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Dimensions and Capacities

Length Overall Length Over Waterline Measured Length Beam Overall Draft Displacement Full Load Fuel Capacity Fresh Water Capacity Waste Water Capacity Minimum Range of Positive Stability

Main Engines 500HP Option 500hp@1800rpm Transmission Top Speed Cruising Speed Fuel Consumption (Estimated) displacement. Calm water, no wind waves or current Approximate Range current)

Thruster Thruster Generator

Alternators

Solar

Stabilizers

Watermaker

Engine Room Fire Suppression

Ballast

25.9m
24.7m
23.95m (ICLL Load Line Length)
5.9m
1.819m
77 tonnes
14,000 I
5,000 I
600 I
30 degrees (half fuel pressed into minimum tanks, full fresh water tanks) TBC
2 x MAN D2676 LE 451

2 x ZF 550-1 GEARBOXES RATIO 3:1 16 knots (Full Load) 11 knots at <50%engine load 40 Lph ± 15% at 11knots, half load

>5000 NM at 9 knots (nil wind/waves/

Side Power 170/250T 12" Proportional Bow

19 Kw Cumins Onan

2 x 150A 24 Alternator Both belt driven off the engines,

6 x HiTek 330W Panels

Humphrees 24 All-speed system

Sea recovery - Aqua Whisper Pro 1800

Fire suppression cylinder with Fully automatic shutdown system in engine room w/ manual triggers

Lead Keel 6 Tonne Fixed Ballast

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Structural Plan Approval & Inspection

Plan Approval:

The structure of the Circa 24m shall be in accordance with *CE regulations in order to obtain a Belgian Certificate of Deugdelijkheid.*

Survey Inspection:

Owner approved surveyor to confirm that the vessel structure is built in accordance with plans and specifications.

A series of x-rays or ultrasound tests to be made (12 total) to check weld integrity of floors and hull welding. Locations to be specified by independent surveyor.

Structural Details

Aluminium Quality Standards:

As a majority of this Yacht is to be left bare and unpainted, the hull deck and superstructure are to be faired to the highest standard. Topside deflection is plus or minus three millimetres in two meters, from underside of toe rail to top of boot stripe. Deck, and roof plate is plus or minus five millimetres in two meters.

Welding to be by certified welders to AS/NZ ISO 9606-2 standards for weld allowance using 5083 H321 and 5083 H116 plate.

All aluminium plate will be supplied with Certificates outlining its conformity to 5083 H321 or 5083 H116 from recognised DNV or Lloyd's suppliers. Certificates to be matched to scaled drawings of cut files for future reference. Extrusions of 6061 T6 may only be used only above DWL.

Thru-hull penetrations are to be in 5000 series alloy, or if in 6000 series, to be hard anodised. Exterior welds on coamings, roof plate, and topsides, frame lines and intercostals to be ground smooth and fair, except underwater areas where structural requirements dictate leaving welds un-ground. Inside corner welds, for example deck to topsides, are to be left ungrounded.

Interior welds and plate edges, where exposed, to be softened to reduce cuts when working around exposed metal surfaces. The topsides are finished to a bare non-treated sanded 60-grit finish.

Tanks, belting and keel to be tested to 3m head over 48 hours using a manometer and record supplied to Purchaser.

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Hull Scantlings:

Hull framing and plating is designed to no less than minimum of the Lloyds Special Service rule.12mm Bottom plating8mm Topside plating.

Forepeak Extra Reinforcements:

Transverse framing stiffness in the area forward of the forward watertight bulkhead (end of accommodations) shall be increased by fifty percent (50%) over the normal specification. Equivalent increase in intercostals topside stringer stiffness shall be maintained.

Watertight Bulkheads:

There are five water high bulkheads located at the forward and aft end of the forepeak, forward of the aft accommodations, and each side of the engine room.

Exterior Finish Deck:

Smooth plate to be used in all deck areas, finished with Tread-master or equal non-skid system, except for portions of the house top and the dropped deck area near the windlass that shall be ground but otherwise left bare. Margins of at least 25mm waterway margins around perimeter of non-skid panels with 50mm outboard.

The Cockpit, Stairs & Swim platform shall be finished with Flexiteek

Bottom Paint:

Self-polishing copper bottom paint system to be used with multiple barrier coats and anti-fouling. Boot stripe tops off bottom paint system with overlap on barrier. Paint system to be in accordance with best marine practices for Aluminium vessels in salt water. Hull preparation and application of paint system shall be in compliance with paint manufacturer's specifications.

Hardware Attachment:

All deck hardware above living areas to be blind fastened.

Isolation:

All stainless steel hardware shall be isolated from Aluminium with dielectric material. Bronze winch bases shall be isolated with high-density rubber (40 shore). Minimum clearance of .5mm on lifeline stanchions so they may be removed for repair or replacement. Tef-Gel or Lanocoat-like material on all fasteners into Aluminium.

Ballast:

There is capacity to add lead ballast, should it be required.

Integral Tanks:

Fuel and water tanks are integral with hull, forming a double bottom under all of the living area. There are a minimum of three water tanks and four fuel tanks. Coffer dams separate the fuel and freshwater tanks. There is a day-tank for gravity fed diesel fuel in the engine room. Stabiliser fin mechanisms are located in their own coffer dams with hinged watertight lids. There is a single inspection port for each tank above the low point. Allowance for a heat exchanger tank for AC and cooling shall be made with integral tanks built into the skegs.

