

BALI 4.5

A comfortable,
capable and
quick 45'
catamaran

Catana have significantly updated their boats in recent years, and from 42' to 70', the yard's catamarans continue to attract a demanding clientele tempted by top of the range models. To mark their 30th anniversary, the Catana Group widened their target market and launched a new range of multihulls: Bali. We were able to make the most of a delivery trip to the Barcelona boat show to test the 4.5, an innovative catamaran which has just strengthened an ever-expanding international market

Text: Philippe Echelle -
Photos by the author and DR





THE CATANA FAMILY

In 1984 two pioneers, Jean-Pierre Prades and Thierry Goyard, created their first model (the 40) in the image of the Katana, a Samurai sword, and launched it into a small market. With limited resources, but lots of energy and vision in a developing sector, the duo (helped by an innovative Australian naval architect, Lock Crowther) shook up what, at the time, was essentially an Anglo-Saxon domain. Christophe Barreau took over successive designs following Crowther's premature death, and continued the story with iconic models (the 44, 411, 471 and 582). Today the excellent 42 is the baby of the range, the 47' remodeled with carbon has never been more attractive and the 55' has reaffirmed the true capa-

bility of the luxurious 50'. For the 59', 53' and 70', the builders wanted to retake control of the designs, collaborating with several talented designers, but under Catana's own name.

THE BALIS

Olivier Poncin, the "Admiral" of the Catana Group has personally invested in their design. Starting with a thorough analysis of international production and of the expectations of catamaran fans, he developed an innovative set of specifications to go after customers. For now, based around the 4.2 and the 4.5, the Bali range is forward thinking, concentrating on clean living spaces by reorganizing access around the catamaran's interior. This original response, combined with marketed separately from the traditional range, has justified the launch of a new brand. The specific design approach has led to productivity gains, and in turn a reduced cost without compromising the company's core values. Lengthening the forward cockpit with a sunbathing area, removing the trampolines, tubular beam and martingale stay, large vertical-sliding win-



dows, different options on the position of the helm station (cockpit or flybridge), rationalizing the freshwater and power, and improving direct access to sea, aft and the main defining characteristics of the Bali. Catanas are sophisticated multi-hulls aimed at a more exclusive clientele and their cost of manufacture remains high; the strategy with the Bali range allows them to make the most of their fantastic industrial facilities (based at La Rochelle and at Canet, in France) and so compete with the traditional players in this market (Fountaine-Pajot, Lagoon, Leopard and Nautitech).

A LITTLE-KNOWN DESIGNER

Xavier Faÿ, by his own admission, had somewhat original training. This began in typical fashion (Advanced math, craft and technical design), but not in the colleges at Southampton or Nantes. His real naval architecture training took place during the 5 years spent at Daniel Andrieu's office, before embarking on the restoration of a wooden boat in Costa Rica. He then worked for New Zealander Greg Elliot, before setting up Kaoba Design, which between 1995 and 2005 worked with Lagoon-CNB (conception, design, project management and industrial development) on successful projects such as the 380, the 470 and the Power 43. Attracted by individual projects as well, Xavier was equally involved with small motor cats (the Excite Cat 810, 1080 and the Wasaby 24), built the prototype of the Kaoba 31, and at the same time launched a range of wooden houses! He is a cousin of Sébastien Magnen (with whom he designed the CNB 74 Joy), and also was the architect of the canting-rig Voilavion, fore-runner to today's "flying" cats.

THE **BOAT** WAS **GUTSY** UNDER FULL SAIL IN A STEADY 25 KNOTS UPWIND GUSTING 30...

AN INNOVATIVE ARCHITECTURAL APPROACH

From a hydrodynamic point of view, the 4.5 exhibits fairly traditional characteristics. The semi-circular hull sections give a good balance between burying and wetted surface - this is what we are seeing most in today's market. Finesse in the forward third of the hull is important for the progressive increase in volume moving aft, and for good entry to the water. A marked step overhangs the underwater hull, more for stiffening and deflecting than for the gain of internal space. The omega-shaped longitudinal section allows for the hatches to be left open during passing squalls (at anchor, of course!). More original is the ski-shaped design of the forward area of the deck, giving an aerodynamic lift. A slight gull-wing shape under the forward end of the bridgedeck combined with the angled join between the hulls and the nacelle contribute (with good lift) to a smooth passage through the water. To combat leeway, there are keels glued

1 - The Bali performed well under gennaker

2 - The Bali is a comfortable catamaran with plenty of living space, and which is gutsy under sail.

