shallow draft keel available. (Extra equipment).

Rudder and steering

Rudder and skeg in NACA profile.

④ Semibalanced rudder in glass fibre reinforced polyester with 50 mm acid resistant stainless steel rudder post.

Rudder fittings in cast bronze bolted to the skeg.

Steering pedestal in glass fibre reinforced polyester with a leather covered, stainless steel wheel, diameter 2'7" (900 mm), compass and top fitted single lever control for the engine. Full rudder action from starboard to port: two revolutions.

Wheel shaft with adjustable friction brake. Stainless steel chain and wire cable to quadrant.

The steering system is optimized with a minimum (4) of pulleys for excellent steering. The quadrant arrangement allows for the steering wire not to prestress the rudderpost.

Rudder post sealed with greased stuffing box.

A fitting for autopilot can easily be installed to the top of the rudder post

Emergency steering on rudder post by tiller.

Tanks

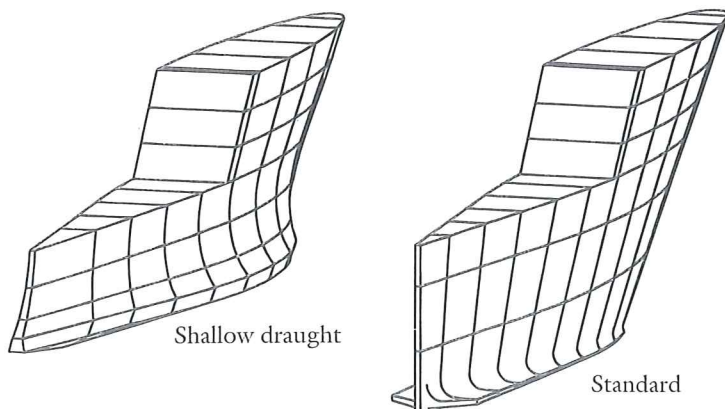
⑤ Fresh water tanks, capacity 305 l, in acid resistant stainless steel installed between floor plate construction amidships and under starboard settee. The tanks are fitted with inspection hatches and level gauges. Deck fillers at starboard, amidships. Foot pump as spare in the galley.

⑥ Fuel tank in stainless steel with level gauge. Separate manual pump to the tank bottom for evacuation of dirt and condensation.

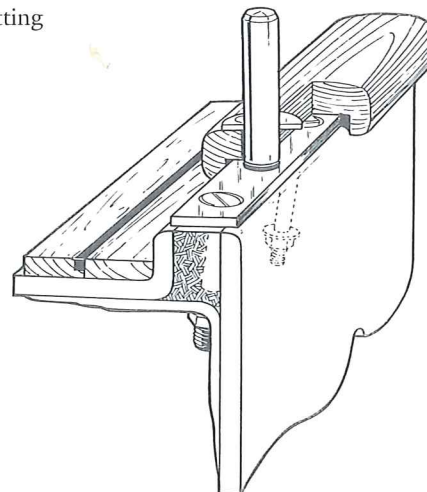
⑦ Holding tank in acid resistant stainless steel in the starboard cockpit locker. Manual pump in the heads compartment for evacuation via through hull fitting and deck evacuation.

