

SWAN 120

CONCEPTUAL STANDARD
SPECIFICATION

GENERAL INDEX

- 00. GENERAL**
- 01. HULL**
- 02. DECK**
- 03. INTERIOR**
- 04. ENGINE AND HYDRAULICS**
- 05. PLUMBING AND VENTILATION**
- 06. ELECTRICAL**
- 07. ELECTRONICS**
- 08. RIG**
- 09. EQUIPMENT**

SWAN 120

CONCEPTUAL STANDARD SPECIFICATION

Dimensions

LOA	36.55 m	119.9 ft
LWL	32.84 m	107.7 ft
Beam max	8.12 m	26.6 ft
Draught (Standard keel)	4.70 m	15.4 ft
Draught (Telescopic keel, <i>optional</i>)	5.50 m / 3.50 m	18.04 / 11.48 ft
Displacement (light)	99.000 kg	218.257 lbs
Displacement (loaded)	112.000 kg	246.917 lbs
Ballast	30.600 kg	67.460 lbs
Engine Scania DI13 081M	331 kW	450 Hp
Estimated gross tonnage	150	

Rig and sail dimensions

I	44.42 m	145.7 ft
J	13.85 m	45.4 ft
P	43.00 m	141.1 ft
E	14.10 m	46.2 ft

Sail areas

Fore triangle	307.0 m ²	3304 sq.ft
Main Sail	360.5 m ²	3880 sq.ft
110% Jib	332.5 m ²	3579 sq.ft
Asymmetric spinnaker	TBD	

Tank capacity

Fuel	5500 l	1452 USg
Water	2650 l	700 USg
Hot water	220 l	58 USg
Grey water	600 l	158 USg
Black water	600 l	158 USg

Battery & power sources

Service battery	24 V 1980 Ah / 1 h
Radio battery	24 V 180 Ah / 1 h
Starting batteries	24 V 75 Ah / 20 h
Diesel generators	2 x 230/400 V 32 kW 3-phase
Shore power	230/400 V 50A 3-phase

Naval Architect

FRERS NAVAL ARCHITECTURE & ENGINEERING

Construction Approval

DNV GL Plan Approval

Builder

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00 GENERAL CONDITIONS

The specification is believed to be correct at the time of printing and supersede any previous versions or translations to other languages.

The specification is to be read in conjunction with the sail plan, deck drawing and interior layout. Details may be changed as the result of experience in construction or use of the yachts.

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The Builder reserves the full right to substitute any equipment, materials or components within this specification with any functionally equivalent equipment, materials or components without prior notice.

The Builder guarantees skilled workmanship, in keeping with the best yacht practice for a vessel this size and in conformity with the specifications and drawings.

Main dimensions, displacement and ballast refer to a standard yacht, which is built to the specification for such standard yacht. The final ballast and displacement is to be confirmed by the naval architect. All draught dimensions are approximately and referenced to DWL. Optional equipment and customization can affect these values and relative performance of the yacht.

Standards, units, languages

International Standards to be the basis for standards, dimensioning, quality of materials and performance.

All plans, drawings, instruction manuals and other technical information shall be written in English.

00.01 Commissioning

01 Documentation

Builder's Certificate

A Builder's Certificate is supplied when full payment according to contract has been received.

Bill of Sale

A Bill of Sale is supplied when full payment according to contract has been received.

The Bill of Sale verifies that there are no liens on the yacht.

Certificate of Delivery

A Certificate of Delivery is to be signed by both parties at the time of the acceptance.

The Certificate of Delivery signifies the formal transfer of Ownership and simultaneously commences the warranty period at the given date.

Warranty

The warranty period for the yacht is two (2) years from the date of delivery. For purchased items, equipment or systems, the Builder provides the necessary documentation for proof of Ownership, warranty and any other documentation and/or manuals as supplied.

00.02 Test and trials

The correct and safe function of on-board installations and systems are verified by testing and trials as appropriate for each individual yacht.

The requirements for test and trial approval are based on safety, functionality, performance and reliability as demanded by the yachts specification, current regulations and the yards high standards.

Testing and trials are done while the yacht is afloat in order to secure realistic data, meeting or exceeding demanding criteria.

Records of testing and trials are kept on file at the yard for future reference.

00.03 Trim

The Builder reserves the right to adjust the ballast for trimming purposes.

The flotation of the yacht, built to this standard specification, will correspond to the displacement calculated by the builder. The side trim tolerance for the yacht, built to this standard specification, is +/- 0.5° and the longitudinal trim tolerance for the yacht, built to this standard specification, is +/- 0.1°.

00.04 Construction approval

The hull is built in accordance to DNV GL Plan Approval.

00.05 Hull identification

The model and hull number is shown on the Builder's Plaque and the CIN-code is on the hull.

00.06 After sales service

Nautor provides unique technical support and worldwide spare parts service. Records are kept of Nautor's Swan Yachts and of the drawings used to build them.

99 Yacht operation

Yacht should be manned by a professional crew at all times.

01 HULL

00 General

Scantlings, materials and workmanship throughout are consistent with the construction of a light weight hull without compromising strength or stiffness.

01.01 Laminate

00 General

The layup is of a foam cored carbon fibre epoxy reinforced construction in a female mould. A high proportion of the fibres are unidirectional resulting in a stiff structure.

01 Lay up

The hull shell is SPRINT®/Pre-preg carbon fiber foam sandwich construction. The laminate is vacuum consolidated and cured at minimum 70°C.

The core is M-grade Corecell™ SAN foam, with high density for more loaded areas.

01.02 Stiffening

01 Stiffeners

The stiffeners are made using Carbon SPRINT®/SE70 Prepreg. They are vacuum consolidated and cured at 70°C.

Special care is taken to assure rigid foundations and proper adhesion to the hull.

02 Structural bulkheads

The structural bulkheads are made using Carbon SPRINT®/SE70 Prepreg and foam core. They are vacuum consolidated and cured at 70°C.

There are additional carbon reinforcements around openings and cut-outs.

03 Chain plates

The composite chain plates are made from epoxy resin and unidirectional carbon fibre straps laid over stainless steel bushings.

The chain plates are post cured according to the material manufacturers recommendations. The chain plates are attached to the hull using high strength structural adhesives and laminates.

01.03 Hull finish

00 General

The hull is faired with minimum fairing and painted using Awlgrip/Awlcraft paint system. The name, homeport and Yacht Club are taped on the transom.

01 Topsides

The top sides are painted in white.

02 Boot top and water lines

Colour from the paint supplier's standard colour chart (non-metallic).

04 Bottom

There are flotation reference marks at bow and stern. The bottom is treated with four layers of epoxy primer and two layers of antifouling Jotun Megayacht Imperial black.

01.04 Keel

00 General

The ballast bulb is lead casting with 2.5% antimony and attached to a steel fin. The T-shaped keel is fixed to structures with high tensile material bolts.

01.05 Steering system

00 General

The steering system is a twin rudder and twin wheel sprocket and a chain system with steel cables. The steering cables are independently connected to the rudders.

01 Rudder

The rudders are supplied by Isotop. They have carbon fibre/epoxy skins on foam cores and tubular carbon fiber stocks. The rudders are designed with a sacrificial tip. Weed deflectors are located in front of the rudders and are surface mounted.

02 Rudder bearings and tillers

The rudders are supported by self-aligning bearings supplied by JP3. Lightweight aluminium steering tillers and autopilot rams are clamped to the rudder stocks.

03 Steering pedestal

The steering consoles are Nautor made in composite with space for navigation and control systems. See section 06.09.03. Hubs and sprockets are supplied by JP3. There is one handhold inboard on each pedestal.

04 Steering wheel

There are two 1200 mm Nautor designed clear coated 3-spoked carbon composite wheels. The wheels can be disengaged.

05 Emergency steering

Emergency steering is provided by means of double rudder installation and double independent wheel connection to the rudder tillers. The autopilot ultimately functions as a backup for the manual steering.

01.06 Mast step

00 General

The mast is stepped through the deck onto a carbon fibre mast step. There are tie rods from the mast collar to the step.

01.07 Through hull fittings

00 General

All sea cocks are made in bronze. The inboard side of the sea cocks are fitted with studs long enough to take two hose clamps.

01.08 Transom

00 General

There are three openings in the transom; transom door, shore connection hatch and gangway hatch.

01 Transom hatch

The transom door, when open, functions as a bathing and boarding platform. It is made of carbon fibre Prepreg for maximum stiffness and has 9 mm teak recessed on the backside. The door is hydraulically operated by stainless steel rams.

02 Shore connection hatch

The shore connection hatch is mounted flush with the transom with concealed hinges. The shore power cable outlet is operated via a Cablemaster unit. The city water connection is installed with a quick coupling.

01.09 Hull windows

00 General

There are six hull windows according to the general arrangement. They are made of tinted and toughened laminated safety glass.

01.10 Boarding ladder

01 Gangway

The yacht is equipped with an approximately 2.9 m long and 0.4m wide hydraulically operated telescopic stainless steel gangway. The gangway which has laid teak is installed on port side in the lazarette and covered with a flush mounted automatically operated transom hatch. It has a wired remote control operation as well as control buttons.

02 Swimming/boarding ladder

A carbon fibre lightweight ladder is stored in the dinghy garage for use as a swimming or boarding ladder. There are flush mounted stainless steel key-hole fittings on the bathing platform and side decks for easy installation. When the ladder is installed on the platform, three steps are below the water surface.

01.11 Fo'c'sle

This compartment is storage for the sails and provisions for storage of the yachts equipment. There is one aluminium bar on each side for hanging lines and sheets. There are light weight composite floor boards. Access is provided from a deck hatch and aluminium ladder.

01.12 Lazarette

There are two outboard lazarette compartments separated from the accommodation spaces with a watertight bulkhead.

