

LYNX 48

THE ULTIMATE COMPACT
HIGH-LATITUDE YACHT



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The Quest for the Best Feasible

Finding an optimum yacht for challenging high-latitude environments is easier said than done given the needs for seaworthiness, self-sufficiency, safety and reliability. The ever-tougher standards and regulations make retrofitting existing yachts difficult and expensive.

After countless hours' assessing requirements and researching yachts, it became apparent that the available options, whether boats or stock designs, fulfilled some or most requirements but none fulfilled all: A new design would be required. This would also allow taking advantage of the tremendous progress in design, building and components of the last few decades.

- *A real opportunity - too enticing to pass up*

Optimize design, layout, components and systems from first principles

- *A real challenge because of the inherent complexity of yachts*

Drafting a ship is easy, but creating a really good one is not: Overall design and components - hull, rig, sails, hardware, propulsion, systems - must be optimized and tightly integrated over and over. It requires outstanding naval architects, engineers and a mid-sized team of really competent professionals.

Given our decades of experience with large and complex projects, in particular model-driven architecture, design, optimization and effective management of professional teams, we felt competent to take the project on. We deliberately limited our role to product management, providing feedback and direction and to making sure that our wonderful partners had the space and information to produce at their best.

Our top-choice for naval architecture and design was Owen-Clarke Design (OCD) who have produced many fast and seaworthy boats. Merfyn Owen is a pioneer of CFD and tank test-based hull analysis. Allen Clarke is an expert for design and ergonomics.⁴ Ashley Perrin, a polar specialist who has worked for a long time in Antarctica and South Georgia, has accompanied the project as a consultant.⁵

After months of refining requirements and specifications, we commissioned a brand-new design from OCD. We were able to engage highly experienced firms for build, rig, sail, propulsion, systems and components. Thanks to Covid, there was much more time devoted to the project than otherwise possible. Many more refinements were added during the build of the first unit.

The result is the compact go-anywhere yacht Lynx 48.



Compact Go-Anywhere Yacht

a true sailor's ship

- satisfying and fun to sail
 - points well
 - is fast, with a powerful sail plan
 - performs well given reasonable wind
 - has a convenient deck-layout and well-organised kit
- is sea-worthy, strong and stable
- is self-sufficient, safe and reliable
- is well-equipped and comfortable, also for a small crew
- provides for a large payload including tankage
- meets ever stricter territory laws and regulations, e.g., for Antarctica, South Georgia, Alaska, Northern Canada, Greenland, Svalbard and the Polar Code

can remain without support for prolonged periods in challenging areas

- remote
- high-latitude
- ice & heavy weather
- poorly charted

the perfect small expedition/explorer yacht for families and small charter groups

highly optimized

- using best currently feasible
 - technology
 - Systems
 - components
- matched to requirements
- integrated from the inside out and the outside in

Length overall: 15.15m
Beam overall: 4.58 m
Draft: 3.15m/1.41m
Displacement 16,800 kg

Design Category A (All Oceans)
British MGN280 Category 0 compliant
Ice strengthened hull - DNV GL Ice Class ICE (E)

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Optimized to support many sail-plan and trim options

- many options for optimizing trim
 - many positions for blocks
 - outriggers allow for outboard sheeting of Gennaker and J2
 - jib-sheets can be cross-sheeted

Supports proper trim and reefing at all times by making it easy and convenient.

- most lines led to cockpit- to six ergonomically placed winches
 - 2 Antal XT52 main sheet winches (1 motorized)
 - 2 Antal XT66 motorized jib sheet winches
 - 2 Antal XT52 pit winches (1 motorized)
 - main halyard
 - main reef lines (dual-line reefing)

Safe and convenient foredeck

- very good handhelds, granny bar, extra-strength guard rails
- flush hatches; no obstructions for lines