Attachment Points on Deck and House:

Ten 12mm threaded inserts to be used with eyebolts for securing equipment.

Stowage will be provided for main dinghy

Socket for ship's ensign supplied on stern area. Additional 16 inserts on deck for tie down and future use.

Antennae Bases:

Capacity for two radars, 1 x VHF antenna, one satellite dome and up to six mounting locations for standard antenna or GPS mounts. Mast development to be completed during latter stages of the build

Engine Room insulation:

An A30 Foil faced fire proofing under deck, and on bulkheads in addition to hull insulation to 300mm below the waterline or as defined by Pyrotek.

Zinc System:

Zincs will be fitted to the hull at quarter points, alongside rudders near props, and forward on hull. Fabricated custom Camp-style propeller nuts with zinc on nut to protect props fitted and supplied as spares.

Prop and Rudder Shaft Alignment:

Machine bearing carriers and embed into structural aluminium tubes with "Chock-Fast" or equivalent product.

Shaft to cooled/lubricated by oil bath system

Weed Deflectors:

Weld triangular-shaped plate weed deflectors ahead and behind (fore and aft) of rudders and stabilizers. Deflectors shall be a minimum of 150mm deep, from a teardrop shape to minimise form drag.

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Hull Marking:

Provide weld mark 300mm above DWL on transom, at bow, and each side of hull at station 5. Reference marks provided at leading and trailing edges of stabiliser foils, a consistent distance from the hull centreline, and for the trailing edge of the rudders on centre.

Hull ID Number:

Official number will be permanently marked/stamped on the on CL girder below floor in forepeak and on the transom.

*HIN - NZ-CIR24002E222

Towing Bit:

Towing bit in bow area shall be installed.

Miscellaneous Structural Details:

Ladder to swim step from the main deck. Thruster pipe in forepeak. Brackets for specified gear as required, throughout boat. Sealed area in swim step/transom area for the storage of flammables.

Hull Windows:

There shall be fixed hull windows of Marguard or similar thickness and strength to meet ISO offshore standards.

Storm covers available to blind fasten over windows, for use in high latitudes.

House Windows:

Windows are Chemically toughened marine laminated glass with polymer interlayers with Black Ceramic Border.

Forward windows are laminated glass of thickness and strength to meet ISO offshore standards House side and back windows from laminated glass to meet ISO offshore standards House windows to be tinted

Flybridge Windows:

Windows are toughened glass with black ceramic borders and tinted to owners preferences.

Deck Hatches:

Deck hatches or Portlights for main accommodation areas.

Engine Room Equipment Removal:

Main Engines, Generators, water-makers and transmission can be removed via engine room soft patch. Lifting points provided

Forepeak:

A self-draining anchor chain storage well is integrated into the forward part of the forepeak Allowance made for securing equipment.

A 150mm schedule-40 pipe, with standard pipe flange at top, will be welded to the hull bottom for the install of a retractable Furuno Searchlight SONAR.

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Allowance for the following transducer installations to be made:

Airmar Speed/Depth/Temp transducers with depth Forward and Aft. 3.75" 1kW Depth sounder in suitable location.

Lifelines, Man-lines and Rails

Lifeline System:

Lifeline stanchions are heavy 50mm x 6mm wall aluminium tubing, rising at least 950mm above deck level, with three rows of lifelines.

Top lifeline is uncoated 316 stainless steel 1 x 19 wire of 6mm diameter. S/S Lifeline wire ends utilise machine-swaged terminals. The lower lines are of 6mm Dynema.

Port and Starboard boarding gates.

Single gate lifelines, utilising pelican hooks forward, with machine-swaged fork terminals at aft end. Additional Gate lifelines can be requested.

Stainless Steel Work:

All stainless steel work to be 316, polished, and fabricated to the highest standards.

Interior Companionway Rails:

Companionway rails at each stair system running both sides of the stairs.

Head Hand and Towel Rails:

Handrails near each toilet for support and use with drying towels.

Engine Room

Engines:

Two 2 x MAN D2676 LE 451 500hp@1800rpm diesels are fitted, and painted with a high quality linear polyurethane paint system. Engines will be Keel cooled and Drystack exhausts.

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Drive Line:

2 x ZF W550-1 Gearbox's , connected to suitably sized 2205 propellor shafts with dripless shaft seals and line cutters are fitted to each shaft. Shaft to cooled/lubricated by oil bath system

Props:

Two nibral bronze props, counter-rotating. Spare props are recommended options with onboard storage provided. Prop nut spanner included.

Lug provided between propellors to assist with in the water removal & replacement. Optional flat plate prop removal tool is recommended.

Engine Controls:

Mathers cruise command electronic shift/throttle, installed at both Fly-bridge helm .

Wireless Remote or fixed additional control stations for docking purposes included.

Emergency back up in the form of direct cabled gear shift and throttle control bypassing Matters electronic CPU to be installed.

Fuel System:

Single day tank in engine room, fed by either of two 230V AC geared fuel pumps. Pumps draw through a Dual Racor 1000 filter. Fuel system can be used to "polish" fuel, or transfer fuel between hull tanks for trim control. Dual Racor 1000 filters with valve are supplied for each engine. Genset will be supplied by it own filter.

Each filter has a vacuum gauge.

A one piece, rigid aluminium pipe air vent runs under shear from main tanks and empties into day tank. There shall be no dips or rises in this pipe and it shall have a constant fall to the day tank top. Day tank to have clean out drain fitted at lowest point.