01.13 Dinghy stowage

00 General

Storage space for an Owner supplied Williams diesel jet 4.45 m tender with hydraulically operated launching platform. The dinghy garage has steps both sides of garage for passage to the main deck. There is a faucet for hot and cold water outside the garage.

Note! At no time should gasoline be stowed in the lazarette, tender garage or anywhere else inside the yacht.

02 DECK

00 General

Scantlings, materials and workmanship throughout are consistent with the construction of a light weight deck without sacrificing strength or stiffness.

02.01 Laminate

The main deck is of a carbon fibre SPRINT/pre-preg sandwich construction with Corecell™ core. Coach roof and coamings are of a carbon fibre SPRINT/pre-preg sandwich construction with Corecell™ core. High density core is located in way of deck fittings. The deck is bonded to the hull using high strength structural adhesives.

02.02 Deck finish

The coaming and coach roof sides are white painted using polyurethane paint system.

02.03 Teak woodwork

01 Teak on the deck

The teak deck consists of 75 mm teak battens with black 5 mm caulking. The teak deck is vacuum bonded with an epoxy adhesive. There is 12 mm teak on flat deck and cockpit sole, 9 mm teak on cockpit seats, steps down to tender garage, garage floor, garage benches and on bathing platform. There is 6 mm teak on coach roof.

There are two flush mounted, hinged platforms for the helmsman that can be angled at 25 degrees.

02.04 Winches and windlasses

00 General

All winches are hydraulically driven via the yacht's hydraulic main ring. Systems are connected to the valve blocks with flexible hoses.

01 Drum winches

- Two Harken B1135.3 STR AAA HY primary winches on the cockpit coaming
- Two Harken B1135.3 STR AAA HY secondary winches on the cockpit coaming
- Two Harken B1130.3 STR AAA HY 1st reduced winches near the mast

02 Captive winch

- 2:1 Mainsheet system with one captive winch installed in bilge forward of mast

03 Anchor windlass

One Muir VR5000 vertical hydraulic driven windlass is located in the anchor locker. The windlass is controlled by a wired remote control. The windlass has a hand wheel operated band brake.

02.05 Bow fitting and anchoring

00 General

One hydraulic operated pivoting stainless steel arm is installed in the anchor locker for stowing of the bow anchor.

04 Chain box

There is a drained chain box for self-stowage of chain. The box is fitted with a pad eye for chain attachment and has two inspection hatches, one at top and one at the bottom.

02.06 Sail handling systems

01 Tracks

There are Harken hard anodised aluminium tracks for working jib and staysail with Harken custom cars and stoppers. Cars are adjusted by a hydraulic under deck cylinder.

02 Fixed blocks

- Two Harken 150 mm foot blocks for the jib sheets
- Ten Harken 150 mm stand-up fixed single blocks for halyards at mast

- Two Harken 150 mm stand-up blocks for running backstay
- Two Harken 150 mm stand-up blocks for gennaker / Code 0/ sheets/ staysail
- One Harken 150 mm stand-up block for main sheet

03 Jammers, clutches

- Spinlock ZS jammers for halyards, preventer and reef lines on the mast

04 Pad eyes

- Six U-bolt pad eyes on the bulwark, each side
- One U-bolt pad eye hi-load on the bow for gennaker tack line block
- One U-bolt pad eye for runner dead end on bulwark, each side

99 Snatch block

- Four snatch blocks Harken 3301 8T
- Four snatch blocks Harken 3302 12T

02.07 Deck fittings

01 Pulpit and pushpit

The pulpit and pushpit are with spacing according to ISAF/ORC requirements and made of \varnothing 32 mm polished stainless steel tube. The pushpit has gates for easy access to the bathing platform and the gangway.

03 Cleats and fairleads

There are eight pop-up stainless steel cleats; two forward, four amidships and two aft.

04 Life lines and stanchions

The spacing between the lifelines is conforming to ISAF/ORC requirements. The upper life lines are stainless 8 mm wire and the lower one is of 5 mm wire with polished turnbuckles and eyes. The stanchions are 610 mm high, or according to classification requirements, and made of \varnothing 32 mm polished stainless steel tubing. There are gates in the lifelines on each side amidships.

99 Other

There is a socket for the carbon fibre flagpole on the aft deck starboard side.

The composite mast collar is designed for use with Spartite support and custom made canvas mast boot.

02.09 Hatches and windows

00 General

There are white flush mounted hatches with gutters; tinted, thermally toughened and laminated safety glass with IR film. All hatches are supported by gas springs. Sizes indicate maximum dimensions of clear opening.

01 Deck hatches (Owner Fwd)

- Two hinged 600 x 600 in Owner`s cabin
- Two hinged 390 x 500 in forward guest cabin toilets
- One hinged 390 x 500 in crew cabin toilet port
- Two hinged 390 x 500 in aft crew cabins
- One hinged 390 x 500 in galley
- One hinged 390 x 500 in amidship guest cabin

01 Deck hatches (Owner Aft)

- Two hinged 600 x 600 in forward crew cabins
- One hinged 600 x 600 in crew mess
- One hinged 600 x 600 in galley
- One hinged 390 x 500 in laundry area
- One hinged 390 x 500 in forward guest cabin toilet
- Two hinged 390 x 500 in Owner's cabin
- Two hinged 390 x 500 in aft amidship cabins

02 Teak covered hatches

- Two hinged to anchor stowage
- One hinged 800 x 800 to fore peak
- Two hinged 600 x 600 to port and starboard lazarette
- One hinged 800 x 800 to tender garage
- There is a large powered hatch on top of the garage to open up for the beach club mode. The hatch folds forward and becomes a sofa when cushions are added. The hatch is divided in three pieces and the outer parts are manually folded.

04 Deck house windows

The deck house windows are made of tinted, chemically toughened and laminated safety glass with IR control film. They are bonded to the superstructure with high strength elastic adhesive.

05 Main companionway

The main companionway consists of a powered weathertight sideway sliding hatch.

06 Crew companionway (Owner Fwd)

There is a manually operated hinged hatch in crew area.

06 Crew companionway (Owner Aft)

There is a manually operated hinged 600 x 600 hatch in crew area.

02.10 Cockpit

01 Cockpit seats

There are seats with backrests for comfortable seating on each side of the cockpit. Cockpit seats shall be provided with cushions.

03 Cockpit tables

There are two semi-permanent teak cockpit tables, manually height adjustable supported by gas spring assisted telescopic legs.

02.11 Canvas work

01 Spray hood

There is a recessed canvas spray hood for the main entrance. The recess is covered with a hinged lid.

04 Cockpit cushions

There are sunbathing cushions with backrest on foldable aft deck hatch.

03 INTERIOR

00 General

The main wood for the interior is European oak. All joinery work is done in accordance with the best yacht practices using first grade materials. The saloon, Owner's and guest cabins are finished in wood, painted and upholstered surfaces. The galley and crew accommodation are finished with laminated, painted and wooden surfaces.

Collections of fittings including reading lights, door handles, bathroom faucets and accessories, fabrics and leathers will be offered to the customer from Nautor's standard collection.

Loose furniture can be secured to floorboards or bulkheads in order to be stored at sea.

01 Finish

The wooden interior is varnished using two component urethane varnishes. The surface has a hand rubbed satin finish.

Painted surfaces are of two component paint with semi-matt finish.

Fabric covered and painted panels are used to create a light and contemporary feeling in accommodation areas.

Samples of the finishing are to be submitted to the Owner's representative for approval.

02 Overhead panels

Vinyl covered removable overhead panels are installed in all accommodation areas.

03 Floor boards

The floorboards are of foam cored construction. The top face material is from Nautor selection. The floorboards are varnished with two component urethane varnish and have semi-matt satin finish. Four suction lifters are provided. The floorboards are installed on rubber tapes and are easily removable.

04 Topsides

The topsides, where visible, are covered with vinyl panels.

05 Cabin door hardware

Hardware and outfit components are of a type designed to eliminate rattling or hanging. The cabin doors are provided with double action locks and with catches to hold them in open position. The cabin door to Owner's

cabin can be locked with a key from the outside and a thumb turn from the cabin side.

The bathroom doors can be locked with a knob from inside for privacy. Cabin doors and passages are designed to allow service and possible replacement of equipment and household appliances.

06 Locker door hardware

All locker doors are fitted with high quality furnishing hinges. Doors are kept closed with push or pull button latches. A door stopper is fitted where needed.

07 Mirrors

All bathroom and cabin mirrors are glass. The edges are sealed.

08 Blinds and screens

All openable deck hatches are fitted with manual roller blinds and mosquito screens. In guest accommodations, owner's cabin and saloon the screens are electrically operated.

All hull windows have electrically operated roller blinds for blackout and privacy. The deckhouse side windows are fitted with electrical operated pleated blinds. Front windows in the saloon have no blinds or screens.

09 Handrails

Two handrails are mounted at the main entrance and in the saloon ceiling. The handrails are in polished stainless steel clad with leather from Nautor's standard selection.

10 Wardrobes and cupboards

The wardrobes include hanging rails and shelves where practical. Hanging locker internal light automatically switches on when the door is opened. The cupboards consist of drawers and door covered stowage volume with shelves.

11 Tableware and galley utensils

Galley cupboards and drawers space are fitted with adequate wooden fiddles in order to hold crockery and galley utensils, provided by the Owner, in a safe position. The choice of equipment shall be done at an agreed decision date. Installation will be charged based on time and material.

03.01 Bulkheads

01 Structural bulkheads

For construction see 01.02.02. The structural bulkheads are covered with foam cored or plywood skin panels.

02 Partitions

Partitions are of sandwich construction, consisting of two layers of wood on a double foam core structure with a noise barrier in between. The surface panels are either of 5 mm plywood with 0.6 mm veneers or painted or padded panels.

03.02 Forward cabins (Crew and Captain's cabins in OA-version)

03.05 Aft cabins (Crew and Captain's cabins in OF-version)

00 General

The crew cabins forward and aft have an upper and lower bed outboard and a full height hanging locker inboard. The port and starboard cabins are mirror images to each other.

