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WINNERS: THE BEST KIT, BOATS, EVENTS AND SAILORS

INTERVIEW

AINSLIE'S AMBITIONS

Onwards and upwards for AC36

BOAT TEST

Foiling yacht Figaro 3

New production foiler: our verdict

KEELBOATS

Faster hoists

PLUS
Navigating with the professionals



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02

DINGHY TIPS

How to be a champion

Multi-class winners give their advice

BEACH CLUB BLISS

Head to Greece for warm waters and unlimited sailing

LEARN TO FOIL

New RYA courses and foiling dinghies shaking up the scene

WHEN TO TACK?

Tactical decisions that will put you ahead on the upwind leg

RECORD BREAKER

François Gabart sets new solo round the world time



FOILING FIGARO

Beneteau's Figaro 3 is by far the most radical production offshore racer yet devised, as **RUPERT HOLMES** discovers

The Beneteau Figaro 3 has a lot riding on it. For a start it's the world's first production foiling offshore monohull and, unlike most other innovative designs today, it's also one that we can be sure of seeing in large numbers. Over the past 15 years its predecessor has proved extraordinarily successful in maintaining a position at the top of the professional solo and doublehanded racing scene. In doing so it has launched the careers of dozens of well known sailors, particularly in France, where many skippers are household names.

The new boat therefore has a lot to live up to, both in terms of performance and reliability – many Figaro 2s have clocked up more than 75,000 miles of hard offshore racing without significant problems. While it's tempting to keep going back to that boat to make comparisons, the reality is the latest incarnation is a very different beast and the old boat was certainly not as ground breaking at the time of its launch. Granted there was nothing like the number of twin rudder boats in those days as there are now, but they had still been around for a decade or more in the Vendée Globe and the Mini Transat.

The changes are expected to translate into an average 15 per cent speed advantage off the wind. However this single figure doesn't tell the whole story – in light airs and deep angles the two boats are more similarly matched, while the new design is markedly faster when reaching in stronger breezes.

CONCEPT 10/10



Everything about this boat reflects the latest design thinking, yet it's also clear that the concept is borne of a huge amount of experience – arguably more so than any other design of its size. The new boat is a VPLP design with a hull weight of 150kg less than that of the Figaro 2. Without the need for the 240kg of water ballast of the old boats, that translates to a weight saving of more than 12 per cent. A slightly reverse stem and full topside sections above the waterline give additional buoyancy forward, which further increases form stability.

The mast is stepped further back in the boat than was the fashion 15 years ago to allow for larger reaching sails. The symmetric spinnaker has also gone, replaced by big asymmetrics, set from a 1.1m fixed carbon sprit.

Of course, the development everyone has been talking about is the foils. Their main purpose is to provide righting moment so that water ballast is not needed. They also help to reduce leeway, allowing for a keel with a shorter fore and aft cord length and therefore less drag, even though its draught is a full half metre deeper.

The foils enter the hull at deck level, which helps protect the watertight structure in the event of collision – the boat is engineered such that a foil can break in a collision without damage to the boat's structure. As the horizontal elements are just under the deck this also reduces intrusion into the interior.

Hull and deck construction is not



particularly high tech – an infused PVC foam sandwich of glassfibre and polyester resin, although spars and sprit are carbon. The longitudinal stringers are infused at the same time as the hull, while bulkheads are of a lightweight composite. A keel box helps spread the load from the fin, which is attached with only two (very substantial) bolts to facilitate easy removal. The foils are made of carbon and epoxy and add just 100kg to the all-up weight of the boat.

A one-design concept has been rigidly adhered to and tight control of the total weight of production boats is planned.

A laser cutter is used to cut the glassfibre cloth and careful measuring of the resin is intended to ensure every boat weighs the same. The keels are expected to weigh within a tolerance of 1kg, which will help minimise lead correctors.

This boat is so different to Beneteau's standard production models that a new facility for the sole purpose of building the Figaro 3 has been created.