Day tank air vents with shutoff valves exhausts in inverted J into swim step locker

Stainless fittings with USCG Type A fuel hose throughout. Each diesel engine shall have its own independent fuel return line to day tank. A fuel magnet is fitted in the fuel polishing system. Remote fuel shutoffs to cut day tank supply to filters operable from outside engine room either side.

Standpipes will be installed for electronic level monitoring and one main tank will have standpipe for dipping stick level indicator.

Tanks can be filled via deck fills

Exhaust System Engine:

Exhaust is a wet exhaust exiting the topsides in the aft section of the engine room above the waterline Exhaust system will be soft mounted to minimise noise transmission.

Exhaust System Genset:

Exhaust system with water exhaust separator. Water and gas to discharge above WL. Exhaust system will be soft mounted to minimise noise transmission,

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Lube Oil Changing Pump:

An lube oil-changing pump system (24V DC) is connected to engines, transmissions, and generator, with remote hose to allow old oil to be pumped out, and new in, will be fitted.

Engine Room Air Intake/Exhaust:

Engine room air intake to incorporate Seaworth water-shedding grill with dorade box style up-stand to prevent water intrusion, and a closable heavy weather dampener/fire suppression plate. Penetration into engine room will be sufficient so that the bottom is 600mm above inverted waterline. Engine room to have a pressurised air system with sufficient air flow capacity to maintain Engine manufacurers temperature requirements.

Engine Room Fire Control:

A fully automatic full capacity fire suppression system, with manual trigger, is installed in the engine room. There is also an automatic shutdown system for engines, genset, and diesel heater. Alarm sensors fitted to the overhead of the engine room.

Engine Room / Lazarette Miscellaneous:

Lifting points installed for lifting engines and genset for in-situ maintenance. Windows for observing engine room in the watertight doors. There is a workbench, with sink, vice, and tool chest.

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Plumbing:

Sea Water Plumbing Systems Engine Room:

A stand pipe and manifold with strainer and valve will provide salt water to the generator and watermakers, Salt water wash down and air conditioning pumps. Provide two (2) extra 1" (25mm) taps for future use. Standpipes will have a shut off valve 100mm above full load waterline and a clearing plug at the top.

High Pressure Fresh water Wash Down:

Fixed mounted Kranzle HD10/122 high pressure washer, mounted with high pressure outlets on the foredeck, Flybridge and Aft deck/cockpit. Hose stowed in the forepeak or Laz.

Fresh Water System:

Integral hull tanks, with deck fills.

Dual fresh water pressure pump system with accumulator, are installed to supply water to all decks. Each pump is independently capable of pressurising and handling demand. Forward freshwater fill located on upper deck.

Fresh Water System capable of transferring water between tanks for trim control with pumps sized for optimum flow.

Output of water-maker can go to integral hull tanks or drinking tank in the galley. The drinking tank will have its supply pass through a UV filter and has a spigot at the galley sink, fed by its own pump, and will be fitted with a carbon filter.

The main pressurised system, has shutoff valves at each faucet, mixer valve, and washing machine, includes four spigots (forepeak, aft deck, and lazarette), in addition to a hose bib in the engine room. An anti-scald device is fitted on the hot water tanks (calorifier), and constant temperature mixer valve in each shower/bath.

Swim step to have mixer valve with shower fitting.

Hot water circuit may be upgraded to an optional recirculation system.

Both hot and cold water lines are insulated.

Domestic Water Heatings:

Webasto Isotemp 75L Hot water cylinder with electric heating element with additional engine/boiler heating capability

EBERSPACHER M12 Diesel Boiler with underfloor heating installed.

Engine heat exchanger and EverHot system installed.

Damage Control Pumping System:

Pacer damage control pump or similar of 160 USG/600 LP/M or greater fitted. One in Engine Room capable of drawing from Engine Room, Lazarette, Forepeak and Forward accommodation spaces. Operated manually or under control of high water alarm (reed) float switches in each watertight compartment.

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Single 2"/50mm suction line to each valve and pickup point, except engine room which is 1.5/38mm.

Bilge Pumping Systems:

Diaphragm pumps (1.25" intake), rated at 8.45 USG/32 litre per minute, fitted with 2.5" strainers on intake line, as follows:

- Two pumps in engine room each with its own control circuit
- One in forepeak.
- One in Lazarette

Bilge Pumps will have manual override locally and primary bilge Pumps will have additional manual control

Accommodation area will have bilge pumping system plumbed to Stabiliser cofferdams with capacity to add flexible pickup hoses.

Waste Treatment System:

Tanks have the ability to be discharged overboard. Tanks have a level indication and monitoring system via Maretron

Grey Water:

Grey water system: Comprises sump pumps for each accommodation deck shower and sink basin with manual control.

Grey water will be plumbed to Grey water tank which are low integrated pumped tank with the ability to be discharged overboard or access to be dock pumped

Black Water System:

Tecma toilet system will plumbed to discharge into holding tanks prior to discharge and with three way valve to allow direct discharge.

Blank Water tanks to with access to be pumped from dock.

Solid PVC pipe is used for as much of toilet discharge plumbing run as possible. Where soft hose is required, premium heavy-duty hose is used.