OA: The cabin on port side forward amidships of the saloon is a crew/captain's cabin with queen size bed, a desk inboard and a full height hanging locker aft of the bed. There is one hull window in the cabin.

OF: The aft cabin starboard is a crew/captain's cabin with a lower bed and a hanging locker inboard.

01 Beds

The spring mattresses are of high quality manufactured for marine use. Mattress bases are Deltaflex batten nets to provide ventilation of underside. Drawers are placed where practical under the lower bed. Each bed is fitted with a lee cloth.

02 Lockers

Hanging lockers are fitted with rails for dress hanging.

06 Lights and switches

One reading light is installed at each bed. General cabin lighting is created with down light LED-spotlights.

03.03 Forward amidships cabin, Port side (Guest cabin in OF-version)

03.04 Aft amidships cabin, Starboard side (Guest cabin in OA-version)

00 General

OF: The guest cabin on port side forward of the saloon has twin beds with bedside table, a writing desk outboard and a full height hanging locker inboard.

OA: The guest cabin on starboard side aft of the saloon has twin beds with bedside table and a full height hanging locker outboard.

Bulkheads are covered with veneered panels and a padded bed headboard. There is one hull window in the cabin.

01 Beds

The spring mattresses are of high quality manufactured for marine use. Mattress bases are Deltaflex batten nets to provide ventilation of underside. There are drawers and storage space under the bed where practical. The bed is fitted with a lee cloth.

02 Lockers

The hanging locker is fitted with rails for dress hanging.

03 Chairs

A stool is placed at the writing desk.

05 Upholstery and fabrics

Bed headboard fabrics and leathers are to Owner's choice from Nautor's standard selection.

06 Lights and switches

Reading lights are installed at the head end of the beds. General cabin lighting with dimmers is created with down-light LED spotlights and indirect LED lighting.

03.03 Forward amidships cabin, Starboard side (Guest cabin)

03.04 Aft amidships cabin, Port side (Guest cabin)

00 General

The guest cabin on starboard side forward of the saloon has twin beds with bedside tables, a writing desk outboard and hanging locker forward.

The guest cabin on port side aft of the saloon has a double bed with bedside tables and hanging lockers outboard.

Bulkheads are covered with veneered panels and a padded bed headboard. There is one hull window in each of the cabins.

01 Beds

The spring mattresses are of high quality manufactured for marine use. Mattress bases are Deltaflex batten nets to provide ventilation of underside. There are drawers and storage space under the bed where practical. The bed is fitted with a lee cloth.

02 Lockers

The hanging locker is fitted with rails for dress hanging.

03 Chairs

A chair is placed at the writing desk in forward amidship cabin starboard.

05 Upholstery and fabrics

Bed headboard fabrics and leathers are to Owner's choice from Nautor's standard selection.

06 Lights and switches

One reading light is installed at each bed and one wall lamp is placed at the bedside tables. General cabin lighting with dimmers is created with down-light LED spotlights and indirect LED lighting.

03.02 Forward cabin (Owner's cabin in OF-version)

03.05 Aft cabin (Owner's cabin in OA-version)

00 General

The Owner's cabin features a double bed with bed side tables, a writing/makeup desk, hanging lockers, lower cabinets and a sofa. Bulkheads are covered with veneered panels. The double bed has padded bed headboard. A fixed TV is mounted on the bulkhead at the bed end. There are two hull windows in the cabin.

OF: There is an L-shaped sofa on port side with a coffee table/pouf. A writing/make-up desk is located in the dressing room forward of the cabin on starboard side. There are full height hanging lockers and lockers with drawers and shelves in the space. A sliding door separates the dressing room from the bathroom.

OA: There is a sofa outboard to starboard with coffee table. A walk-in closet is located on port side. There are full height hanging lockers and lockers with drawers and shelves in the space.

01 Beds

The spring mattresses are of high quality manufactured for marine use. Mattress bases are Deltaflex batten nets to provide ventilation of underside. There are lee cloths on both sides, and a lee board in the middle of the bed. There are drawers and storage space under the bed where practical.

02 Lockers

Hanging lockers are fitted with rails for dress hanging.

03 Sofas

The sofa cushions are custom manufactured to a high standard for comfortable seating.

A foldable chair is installed at the writing desk.

04 Tables

The coffee table is with storage underneath. The writing/makeup desk is with a hinged lid on table top and shallow storage.

05 Upholstery and fabrics

Sofa, chair and bed headboard fabrics and leathers are to the Owner's choice from Nautor's standard selection.

06 Lights and switches

Two reading lights and two table lamps are installed at the head end of the bed. There is a work light at the desk.

General cabin lighting with dimmers is created with down light LED spotlights and indirect LED lighting.

03.06 Saloon

00 General

The saloon features a dining area on starboard side and a lounge area on port side. The dining area seats up to eight people.

01 Chairs

There are five chairs at the dining table and two fixed armchairs in the lounge area. The chairs can be secured onto floorboards while sailing.

02 Lockers

Place is reserved for entertainment electronics in the outboard lockers on port side and for crockery and glasses in the lockers on starboard side.

03 Sofas

There is a sofa on centerline with an integrated handhold on the backrest. A lounge sofa is located outboard to port and a dining sofa on starboard side.

The cushions are custom manufactured to a high standard for comfortable seating.

04 Tables

The dining and lounge area tables are fixed. The wooden table tops are flush.

05 Upholstery and fabrics

Sofa and chair fabrics and leathers are to Owner's choice from Nautor's standard selection.

06 Lights and switches

General lighting with dimmers is created with down light LED-spotlights and indirect LED-lighting. There are two table lights installed on the corner tables in the lounge on port. There are LED-courtesy lights integrated in the main companionway stairs and in the stairs forward and aft of the saloon.

99 Other

There is a fixed mounted TV on aft bulkhead on port side.

03.08 Galley

00 General

The galley is located in crew area.

01 Finish

The bulkheads are covered with painted or laminated panels. Lower lockers are in wood and the upper locker doors are painted. Work tops and fiddles are in Corian.

02 Sink and faucets

Double under mounted stainless steel sink with one kitchen faucet with integrated shower at the sink.

03 Lockers and drawers

Chest of drawers, garbage bin and stowage for pots and pans in lower lockers. There is stowage space for crockery, glasses and dry food in upper lockers.

06 Lights and switches

General lighting with down light LED spotlights. Working lights under upper lockers.

08 Domestic appliances

All the appliances have a stainless steel finish.

- Two front loaded refrigerators, see 06.10
- Two front loaded freezers, see 06.10
- Icemaker, see 06.10

- Gimballed electric induction stove; width 900 mm
- Gimballed electric convection oven; width 900 mm
- Cooker hood, width 900 mm
- Dishwasher
- Microwave oven
- Washing machine; width 600 mm (in laundry room)
- Tumble dryer; width 600 mm (in laundry room)

99 Other

The space underneath floorboards is used for stowage where practical. There are fittings for fixing the gimballed stove in two positions.

03.09 Crew mess

00 General

The crew mess is place adjacent to the galley. The dining table seats six people.

OF: A separate laundry room is placed on starboard aft of the galley.

OA: The laundry room is placed on port side of the galley.

01 Finish

The workshop/laundry bulkheads are covered with painted or laminated panels. Lower lockers are in wood and the upper locker doors are painted. Worktops are of laminate surface with a stainless steel sink.

05 Upholstery and fabrics

Chair or sofa fabrics are to Owner's choice from Nautor's standard selection.

06 Lights and switches

General lighting is created with down light LED- spotlights.

07 Table

There is a fixed table with wooden table top and low fiddles.

99 Other

There is crew entrance/access to deck via a fixed stainless ladder with wooden step in crew accommodation.

Place for drying of oilskins is reserved in the workshop/laundry room.

03.10 Navigation area

00 General

The navigation area is placed in the crew mess. The navigation station consists of a chart table, instrument panels and a chair.

01 Chart table

Storage space is arranged under a hinged lid at the chart table. A locker for manuals is placed above the instrument panels.

02 Instrument panels

The visible instruments are mounted on hinged panels.

04 Chair

A fixed floor mounted, adjustable chair at the navigation desk.

05 Upholstery and fabrics

Chair fabrics are to Owner's choice from Nautor's standard selection.

06 Lights and switches

General lighting is created with LED spotlights. A goose neck LED-navigation light is fixed at the instrument table.

03.11 Bathrooms general

00 General

The Owner's cabin and guest cabins have ensuite bathrooms with combined showers.

OF: The captain and crew cabins have ensuite bathrooms with combined showers.

OA: Captain's cabin has an ensuite bathroom with separate shower stall.
Crew cabins have separate ensuite bathrooms with a shared shower stall

01 Finish

The Owners and guest bathrooms are built in first grade materials using wood, GRP and Corian. The lockers are in wood and the vanity tops are made in Corian. The shower stalls are made in GRP. The floorboards in the bathrooms are the same type as in the cabins.

The crew bathrooms are mainly made in laminate or GRP. The vanity top and the floors are made of composite material.

02 Wash basin

The Owners and guest bathrooms have an under mounted Corian washbasin. The crew bathrooms have a composite washbasin.

03 Faucets

Faucets and fittings are to Owner's choice from Nautor's standard selection. The finish on faucets and fittings is polished chrome.

There is one faucet at the washbasin and one wall mounted mixer with hand shower in the shower stalls.

04 Shower doors

The shower doors open both inwards and outwards in shower cabins. There is a step to keep water on the drained side.

The shower doors are made of tempered 8 mm clear glass and fitted with polished stainless steel fittings.

05 Mirrors

Mirrors are installed on upper cupboard doors.

06 Lights and switches

General lighting is created with down light LED-spotlights.

