

Debuts the new Eagle Class 53



Born to Race - Built to Play

The Project's Inception

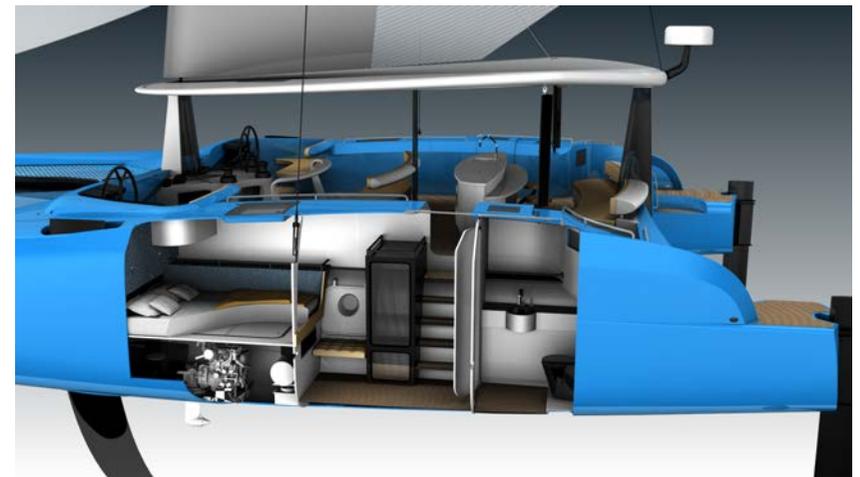
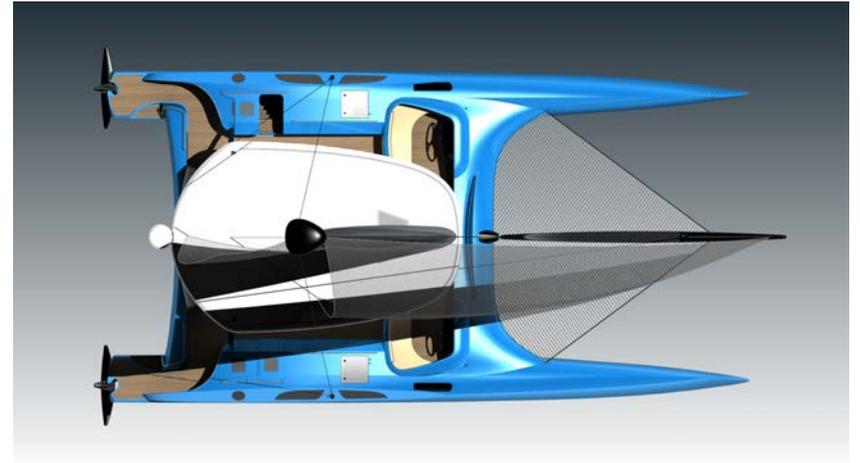
After witnessing the 2013 America's Cup and a conversation with Pete Melvin, our customer wanted to turn his 90' Gunboat into a foiler with a wing. Along with the captain, Tommy Gonzalez, he did a feasibility study and quickly realized that it would make sense to start from the ground up with a new boat.

In addition, Tommy had the idea to take the wing on this new boat a step further. While piloting a plane, he came up with the idea to take a single element wing and put a sail on it.

Looking for the right visionary to conceptualize the idea, he reached out to, T. Eric Goffrier, who drew the exterior and interior of the client's Gunboat 90. Eric has worked for some of the most highly regarded yacht design companies in the world including "Rhoades Young" and "Ken Freivokh." While Eric started on profile and GA concepts, Tommy found master boat builder, Wolfgang Chamberlain, to head up the construction. Wolfgang has over 20 years of boat building experience and suggested working with designers Paul Bieker and Eric Jolly on the project. Having worked with both on several Oracle campaigns, where Paul was head designer it was an easy choice. Paul is the complete package when it comes to boat designers - he's grounded, pragmatic, and most importantly, he's an out-of-box thinker. Together with Eric's drawings, the DNA of the boat fell into place. Also partnering in the design is Andres Suar, who's work includes Head of Naval Architecture for Artemis Racing Team - AC72 - 34th America's Cup design team member and architecture for various winning Volvo Ocean Race Yachts.