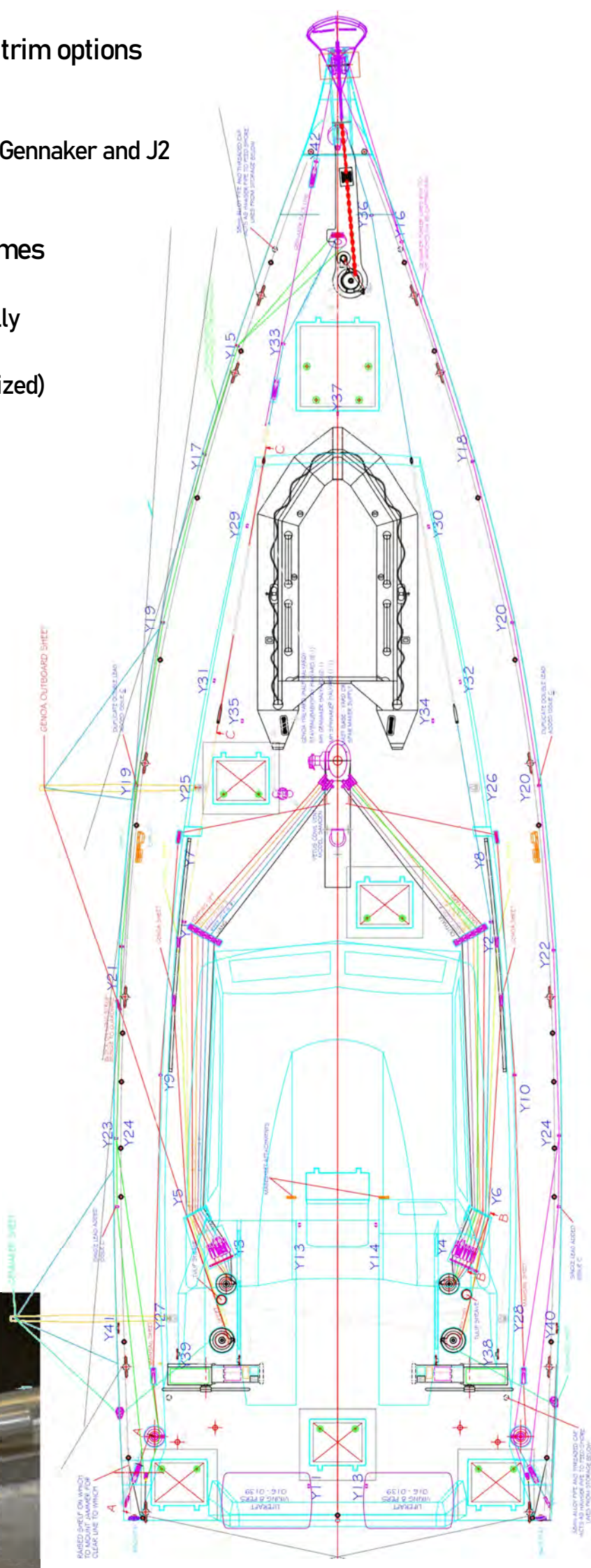
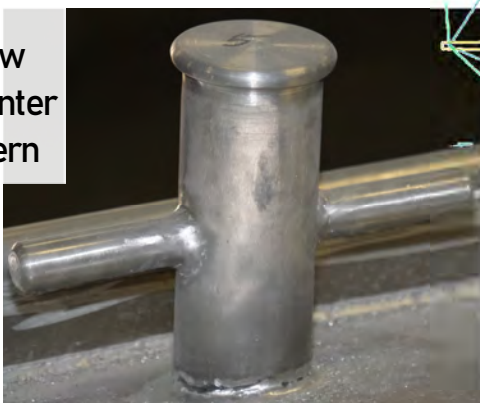


- (and toes)
 - mast winch (Antal XT52)
 - capstan can be used for gennaker, trade sail and staysail halyards

antal

No nonsense bollards

- total of 12 (6 per side):
 - 2 each at bow
 - 2 each at center
 - 2 each at stern