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Heating, Ventilation, Air Conditioning, and Refrigeration

Heating & AC:

Climate control is provided by direct expansion reverse cycle marine heat pump units from Dometic to provide adequate Heating and cooling of the vessel accomodation, greatroom and flybridge. Heating of interior sleeping areas, saloon, galley and flybridge provided by diesel boiler and underfloor heating system.

Ventilation:

For each sleeping cabin natural ventilation is provided by common dorade box style air inlet. Each head compartment will have extraction system. Each dorade area will have a Seaworth grill. Each vent to have standard internal sealable standpipe. Galley has air/fume extraction near hob.

In the saloon pressurised inlet air provided by large dorade box in the forward face of the Fly-bridge deck coaming and great room soffit.

Refrigeration:

Flybridge Refrigeration, Isotherm Marine 49L INOX Under-Bench Unit Galley Fridge Freezer, Wine Fridge, AWARD WCDZ60BL, 23 bottle Wine cooler. Crew Fridge, LIEBHERR SUIK 1510, fridge installed in crew quarters Cockpit ice-maker, ISOTHERM WEBASTO, IM-WHITE-LP Cockpit refrigeration, Isotherm Marine 65L INOX under-bench unit 90L Isotherm Marine Cruise Freezer installed in Drystore

Electrical System

General:

The installation shall comply with the latest issues of relevant requirements of CE and New Zealand Marine Safety Maritime Rules to best trade practice and will be carried out by suitably qualified trades-people.

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Installation:

Cables will be installed on suitable trays or in ducts and conduits and secured in place to prevent movement and chafing. Cables running through framing system down hull sides shall be secured between frames in a suitable manner. Where cables penetrate watertight bulkheads suitable sealed penetrations will be fitted to maintain the integrity of the bulkhead.

All cables will be identified at both ends with appropriate cable markers aligning with the cable schedules and schematic drawings.

Mechanical Isolation and Bonding:

Isolate mechanically all electrical equipment where practical (exceptions to be made for windlass, electric winches, engines and genset). Care shall be taken to ensure all electrical equipment is electrically earthed or bonded to avoid any possibility of shock or hazard.

Documentation:

After satisfactory testing and commissioning, the vessel will be supplied with as-built documentation/ records for the electrical installation. Documentation will include systems descriptions, drawings, cable schedules, and test records.

Location of Fuses, Relays, Solenoids, Switches, and Solenoids:

Due consideration shall be given to the ease of access to electrical components requiring maintenance or operation including during emergencies.

Fuses and Solenoid/Relay Spares:

Fuses, Solenoids & Relays can be supplied as per the attached recommended spares list. Critical fuse spares will be located at each location where it may be required.

Basic Wiring:

Marine grade, tinned wiring to be used throughout. The following circuits are to be sized for a threepercent voltage drop: fridge compressors, RADAR, damage control pumps, primary bilge pumps, PV array system. The following circuits are to be sized for a 5% voltage drop: Secondary bilge pumps autopilots alternators and genset output, inverters, water-makers, power winches and windlass. All other circuits to be sized for 10% voltage drop.

Terminations:

All wiring terminations below waterline, and all otherwise possible, to be done using adhesive heat shrink terminals. All terminations to be done with proper lug, ring, or captive spade terminals, with nylon sleeves, except on cable lugs. All larger size terminals and cable lugs to have heavy-duty adhesive heat shrink (#4 through 4/0 wire). Those positive terminations otherwise unprotected, to be protected with insulating boots or covers.

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Heavy Duty Fusing:

High capacity ANL-type or Class T in high current applications.

Panels:

Primary AC circuit breaker panels to be located in the forepeak systems area

The AC panel to display: AC line voltage, amps, and frequency of shore/genset and or inverter output.

The primary DC panel located a the main electrical locker in the lower foyer to display: DC voltage amps, battery SOC.

Victron CERBO GX displays all relevant Solar, Inverter, Battery, Shore and Generator power management information.

Breakers:

Heavy duty single throw, double pole breakers for all service circuits to provide disconnect of positive and negative legs of the circuit on the DC side and HOT and NEUTRAL on the AC side (230VAC). All AC outlet breakers to be RCBO type unless on navigation critical equipment.

24 V DC House Battery Bank:

To comprise of no less than 1500Ahr utilising Litium phosphate batteries (1500 A/hr lithium has the equivalent useable energy as 2000 A/hr AGM Bank) Additional capacity may be requested to provide extended capacity.

This bank supplies all ship's needs, except for the normal starting of the main engines and generators.

Engine and Generator Starting Bank:

Engines and Genset may be all 24V start circuits, two 24v start banks provided with parallel switch between them. Each bank providing sufficient start capacity for one Main Engine and one Genset. These start banks can be charged by either the Generator, alternators or from a 230vAC Charging unit.

24V DC House Battery Bank Charging:

Main House batteries are capable of being charged underway by two seperate high capacity alternators of 24v 220A mounted on the main engines.

Charging can also be achieved utilising generator power, or shore power with the 230V AC 50Hz Inverter Chargers or additional 230V/60Hz Chargers which can be controlled and monitored at the remote panel.

Solar PV Array 24V DC Battery Bank Charging:

This vessel will be equipped with 6 or more solar panels with 330W or greater output to provide maintenance charging and power to the Refridgeration and monitoring systems. The solar panel output will be regulated by Victron MPPT smart charge controllers with isolation points before and after solar regulators.

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There is capacity to add a further Panels depending on available surface area's to increase capability of energy neutral running under suitable conditions.