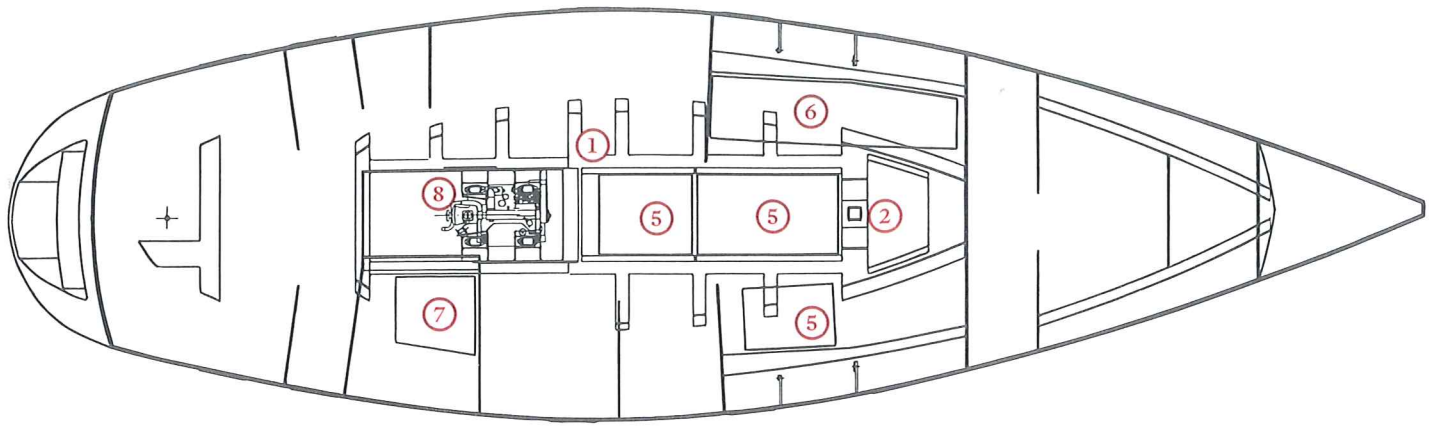
All hoses connected to the WC as well the tank are of the gastight type.

③ Keel



Stanchion fitting





To minimise the risk of electrolysis, keel, rudder post, tanks and propeller shaft are connected to a common earthing wire (incl. zinc anode and earth plate).

Through hull fittings

All through hull fittings up to the waterline are fitted with sea cocks. The reinforced hoses are locked with twin stainless steel jubilee clips.

Engine

⑧ Yanmar 4JH3-BE, 4-cylinder direct injection, 4-stroke marine diesel with fresh watercooling.

Power output at prop. shaft is 52.6 kW (71.5 h.p. at 3 600 r.p.m.).

Mechanical reverse gear.

35 mm propeller shaft in acid resistant stainless steel with flexible connection.

Stern gland with water lubricated rubber bearing.

3-blade fixed bronze propeller with shaft de. Right hand turning.

Single lever engine control at the pedestal.

Separate engine hour meter.

Instrument panel fitted to starboard cockpit recess including:

- rev. counter
- displays for

- low oil pressure
- high engine temperature
- charging
- electrical stop
- audible warning for oil pressure and engine temperature
- switch for instrument lights and alarm test
- key starter

Electrical starting engine, 1.2 kW.

The engine is mounted on four rubber cushions for effective vibration damping.

Wet exhaust with swan neck and effective rubber silencer.

An advanced combustion system provides for effective combustion which minimizes harmful gas discharges.

The engine is certified for use on the Bodensee.

Soundproof engine room.

The engine is easily accessible for service through a door in passageway, behind the companionway steps and through the cockpit floor.

Electrical system

12 volt, electric system.

2 x 140 Ah domestic lighting battery.

115 Ah engine battery.

14 V/80 A alternator.

Charging regulator for start and domestic batteries.

The cables to a large extent run in conduits. Main switch panel with automatic circuit breakers adjacent to chart table.

Water and fuel meters, voltmeter.

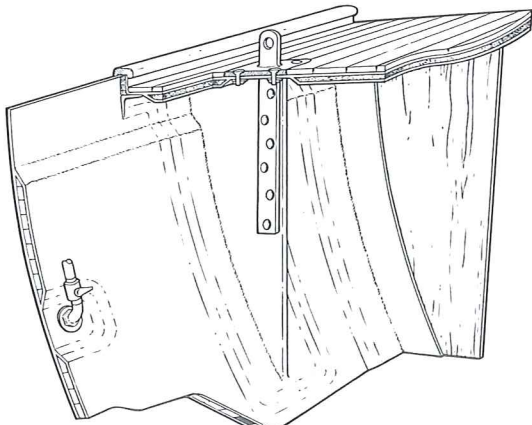
Two main switches.