"A boat like this takes a lot more than designers. It's like a mosaic of talent brought together to create a team"

Paul Bieker: *"..What we provide, that is different is that we are open minded on the aesthetic side. Myself and Eric's aesthetic are strongly linked to the performance and engineering of boat. By putting our two minds together, we excel at structural detailing, lofting and production engineering - the final product is fully engineered and consistent.."*





From the first sketches to where we are today

The boat started out 45' long, but the design demanded that it be extended to 53'. The process involved 13 drafts all together. The final version is a combination of several to create the perfect marriage.

What's the most daring thing about the design

Paul Bieker: *"..There is nothing out there like the Eagle Class 53 with its hardtop, open plan middle deck - the general aesthetics of the platform. It's a different look and the first like it. It is practical in terms of getting on and off the boat. It was a challenge of integrated aesthetics getting the hardtop to fit in with the rest of the boat. One major factor is the Hybrid Wing, and how the hardtop separates people from sails. You don't have sheets crossing over where people are. The end plate effect is to increase efficiency without a traditional closed-in cabin.."*

Safety Advantages

- Seatbelts for guests while foiling.
- Custom over-sized escape hatches in both the Port and Starboard hulls.
- D-section floats so in case of capsizing won't turtle.
- Ease of sail handling - Self-tacking jib.
- Sail and Wing controls are located safely above the hardtop, well clear of crew and passengers.
- Main and screechers are far from passengers.
- Active Hull Trim control system.
- Each hull is divided into five fully watertight zones, including the engine compartment creating a platform that is 40% watertight in the event of capsizing.
- Daggerboards and sheet handling are centralized in the cockpit.

Andres Suar: *"..The Eagle class has the means of helping crew to control the roll. In the C-foil configuration this is achieved by using the rudders elevator. In the T-foil configuration, it can be achieved by using the rudders elevators or with the windward t-foil when both are used. The T-Foil configuration will take full advantage of the Flight Control Software, creating a stable autonomous foiling platform. The Hybrid Wing is more efficient in de-powering, giving the crew a high degree of power control..."*



Proportions and Structure

- Balance of function and form.
- Elegant sweep of the sheer – Increased freeboard aft creates 6' 5" cabins giving you headroom where you need it. The sheer line gracefully sweeps into a low bow, reducing volume forward, which directly translates into less weight, less windage, and greatly reduces the drag as the bows pierce into waves.
- The curve of the hard top matches the sweep of the Hybrid Wing.
- The “End Plate” effect of the hardtop increases the efficiency of the wing, resulting in more power with less sail area. creating an end plate for the wing which is an efficient perfect marriage.

Paul Bieker: *“..With the state of the art bow profile, we have more volume than with most multi hull bows, but also with a sharp upper stem which can cut into water but then comes back with enough volume to comfortably push the boat downwind. As the bows pierce the waves and submerge, the sharp upper stems allows the hulls to quickly rise..”*

Paul Bieker: *“..We used the best system analysis tools for composites and optimized the structure with the best materials available, and designed the structure to make the most out of the CNC tools ,which has a positive effect on quality. The boat was engineered with finite element stress and deflection analysis tools. It was based on America’s Cup designs as they are the most successful foilers - basing the design off those was a great place to start...”*

Andres Suar: *“..The boat is unique, it combines very light weight structures with vast space on the deck and great accommodations inside. You have the option to choose the different boat configurations (C-Foil and T-foil). Most of the lines are in the hardtop and operated in the forward part of the deck, allowing a lines-free area for guests. All the systems are contained in the same area, allowing a good weight concentration and a clean interior. The hardtop configuration allows for an open deck with lots of space to enjoy. .”*



Performance

The Eagle Class is designed to perform much like a high-performance foiling catamaran, based on three factors:

Weight

Achieving the capability to foil requires the boat to be as light as possible. Achieving the lighter weight drives many decisions in our design and construction process.