- tied into deck and frames



Axxon Composites

- strong and light two-spreader 7/8th carbon-fiber mast
- rod rigging

Sparcraft

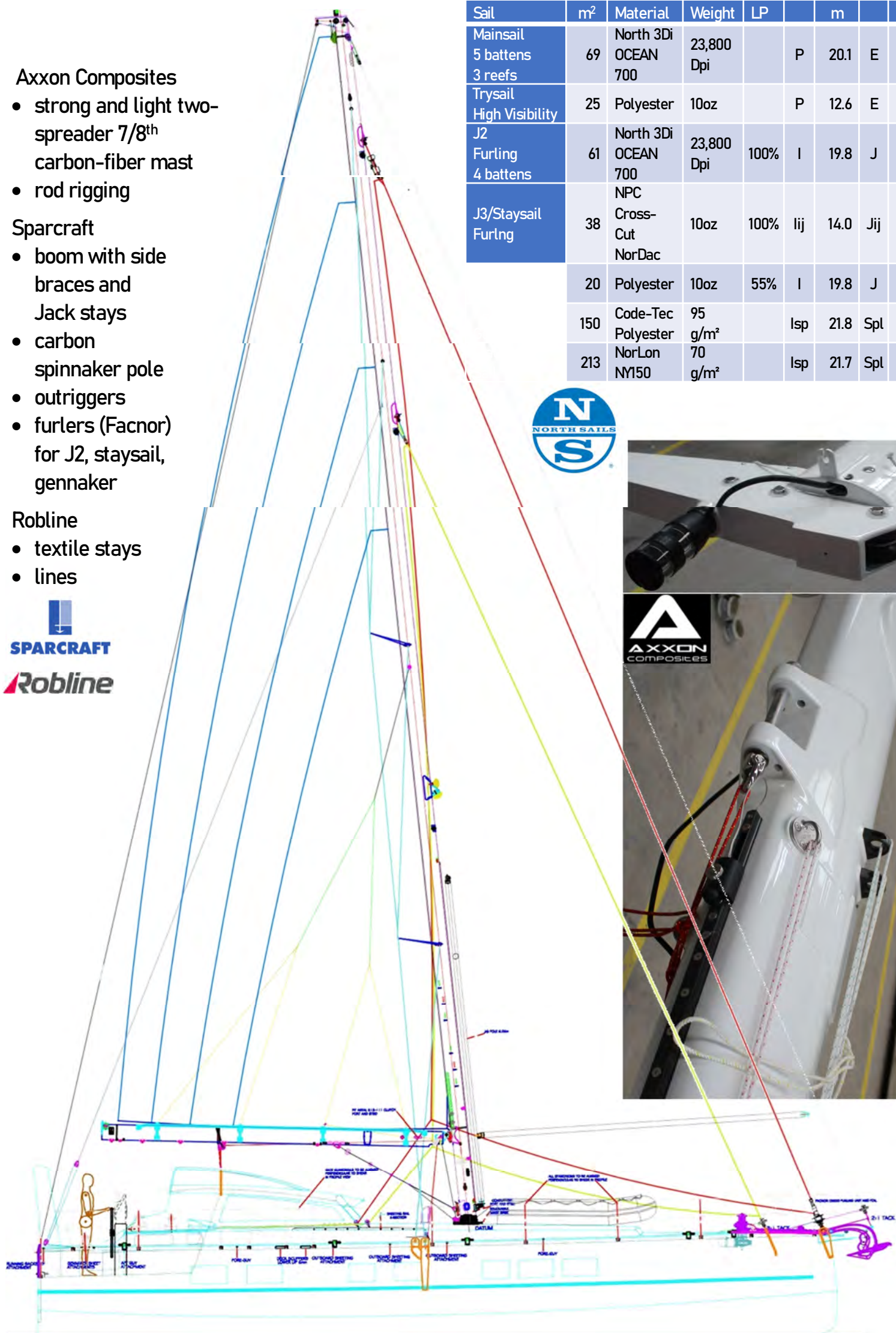
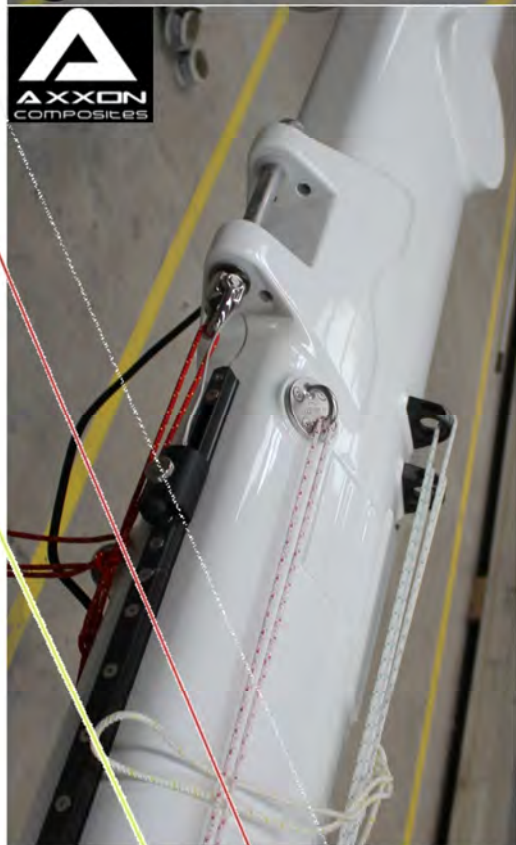
- boom with side braces and Jack stays
- carbon spinnaker pole
- outriggers
- furlers (Facnor) for J2, staysail, gennaker