07 Accessories

The accessories follow the faucet collection.
Set per bathroom:

- Two towel hooks
- One bar for towels
- One concealed waste bin
- One toilet brush & holder

- One soap dispenser
- One toilet roll holder

03.16 Engine room

00 General

The engine room is located under the saloon. There are hatches for emergency exit and service/inspection in the saloon floor. Engine room entrance is located to the port aft of the main companionway.

01 Finish

Engine room surfaces and technical equipment are painted in white colour where practical.

03.18 Noise and vibration control

01 Hull insulation

The freeboards in Owner's cabin and the guest areas are insulated with sound absorption foam down to longitudinal stiffeners level. Special care is taken to sound insulate the hull above the propeller area.

02 Bulkhead insulation

Partitions between cabins and corridors are built to reduce airborne noise.

03 Floor board insulation

All floorboards are lying on vibration damping materials.

04 Engine room insulation

The engine room is fire and sound insulated towards cabins and saloon. The insulation consists of rock wool insulation and white painted noise damping sandwich aluminium sheets.

The engine room accesses are of similar construction as the surrounding partitions. They close onto rubber faced landings for maximum noise reduction.

99 Other

Cabin doors are of similar construction as the surrounding partitions. They close onto rubber faced landings and have drop down threshold seals for maximum noise reduction.

03.19 Corridors

00 Corridors general

The bulkheads in forward and aft corridor of the saloon are covered with veneered panels.

06 Lights and switches

General lighting with down light LED spotlights.

04 ENGINE AND HYDRAULICS

00 General

The system components are chosen based on Nautor's long experience in the yachting industry. All installations are done to best known marine practise.

04.01 Main engine

01 Engine

The main propulsion engine, a Scania DI13 081M, is a modern 6 cylinder in-line diesel engine displacing 13 l and delivering 450 mhp (331 kW) at 1800 rpm.

The DI13 081M is a turbo charged, after-cooled engine with 4 valves per cylinder, unit injector fuel system and a "Heavy Duty" rating makes it intended for continuous full power output. This is the ideal propulsion engine for an ocean going sailing yacht.

Engine and reduction gear are supported on isolators to minimize noise and vibration.

02 Gearbox

The gearbox is a free standing CP marine gearbox, Hundested CPG26, with a 2.533:1 reduction ratio, vertical offset marine gearbox.

04.02 Propulsion system

00 General

A Vulkardan E flexible coupling is installed between engine and CP gearbox to allow the engine and gearbox isolators to be optimized for a quiet and vibration free running.

01 Propeller shaft

The propeller shaft is made of corrosion resistant AISI 316 steel, diameter \varnothing 100 mm.

Shaft is supported by water-lubricated rubber bearings at P-bracket and stern tube.

02 Propeller

Four-bladed Hundested VP6 controllable pitch skew-back propeller with feathering position.

04.03 Cooling system

00 General

Both the main engine and the diesel generators are installed with thermostatically controlled fresh water cooling systems. The engines' and diesel generators' seawater heat exchangers are fed with raw water from a dedicated sea chest which is equipped with dual seacocks and strainers for redundancy.

The cooling water is discharged through the engine's and diesel generators' exhaust systems. The exhaust gas/water separators separate the cooling water from the exhaust gases and the dry exhaust gases are led aft where they exit below the transom. The separated cooling water is discharged through individual seacocks for the main engine and diesel generators respectively.

04.04 Fuel system

00 General

The feed lines to the main engine and the diesel generators are equipped with 10 μ fuel filters/water separators with vacuum gauges and water alarm.

There is a duplex fuel filter version, Racor 75/1000 MAXM-P-10, installed for the main engine to permit uninterrupted running of the engine while changing filter elements.

The diesel generators have their own duplex fuel filter versions, Racor 75/500 MAM-P-10, installed.

Deck fill line is led from the deck connection to a selection manifold with shut off valves for each fuel tank.

The fuel feed and return lines permits running the engine and generators from one dedicated of the 6 fuel tanks. There is a fuel transfer system installed which allows fuel to be transferred between all tanks with an electrical pump. A manual backup pump is also installed.

All flexible hoses are according to ISO 7840-A2.

01 Tanks

Total fuel capacity is 5500 l divided into 6 stainless steel tanks. The tanks are provided with baffles, inspection hatches, level indicators and shut off valves. All tanks are pressure tested to 0.45 bar.

04.05 Exhaust system

00 General

The exhaust gases from the main engine and diesel generators are led aft through individual Halyard exhaust systems and discharged under the transom.

Each exhaust system consists of a wet exhaust elbow, exhaust rubber hosing and fibreglass water lift silencer and exhaust gas/water separator. The cooling water is discharged below waterline amidships through dedicated seacocks and the dry exhaust gases are led aft via CR/NBR exhaust rubber hosing.

04.06 Diesel generators

00 General

The generators are mounted on isolators and equipped with sound shields. See also section 06.01.02

04.07 Lubricating oil system

00 General

A portable electric oil change pump is provided.

04.08 Engine controls

00 General

There is an electronic propulsion control system for throttle gear shift and pitch control. For other engine controls see section 06.09.02.

04.09 Thruster

The bow thruster is ca. 55 kW (75 hp) of retractable type.

The thruster is hydraulically driven from the hydraulic main ring.

04.10 Firefighting system

A total flooding system, FirePro, is installed in the engine room with a remote control near the engine room entrance. Separate systems for diesel generators sound shields and large electrical cabinets are installed.

Two sea water deck wash / firefighting pumps are plumbed in to the fire main line, see section 05.02.01.

Hand extinguishers are located in the cabins and a fire blanket in the galley, see 09.04.

04.11 Engine room other

The engine room is internally sound insulated. The equipment is mounted in a way that minimizes structural borne noise.

04.20 Hydraulics

01 Hydraulic functions

- Jib furler
- Jib furler length adjuster
- Anchor windlass with gypsy

- Anchor arm up/down
- Anchor arm extend/retract
- Inner forestay tensioner
- Jib car puller

- Bow thruster, up/down
- Bow thruster, starboard/port

- Port side mast utility winch
- Starboard side mast utility winch
- Cunningham
- Outhaul
- Boom vang
- Jib halyard tensioner

- Port primary winch
- Starboard primary winch
- Port secondary winch
- Starboard secondary winch

- Mainsheet captive winch

- Transom hatch cylinders
- Backstay tensioners

- Hydraulic emergency stop
- Boom Vang Quick release

- Telescopic keel, up/down (Optional)
- Telescopic keel, lock (Optional)

04.21 Central hydraulic system

00 General

The heart of the central hydraulic system is a ring main system in fixed stainless steel piping, fed from five separate power sources. All the different hydraulic valve groups are located in three main areas in the vessel; one area forward, one amidships and one aft. This means that each control valve is situated close to the operating unit, giving a precise control and allowing for a silent and smooth operation, eliminating both air borne and structural borne hydraulic noise.

Each control valve group can be isolated from the hydraulic main line by manual shut off valves allowing for the use of other functions on other valve groups, for instance during system maintenance.

01 Power sources

The hydraulic main ring has 5, independently operated, sources of power. The sources are obtained from:

- One A10V100 pump (~55 kW) on the main engine PTO
- Two A10V063 pumps (~20 kW each) on the generator PTO's
- Two A10V045 pumps (~7,5 kW each) on the DC-motor standby units

The A10V063 pumps are electronically controlled and the A10V100 and A10V045 pumps are equipped with horse power controllers, which allows the power sources to feed the hydraulic main ring in the most energy efficient way based on whether maximum oil flow or maximum oil pressure is called for.

04.22 Power pack

00 General

The function of the PLC controlled Bosch Rexroth power pack is to act as a backup power source for the hydraulic main ring if the generator PTO's are not available. The hydraulic power pack will also automatically start up and support the hydraulic main ring if more oil flow than available is called for.

The power pack consists of a hydraulic oil reservoir in stainless steel which is equipped with two 7.5 kW, 24 V DC, electric pump units. The power pack is also equipped with a pressure oil filter, a return oil filter, a hydraulic oil cooling function, an oil level sensor, a temperature sensor and an air breather.

A separate electric pump is installed inside the engine room for filling of the hydraulic reservoir.

04.30 Pneumatics

00 General

There is a central pneumatic system installed which operates low pressure outlets equipped with quick acting coupling.

The pneumatic system has one independent power source. The power source is a 230 AC low pressure (7.5 bar) compressor located in engine room. There are outlets in fore peak, engine room and lazarette.

05 PLUMBING

00 General

The components are chosen based on Nautor's long experience in the yachting industry. All installations are done to best known marine practise. All installations are labelled and colour coded by function, including indication of flow direction.

05.01 Fresh water system

00 General

A pressurised hot and cold water system is installed. The pressure water system is made in a multi-layered press fitting system, Mepla™ by Geberit. Hot water tubing is insulated with pipe insulation.

Deck fill connections on side deck, filling manifold with shut off valves for each fresh water tank.

Hot and cold water is distributed to all heads, to the galley and to the deck shower at the bathing platform. Cold water deck wash connections are located one forward and one aft.

Wash basins, galley sinks and showers are equipped with mixing faucets.

01 Water tanks

Three fresh water tanks in stainless steel with a total capacity of 2650 l are installed. The tanks are provided with baffles, inspection hatches, level indicators and vent pipes. Each tank is provided with socket and screw plug for sounding rod access.

All tanks are pressure tested to 0.3 bars. Tank levels are shown on the electrical main switchboard.

02 Pressure pumps

The pressure water system has two 230 V AC pumps located in engine room to assure quiet operation, ca. 75 l / min @ 3 bar.

There are by-pass lines, with shut off valves, installed which allow for the use of only one pressure pump throughout the yacht, e.g. as back-up or during system maintenance.

One 20 l pressure vessel per pump is connected to the cold water system.

03 Hot water system

There are two separate hot water systems installed. The system serving the fore ship has a 100 l water heater installed and the other serving the aft ship has a 100 l water heater. Both water heaters are equipped with 2 pcs 3kW electrical heating elements each. In addition to the electric heaters, the boilers are heated up with the engine cooling water. This is a secondary circuit with a circulation pump, expansion vessel and the uniting heat exchanger.