Battery Switches:

Battery disconnect switches (isolators) are installed near batteries, on positive leads of each primary/ major circuit. These include: main 24V DC distribution panel, 230V inverter/chargers, electric deck winches/windlass, alternators, and solar panels. There is one single point where DC ground is connected to the hull.

12 V DC:

12V DC for on board circuits, is provided from a pair of 24-12V converters, each with 20 amp capacity, A selector switch to select either unit, both or (in emergency) a centre tap on the 24V bank.

Primary AC Power:

Vessel's primary AC circuit is 230V, single phase, 50Hz (2C+E). This is supplied from either shore power (32A service), generator, or from the inverters, 16kW total. The inverters shall be capable of synchronising with generator or shore throughput to provide power assist if loads surge beyond incoming capacity.

A Victron Blue Power 24/100 seperate battery charger installed for 60hz shore supply via a changeover switch.

Provided also is an emergency bypass switch to allow bypass of the inverter units.

Domestic AC Outlets:

230v outlets protected by RCBO's will be installed throughout the vessel.

Shore Power:

Vessel is equipped for incoming shore power of 208-240VAC, Single Phase, 50 or 60 Hz. A 32A isolation transformer is fitted to the vessel's Primary incoming AC system of 208-240V, single phase, 2C+Earth, power. A changeover switch to divert 60Hz power will be installed.

A 230v 32A Euro standard shore power inlet located aft. Incoming shore power to have circuit breaker limited at vessel inlets to 32A and ground fault protection at the vessel inlet point.

Shore Power Cord-sets:

In addition to the 32A, 25 m primary cord-set, various adapters are available to provide for typical shore power connections.

Generator:

Vessel equipped with 22.5kw, 50Hz of generator power the Generator will have sound shield and is double isolated from structure to minimise noise and vibration.

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Horn:

A chrome dual trumpet horn to be fitted to forward mast. System to have basic push button control, and will run off dedicated air compressor. Fog timer/ controller is optional.

Fuel System controls:

Day tank level is controlled by a latching relay which is automatically or can be manually controlled. High and low alarms are triggered by reed switches.

Critical Systems Monitoring Panel:

In addition to the OEM information provided on manufacturers control panels (main engines, and genset), Maretron NMEA 2000 displays are installed at the flybridge helm, the lower helm and Systems Room. This will provide status on engine room systems including: Bilge pumps, bilge alarms, fuel, fire and heat alarms.

Remote Control Panels:

Remote switching/control of search/floodlight, foredeck light, aft deck light, docking lights, horn, and windlass control with chain monitor will be installed at, the Flybridge helm.

Interior Lighting:

There are LED overhead fixtures throughout. Each lower deck sleeping position to have bulkhead mounted reading lights,

Accomodation, saloon and galley headliner down-lights are on dimmer circuits.

Flybridge and lower helm positions will have switchable Red/white lights for night navigation

Exterior Lighting:

Aft deck LED floodlight, LED Search/floodlight and lighting outboard (port and starboard) one forward LED deck-light for windlass area. Forward Lighting Mast option available.

Navigation Lights:

Navigation lights will be installed to meet position and intensity requirements of COLREG 72 LED anchor light is provided.

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Electronics

Navigation:

Navigation Software: PC-Based Furuno TimeZero

Radars:

Main: Furuno DRS25A-NXT, 25W Doppler Secondary: Furuno DRS4D-NXT, 25W Doppler

Satellite Compass:

Furuno SCX20

Monitors:

x Hatteland 32" (Center)
 x Furuno TZT3 16" (Port and Starboard flanking)

AIS:

Furuno FA170-GPA Class A AIS with GPS Antenna

Sonar:

Furuno DFF3 Sonar Module with 1kW Stainless Steel Thru-Hull Transducer Furuno CH500BB Searchlight Sonar

Digital Video:

AXIS M2023LS Bullet Cameras (Port, Starboard, Aft) AXIS M3904R Dome Camera (Engine Room)

Supplier: ENL (Electronic Navigation Limited)

•

• System control at both Fly-bridge and lower helms

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Steering - Autopilot:

Fly by wire and conventional Hydraulic steering		
Autopilot System,		
Autopilot:	Simrad AP70 with Both FU and Non FU lever controls	
Drive Unit:	Accu-steer Pumpsets	
Steering:	LECOMBLE SCHMITT Hydraulic Cylinders	
Compass:	Furuno SXC20 + redundant Simrad Precision-9	
Rudder Feedback:	Simrad RF45x	
Supplier:	DM Electronic	

This vessel comes with professional Autopilot system integrated with the navigation system. The vessel is designed to be helmed via "fly-by-wire" control, and has a back steering system of follow-up levers at each station isolated from pilot electronics to directly control the rudders. There are two independent hydraulic steering systems to provide full get home redundancy. A backup, a manual helm pump is employed, utilising a steering wheel which can be attached if required. This manual backup is installed on primary autopilot hydraulic system.

Autopilot additional redundancy:

The system to include two, completely redundant, SIMRAD AP70 autopilot systems. The electronic hardware for the second system maybe supplied to be stowed in an electrically safe location ready for easy plug into main loom.