6 x 12 volt socket outlets.

Additional installed equipment

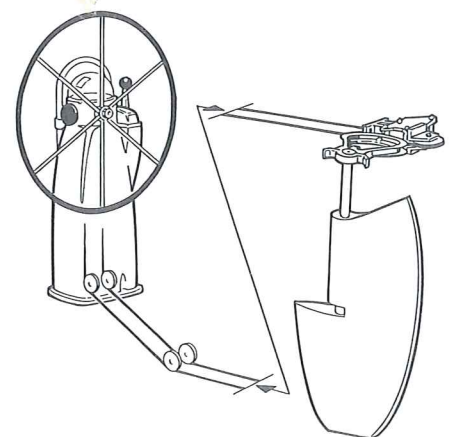
- Heater Eberspächer D5L-C, 5 outlets: heads, aft cabin, saloon, forward cabin and shower.
- Diaphragm bilge pump installed in the cockpit locker.
- Electrical drainage pump for the shower sump.
- 3 x fire extinguishers (powder ABE).
- 2 x 2.75 kg gas bottles.
- Electrical bilge pump, capacity 8 m³/h.

② Bulkhead and chain plate fittings.



⑧ Through hull fittings.

④ Rudder and steering system



Design

The Najad 391 is designed to be a modern long distance cruiser with the highest sailing performance.

The keel and rudder are built up by NACA wing sections. The fin keel is relatively long for good course stability and motion at sea.

The ballast lead keel with a ratio of 44 per cent is bolted on and a small wing at the bottom of the keel reduces the water flow which results in less drag.

The rudder is semibalanced with a strong half skeg, which ensures the steering is light and positive.

This combination of keel and rudder design enables the boat to have a turning circle of her own length.

The hull, keel, rudder and rig design have improved the sheeting angles to 10/14° and this has resulted in increased performance and speed.

The strong bottom grid and stringers are laminated into the hull in order to take the external and rig loads.

An integral swimming platform is built into the stern for comfort and security.

The 391 has got an open uncluttered flush deck with a small coach-roof aft which improves the headroom in the aft cabin.

The windscreen is forward of the instrument panel in the cockpit to create more space below the sprayhood.

The cockpit recesses in the coamings are flush which gives a more comfortable backrest.

Below deck the layout is basically the same as in many of the other Najad models. Our experience has shown that this layout proves to be the best at sea.

Based on modern techniques and many years of experience the Najad 391 is a product of perfection from Najad.

Depending on extra equipment Najad reserve the right to trim the boat with internal ballast.

Built according to Germanischer Lloyd's specifications

Each boat is designed and built to Germanischer Lloyd's specifications for "GL100 A5". These include hull, deck, superstructure, main bulkheads, engine bed, chain plate attachments and stem fittings as well as plumbing and installation of engine, electrical and electronic equipment.

A Germanischer Lloyd's Certificate and plaque is supplied with each boat.



The Najad 391 is classified according to the CE rule "Boat Category A-Ocean", and documentation for this rule is delivered with each boat.

Engine installation

Engine installation and other equipment in the engine room is approved by Yanmar regarding fuel and air inlets, temperature and ventilation.

Insurance

The yard's own insurance will cover the boat and other equipment supplied by the builder during the building time until delivery. Owner supplied items to be insured by the same.

Warranty

The hull has five (5) years warranty against faults in the laminate caused by water penetration (see warranty conditions).

The boat has one year (12 months) warranty, valid from date of delivery, against production and material faults. Installed equipment has manufacturer's warranty according to their warranty conditions.

General

This specification is valid at the time of printing. Details of the construction, manufacture and equipment may be changed as a result of development in production and sailing the boats. The standard of quality and equipment will, however, be as specified. Drawings may in some cases show extra equipment.

Extra equipment

For additional equipment, please see separate list of accessories.

NAJAD

Najadvarvet AB, SE-473 31 Henån, Sweden.

Tel +46(0)304 360 00. Fax +46(0)304 311 79. www.najad.com. E-Mail: info@najad.se