

141 foot One-Off Performance Cruiser under construction at Baltic Yachts:

Builders comment:

The production of the second Super Yacht started at Baltic Yachts. This project is sold to an international consortium.

The main philosophy for the project was to create a Super Cruising Yacht that was something outstanding in performance, styling and technology. One of the key factors that influence a Super Yacht's performance and handling characteristics is the displacement. The target displacement for this project is half of what is "normal" for this size of yachts. The only way to achieve this is to use high technology and the best materials available plus also develop a keel design with an ample sailing draft but with possibilities to reduce the keel draft to access harbours. This plus the task of building a nice interior with including rised panels is a challenge and inspiration to everybody involved.

One important factor in a project like this is a very good and close co-operation between naval architect, interior designer and stylist and the boat yard. Based on the experience so far we are confident that the "team" involved in this project are second to none.

We look forward to continue to work together with the owners, naval architect Judel/Vrolijk and interior designer John Munford plus our in-house design team R&J Design and make this project something really outstanding.

Designers comment:

Before we started to design the preliminary drawings for this project, we decide to investigate the design parameters for such a big performance cruiser. The concept for this boat should be to find the optimum numbers for a high performance cruiser combined with zero compromise for comfort.

This was not a very easy task and we had to do our homework first. The main speed factors are sailarea, length, hull shape, draft, weight and stability.

We were aware that a yacht in this size would have all the necessary systems on board like Water makers. Generators, Air conditioners, Hydraulics, Tenders etc. Therefore we started with a very accurate weight study for this part and looked into the possibilities to reduce weight where possible and also into the ways to simplify the systems.

Now that we have fixed the weight and C.G. for this part, the next study was to decide on the construction method. Baltic Yachts always have been on the leading edge of technology and would be able to build the most exotic construction. We had to balance the weight advantage against cost and performance and come up with a construction that is better then most yachts build in composite materials. Together with Baltic Yachts we decided for a sandwich cored hull with outside skins of mainly Aramid (Kevlar) fibers and an inside skin of carbon fiber. As core material Foam and balsa core will be used depending on the loads in different areas. The inside structure will be composite and in the interior composite materials will be used where possible. After this study the basic weights are fixed, apart from deck gear, Mast and rigging, and ballast.

The next study was to decide on hull shape versus performance. We did a very extensive study with the help of CFD programs to evaluate the performance of such a yacht. We did several runs with comparison of the different concepts that would be possible in combination with a Beam-Length study. First of all we have the restrictions of depth and looked into the different options. Shallow keel with high displacement and high sailarea, the upwind performance could be optimised with a lifting board integrated in the Bulb/Fin geometry. The second concept was a swinging or lifting keel with draft limitation because of structural or interior layouts. And the third one was a swinging keel configuration. At the end we had at least 100 different configurations that we had to evaluate with the help of our in house VPP and CFD programs.

Before we decided on the final numbers and concept we had to decide together with the owners and the captain for which conditions the concept should be optimised. Many questions had to be answered like where will the boat sail the next years. What time of the year will the boat be where? How much heel will be acceptable for such a big yacht? Is the sailarea a limitation on sail area? How big will the crew be for manoeuvring the boat? What will be the full and half load conditions? All these answers together gave us a matrix to which we could then finally decide on a concept that will fulfil most of the wishes of the owner.

The final concept is a lifting keel configuration with minimum draft of 3.5 meters and with the keel down the draft will be 5.85 meters. The lead bulb will be approximate 50 tons and the board will be founded out of high tensile steel. This concept will have a very high stability in combination with a small wetted surface. Compared to other yachts in the same size the displacement will at least 20 tons less with more or less the same sailarea. We are aware that such an arrangement with a lifting keel will need a very solid construction. With the help of SP technologies that are doing the structural studies and are also running FEM models, we are convinced that the yard will come up with a 100 percent reliable solution.

The sailplan is very much in line with our resent thinking and has a non-overlapping 110% Jib and smaller furling Jib on an inner stay which 50% of the area of the big one. It is also intended to test a big furling Code zero gennaker for Very light reaching conditions. The mainsail area is relative big and will have a furling boom system, this way sailarea can be reduced depending on the conditions.

The performance of the yacht will reach new standards and the handling will be comfortable. For a yacht with such high comfort, the sailing will be a real challenge. The owners intents to sail this boat all around the world in different stages and we are convinced that they will not be disappointed.

John Munford will do the interior design and layout in co-operation with the Baltic Yachts design team. The arrangement has a big deckhouse with salon and U-sofa within the raised cabin, this gives a very open feeling. A mock-up of the interior was build by Baltic Yachts and was a very big help to make the final adjustments to the interior especially in the two level areas, because the cabin height should be minimum. The final solution came out very well and we made sure that the helmsman could see the stem of the boat looking over the cabin.

The styling of the exterior and hull is called within our group « *Timeless* ». Even after 10 years this yacht will still be beautiful and not outdated. In combination with the love for details of Baltic Yachts and the interior of John Munford this yacht will be a real eye catcher.