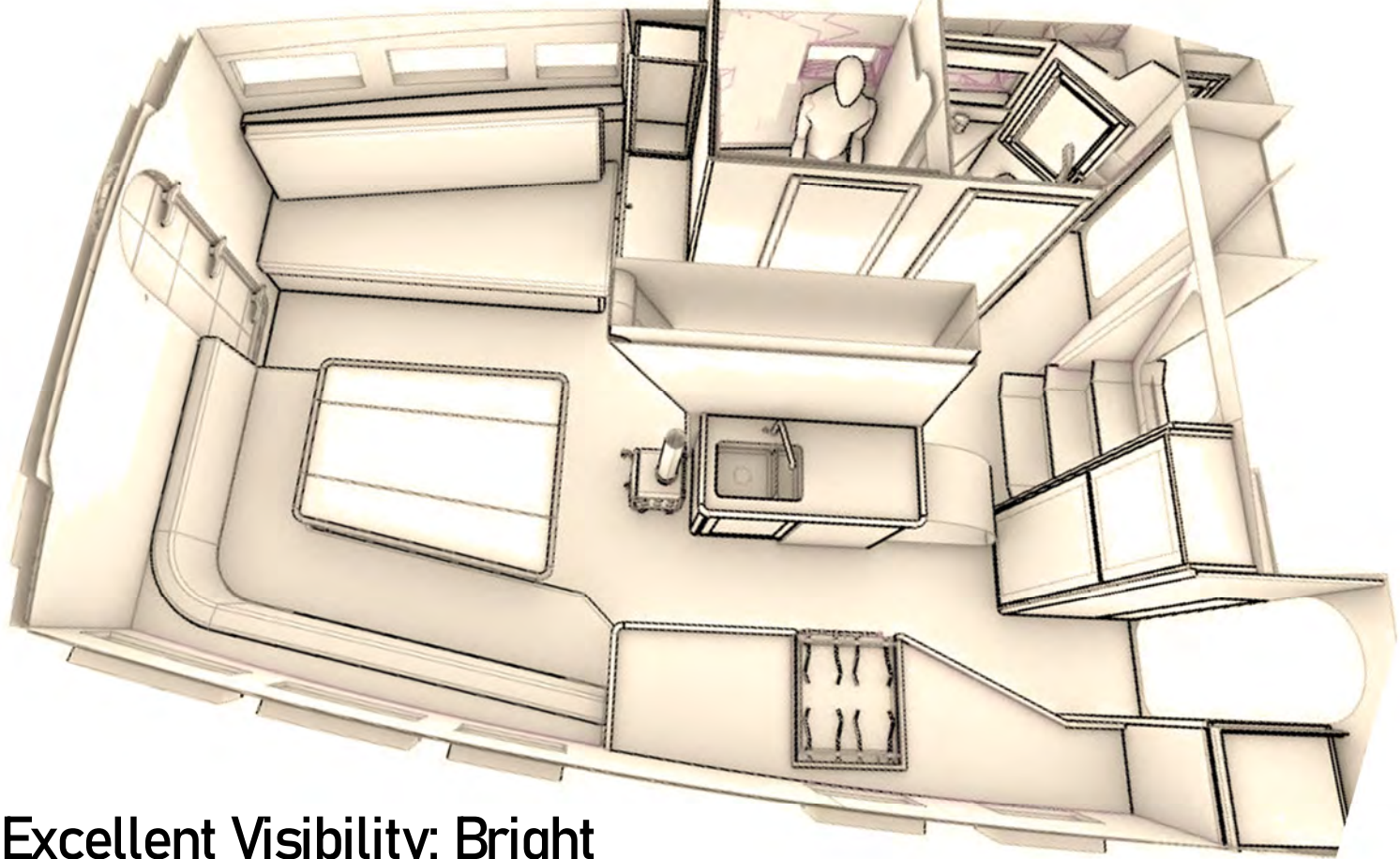
Robline

- textile stays
- lines



Sail	m ²	Material	Weight	LP		m		m
Mainsail 5 battens 3 reefs	69	North 3Di OCEAN 700	23,800 Dpi		P	20.1	E	6.1
Trysail High Visibility	25	Polyester	10oz		P	12.6	E	3.7
J2 Furling 4 battens	61	North 3Di OCEAN 700	23,800 Dpi	100%	I	19.8	J	6.4
J3/Staysail Furling	38	NPC Cross-Cut NorDac	10oz	100%	Iij	14.0	Jij	5.3
	20	Polyester	10oz	55%	I	19.8	J	6.4
	150	Code-Tec Polyester	95 g/m ²		Isp	21.8	Spl	7.1
	213	NorLon NY150	70 g/m ²		Isp	21.7	Spl	7.1





Excellent Visibility; Bright

- Very large portholes below provide light and enjoyable views while traveling the most beautiful spots of the earth?
- All-round visibility in pilot house – it is like sitting in an observatory

Comfortable and Convenient

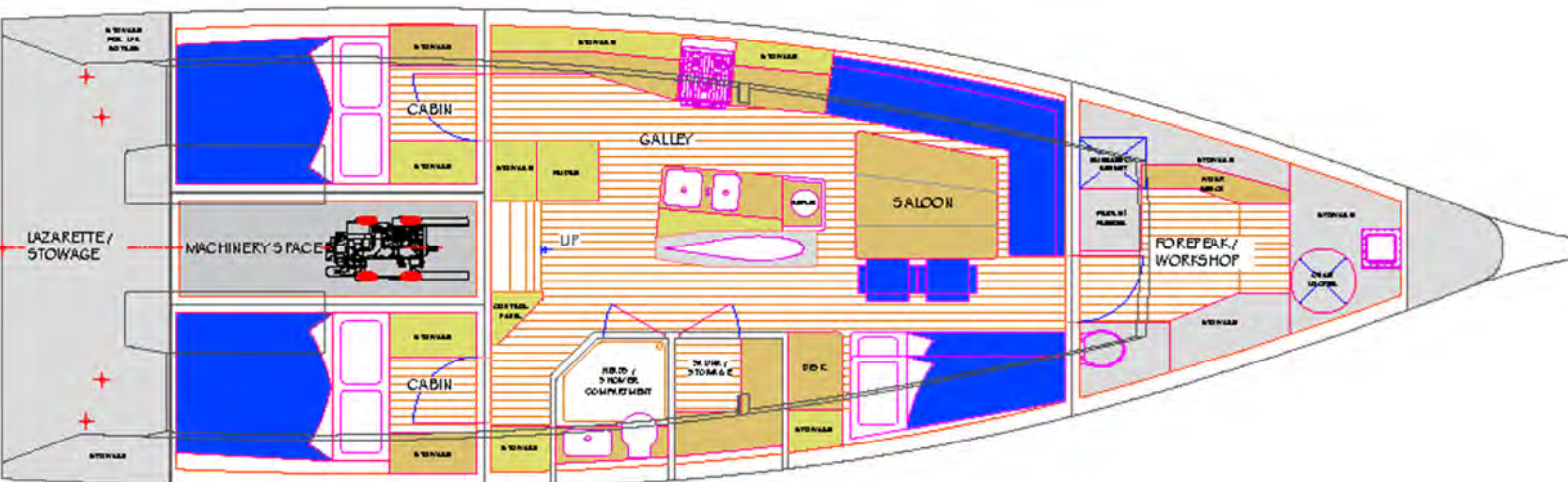
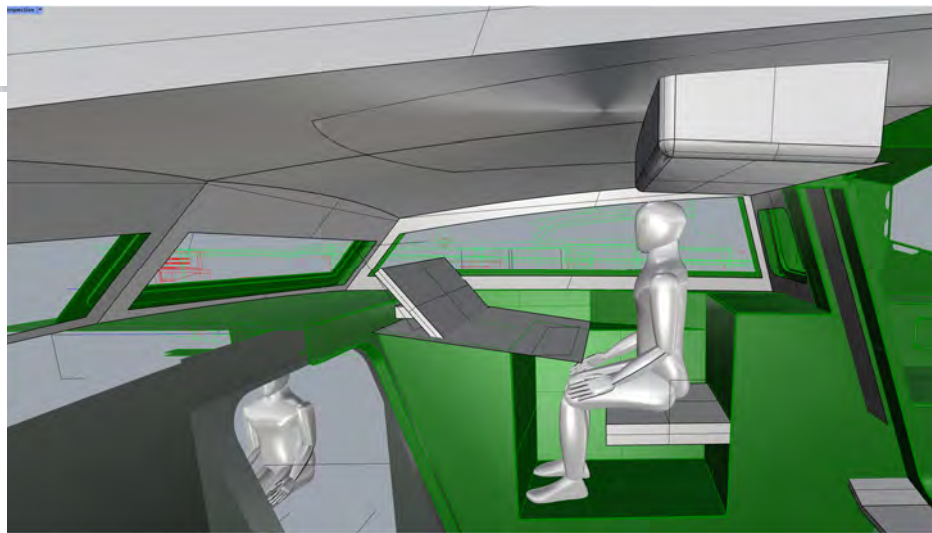
Easy to heat up, to keep warm/cool