The inlets for both water heaters have check valves to prevent hot water back flow. The outlets have relief valves for over-pressure protection. There are thermostat mixing valves installed on the water heaters that control the hot water temperature. Both waters heaters are equipped with expansion vessels.

Two normally independent hot water circulating systems are installed, with individual 230 V AC Vortex BWZ 152 hot water circulation pumps, one for the fore ship and the other for the aft ship hot water system.

There are by-pass lines, with shut off valves, installed allowing single water heater serving whole the yacht, e.g. as back-up or during system maintenance.

04 Water maker

One Idromar MC5DX water maker, 230/400 V AC 3 phase, is installed. The MC5DX has a production of 500 l/hour (132 USgph) or 12000 l/day (3170 USgpd). The water maker is provided with pre-filters, charcoal filter and automatic flushing.

05 City water

There is a city water connection for shore water supply plumbed directly into the pressure water system via a pressure regulator and check valve.

05.02 Sea water system

00 General

Two sea chests, in copper-nickel (CuNiFe1.6Mn), accommodate the raw water intake. One sea chest is dedicated for all diesel engines' raw water intake and the other one serves the rest of the consumers. Both sea chests are fed from dual seacocks for redundancy and are equipped with strainers. There are Cathelco anodes mounted in the sea water strainers, see section 06.02.99.

All seacocks below waterline are made of bronze and easily accessible.

01 Deck wash pump

A primary sea water deck wash/firefighting 230V AC pump located in the lazarette, is plumbed into the fire main line. The fire main line is in Copper-Nickel (CuNiFe1.6Mn) metallic tubing with two fire hydrants accessible from deck, one forward and one aft. Fire hoses are included.

A secondary deck wash/firefighting 24V DC pump is installed inside the engine room.

02 Sea water outlet

There are two pressurized sea water outlets, e.g. for deck wash. One outlet is located in the anchor locker and one on the aft deck.

05.03 Grey water system

00 General

The grey water from wash basins, showers, air-cond. fan coil drip trays, fridge/freezers and washer/dryer is collected into grey water tanks, if necessary by transfer pumps. No grey water is led directly overboard. A suitable number of grey water transfer pump, see section 05.05.02 Interior drains, units will be installed.

01 Tanks

Two stainless steel grey water tanks with a total capacity of 600 l are installed. One is located forward serving the fore ship and one aft serving the aft ship.

The tanks are fitted with inspection lids and level sensors with tank indication at main switch board. An alarm will be set at 80% of tank capacity.

The forward tank is ventilated through the mast tube and exit under the first spreader. The aft tank is ventilated overboard in the aft end of the yacht through hull side connection under the shear line.

02 Tank discharge system

Grey water tanks are discharged by 24V DC electrical pumps, Gianneschi MV44 or equal, to dedicated sea cocks via siphon loops. Manual backup pumps are also provided.

05.04 Black water system

00 General

All toilets are connected to black water tanks. It is not possible to flush toilets directly overboard.

01 Tanks

Two stainless steel black water tanks with a total capacity of 600 l are installed. One is located forward serving the fore ship and one aft serving the aft ship.

The tanks are fitted with inspection lids and level sensors with tank indication at main switch board. An alarm will be set at 80% of tank capacity.

The forward tank is ventilated through the mast tube and exit under the first spreader. The aft tank is ventilated overboard in the aft end of the yacht through hull side connection under the shear line.

02 Tank discharge systems

Black water tanks are discharged by 24V DC electrical pumps, Gianneschi MV44, to dedicated sea cocks via siphon loops. Manual backup pumps and deck suction lines, for discharging to a shore station, are also provided.

03 Toilet systems

The toilets are from the Tecma Silence Plus series or equal and operate on 24V DC. They flush by means of a macerator pump using only 2-3 l fresh water per flush. The function cycle is completely automatic. It is not possible to flush the toilet if the black water tank is full.

05.05 Drainage system

00 General

The vessel is equipped with a centralized bilge pumping system. The bilge is divided into an appropriate number of sections with dedicated suction branches (at least forepeak, amidship, engine room and lazarette bilge sections).

The bilges are equipped with bilge pickups according to section 05.05.01. In addition, each bilge section is equipped with automatically operated electrical drain pumps to keep the bilges dry.

01 Bilge pump systems

The centralized bilge pump system is equipped with the following bilge pumps:

A primary 230V AC pump located in the lazarette, is connected to a bilge pickup manifold with shut off valves for the pickup lines to each bilge section. Each pickup line is equipped with a strum box and a check valve to prevent back flow. Special attention is paid to ensure that the strum boxes are mounted in easily accessible locations to allow debris to be cleared.

This pump also doubles as a secondary deck wash/firefighting pump.

The primary bilge pump is plumbed into the bilge pickup manifold and may act as a fire pump in case of a fire on board. This is done by:

- a) Closing the suction valve to the bilge pickup manifold and opening the suction valve to the sea chest.
- b) Closing the discharge valve to the overboard discharge line and opening the valve to the fire main line.

A secondary bilge pump 24V DC is installed outside of the engine room and plumbed into the bilge pickup manifold. A Whale Gusher 30 manual bilge pump is installed as backup.

02 Interior drains

No grey water is led directly overboard. Wash basins, galley sink, showers, air-conditioning fan coil drip trays, fridge/freezers and washer/dryer is collected, when necessary by electrical 24V DC transfer pumps into the holding tanks.

03 Deck drains

Drain lines from the flush mounted deck hatches and from other deck gear are connected to through hull outlets above waterline.

05.07 Ventilation

00 General

Forced ventilation for all cabins is provided via a central ventilation system with speed controlled supply air and extraction fans. Special attention is paid to avoid bathroom and galley smells in cockpit and aft deck area when locating the ventilation grilles.

01 Natural ventilation

Through deck hatches.

02 Forced ventilation

Both the supply air and the exhaust air systems have central fans. The speed of these fans is interlinked to each other. Air filters and silencers are installed on each fan.

The supply air provides fresh “make-up” air to accommodation spaces. The exhaust air outlets are located in each bathroom and in the galley. Adjusting valves are provided on the supply and exhaust air connections throughout the accommodation spaces to ensure a balanced and well working ventilation system.

The forepeak and the lazarette are ventilated through the central ventilation system. The dinghy garage has its own individual ventilation system.

Separate ventilation systems are provided for the bilge’s air extraction, which creates an under pressure in the bilge.

03 Galley fan system

Galley extractor hood with fan is ducted aft and exit near the transom.

04 Engine room ventilation

The engine room ventilation inlet and outlet ducts are fitted with water traps and remote controlled fire dampers.

The outlet fan is controlled by the engine room temperature. The inlet fan control is controlled by pressure to create a constant under pressure in the engine room. Power supply to the fans is disconnected and the fire dampers are activated on fire extinguisher release.

05 Battery box ventilation

The service battery box and the aft bilge have their own combined exhaust fan. The exhaust fan ventilates the service battery box with supply air from the bilge.

05.08 Climate control

00 General

A waterborne central cooling / heating system 230/400 V AC 50 Hz is fitted for the entire accommodation. The system is designed to operate in Mediterranean climate conditions.

01 Cabin units

The total cooling / heating capacity are divided in proportion to cabin volume and position. The system is designed for the air handlers to run on low speed for silent operation. There is an individual temperature control in each cabin. The blower 8 speed control in automatic mode.

02 Main unit

There is a central chilled water system working on 230/400 V AC 50 Hz from the shore power inlet or diesel generator. The main unit(s) is with a total cooling capacity of ca.144.000 BTU/h (42 kW) and a total heating capacity in reverse cycle of 180.000 BTU / h (52 kW). The refrigerant used in the compressors is R410. There is a sea water cooled condenser with separate sea water pump.

05.09 Refrigeration system

00 General

230 V AC sea water cooled compressors units for fridges and freezers.

05.10 Galley equipment

See section 06.10

06 ELECTRICAL

00 General

The electrical system is designed for generator or shore power running. Silent sailing can be performed using the DC powered hydraulic power pack.

During racing, manoeuvring or operation of major electrical loads, such as air condition, water maker, stove/oven, washing, water heating etc., a diesel generator has to be in use.

Special attention is given to the installation for good accessibility. Electrical diagrams will be delivered with the yacht, for both AC and DC systems. Cables are labelled with identification numbers at both ends. Where wires are penetrating a watertight bulkhead, sealing system will be used so as to ensure the watertight integrity.

06.01 AC-system

00 General

The yacht has a 230/400 V 50 Hz three-phase five-wire AC-system. The 230/400 V system is fed by the diesel generators or shore power inlet, and has a PLC-controlled power shedding system. The system is of split bus type. There are also a number of 230 V 50 Hz appliances fed through DC/AC inverters.

01 Shore power

The shore inlet plug, 230/400 V 5-pole 125 A, is contained in a locker with a hinged lid at transom. Shore power cable 15 m is stored in a bin by a CM-8 Cable master unit. See also 06.01.05.

02 Generators

Two 32 kW Northern Light generators are producing three-phase 230/400 V 50 Hz AC.

The units are mounted on elastic mounts. The generators are mounted inside proprietary sound shields. Both units are equipped with PTO for hydraulic pump.

03 Chargers

There are four Mastervolt chargers 24/100-3 with 3-step 100 A charge characteristics for charging of the service batteries. The charging is controlled by communication with the battery management for the batteries.

The electronics battery is charged via a Mastervolt MAC Plus 24/24-30 from the service batteries. The electronics battery can also be charged by service battery chargers, secondary outputs.

Starting batteries can be charged by a Mastervolt 24/12-3 charger.