3 - The nacelle is well-shaped and far enough above the water not to slam.

4 - With the disker in the water, aft-hatches down and sliding doors open



into watertight recesses, and these volumes act as grey water holding tanks. This also helps from a safety point of view, in the event of a collision with a submerged object. The structure is solidly built with numerous compartments, floors and partitions in selected plywood, increasing forward and aft. The mast sits on a composite H-shaped support, fixed solidly to the bottom of the nacelle and adjoins the main bulkhead.

CAREFUL COMPOSITE CONSTRUCTION

At the yard I was able to see three stages of production: one hull being laid prior to infusion; one being structured; and one in the latter stages of having equipment installed, just before the deck goes on. From seeing these stages of the build, it is evident that this is going to be a strong multihull. The hull, in glass poly-vinylester foam sandwich, is infused before the internal structure is fitted. The digital precision cutting the plywood bulkheads, combined with new assembly techniques using countersunk "buttons" and glued mortise and tenon joints, gives a new use to a material traditionally associated with foam / resin / cloth composite. The panels are continuously laminated

by filleted joints and glass strips, which help create a structure very resistant to deforming. The design of the structure allows for a relatively thin sides to the hull (foam of 15mm, weighing only 80kg/m³), but the underside of the nacelle is reinforced with foam at 150kg/m³ to prevent any delamination.

A WILLING AND INNOVATIVE CATAMARAN

What first surprised me on the 4.5 was the quality of the ventilation. The large vertical sliding doors (forward and aft) fold away completely into the bulkheads via a channel and helped by a stainless gas strut, making them very easy to use. The circulation of air is cleanly speeded up under the coach-roof, and this natural air conditioning is efficient in light winds in overheated marinas. Hervé Couedel's interior design is up to date, the tricks employed by the design team (two-position sliding salon table, for example) and the quality of the in-house cabinet making (at the Catana-Bali Group everything is integrated, and the artisans make the furniture themselves starting from raw materials) give rise to a clean, modern and functional atmosphere. The idea is to enlarge the living areas by making them

interactive and complementary for when there are lots of crew on board. The aft cockpit is fitted with a large table, and a bench-seat which can serve as a watch-keepers bunk, in good weather. There is direct access to the helm station. The forward space opens out another large cockpit with two removable tables and large sun-loungers (the deck scuppers will be high up: 300mm!). The tubular hand rails provide increased security for both children and grown-ups! When the sun awning is set up, this marine terrace provides a great friendly spot whether at anchor or underway. So the 4.5 works like an open-plan loft where you can be with friends without disturbing others looking for peace and quiet. Once the dinghy is lowered, the bulwark folds down to become a passerelle down to the water or to the dock, which totally opens up the perspective. The owner's version sees the port hull fitted with a vast bathroom, desk, sofa, island bed and plenty of hanging space. The storage, lighting and ventilation are worthy of note. The contemporary style is reinforced by the use of well selected materials. The cabins are large and comfortable, even though the bathrooms and passages seem to be huge.

A PROMISING APPROACH TO THE MOTORS

On the 4.5, the engine installation and all the ancillaries have been well planned out with Nanni diesel. The naturally

- ◆ Serious and solid build
- ◆ Good performance
- ◆ Efficient natural ventilation
- ◆ Innovative living areas
- ◆ Inefficient clutches
- ◆ Helm station bimini not transparent, and instrument console massive
- ◆ Prototype sails could be improved
- ◆ Door latch required for fridge

5- The forward cockpit is equipped with two removable tables, and a huge sunbathing area opens up a new convivial area

6 - Even upwind in heavy weather, the Bali was seaworthy and comfortable (here in a Force 6-7 in the Golfe du Lion, France). The cockpit lounge also makes for a good watchkeepers bunk, right next to the helm station

7 - The semi flybridge on our test boat was pleasing, and the composite wheel gave good feedback thanks to efficient cable linkage. The instrument console was fairly big and unnecessary. A clear opening in the bimini will be fitted to future models

8 - Particular attention to detail is evident in the equipment and ergonomics of the galley. The vertical sliding door allows for particularly effective ventilation, and makes for a great serving hatch for the cockpit table

9 - The coachroof gives a real panoramic view and excellent ventilation. The elevated salon is welcoming and comfortable, and benefits from a two-position sliding table (for eating or for navigating).