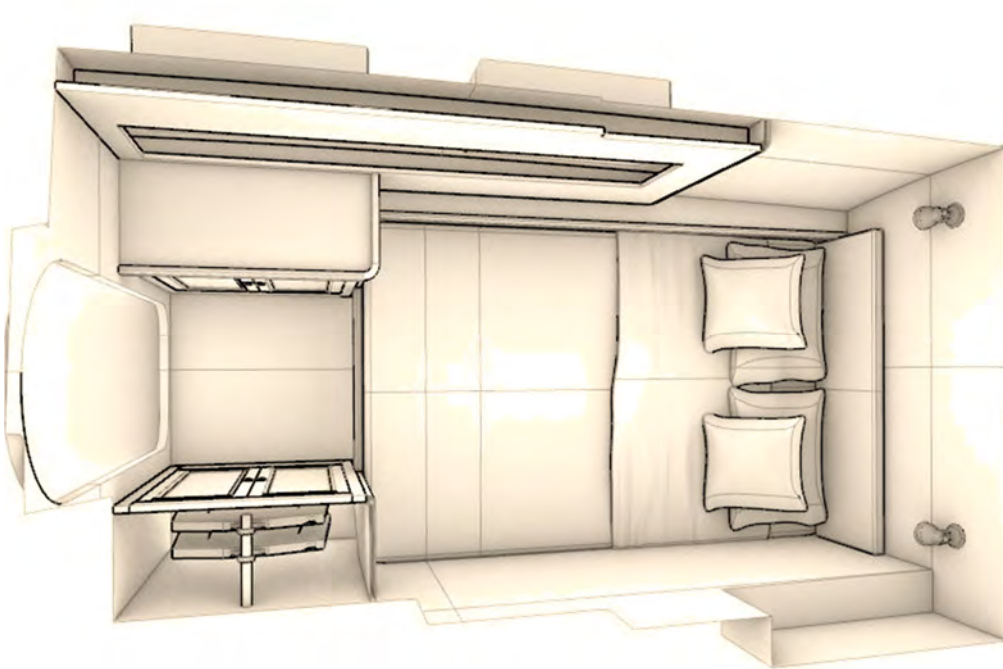
- 60-120 mm insulation in wall & ceiling
- insulation glass
- multiple heating sources
- heat exchangers and surface heating
- heated and ventilated wet-locker

High-capacity water system (hot/cold)

Sauna – well designed; top equipment

Top quality appliances





Customizing for specific needs, likes and tastes is one of the joys of a successful yacht project

- You don't like oak but you prefer cherry or sustainably sourced teak or any other suitable material
- You don't care for the sauna but prefer a second shower?
- You would like an even larger galley or a smaller galley?
- You would like more berths or fewer berths

Together with our partner Hutting Yachts, who have been creating magnificent yachts and custom interiors for decades, we have developed an optimized build-out package consisting of

- a large saloon
- a large head with shower and a sauna/head
- a very large galley for easy and convenient housekeeping
- two comfortable quarter cabins
- pilot house
- comfortable forward cabin – three options
 - workshop and double berth
 - master cabin with island berth
 - two single berths with or without workshop

- You would rather have more workshop space?
- You need more storage?
- You would rather have less storage and more open space?
- You would like other or more appliances?

Go for it! A lot is feasible as long as it fits into the structure of the hull and doesn't adversely affect weight and balance.