04 Inverters

Two Mastervolt Mass Sine Ultra 24/4000 inverters convert 24 V DC to 230 V single-phase AC 50 Hz. Each unit can produce 4000 VA. The units are connected into parallel, total output 8000VA

Consumers which are powered

- Cooker hood
- Microwave oven
- Outlets
- Engine room ventilation
- Fresh water pump
- Fresh water circulation pump

One charger/inverter 24/2500 Sine wave for entertainment:

- TV
- DVD/CD/Stereo
- Computer

05 Transformers

Power from ashore is led to a 30kVA isolation transformer.

06 Power shedding

The consumed AC power is monitored by a PLC and shown on a display in the crew mess area. When more power than available is used, the system will automatically manage loads and control the loads according to a priority list. Available power from shore can be set, in order to prevent tripped circuit breaker on the dock.

07 Outlets AC

The 230 V outlets are of schuko type and located:

- One outlet per toilet
- Two outlets per cabin
- Four outlets in the owners cabin
- Four outlets in the saloon
- Four outlets in galley
- Two outlets in the crew mess
- Two in the navigation area
- One outlet in laundry

The outlets are of double type. One single type of outlet is in the fo'c'sle, engine room, port and starboard lazarette sides.

06.02 Grounding system

00 General

The AC system is using a grounding plate as an underwater earth point. The plate is located aft of the propeller bracket.

01 Lightning protection system

In the top of the mast is an air terminal connected to a lightning conductor, which runs down to an underwater grounding plate.

02 Cathodic protection

Main engine, gear box, seacocks and keel are bonded to sacrificial anodes, quantity is four. The propeller shaft and the thruster have their individual sacrificial anodes. Recesses in the hull to allow the sacrificial anodes to be flush mounted.

03 Isolation test

There is an isolation test panel for check of de-leakage.

99 Pipe work anti fouling system

There are Cathelco anodes mounted in the sea water strainers, four units.

06.03 Powered hydraulics

00 General

Central hydraulic system is PLC controlled, see sections 04.20 and 04.21. Winch operation of drum winches are controlled via foot switches at the winch. Sailing functions are controlled via push buttons on the steering consoles.

03 Thruster

The bow thruster is operated by a joystick located at starboard helmsman console.

06 Furler

The jib furler is operated via push buttons located on the helm consoles.

06.04 DC-system

00 General

The yacht has a 2-pole 24V insulated return DC-system for lighting, fans, pumps etc. All wires are sized to minimise voltage drop.

01 Service batteries

The battery model is Mastervolt MLI Ultra 24/5000 Lithium-Ion. The service battery bank is 24 V 1980 Ah / 1 h and consists of 11 batteries. This bank supplies power for the lights, fans, pumps ,hydraulics and auto pilot. Each battery has an individual battery contactor.

02 Alternator

There is one 24 V 150 A Mastervolt alternator on the main engine for the service battery bank.

The alternator is equipped with an external Mastervolt Alpha Pro MB three step voltage regulator, communication with the batteries via Masterbus.

05 Outlets DC

There are two 24V DC outlets, one in engine room and one on the mast.

06.05 Plumbing and monitoring system

00 General

Alarms and tank levels are presented on one monitoring touch display in the crew mess and on the B&G Zeus monitors in cockpit and navigation station. The display is 15" and is common for hydraulics, power shedding and alarms.

01 Fresh water

The fresh water pumps are monitored and stops automatically if they run out of water.

02 Sea water

The sea water pump is equipped with a timer that stops the pump if it runs continuously longer than 30 min.

04 Black water system

The black water level is shown on the monitoring display.

05 Drainage system

The bilge pumps can be operated in manual or automatic mode. There are two separate systems, one with small drain pumps that keeps the bilges dry and one centralised bilge pump system.

The centralised system have Gems level switch next to the pump suction points which also functions as high bilge level alarm sensor.

The bilge drain pump counters are displayed on the monitoring display.

08 Water metering

The water tank levels are shown on the monitoring display in the crew mess area. Level sensors are of float type.

09 Fuel metering

The fuel tank levels are shown on the monitoring display in the crew mess area. Level sensors are of float type.

10 Monitoring system

There is one display in the crew mess area and the B&G Zeus monitors that shows at least the following alarms:

- Low oil level in hydraulic tank
- Low oil level in main hydraulic tank pre alarm, tank at 50%
- High temperature alarm in hydraulic tank, 70°C
- High temperature pre alarm in main hydraulic tank, 65°C
- Pressure oil filter maintenance in main hydraulic system
- Return oil filter maintenance in main hydraulic system
- Emergency stop button for hydraulic system pressed
- Emergency use mode of hydraulic system is active
- Bow thruster left in down position
- Low oil in bow thruster gear oil tank
- Bilge level high, 5 areas
- Bilge pump runs continuously for more than 5 minutes
- Bilge pump starts and stops more than 10 times per hour
- Water in fuel separators
- Navigation light alarm (side, stern and motoring lights)
- Low battery voltage, service battery
- Low battery voltage, electronics battery
- High engine room temperature
- Residual current device fault
- Fire alarms
- Generator 1 overload
- Generator 2 overload

Level metering:

- Water tanks
- Fuel tanks
- Service battery bank capacities
- Electronics battery capacity

Power shedding:

- Actual consumption
- Available power
- Shed AC-consumers

11 Fire alarm

In crew mess area is a separate fire alarm panel. The system has three detection loops:

- Two temperature sensors and two smoke detectors in the engine room
- Smoke detectors in the cabins and the galley
- Call points at the exit routes and in the engine room, four pcs

The port and starboard lazarette sides and the fo'c'sle has smoke detectors, three in total.

There is an alarm buzzer and light in the engine room.

99 Other

Call button in the cockpit and buzzer in the crew area.

06.06 Engine and generator DC

01 Starting batteries

There are two 24 V banks, one for the main engine and one for the generators. The batteries are of model Optima Yellow Top with a capacity of 75 Ah / 20 h each.

The starting batteries are of maintenance free AGM type and located in the engine room. Each bank consists of 2 pieces of 12 V each.

02 Parallel solenoids

There is a paralleling button in cockpit for the main engine and generators starting batteries.

03 Alternators

There is a 24 V 100 A alternator on the main engine for engine starter batteries and one 24V 20A alternator on each diesel generator for the diesel generators' starting batteries.

06.07 Instrument power supply

00 General

The instruments and electronics are powered by a separate battery. The battery model is Mastervolt MLI Ultra 24/5000 Lithium-Ion. The battery is 24 V 180 Ah / 1 h.

06.08 Ventilation and heaters

01 Forced ventilation

See section 05.07.02

02 Galley fan system

Cooker hood Miele DA 3496, 230 V, 900 mm wide

03 Engine room

Pressure and temperature controlled fans.

04 Battery boxes

See section 05.07.05

06 Air conditioning system

The control panels for fan coils in saloons and cabins are hidden inside lockers. The change over from cooling mode to electrical heating mode is done on the control box for the air conditioning in the engine room.

06.09 Electrical panels

01 AC and DC panels

The main panels are located in the engine room. The crew area is provided with a 16" touch display. At this display AC, DC voltages and consumptions of the yachts main systems can be monitored. The display shows also the alarms, see 06.05.10. The electrical system is digitally operated with means for manual back up of vital functions.

02 Engine and diesel generator control panels

The main engine is controlled from the starboard cockpit coaming panel. Gear and throttle control of the main engine are at both cockpit consoles.

See also section 06.09.03

The following functions can also be controlled from the engine room:

- Engine control ON/OFF with master switch
- Start and stop buttons
- Paralleling button between engine starting batteries

The controls for the generators are located on a panel in the engine room. The temperature and oil pressure for the generators can be observed on the same panel. The diesel generators can also be controlled from the cockpit and the crew area.

03 Cockpit panels

Port steering console:

Instruments:

- B&G Zeus³ 12 12 inch multifunction display
- B&G Graphic Display
- B&G Pilot Controller (autopilot)
- Silva magnetic compass
- Rexroth Marex control for throttle and gear

Push buttons/indicators:

- Vang in
- Vang out
- Quick release, vang
- Back stay ease
- Back stay tense
- Out haul in
- Out haul out
- Cunningham ease
- Cunningham tense
- Jib cars fwd
- Jib cars aft
- Jib halyard ease
- Jib halyard tense
- Inner forestay ease
- Inner forestay tense
- Headstay furl
- Headstay unfurl
- Hydraulic emergency stop switch
- Foghorn Manual
- Crew call
- Bow thruster joystick port/starboard
- Cockpit speakers on/off
- Fore deck lights

Functions in available in Zeus multifunction displays:

- Alarm list
- Tank levels
- Spreader lights down
- Compass light
- Navigation lights
- Motoring light
- Boom lights fwd
- Boom light aft
- Cockpit floor lights
- Panel lights (with dimmer)
- Indication lights Hi/Lo

Starboard steering console:

Instruments:

- B&G Zeus³ 12 12 inch multifunction display
- B&G Graphic Display
- B&G Pilot Controller (autopilot)
- Silva magnetic compass
- Rexroth Marex control for throttle and gear
- VHF handset

Push buttons/indicators:

- Quick release, vang
- Vang in
- Vang out
- Hydraulic emergency stop switch
- Hydraulic system start
- Foghorn Manual
- Foghorn Auto
- Thruster on/off
- Bow thruster up
- Bow thruster down
- Bow thruster to port
- Bow thruster to starboard
- Low alert alarm /mute
- High alert alarm /mute
- Out haul in
- Out haul out
- Headstay furl
- Headstay unfurl
- Jib cars fwd
- Jib cars aft

Stbd coaming panel:

- Engine control on/off
- Engine start
- Engine stop
- Engine alarm light
- Battery parallel (main engine/diesel generators)
- Port generator start/stop
- Port generator on (illuminated)
- Port generator PTO on/off
- Starboard generator start/stop
- Starboard generator on (illuminated)
- Starboard generator PTO on/off
- Keel up (optional)
- Keel down (optional)
- Gangway on/off

Push buttons for the head stay length adjuster are located in the port lazarette in a junction box.