ON DECK AND RIG 10/10



A huge amount of thought and knowledge from the most successful

Above
The Figaro 3 represents a 12 per cent weight saving as compared to her predecessor

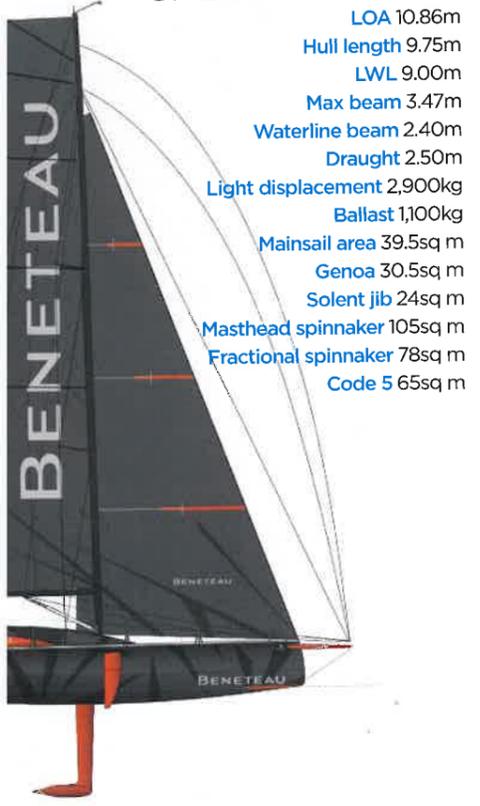
Below
1. Layout is designed with the singlehanded racer in mind
2. The Figaro 3 has performance to rival the Figaro 2 upwind and deep downwind and is quicker reaching

and knowledgeable short-handed sailors in the world has gone into the deck layout. The coachroof is much narrower than is the norm today, leaving very wide side decks. The moulded toe rail runs almost the full length of the deck, which gives increased security compared to most offshore raceboats, where it's only provided forward of the mast. The shape of the moulding allows for comfortable hiking and also gives a softer and more streamlined edge to the sheer line, which reduces wind resistance.

The sail inventory includes a fathead mainsail, large jib, Solent jib with two →

SPECIFICATIONS

- LOA 10.86m
- Hull length 9.75m
- LWL 9.00m
- Max beam 3.47m
- Waterline beam 2.40m
- Draught 2.50m
- Light displacement 2,900kg
- Ballast 1,100kg
- Mainsail area 39.5sq m
- Genoa 30.5sq m
- Solent jib 24sq m
- Masthead spinnaker 105sq m
- Fractional spinnaker 78sq m
- Code 5 65sq m





“A softer, more streamlined edge to the sheerline reduces resistance”

reefs, plus masthead and fractional asymmetric spinnakers and a Code 5 on a furler. The mast has twin spreaders with a marked 30 degree sweep. Although the fat-head mainsail necessitates running backstays, the boat can be gybed in up to 25 knots of true wind without needing the runners.

The halyards run from the base of the mast through conduit to clutches just aft of the bulge in the coachroof sides. Headsails are set from a Tuffluff foil, rather than hanks, which facilitates efficient tack changes and eliminates sail and halyard snags. This is a different arrangement to most solo boats that have hank-on headsails for ease of handling. Headsails are sheeted via transverse jib tracks; the sheeting angle controlled by an inhauler and the height of the fairlead adjusted with a tweaker. The prototype is fitted with B&G electronics; NKE systems could be an alternative.

UNDER SAIL 9/10

★★★★★☆☆☆☆

We sailed the prototype boat with Thomas Cardrin, who's recently returned to France after spending 18 months with Emirates Team New Zealand with responsibility for foil design. He has spent three months with the Figaro 3, including sea trials with designers, existing Figaro sailors, and equipment suppliers, among them North, Harken and Sparcraft.

The idea of this extensive testing was to get the production boat exactly right. Most changes will be minor in nature, such as tweaks to the deck layout at the mast base to reduce friction and chafe. The prototype is equipped with a suit of North 3Di sails, although multiple sail makers are likely to be allowed by class rules, but with a potential restriction on fabric types.