Interior stylist's comments:

This powerful 42m sloop designed by Judel/Vrolijk is building at Baltic Yachts for a very experienced consortium requiring speed and comfort. John Munford Design are delighted to be involved with such well proven naval architects and builders where performance and exacting lightweight construction and style are the ultimate goals. The interior is simply, classically styled with mahogany raised and fielded panelling and detailed cabinetry embodying the functions and comforts of the yacht. The interior reflects light, warmth and detail surrounding the practicalities of the accommodation with spacious airiness of the mezzanine decked saloon. The raised navigation and casual dining area give ideal panoramic views, whereas the forward lowered area gives a lofty cosseted environment for dining and relaxed seating. The lower deck aft contains the owner's suite together with a twin guest cabin and captain's cabin with navigation area having close access to the helm. Forward of the saloon the double and twin guest cabin are cleverly integrated giving separation to the four crew and galley forward.

This is a stylish yachtsman's yacht for powerful sailing with the family.

BALTIC 141 MAIN CHARACTERISTICS

L.O.A.	42.926 m	140.83 ft
D.W.L.	35.750 m	117.29 ft
BEAM	8.340 m	27.36 ft
DRAFT	5.850 / 3.500 m	19.19 / 11.48 ft
DRAFT CANOE	1.370 m	4.49 ft
DISPLACEMENT LIGHT	151.700 kg	334,441 lb
DISPLACEMENT LOADED	164.900 kg	363,542 lb
BALLAST	56.370 kg	124,275 lb
IG	49.050 m	160.92 ft
J	15.142 m	49.68 ft
J1	10.090 m	33.10 ft
P	46.200 m	151.57 ft
E	15.750 m	51.67 ft
HULL	Sandwich construction. Built using high-modulus prepreg Carbon fibers and prepreg Aramid fibers in the outside skins for added impact resistance. End grain Balsa and Core-Cell foam core. Cured under vacuum and high temperature, 85 °C (185 °F) for 24 hours.	
KEEL	Lifting keel. Stainless steel fin with a lead bulb.	
STEERING SYSTEM	Carbon fiber rudder blade and rudder shaft.	
DECK	Sandwich construction. Built using high-modulus prepreg Carbon fibers. Nomex honeycomb used as sandwich material. Cured under vacuum and high temperature, 85 °C (185 °F) for 24 hours. Pilothouse.	
TRANSOM HATCH	Opening transom. Hydraulic hatch/platform including dinghy storage, swimming ladder etc.	

DECK GEAR	Rondal hydraulic winch system including 8 pcs captive winches. Pulpit and pushpit and other hardware are polished stainless steel.
INTERIOR	Bulkheads in prepreg Carbon fiber laminates. Vacuum bagged and post cured at 90°C temperature for maximum strength and durability. Thin wood veneer vacuum glued on visible surfaces. Wood is natural Honduras Mahogany.
FUEL TANKS	9,000 l (2,378 gal)
WATER TANKS	4,000 l (1,057 gal)
WATER MAKERS	Hydro Electric Marine 30 / 2,100 Modular System. Capacity: 500 l/h (132 gal/h) Hydro Electric Marine 25 / 1,400 Modular System. Capacity: 208 l/h (53 gal/h)
AIR-CONDITIONING SYSTEM	Capacity to handle all cabins, salon and pilothouse.
SEWAGE TREATMENT	A “Super Mini” sewage treatment unit designed for 12 persons.
MAIN ENGINE	CAT 3412E DITTA V12 Marine Diesel. 745 kW (548 kW) at 2,100 rpm.
GEAR BOX	Reverse reduction gearbox ZF 1900 A ratio 2,92 :1.
PROPELLER	Four-blade CPP propeller with a diameter of 1,250 mm, type Skew Back RH.
MAST AND RIGGING	Masthead rig with running backstays and five spreaders. In-Boom-Furling mainsail system. Carbon fiber mast and boom. Navtec rod rigging and hydraulics.
HYDRAULIC SYSTEM	Mannesmann Rexroth PTO pumps on the main engine and on the generators. Additional 2 – 3 DC motors 5 kW are installed on the Rexroth hydraulic power pack.
BOW THRUSTER	Max Power 600 series, retractable. Driven by hydraulic pumps installed on the main engine and the generators.
STERN THRUSTER	Max Power 450 series, retractable. Driven by hydraulic pumps installed on the main engine and generators.
AC SYSTEM	Custom made high voltage electrical system for 220 V 50 Hz powered from shore connection, from generators and from two DC/AC inverters (approx 5 kW each).

GENERATORS	Northern Lights MP445D. 33 kW, 220 V/AC, 3 phase 50 Hz. Northern Lights MP445H. 55 kW, 220 V/AC, 3 phase 50 Hz. Both units are synchronized together.	
NAVAL ARCHITECT	Judel and Vrolijk	
INTERIOR DESIGN	John Munford	
STRUCTURAL ENGINEERING	SP-Technologies / R & J Design	
NOISE INSULATION ENG.	J&A Enterprises	
DECK DESIGN	Judel/Vrolijk / R & J Design / Baltic Yachts	
SCHEDULED DELIVERY	2003	
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