10 - The design and choice of materials is contemporary. Desk, sofa, storage compartments, hanging lockers, lighting and ventilation all carefully designed to create a comfortable environment.

11 - The excellent bathroom for the owner's cabin.



AT 60° TO THE TRUE WIND, THIS **CAT SHOWED ITSELF TO BE AGILE,** AND DIDN'T COMPLAIN WHEN POINTED HIGHER

aspirated 4 cylinder 50 hp motors with saildrives have been turned through 180° to create more space. The high-power alternator and the high pressure pump for the Aquabase 200 liter/hour watermaker are efficiently linked to engine pulleys (on a solid and separate bracket). The pre-filters and control panel are clearly visible, and this positioning encourages maintenance and servicing, demonstrating the real needs of life on board. In addition there are 400W of solar panels. The engine room hatches are completely watertight (to increase motor longevity), and this has been proven in tests going astern into the waves.

A CONCLUSIVE TEST

Our test boat is the first model built, a prototype whose purpose is for testing and demonstrations and for allowing problems to be ironed out. These seem to be only minor corrections, as the boat is irrefutably well thought-out. Our delivery trip to Barcelona, Spain, in mid-October, gives us a 120 nautical mile test track. This 4.5 is fitted with fixed blade propellers, which seems a bit of a mismatch on a boat like this, and I would immediately opt for three-bladed folding props which would greatly reduce drag with such hulls, yet maintain comparable performance under motor. The 4.5 is fast under engine (8 knots at 2,100 rpm, 9.5 knots flat out). The high cruising speed has a comfortable noise level at an acceptable

frequency. The balance of the engines and the saildrives doesn't generate much vibration. The southwesterly wind (we are at the height of period of Cévenol winds!) picks up steadily from 2pm, quickly reaching 20 knots. The Bali starts out well in the confused chop, up to Cape Béar, where the point of sail becomes much more dynamic. On starboard tack the course has us headed for Cape Creus (well named, as this means Cape Cross in Catalan!), and it becomes rougher in a freshening wind. The boat is going along well under full sail upwind in a steady 25 knots gusting 30. Time for the first reef! The Rutgerson deck gear (cars, tracks and blocks) are well-sized, and the lines are led back to the sail-control station. The clew ring needs to be looked at, as it chafes the sheets. The adjustments of the mainsail battens and the tack of the solent don't allow you to completely tension the halyards enough to flatten the sails, however the 4.5 proves to be well-balanced in these challenging conditions. The wire-linked steering is enjoyable, as it doesn't lose too much feeling. At 60° to the true wind to get more power, the cat demonstrates its agility, and doesn't complain at not pointing higher, but this is the best compromise in such a sea state. The wind is now blowing 30 knots and sometimes 35+, but we want to make progress before it gets dark, conditions are challenging, the wave height remains moderate, but the sea is confused, with very short and strong wavetrains.

THE COMPETITORS

Model:	Lagoon 450	Hélia 44'	Leopard 44'	Neel 45'
Upwind sail area:	137 M ²	115 M ²	118 M ²	106 M ²
Laden weight:	16 t	12 t	13 t	8 t
Basic price ex-tax in €:	374 700	378 000	345 000	449 000
Cruising version* Price ex-tax in €:	447 072	452 602	392 000	490 800

*The cruising price includes launching, antifouling, electronics pack with autopilot and basic comforts, upholstery, safety equipment including raft, one downwind sail and hardware, dinghy and recommended outboard, 2 solar panels, three bladed folding propellers, anchoring equipment.

with Nanni. Shown here are the high output alternator mounting bracket and the high pressure watermaker pump. These indicate how much has been taken into account with the design.