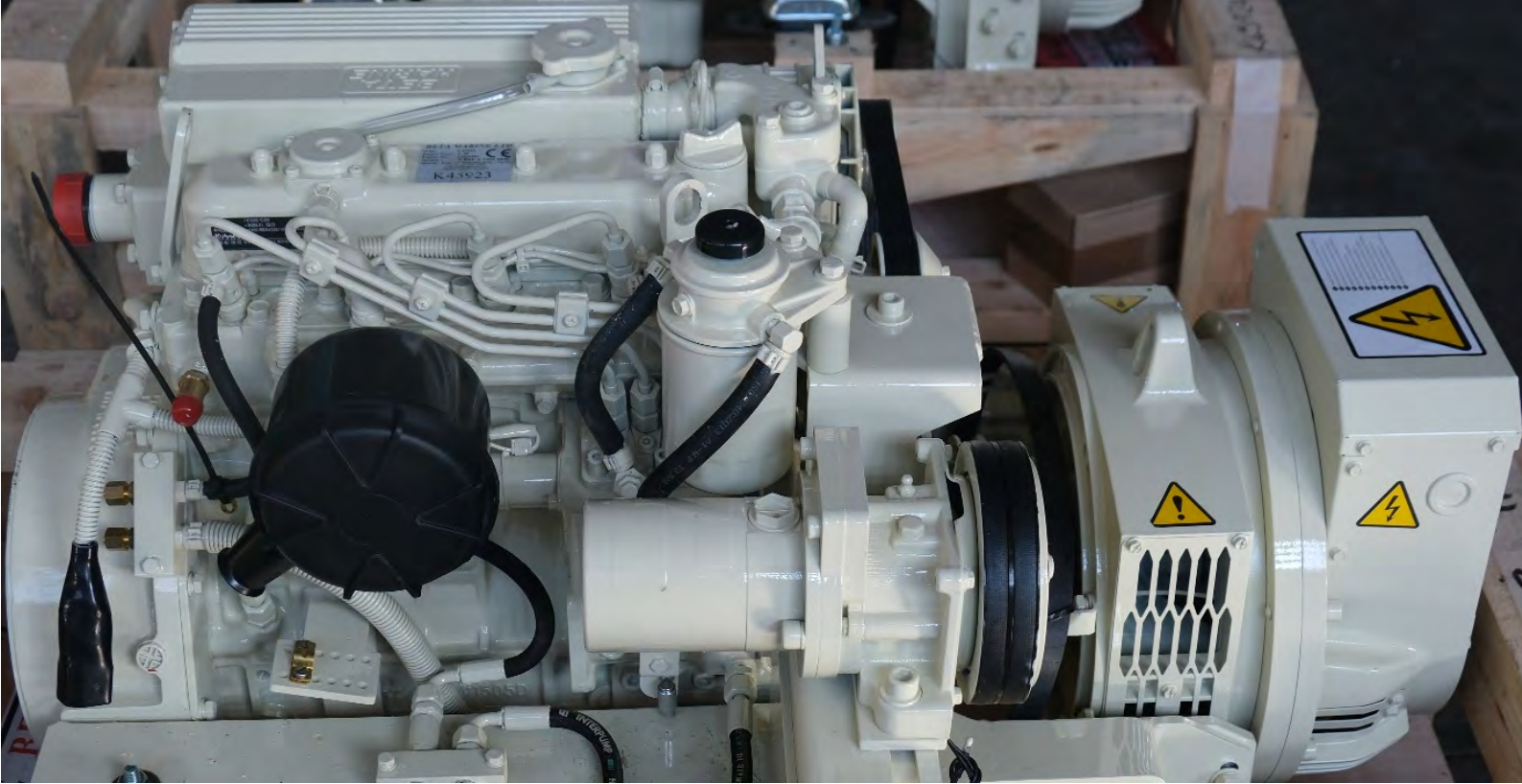
Hutting Yachts will work closely with you either adapting the interior design or creating a custom interior.

Top-rated light, strong and long-lasting boards custom-made for us by Kuiper Holland

- furniture: oak-plywood-balsa-plywood-oak
- floors plywood-balsa-plywood-balsa plywood



HUTTING
— YACHTS —



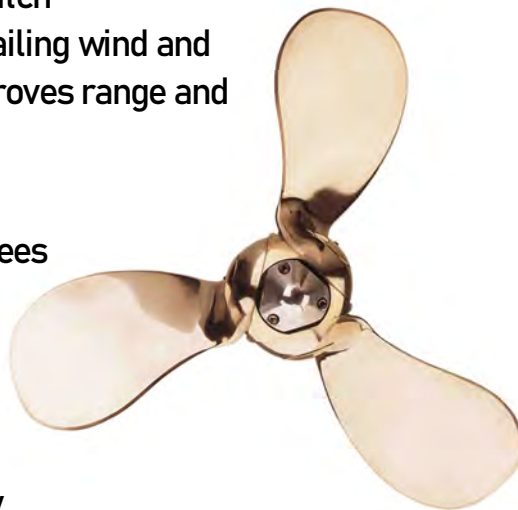
Autoprop blades change pitch automatically to suit prevailing wind and sea conditions, which improves range and speed considerably.

When reversing, they

- swing through 180 degrees
- reduce prop-walk
- produce same thrust as going forward

When sailing, the blades

- feather automatically
- reduce drag by 85% and more, compared to a fixed propeller



Tough Strong Efficient



The Superwind 350 is of a rock-solid construction. Blades, rotor, generator and charge regulation are highly optimized. The mechanical hub responds to changes in the wind instantaneously and adjusts the blades to the same ideal pitch, providing