Passarella is controlled by a wireless remote control or from a backup panel located below SB lazarette hatch.

The main companion way is operated by push buttons.
Engine and thruster controls, see 04.08.00 and 04.08.09.

06.10 Domestic appliances

00 General

Selected appliances are of high class and well-known brands. All visible fronts have stainless steel surface unless otherwise stated.

01 Dishwasher

Miele PG 8132 SCi 400 V 8.3 kW

05 Microwave oven

Miele M6022 SC 17 I, 2.1 kW. Microwave power 800 W

07 Washer

Miele WDB020 Eco white front 7kg, 230 V 50Hz

08 Tumble dryer

Miele TDB220WP Active white front 1-7kg, 230 V 50 Hz, heat pump, condensing type

09 Refrigerator

One refrigerator 640 l in galley, Frigonautica or equal, custom built 230 V AC.

10 Freezer

One freezer 335 l in galley, Frigonautica or equal, custom built 230 V AC.

11 Icemaker

One ice maker in pantry, Isotherm 4106K 230 V 0.3 kW

12 Electrical stove

Miele 900 mm wide oven, H6290B, 230 V 3.7 kW.

Miele KM 6389 5-burner cook top, induction type, 230 V 11.1 kW

The units are built into one 900mm wide separately gimbaled unit.

15 Air compression general

Air compressor Kaeser Premium 250/4 180 l / min @ 6bar 230V 1.25kW, for service use only. One 230 V dinghy inflation pump is supplied loose.

06.11 Lights

00 General

The wall mounted light switches are by Meljac. Light fixtures are LED based.

The lights in saloon and guest areas are programmed in three different scenarios with set light intensity per area.

01 Overhead lights

- LED spot lights, John Cullen DLFW27204 Fazer 4w Wide LED
- LED lights in engine room

02 Reading and table lights

- One reading lamp, BCM LED, for each bed
- Two wall lamps in saloon BCM
- Two wall lights and two table lamps in owner's cabin BCM

05 Locker lights

All hanging lockers

07 Indirect and courtesy lights

- Lights in stairs and steps
- Indirect light in the guest accommodation area

08 Navigation lights on deck

- Stern light Lopolight on the push pit
- Port side light Lopolight
- Starboard side light Lopolight
- Navigation light switches are on cockpit coaming panel

There is an alarm system, triggered by malfunction

09 Navigation lights on mast

- One steaming light in front of the mast
- One fixed anchor light in mast top

A separate anchor light with cable and plug to be connected to socket on mast.

10 Spreader lights

- Four spreader lights, facing down on 1st spreader pair

12 Boom lights

Two LED boom light circuits, one circuit consisting of three lights facing down and the other circuit with one light facing aft, at aft deck

14 Flood light

A deck light LED 24V under the steaming is mounted in front of the mast to light up the foredeck

99 Deck lights

There are LED indirect lights under cockpit sofas and pedestals.

07 ELECTRONICS

00 General

Final specification will depend on the availability at the time of purchase and may change accordingly.

07.01 Compasses and barometer

01 Magnetic compasses

There is one Silva 125FT magnetic steering compass at each steering console. Compass adjustment and deviation card is not included.

03 Electronic compass

A B&G Precision-9 compass is used as the main heading source for navigation instruments, autopilot and other instruments requiring accurate heading information.

06 Barometer and barograph

Barometric pressure can be displayed in the B&G system.

07.02 Sailing instruments

00 General

There is a comprehensive Brookes & Gatehouse H5000 Hercules package with central processor unit, masthead unit, speed sensor and depth/water temperature sensor.

01 Main units

The following main units and modules are installed:

- B&G H5000 CPU Hercules
- B&G H5000 Analog expansion modules for rig sensors

02 Digital displays

There is one B&G Graphic Display located at the navigation area and one Graphic Display at each steering console.

Four B&G 40/40 HV displays on back of the mast mounted in carbon fibre bracket.

One B&G Pilot controller is located at each steering console. See section 07.06.01.

Graphic displays can display sensors listed in 07.02.04.

04 Sensors

- B&G speed sensor with plastic flush housing.
- B&G depth/water temperature sensor with plastic flush housing.
- B&G Ocean spec Wind sensor at mast head, type vertical masthead unit L=1450 mm
- B&G barometric pressure sensor

Following additional sensors are displayed in the B&G system:

- Backstay pressure
- Forestay pressure
- Boom vang pressure
- Outhaul pressure
- Cunningham pressure
- Inner forestay pressure

07.03 Navigation systems

00 General

There is a B&G Zeus radar/chart plotting system with operator stations at the navigation area and steering consoles.

01 GPS

A B&G ZG100 10Hz GPS antenna is used as the main navigator for:

- B&G Zeus radar/chart plotting system
- B&G sailing instruments
- B&G autopilot system

02 Radar

The B&G HALO 24" pulse compression dome 48 nm radar antenna is integrated with the B&G Zeus navigation system. See section 07.07.01 for antenna position.

03 Chart systems

Navigation area station comprises of B&G Zeus³ Glass Helm 24 inch multifunction display including MI10 card reader and ZC2 controller.

Display is used as a combined monitor for chart plotter and computer. Charts are not included. See section 07.08.01.

Each steering console is installed with one 12 inch multifunction display, B&G Zeus³ -12. Charts are not included.

99 AIS system

There is a Class B AIS transponder, B&G V3100 including GPS antenna and VHF antenna splitter, B&G NSPL-500. The system is connected to the B&G Zeus navigation system and VHF antenna on mast top.

07.04 Communication systems

01 VHF Radio

VHF radio B&G V90 Class D with two wired handsets, one at the navigation station and one at the steering console, with intercom possibility between the two.

99 LAN

There is a Yachtspot 4G & Wi-Fi PRO GX system that searches for public “hot-spots” or 4G/LTE/3G networks and broadcasts the service onto the yacht’s wireless local area network (WLAN) available throughout the yacht. See section 07.07.02 for antenna positions.

07.05 Entertainment systems

01 Audio system

Each system plays music stored on any Apple iPhone/iPad. System also includes a NAS disk for music storage.

Saloon:

Sonos sound system including Sonos Playbar, Sonos SUB and one Sonos connect:AMP connected to two pair of B&W CCM362 speakers in ceiling.

Owner’s cabin:

Sonos sound system including Sonos Playbar, Sonos SUB and one Sonos connect:AMP connected to one pair of B&W CCM362 speakers in ceiling.

Guest cabins (3 pcs):

Sonos Connect:AMP with one pair of B&W CCM362 speakers in ceiling.

Crew mess:

Sonos Connect:AMP with one pair of B&W CCM362 speakers in ceiling.

Cockpit:

Sonos Connect: Amp, 2 pcs connected to two pair of JL Audio M770-TCX cockpit speakers.

02 Video system

Televisions are connected to the Delta antenna for terrestrial TV. System also includes Apple TV 4K 64 GB units enabling wireless video stream from any Apple iPhone/iPad.

Saloon:

Samsung 4K UHD QLED TV 55 inch.

Owner's cabin:

Samsung 4K UHD QLED TV 55 inch.

07.06 Autopilot system

01 Main unit

There is a B&G H5000 Pilot Computer system with one H5000 Pilot Controller at each steering console. See section 07.02.02

02 Power pack

There is a dedicated continuously running 24V Marsili power pack powering the hydraulic cylinders.

03 Hydraulic cylinders

The autopilot is driving the steering quadrant via twin low friction cylinders. There is a hydraulic back-up for emergency use, supplied from the main hydraulic system.

07.07 Aerials

01 Navigation antennas

The B&G ZG100 GPS antenna is mounted on the lower pushpit rail.

The B&G HALO 24" radar dome antenna is mounted on the front of the mast.

The B&G NAIS-500 AIS GPS antenna is mounted on the lower pushpit rail.

02 Communication antennas

VHF antenna is integrated into Delta antenna, see sect. 07.07.03

Yachtspot 4G/WiFi antenna is mounted on the 1st starboard spreader.

WiFi antenna covering deck area is mounted on the lower pushpit rail.

03 Entertainment antenna

RR Electronic Delta Biscaya antenna for terrestrial TV, FM radio and VHF is mounted on the masthead.

07.08 Computer system

01 Main unit

Computer Dell OptiPlex MFF with cordless keyboard and mouse is connected to the B&G 24 inch monitor at the navigation station. See section 07.03.03.

03 Printer

There is a Samsung Mono laser printer. The unit is positioned at the navigation area and connected to the Dell computer.

07.09 Security systems

01 Foghorn

The foghorn is a Marco EW3 24V.

07.10 Safety systems

02 EPIRB

The EPIRB (Emergency Position Indicating Radio Beacon) is a McMurdo G8 AIS Smartfind with a built in GPS and manual release bracket. In case of emergency, it sends a radio signal with a homing beacon and AIS transmission along with its current position.

99 SART

The McMurdo S4 Rescue SART (Search And Rescue Transponder) is a 9GHz X-band Radar transceiver for assisting air/sea ship or survival craft rescue operations. When a radar signal is received from a ship or aircraft, the SART Rescue unit automatically transmits a response signal, which clearly identifies the survival craft on the radar screen by means of a stream of 12 in-line.

08 RIG

00 General

The four spreader fractional rig is designed for offshore cruising. It is setup for easy handling with spreaders swept aft. There is a removable inner forestay and running backstays to support the inner forestay.

Colour: White painted with polyurethane paint.

The spars are designed by the supplier according to the sail plan delivered by the Naval Architect.

The spars are supplied by an established, high branded spar manufacturer.