Communication:

Communications to be based at	Flybridge office/communications desk
Loud Hailer/Intercom:	Furuno LH5000
VHF Radio:	Icom GM600
MF/HF SSB Radio:	Icom GM800
Satelite coms:	Irridium GO

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Vessel Monitoring:

An NMEA 2000 system Maretron will be installed on the vessel as its primary ship-wide monitoring (alerts and alarms) system of specific onboard status and gear. This system will include the following:

- Maretron MBB black box system will be installed allowing for full display of information utilising Maretron's N2KView software. NMEA2000 Backbone
- 1 x 5.7" Displays on Flybridge, Saloon, systems room, engine room, lazarette, galley and owners' cabin.
- Safety Bilge pumps, bilge level, crash pump, smoke/heat detectors and watertight door at swim-step.
- Fuel and Water Tank Levels
- Navigation Depth forward, aft.
- Domestic Power DC information
- Main Engines ECU provided data integration via Canbus Adapter module
- Temperature monitoring at exhaust risers, shaft seals, raw water pumps, engine room and saloon ambient conditions.
- Domestic Power AC information.
- Watertight door at main deck.
- Heading, wind environment and barometric-pressure.
- Speed through water.

Integration: Maretron IPG in combination with Vessel Cell and Wifi system to allow tablet or cellphone monitoring of Maretron system while on-board or remote monitoring via subscription.

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Appliances

Audio Visual:

A Samsung 43" LED TV, Samsung Sound bar with electric TV Lifter, Samsung Sound bar and with custom sculptered curved seating for ultimate comfort.

Washer/Dryer:

Miele front-loading washer and front-loading dryer (230v AC) in cabinet/s, located accommodation deck.

Dishwasher: No Dishwasher

Miele dishwasher drawer built under-counter, in galley with integrated front finished to surrounding cabinetry.

Cooktop/Hob: Miele induction cooktop 76cmto be fitted into galley counter

Oven: Miele 60cm speed oven.

Vacuum System: Central Vac selected included, outlet number and positions to be determined.

BBQ:

A Tapinyaki hot plate installed on the aft deck island with built in Wolf electric Deep fryer also on the aft deck.

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Vessel Handling Systems

Bow Thruster:

Vessel fitted with a Sidepower 24vDC proportional tunnel thruster . Controls will be located at flybridge helm.

Stabilisation:

Humphree 24V all speed fin stabilisation system installed with control located at the flybridge helm.

Steering:

Two rudders with drag link between their tillers, independent steering cylinders.

Manual helm pump, located on aft deck.

An emergency tiller will be supplied with relieving tackles for securing the rudders when hove-to behind a para anchor.

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Interior

Standards:

Cabinetry will have tight joints to Circa's offshore cruising vessel standard. Care will be taken to match solid timber and veneers.

Solid timber and veneer will be finished using a two-component paint system similar to the Ameron products noted hereafter. Sealer, wipe stain, sufficient coats of Amerbuild 495 A & B or equiavlent to achieve grain fill, and then finish coats of high-gloss Ameron 574 A & B or similar.

All timber and plywood surfaces not mentioned above (such as cleats, hull and headlining grounds and panels, and bulkheads) will be sealed.

Interior components will be securely fastened. Structure to allow for 2G acceleration.

Headlining, hull lining, and bulkhead panels will be neatly fitted and securely fastened using Fast-Mounts.

Insulation:

Thermal and Acoustic insulation applied and installed as per recommendation of Pyrotek Ltd to achieve a high standard of thermal and acoustic insulation.

All exposed structure to have thermal insulation extending down to 100mm above the bilge DWL

Interior Bulkheads:

Engine room bulkheads are aluminium.

Other bulkheads are sealed plywood as required. Bulkheads incorporate the specified Pyrotek insulation system for their respective locations.

Interior Furniture Style:

Counter tops are Dekton Laurent, a manufactured porclain stone for galley and work areas, for other areas high density acryic tops are installed.

Stainless Steel rail fiddles where appropriate on/for benchtop surfaces and on lockers and cabinets.

Exterior Furniture Attachment:

Exterior furniture to be installed in such a fashion as to allow removal and replacement with threaded inserts welded to the decks.

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Finish Schedule:

Interior bulkhead doors are painted moderate gloss LPU, to match wall coverings. Shower/head modules are medium gloss finish fibreglass sandwich construction.

Timber is moderate gloss finish.

Interior Hardware:

All interior cabinet doors, hinges, and drawer slides to be suitable for marine application. Cabin door hardware to be Southco or equivalent marine hardware. Floor and external hatch latches are 316 stainless steel flush mount with lift handle (exterior lockable). Exterior butt hinges to be 316 stainless steel.

Head Liner, Bulkhead, and Hull Liner System:

Headliner system consists of separate panels, held in place with proprietary hardware. Hull liners are held in place using combination of fast mount clips and Velcro, and are covered with foam and then fabric. Headliner system in saloon to come just below top of window with an angled headliner panel, and allow a 100mm gap for window coverings. Bulkheads in striated texture backed vinyl wall covering.

Berth Cushions:

Eight inch/200mm owners' cabin bunk cushion constructed of high quality "memory" or natural Latex foam. Eight inch/200mm for aft guest and crew bunk cushions of high quality "memory" or natural Latex foam.

Seat Cushions:

Seat cushion quality to be to Circa specifications. Saloon seating bases and backs held in place with Fast-mount system, overhanging style, with plywood backs for shape control.

Slip Covers:

Optional Loose or tight fitting vinyl slipcovers for salon bottom and back cushions, helm chair, and padded cover for salon table may be requested

Floor Covering:

Flexiteak in high usage areas and carpet for comfort zones are installed through the vessel.

