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EXTRAORDINARY BOATS

MATT SHEAHAN ON THE EAGLE CLASS 53



The **EAGLE CLASS 53** is a wingmasted cruising catamaran designed to fly on T-foils

Not everything that flies is destined to scorch around an America's Cup course. The future for sailing hydrofoils is surely about more than just racing. At least, that was the view of one owner who, having witnessed the America's Cup foiling catamarans, saw a big opportunity.

"I've worked as a skipper for yacht owner Donald Sussman for 16 years," says Tommy Gonzalez. "When he saw the foiling Cup boats he knew that this was what he wanted to have a go at.

"He is not interested in racing himself, he wanted to go cruising, but cruising on foils. He saw what had been created and believed that this had practical potential. Put simply he said:

'I want one and I want to be the first'."

As well as being a professional skipper, Gonzalez is the president of Fast Forward Composites, a Rhode Island-based composite building facility where the Eagle Class 53 was constructed.

Understandably, the road to creating such an ambitious cruiser was never going to be straightforward. So the plan was structured around several key elements and stages, starting with an efficient and easily managed wingmast.

Of those two criteria, efficiency is easy to satisfy – wingmasts are by definition more efficient. It is the practicalities of handling them that usually causes problems. Reducing sail in breezy conditions and leaving the wing up at the dock are two of the biggest issues.

The solution on the Eagle Class 53 was to create a composite wingmast where 50% of the

area is a solid D-section and the trailing 50% a soft sail that can be raised, lowered and reefed. Interestingly, it is a similar concept to that of the next generation of 75ft foiling monohull Cup boats, currently under development.

"The rig is a little lighter than a conventional mast and sail set up, and significantly easier to handle," explains Gonzalez.

"Because the sail can be raised or lowered we can reef the main, or even just sail with the solid section. The mainsheet loads are around 40% less than a conventional rig and because the sail can turn 360° we can let the wingmast fully rotate, which makes life simple when you're docking. You just let it feather.

"In addition, because we have a part soft sail, which we have developed with North Sails, we can create twist which allows us to de-power the top of the sail, so we have plenty of control over this wing and the advantages that go with it."

The **Eagle Class 53** has all-carbon spars, carbon shrouds, high modulus carbon fibre rotating wing, and pre-preg carbon daggerboard **C-foils** and **T-rudder**.

SPECIFICATION

LOA	16.50m	54ft 2in
LWL	16.08m	52ft 9in
Beam	8.50m	27ft 11in
Draught		
(C-foil, daggerboard down)	3.05m	10ft 0in
(C-foil, daggerboard up)	0.41m	1ft 4in
Displacement light ship	6,000kg	13,228lb
Displacement max load	7,540kg	16,623lb



Stage two

The next stage was to work towards foiling. To do this the team decided to create a cat that had C-section daggerboards that would help reduce displacement at speed but not lift the boat entirely. Getting used to controlling the power and feeling the behaviour of the boat through various wind ranges and sea states would provide a solid understanding of the boat's characteristics.

"Once we have got used to the way the boat handles, the next stage will be to fit T-foil rudders which will take us onto the next level," continues Gonzalez.

"With these we will be able to get used to the software system, the instrument displays and the feel and the control of that part of the programme without taking the boat to full flight.

The **Eagle Class 53** topped **29 knots** on her first outing at Les Voiles de St Barth this spring.

"That will allow us to get her up on her toes like a ballerina and keep her there so we understand what she feels like before she flies.

"After that, in the spring next year, we'll remove the C-foils, put on the T-foil daggerboards with their elevators, and move on to full foiling."

The proposed T-foil daggerboards will be angled out which makes the overall platform slightly wider, which in turn makes for more stable and efficient foils.

And while improving the efficiency of the lifting surfaces, the outward bend in the daggerboards will also help to generate more righting moment, and hence achieve greater stability.

The control system itself will be a form of fly-by-wire system that will allow autonomous

The wingmast has a solid D-section and trailing soft sail