Principal Characteristics

I =	44.42 m	Fore triangle	307.0m ²
J =	13.85 m	Main sail	360.5m ²
P =	43.00 m	110% Jib	332.5m ²
E =	14.10 m	Asym. Spinnaker	TBD

RM@1deg = 6952 kg·m (light ship)

RM@ 20deg = 123493 kg·m (loaded)

RM@ 25deg = 142768 kg·m (loaded)

RM Max = 183110 kg·m (loaded)

Spreader sweep 22°

08.01 Mast

Materials

The mast and spreaders are laminated using standard modulus carbon fibre. Boom and boom vang goosenecks laminated using standard modulus carbon fibre and bonded to the mast tube.

A mast head fitting with integral backstay crane and halyard sheave boxes is laminated using standard modulus carbon fibre and bonded to the mast tube.

Halyard sheaves are provided for the following:

- One main halyard
- One spare main halyard
- One gennaker halyard
- One 2:1 code sail halyard
- One jib halyard
- One inner forestay cable hoisting halyard

Main halyard locks

Locks are provided for the main halyard at full hoist and two reef locations.

Inner forestay lock

A lock with integrated swivel is provided for the inner forestay cable. The stay may be rigged on its own or with a furled staysail. The inner forestay cable is hoisted into the lock and tensioned using a below deck hydraulic ram (see section 08.06 for ram details). The staysail is furled using a line driven manual furler installed between the cable and tensioning ram.

Luff tracks

A mainsail luff track is installed on the aft wall of the mast tube. A trysail luff track is installed alongside the main luff track. The trysail luff track extends from trysail full hoist to deck level. Luff tracks are mechanically fastened to the mast tube.

Mast wiring

Internal mast wiring is installed in soft conduits and secured to the mast.

Water sealing

A water stop is installed at the height of the lowest halyard exit. There is a PVC mast boot over deck partners, sealed at deck level.

Ventilation in mast

Provision is made for ventilation conduits inside the mast.

Instrument bracket

An instrument bracket is installed on the aft side of the mast under the gooseneck for navigational displays. Refer to section 07.02 for display details.

For mast lights see section 6.11

08.02 Booms and poles

- The Park Avenue style main boom is built of standard modulus carbon fibre
- Boom accommodates a slab reefing system with two reef points
- Outhaul track and car mounted at the outboard end complete with hydraulic cylinder
- Complete lazy jack system with four jammers

- Boom preventer system
- A twin groove tracks for the main sail cover and sun awning are installed on the boom on the port and starboard sides

For boom lights see section 6.11

08.03 Standing rigging

- The standing rigging is of stainless steel rod rigging
- Running backstay and inner forestay are of fibre material
- Main V1 and D1 turnbuckles are connected to the chain plates using barrel pins allowing for proper alignment at various rake settings
- A headstay toggle is included for the upper end attachment
- Headstay lower attachment fitting to suit furler

08.04 Running rigging

The following pieces of running rigging are supplied with appropriate terminations and connections.

Description	Quantity	Material
Main sheet	One	Dyneema
Jib sheets	Two	Dyneema
Staysail sheets	Two	Dyneema
Gennaker sheets / Code 0	Two	Dyneema
Gennaker halyard	One	Dyneema
Code halyard 2:1	One	Dyneema
Inner forestay hoisting halyard	One	Dyneema
Jib half halyard (swivel to ram)	One	Dyneema
Mainsail halyard	One	Dyneema
Spare main halyard 2:1	One	Dyneema
Running backstays tails	Two	Dyneema
Backstay tails	Two	Dyneema
Preventer line	One	Dyneema
Reef lines	Two	Dyneema
Cunningham line	One	Dyneema
Jib hoist tail	One	Dyneema
One set of lazy jacks		

Sizes specified by spar builder.

08.05 Furlers

The jib furler is a below deck, hydraulically operated furler. The furler is fitted with a single groove carbon foil. The furler includes a hydraulic cylinder for real time adjustment of headstay length. Feedback is provided for adjuster position and load.
Staysail line drive manual furler.

08.06 Rig hydraulics

All hydraulic functions are powered by the yachts central hydraulic system.

- Headstay furler with length adjuster
- Jib halyard tensioner
- Inner forestay tensioner
- Boom vang
- Cunningham
- Mainsail outhaul
- Two cylinders for backstay adjustment

04 Mast jack

There is an external hydraulic mast jack with spacer and removable manual pump.

09 EQUIPMENT

00 General

An Owner's Manual is provided with directions for use and maintenance, drawings and diagrams for main systems and handbooks for machinery and components.

09.02 Anchoring and mooring

- One Manson 156 kg high holding power, plough anchor
- One Fortress FX-125 second anchor
- 120 m 14 mm galvanised high-tensile anchor chain
- 120 m 25 mm plaited nylon anchor line
- Four mooring lines 20 m each, diameter 28 mm
- Four mooring lines 40 m each, diameter 28 mm
- Eight inflatable Fendress IF2458 (61x147 cm) black air fenders with lines
- Anchor light with cable and plug
- Two boat hooks

09.03 Sailing gear

- Winch handles: four 10" double grips and one single handle in anchor locker

01 Sails

The sails are to be provided by the Owner. Builder has to notify sail maker of mast stepping schedule. The yard may assist the sail maker with the installation and testing of sails.

09.04 Firefighting equipment

- Fire extinguishing system for engine room see 04.10
- Hand extinguishers, Gloria P2G one for each cabin and one on deck
- Fire blanket in galley

Note! At no time should gasoline be stowed in the lazarette, dinghy garage or anywhere else inside the yacht.

09.05 Safety equipment

There are safety lines on deck. Other safety equipment has to be provided by the Owner.

09.06 Spare parts

Standard spare part kit for engine and generators is provided. Spare parts to be arranged in perfect fitting boxes or lockers in bilge spaces.

09.07 Tools

A set of standard service tools for the yacht equipment are supplied. Tool stowage is to keep tools easy to hand, while securing them against movement in a seaway.

09.99 Other

- Two handles for opening deck hatches and four suction lifters for floorboards
- One Bosun's chair
- Flag pole

00	GENERAL CONDITIONS.....	4
00.01	Commissioning.....	4
00.02	Test and trials	5
00.03	Trim.....	5
00.04	Construction approval	6
00.05	Hull identification	6
00.06	After sales service.....	6
01	HULL.....	7
01.01	Laminate.....	7
01.02	Stiffening	7
01.03	Hull finish	8
01.04	Keel.....	8
01.05	Steering system.....	8
01.06	Mast step.....	9
01.07	Through hull fittings.....	9
01.08	Transom	9
01.09	Hull windows.....	10
01.10	Boarding ladder	10
01.11	Fo’c’sle	10
01.12	Lazarette.....	11
01.13	Dinghy stowage	11
02	DECK	12
02.01	Laminate.....	12
02.02	Deck finish	12
02.03	Teak woodwork.....	12
02.04	Winches and windlasses	12
02.05	Bow fitting and anchoring	13
02.06	Sail handling systems	13
02.07	Deck fittings.....	14
02.09	Hatches and windows	15
02.10	Cockpit	16
02.11	Canvas work	16
03	INTERIOR	17
03.01	Bulkheads	19
03.02	Forward cabins (Crew and Captain’s cabins in OA-version).....	19
03.05	Aft cabins (Crew and Captain’s cabins in OF-version)	19
03.03	Forward amidships cabin, Port side (Guest cabin in OF-version).....	20
03.04	Aft amidships cabin, Starboard side (Guest cabin in OA-version	20
03.03	Forward amidships cabin, Starboard side (Guest cabin).....	21
03.04	Aft amidships cabin, Port side (Guest cabin)	21
03.02	Forward cabin (Owner’s cabin in OF-version).....	22
03.05	Aft cabin (Owner’s cabin in OA-version).....	22
03.06	Saloon.....	23
03.08	Galley.....	24
03.09	Crew mess.....	25
03.10	Navigation area.....	26
03.11	Bathrooms general.....	26

03.16	Engine room.....	28
03.18	Noise and vibration control	28
03.19	Corridors	29
04	ENGINE AND HYDRAULICS.....	30
04.01	Main engine.....	30
04.02	Propulsion system	30
04.03	Cooling system.....	31
04.04	Fuel system.....	31
04.05	Exhaust system	32
04.06	Diesel generators	32
04.07	Lubricating oil system.....	32
04.08	Engine controls	32
04.09	Thruster	33
04.10	Firefighting system.....	33
04.11	Engine room other.....	33
04.20	Hydraulics	33
04.21	Central hydraulic system.....	34
04.22	Power pack.....	35
04.30	Pneumatics	35
05	PLUMBING	36
05.01	Fresh water system	36
05.02	Sea water system	37
05.03	Grey water system.....	38
05.04	Black water system	39
05.05	Drainage system.....	39
05.07	Ventilation	40
05.08	Climate control	42
05.09	Refrigeration system.....	42
05.10	Galley equipment.....	42
06	ELECTRICAL.....	43
06.01	AC-system.....	43
06.02	Grounding system.....	45
06.03	Powered hydraulics.....	46
06.04	DC-system.....	46
06.05	Plumbing and monitoring system.....	47
06.06	Engine and generator DC.....	49
06.07	Instrument power supply	49
06.08	Ventilation and heaters	49
06.09	Electrical panels	50
06.10	Domestic appliances	53
06.11	Lights.....	54
07	ELECTRONICS	57
07.01	Compasses and barometer.....	57
07.02	Sailing instruments	57
07.03	Navigation systems.....	58
07.04	Communication systems	59

07.05	Entertainment systems	59
07.06	Autopilot system	60
07.07	Aerials	61
07.08	Computer system	61
07.09	Security systems	61
07.10	Safety systems	62
08	RIG	63
08.01	Mast	63
08.02	Booms and poles	64
08.03	Standing rigging	65
08.04	Running rigging	65
08.05	Furlers	66
08.06	Rig hydraulics	66
09	EQUIPMENT	67
09.02	Anchoring and mooring	67
09.03	Sailing gear	67
09.04	Firefighting equipment	67
09.05	Safety equipment	68
09.06	Spare parts	68
09.07	Tools	68
09.99	Other	68