Fabrics:

Headliner and hull liner to be in synthetic Leather as per Circa offshore cruiser standard. Bulkhead coverings to be in striated vinyl.

- Salon seating Natural Suede/Leather
- Bunk cushions (interior) Natural Suede/Leather or similar

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• Deck cushions – Exterior vinyl or fabric

Window Coverings:

Electric cordless blinds to be fitted to saloon and Flybridge windows. Style and type to be determined. Windows to be Tinted, Shades to be determined.

Interior Safety Belts:

Optional Seat belt may be fitted to bunks, helm chairs and at seated positions if requested.

Helm Chairs:

Helm chairs by Stidd or similar as follows: One on Fly-bridge deck, with floor slider rail, length and orientation to be determined

Engine Room sole:

Light weight, non slip removable sectioned floor installed throughout the engine room.

Forepeak soles:

Light weight, non slip removable sectioned floor installed throughout the engine room.

Interior Design,

Excluding structural element such as bulkheads the client will engage an interior designer that will work alongside Circa Marine to develop layouts, timber selection, flooring style, colours, fabrics, wall coverings as per the agreed GA revision.

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Miscellaneous

Ground Tackle System:

Maxwell VWC4000 windlass, chain stop, chain counter, with remote control at forepeak.

Chain and Anchor to be finalised after weight study is complete. Chain counter remote control at Flybridge and lower helm. Chain is G40 12mm, 90m long, with oversized links on each end. Anchors are: 120kg Manson or similar (primary/self launching)*

Second anchor is Fortress F85 provided with requested 2 x 20m lengths of rode

Deck Hardware:

Two Lewmar electric, #65 EVO aluminium winches are installed (one aft, one forward,) for handling dock lines.

Primary vessel docking cleats one each side as follows:

- Mounted on the rub rail at the bow,
- Bow Quarter amidships for springs,
- At the Aft end of house
- Aft deck
- Aft on swim step cleats to allow for high docks in areas with large tidal ranges.

Canvas:

Aft deck to be fitted with closable canvas and clears to seal aft deck from weather. Sundeck to have a sun awning system supported centrally by the mast, removable supports aft and fixing points at the Flybridge roof.

Dock Lines:

Dock lines made up from 19mm braid polyester and 16mm braid, high modulus dual braid. Of 19mm polyester there are four lines of 18m each, and two lines of 30m each. Of 16 mm high modulus there are two lines of 18m each and two lines of 30m. Also provided are 12mm high modulus lines two of 10m each, two of 18m each.

Rig:

Aft masts have allowance for flying yacht club burgee, courtesy flags, and owner's personal signal.

Kite System:

A custom built kite system installed for economical cruising either soley from the kite or supplementary to the engines to increase range, efficiency and carbon footprint.

Vessel Fenders:

Included with the vessel are: 2 large lightweight inflatable cylindrical fenders, 2 medium lightweight inflatable cylindrical fenders, and 2 large foam board style fenders.

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Drogue Device:

Optional Drogues and para-anchors can be provided on request

Storm Shutters:

Optional storm shutters available with installation of blind threaded inserts.

In Port Trials

Port trials will be conducted to confirm proper operation of vessel and systems. A commissioning checklist will be created for each electrical and mechanical system on board with an indication that it has been tested, with the date, tester, and any notes pertaining to the piece of gear. Equipment will be run for sufficient periods of time to verify correct operation.

In addition, but not limited to, the following general testing will be conducted:

- Leak checks on each through hull fitting, each valve, and plumbing connection, along with all hose clamps. At the conclusion of trials each hose clamp shall again be checked visually and mechanically.
- Damage control pump operation shall be checked and verified by drawing water out of each of the following areas: engine room, forepeak, and from a bucket in all interior spaces where pick-ups are located.
- Verify bilge pump operation with manual and automatic operation. Check high water alarms.
- Check ability of freshwater pressure pumps to draw from an almost empty tank when not primed.
- Load and unload anchor and chain, then verify alignment of chain gypsy with chain stopper and anchor roller. Confirm self-launching of anchor and tight fit of anchor when winched against rollers. Verify chain counter operation.
- Check operation of electric deck winches under working load.
- Perform required engine and generator tests to qualify this machinery for standard supplier warranties.
- Verify emergency stop characteristics underway at different throttle settings.
- Ensure proper operation of thruster systems.
- Test all alarms to verify their operation.
- Check toilets and waste management system for proper operation.
- Check charging voltage and amps through at least three (3) discharge-recharge cycles with alternators and inverter chargers. After full recharge, perform an equalising charge. Record and log all data and data points.
- Verify inverter charger operation including load sharing with generator.
- On completion of the installation, all electrical equipment shall be tested and commissioned to ensure compliance with regulations, specifications and operational requirements.
- Test records and commissioning reports shall be included in the electrical as fitted documentation for the vessel.
- NZ Marine Electrical WOF will be completed and documentation supplied with vessel
- Calibrate stabilisers per manufacturer instructions.
- Calibrate autopilots per manufacturer instructions.
- Verify full travel of rudder and that rudder stops engage tiller arm before load is taken on ends of hydraulic cylinders.

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- Check all fridge and freezer operation. Calibrate temperature thermostat probes.
- Record kept of lowest draw down temp vs ambient temp, time to draw down to set point from ambient, at least 2 day log of running temperatures with doors kept closed.
- Run air conditioning on heating and cooling cycles. Record delta temperatures of each unit.