The movement of the boat remains limited, however (a laptop computer sits on the salon table) and the helm seat feels comfortable and safe. While filming forward, I notice that the bows are negotiating the waves with finesse and efficiency. The handling in this confused sea is remarkable, even if we are a little over-canvassed!) Speed remains high and consistent, between 8 and 9 knots (as confirmed by my Garmin Quatrix watch). The way the forward shape of the nacelle deals with the waves is astonishing - we never ship any green water (it would however be sensible to fit a strongpoint at the back of the benches), the spray is reduced, and very little reaches the helm station. During the course of the boisterous afternoon, there was very little slamming under the brid-

gedeck. The point of impact was central, as with all cats, and not at all forward. The keels provide sufficient reduction in leeway. We were never stopped dead, or even significantly slowed down. The intermediate support of the mast (the lower for the diamond spreaders and the Dyform lower shrouds come back to coachroof) is reassuring. It remains peaceful, and the stiffness of the platform undoubtedly contributes as much to this as our efforts. Our stop at Estartit, Spain, gives us the opportunity to appreciate the modern galley facilities (microwave, oven, American fridge, trash compactor, dishwasher) and the conviviality of the cockpit. The following morning we set off under motor (damn Mediterranean!) before meeting a little front under which there was 10 to 12 knots blowing from the southwest. Under Code 0, the Bali did well, despite being well loaded down, and achieved 7.9 knots at 70° to the true wind of 11 knots, before accelerating to 9 knots in 15 knots of wind. We tacked easily under solent.

CONCLUSION

This cavalcade of a delivery was informative, demonstrating that upwind in a Force 6-7, all the concerns about a forward deck are unfounded. The constraints of our route didn't allow us to sail downwind, but the 4.5's agility during our upwind test will surely transpose into success downwind, always the most favorable point of sail for cruising catamarans. The dynamic qualities are good, and fun-loving crews will appreciate the clever design when at anchor.



TECHNICAL SPECIFICATIONS

Designer: Olivier Poncin
 Builder: Catana, Canet-en-Roussillon (France)
 Naval Architect: Xavier Fay
 Interior design: Hervé Couedel
 Length over all: 13.60 meters
 Waterline length: 13 meters
 Beam: 7.42 meters
 Light displacement: 11.6 tonnes
 Maximum laden displacement: 16.5 tonnes
 Construction: Poly-vinylester glass foam sandwich
 Motors: 2x50 hp Nanni diesel with power pack
 Mainsail area: 72 m² (74 with square-topped option)
 Solent: 39 m²
 Code 0: 78 m²
 Asymmetric spi: 152 m²
 Air draft: 20.80 meters
 Mast: Aluminum Sparcraft with single diamond spreaders
 Draft: 1.22 meters
 Keels: fixed skegs
 Fresh water: 800 liters
 Diesel: 800 liters
 Holding tanks (black water): 2x60 liter
 Basic price excluding tax: €389,500
 Power Pack ex-tax: €24,300
 50hp Motors, 4KvA alternators, multiplexing with touch screen, additional batteries, charger inverter 12-220v-2000A
 Excellence Pack: €41,530 ex-tax
 Watermaker 200 liter/hr, American fridge Samsung 600 liter, retractable windows, electric toilets, dishwasher + comfort pack
 Horizon Pack: €34,650 ex-tax
 Harken 52 electric winch, electronics, epoxy primer and antifouling, 2 reefs with continuous single line.
 Price for our test boat, with the 3 packs: €488,930
 Additional options (prices in Euros excluding tax):
 Asymmetric spinnaker or Code 0: 4,900 or 4,300
 Hardware for Code 0: 5,150
 Complete set of cushions (2 cockpits, coachroof and forward sunbathing area: 12,100
 Three-bladed folding propellers: N/A



The Sparcraft aluminum mast has single spreaders and lower shrouds which come back to the coachroof. The self-tacking solent is efficient in light airs and capable in heavy conditions

The integral windshield allows panoramic vision, the sliding doors (forward and aft) provide natural air conditioning

The hydrodynamic characteristics of the hulls are spot on, with the entry bows, well balanced volume aft and semi-circular sections which will create being loaded up: a good compromise.

Here, the helm station on the semi-flybridge version. The Bali 4.5 is also available in a flybridge version

Gone is the forward beam, replaced by a deck with a stiffening box-section

Doing away with the forward beam, its fixings and the martingale stay is a welcome move towards simplification. The fixings for the forestay and the Code 0 are on the large section bowsprit



The design of the hulls is elegant and functional; overhang, stepped section and omega profile at the hatches (installed in recesses, allowing them to be left open during squalls), help stiffen the hull sections

The contemporary design of the bows is effective in heavy seas. The rigid nacelle, well clear of the water, is agile in these conditions

The bow roller is integral to the structure, and is positioned forward meaning you can delay attaching the anchor bridle

An enormous sunbathing area lengthens the forward cockpit, taking the place of a trampoline. The stainless