Foil design

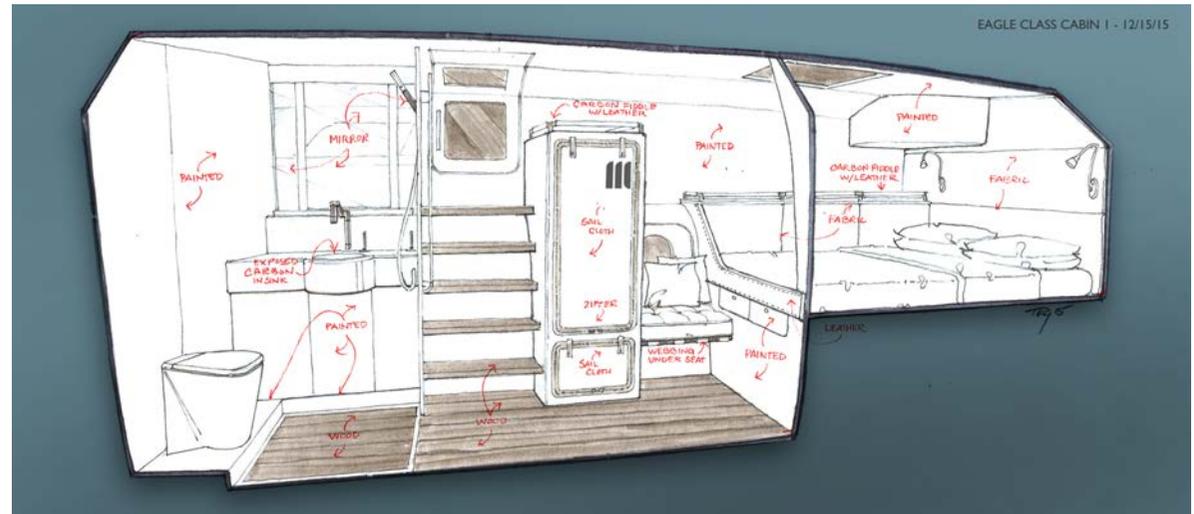
The shape, efficiency, and reliability of the foils are critical to giving the Eagle Class the ability to lift out of the water, especially at extremely low wind speeds. EC 53 is capable of reaching between 25-35 knots in light wind. An automated rudder T-foil control system is included to maintain level trim of the platform in the C-foil configuration.

Safety

Speed without control is dangerous. To increase the safety and reliability, we are using cutting-edge technology to create a rudder T-foil control system that increases stability and righting moment at high speeds.

Construction

- Composite construction of epoxy resin pre-preg carbon; vacuum bagged and oven cured
- Core-cell foam & honey comb core
- All carbon spars
- High modulus rotating carbon fiber Hybrid Wing
- Carbon shrouds
- Pre-preg carbon daggerboard C Foils
- Pre-preg carbon T rudder



Accommodations

The spacious and airy cabins in each hull have a full 6 feet 3-inch headroom. The windows combined with a large hatch above each bunk give fantastic natural light and ventilation. Each cabin includes a Barcelona-style chair for lounging, a generous closet and a full length double bed at 6ft 5 inches. The wet room-heads have enough room for two people with specialized features such as a custom carbon sink and lightweight Techma head. All interior components are ergonomically designed using modern and lightweight materials. The main saloon features a teak cabin sole with a central entertainment island unit. This bar contains a sink, refrigerator and additional storage and can be customized to include an ice-maker and microwave. The island is flanked by bar stools and two leather settees.



Specification

- LOA (Hull) 16.5 m
- LWL (Heeled) 16.08 m
- BOA 8.5 m
- BEAM ON HULL CENTERLINE 7.4 m
- DRAFT DB DOWN C-FOIL 3.05 m
- DRAFT DB UP C-FOIL 0.415 m
- DRAFT DB DOWN T-FOIL 2.9 m
- DRAFT DB UP T-FOIL 0.605 m
- MAST CLEARANCE 26.9 m
- MAST LENGTH 23.64 m
- DISPLACEMENT LIGHT SHIP 6000 kg
- DISPLACEMENT MAX LOAD 7540 kg
- HEADROOM - SALON 2 m
- HEADROOM - HULLS 2 m
- HULL WIDTH 1.1 m
- BRIDGE DECK CLEARANCE 1 m
- FUEL CAPACITY 2x150L
- WATER CAPACITY 2x125L
- HYBRID WING-FFC

Equipment

- Yanmar 3YM30AF-C 29 H.P. S.D.25 Diesel x 2
- Spectra Cape Horn Extreme 330 Water maker
- 1596 W, 24V solar system (optional)
- Lithium Ion Battery Bank
- Harken electric winches
- ISOTemp Slim 15 water heater
- Viking convection microwave
- Vitrifrigo DW 210 2 drawer refrigerator freezer
- Autopilot system
- Fusion Audio system
- Master volt distributed power
- Garmin navigation system



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