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Initial Builder's Sea Trials

Conduct builder's sea trials to verify proper functioning of systems over a period of up to 50 cumulative hours on each primary engine, and 25 cumulative hours on the generator.

A portion of trials shall be conducted in sufficiently adverse weather to test active stabilisers and other sea-going gear. An offshore gale with frontal passage, wind shift, and crossing sea state to be included if possible.

At the conclusion of these trials change engine, transmission, generator, and water-maker high pressure pump oil. Replace oil filters as appropriate.

Client Instruction

General Instruction:

During Purchaser's sea trials Builder personnel will be on hand for instruction of the Purchaser in the operation of the vessel and systems. Personnel will be available at no charge for the following periods:

Electrical systems - Up to twenty hours Navigation systems - Up to twelve hours Engineer (mechanical systems/plumbing) - Up to twenty hours.

Thereafter, if additional instruction time is required it will be charged at Circa's standard rate per hour plus travel expenses if required.

On-board Instruction:

Upon initial delivery, in addition to the systems and electric instruction above, three days of on-board instruction. These days may not be consecutive in order, the training may include general boat handling both dockside and at sea, safe seamanship, extensive instruction surrounding daily systems and gear use and practices, anchoring and mooring instruction, dinghy launch and retrieval, and overall instruction on vessel use.

Extended Training of advanced Seamanship, vessel handling and electronics may be available by arrangement as an option.

Insurance:

The vessel will be insured by Circa Marine during construction and sea trials until delivery for owner trials where owners insurance must be commenced.

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Extra Gear Supplied in the Contract Price

- two2.5 lb. portable fire extinguishers
- Two 11 lb. portable fire extinguishers
- Boat hook
- 1 light weight 50'/15m domestic hoses
- 10 stainless steel eyebolts, to be used with deck inserts
- 1 packages 3M oil absorbing pads (100)
- 15" WINDEX wind direction indicator for forward mast
- One set of tool drawers to be installed in engine room.

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Safety Equiptment Not Included

Safety Equiptment:

Safety Equiptment such as;

- EPIRB
- Life-rafts
- Life Jackets / PFD's
- Life sling with canister and throw line
- Survival Suits
- Additional Fire Extinguishers
- Handheld VHF's
- Emergency lighting
- Medical/first Aid Equiptment

Tools Supplied With Vessel:

GENERAL TOOLS / HAND TOOLS	QTY
GENERAL TOOLS / HAND TOOLS - Included Budget	NZD\$2000
TEFLON® THREAD SEAL TAPE	1
SEIZING WIRE (MONEL) 25'	1
5" HEAVY DUTY VICE	1
3 OZ. GREASE GUN	1
PLASTIC BEAKER SET 5PC	1
PLASTIC FUNNEL SET 4PC.	0

Spares Recommended to purchase for passage making

	QTY
Main Engine	
CPU Module	1
Injection Pump	1
Starter Motor	1
Fresh Water Pump	1
Salt Water Pump	1
Salt Water Pump Impellers	10
Oil Filters	6
Fuel filters (on engine)	6
Gasket set	1
Idler Pulley	1
Spring Tensioner pulley	1
Poly V Belts	4
Thermostats	2
Injectors	2
Injector Tips	6
Set of high pressure fuel lines	0
Set of Engine Sensors	1
Salt Water exhaust injection elbow	1
Flexible exhaust coupling	1
Air Sep filter cartridge and cleaner	1
Heat Exchanger "O" ring set	1
Zinc sets (transmission, heat exchanger on engine)	5
Generator	
Impellers	10
Salt Water Pump	1
V Belt	2
Oil Filters	3
Fuel Filter (on engine)	3
Gasket Set	1
Injector	1
Set of Injector tips	4
Set of High Pressure fuel lines	0
Exhaust Elbow	1
Zinc Sets	6

Fuel Filters (Racor 1000)	
30 Micron Filters	12
10 Micron Filters	12

Table 1-1

	QTY
Plumbing	
Assortment of pressure freshwater fittings	1
Assortment of PVC fittings	1
Spare hose of each size – used onboard	1
Pumps	
Air Conditioning Pump	1
Bilge Pump Overhaul Kit	1
Grey Water Pump	1
Portable "Suck-Up" oil/water vacuum pump	1
Water Maker	
Cruise Kit	1
Primary Commercial pre-filters	6
Oil-Water separation filter	2
Plankton Filter screen	2
pH neutraliser filter	3
Charcoal Filter	3
Carbon Filter	3
Pump Oil	2
Storage Compound	6
Cleaning Agent for ROM	2
Media Filter Replacement Media	1

	QTY
Electrical	

Breakers – Spare fuses of each size	2
Small Fuses, of each size used on board	10
ANL fuses, of each size used on board	5
Class T Fuses, of each size used on board	5
Solenoids, of each size used on board	2
Relays, of each size used on board	2
Dimmer controls	2
Overhead light fixture	5
Wall sockets - power points	1
Various 10m lengths of common wire/cable	5
Terminals, Crimps & fitting selection for wire and cable	1
Alternators	2
Miscellaneous	
Cutlass bearings	2
Bellows/misc. parts for packing gland	1
Filter bowl gaskets for strainers	6
Main ER sea strainer O rings	4
Hull zincs - SET	1
Prop zincs	6
Spare filters for domestic water	6