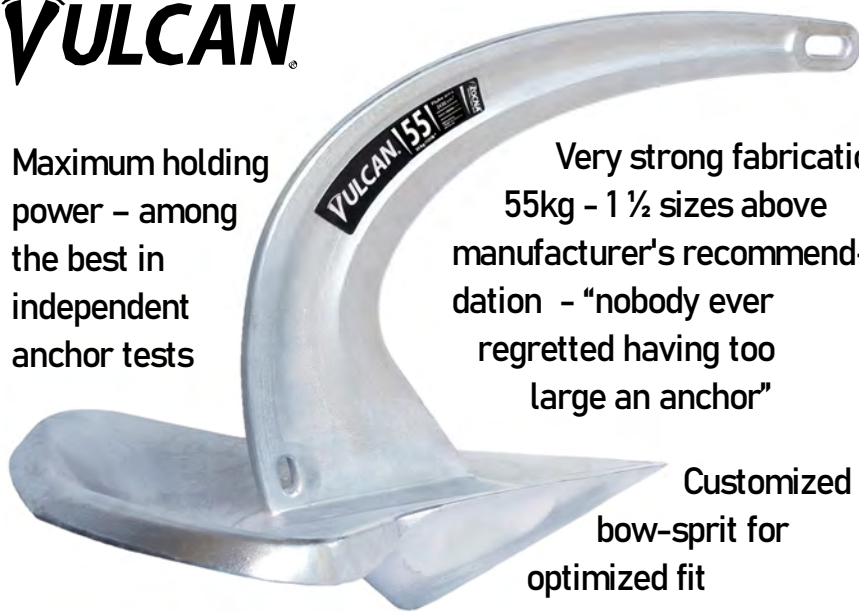
- some power at a low 7K start-up wind speed
- 50% power at 19K
- the rated 350 W at 25K and above

Load or no load, this design protects the wind turbine from over-speed and subsequent disintegration in gusts, severe cross-winds - even at extreme wind speeds. Superwind units have proven themselves in harsh environments, where they have run for months without supervision. This makes them ideal for explorer yachts.



VULCAN

Maximum holding power – among the best in independent anchor tests



Very strong fabrication
55kg - 1 ½ sizes above manufacturer's recommendation - "nobody ever regretted having too large an anchor"

Customized bow-sprit for optimized fit



3CTITAN

MARINE PRODUCTS

- latest version; new to market
- DIN 766, 8mm
- 2600 kg working load
- 10200 kg break load
- 110 m, 1.4 kg/m
- 154 kg
- the G70 chain is about 40% lighter yet 40% stronger than the G43 chain

ROCNA

Mk II



33kg:
Secondary anchor
2 x 4 kg Dingy anchors

- high holding power
- strong fabrication
- based on original Rocna; every element refined

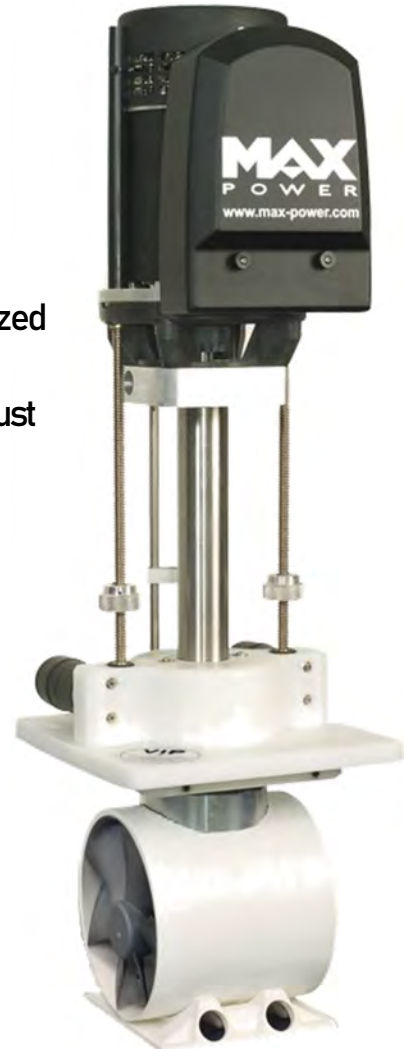
CMP

MAX

POWER
CONTROL TO THE MAX

VP 250 – retractable

- latest model – oversized
- 24V, 14.96 kW (20hp)
- 250kg/550lb max thrust



SX4

- latest model – oversized
- 24V/2300W; 72 kg
- 500 kg working load
- 2100 kg maximum load
- independent capstan for halyards, shore-lines, secondary anchor

Lofrans

WINDLASSES

Safe by Design

facilitates competent sailing

- quick, effortless and easy trimming, (un)reefing from the cockpit
- preventer can be set with little effort.
- good lookout easy to keep - good visibility from everywhere (cockpit, pilot house, navigation station, below)