The foils are fully effective above 12-13 knots of wind. They are pulled in and

1. Gone are the symmetric spinnakers of the Figaro 3 with a-sails now the order of the day 2. Down below there is very little in the way of comfort 3. Running backstays are required due to the fat-head main 4. The twin rudders make the boat extremely light on the helm 5. Foils extend 1.2m out the side of the boat when fully extended 6. Upwind the kink in the foils prevents leeway

out in a similar manner to the sprit of a J-Boat, but can be left fully extended while sailing irrespective of the wind speed or angle. They can be trimmed fore and aft by around four degrees, with minimal trim used to minimise friction in light airs, gradually increasing to trim maximum when reaching in strong winds. They extend 1.2m each side when fully out, but this reduces to around 20cm when they are fully retracted, which allows for easy fendering.

There are neat adjustable foot bars for use when helming. In addition to the regular Spinlock tiller extension, the metal tiller is telescopic, letting you reach the helm from the companionway, or steer with it between your legs in the forward part of the cockpit.

The masthead kite is cut flat and on our test in 6-8 knots of true wind we were able to sail at true wind angles of as little as 75 degrees, and apparent wind of less than 50 degrees, at six knots boat speed. The deep rudders have a short chord length and a hollow on the hull at the top of each rudder so that the end plate effect is maintained even with helm

angles of 15 degrees. The boat was finger light on the helm throughout the test.

The rudders' efficiency means the helm can be expected to stay light, but with good control even in strong winds, which helps the autopilot maintain an accurate course. Sadly the wind on our test was just too light to start planing, for which 10 knots of true wind is needed. Cardrin says the top boat speed achieved to date is 20 knots, achieved in just 24 knots of true wind, with a true wind angle of 135 degrees and the apparent therefore almost on the beam. His experience is that the foils help to increase stability in a quartering sea, reducing rolling and therefore yawing.

Why not give the boat a 10 star rating for sailing performance? Simply because it has been optimised for reaching in strong breezes, at the expense of light airs and upwind performance. Unlike the Mini Transats and Imoca 60s, racing predominately downwind or reaching courses, Figaro sailing invariably also involves a lot of upwind work.

BELOW DECKS 9/10

★★★★★☆☆☆☆

The interior of the boat is almost as bare as the likes of a Farr280 or a Fast40+. There are no fixed bunks – you sit and sleep on a bean bag. Headroom is only 1.65m over a tiny area at the foot of the companionway and even the central navigation station of the Figaro 2 has gone; a computer monitor will be hinged to the main bulkhead, usable when sat on a bean bag on either side of the boat.

There are pipecots on each side of the cabin, but these are merely intended to give extra space for the stack on the windward side, not as a bunk on which to sleep. Production boats will add a



jetboiler or other means of heating water for drinks and meals. Again it would be possible to justify giving the interior a wide range of ratings. In one sense it's a virtually empty boat with no furniture, but it provides everything that's essential.

VERDICT 9/10

★★★★★☆☆☆☆

It's rare to find a boat that's designed to such a demanding brief as the Figaro 3. It would have been easy to take a more conservative path, but that's not the nature of Figaro sailors. The result is simply spectacular – a cutting edge design that will clearly set the benchmark against which other

Above
Foil can be
trimmed fore and
aft by around
four degrees

boats are judged for a long time.

There's also potential for appeal outside the confines of the Solitaire du Figaro circuit – more so than the Figaro 2. The boat has not been designed for IRC optimisation, so those looking at handicap racing may be disappointed, but it would be a very exciting prospect if enough boats fall into private hands for one design racing outside of the Solitaire.

The price will be in a similar ballpark to existing IRC optimised short-handed designs. The first batch will be delivered to existing Figaro class sailors in early 2019, so that no sailor can gain an advantage in terms of training and optimisation time. □

ALTERNATIVE BOATS



JPK 10.10

Overall winner of the Rolex Fastnet Race, this is a long-standing favourite among private owners for solo and doublehanded racing.



Sun Fast 3200

Although now a nine year old model, it benefitted from a refresh with new keel and cockpit layout last year and has an enviable race record.