eliminates most sources of accidents or reduces their impact

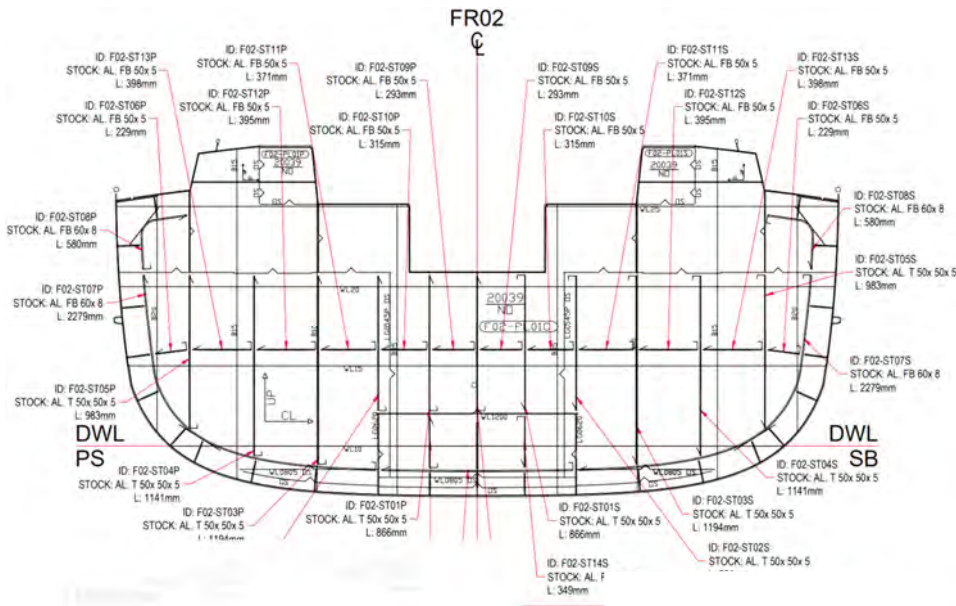
Incident	Remedy
Drowning due to <ul style="list-style-type: none"> • going overboard • being dragged water 	Avoid going overboard in the first place: <ul style="list-style-type: none"> • good holds; jacklines to center • many strong-points conveniently placed • need for exposure avoided <ul style="list-style-type: none"> ○ cockpit need not be left for routine operations ○ work on foredeck or at mast minimized when underway
Hit by boom	boom above head-height
Hit by mainsheet	sheet outside of cockpit and outside areas with traffic
Boat sinks <ul style="list-style-type: none"> • seacocks • hatches • windows • other openings • bilge system insufficient 	<ul style="list-style-type: none"> • minimum number of breaches below waterline • no seawater needed for engine cooling and exhaust • no seacocks through hull; welded-in sea-chest • sealed sensor-chest • hardened hatches, portholes • extra thick and strong laminated safety glass • 7 separate zones separated by water-tight bulkheads
Fire risk <ul style="list-style-type: none"> • propane • cable fire • flammable materials 	<ul style="list-style-type: none"> • no propane • petrol in protected and vented space • safe electric installation • fire retardant/inhibiting interior materials
Engine fails at crucial moments	<ul style="list-style-type: none"> • bilge cooling, dry exhaust, no impeller • multi-stage diesel filtration to prevent contamination and diesel bug • fully redundant propulsion system

keeps crew warm, rested and healthy

- easy to sail and maintain
- warm, comfortable
- protecting the crew from the elements
- see-kindly and quiet – for good rest during off-watch

Incident	Remedy
Lee shores, collisions, groundings	<ul style="list-style-type: none"> • points well • sturdy – ice strengthened hull
Keel falls off	<ul style="list-style-type: none"> • very strong keel case • keel can only be lifted in from above
Storm damage <ul style="list-style-type: none"> • heavy weather • breaking waves 	<ul style="list-style-type: none"> • very stable (high righting moment) • MGN 280 Category 0 standards • excellent protection from the elements • flush deck, nothing for waves to grab • sea kindly hull form • accommodation low in hull • good freeboard
Anchor does not hold, drags	<ul style="list-style-type: none"> • top performing oversized anchors (Vulcan, Rocna MkII) • oversized windlass (Lofrans SX4) • ample reserve in rode strength (Titan G70 rode; Titan Shackles)
Electronic failure "electronics are brittle"	<ul style="list-style-type: none"> • mechanical or backup systems • mechanically governed engines • redundant essential electronics
Essential equipment failure	<ul style="list-style-type: none"> • eliminate known failure points, e.g., impellers • spare parts; ability to self-service • dual engines, generators, heating, inverter-chargers, self-steering, sensors, water systems, water-maker pumps, wind generators • redundant pumps, electronics, batteries; bilge system
Burns and scalds	<ul style="list-style-type: none"> • boiling-water supply; no open flames
Falling and tripping	<ul style="list-style-type: none"> • high-grip floor surfaces • hand-holds throughout • no wide, open spaces

Strong and Reinforced Construction



Structural engineering

- ISO 12215-5:2019 (HullScant) encompassing

- local strength – governed by local loads on hull, deck, superstructures and bulkheads
- global strength – longitudinal bending (usually

complies once local strength is satisfied)

- strength of details, such as: mast, bulkhead, chainplates, frames with welded chainplates.

Ice reinforcements

added as

- half frames from beam to stern
- extra high half frames from bow to beam (tree trunk while heeled)
- ice girder
- ice belt for tbottom/side plates, for abrasion and corrosion (DNV GL Ice Class ICE - E)



Performance

A satisfying, safe, economical and environmentally responsible explorer yacht must perform well over a range of wind-conditions and directions to

- allow for fast passages
- minimize motoring and fuel consumption
- be safe in heavy weather and challenging conditions.

Moving at a whisper and achieving dramatic top speeds is not important.

Using VPP, various combinations of hull-shape, reinforcements and rigging, Owen-Clarke Design analyzed a 6350 miles course from Western Europe to Montevideo using 3 years of November wind data. As the results show, this passage could be done very fast with a minimum time motoring.

- passage time: 30 days 15 hours 15 minutes (735.5 hours)
- average boat speed: 8.64 Kts
- average daily run: >200 NM
- time under engine: 21.3 hours (2.9%)

Considering the efficiency of the engines, fuel burn would be very modest, about 135L.

