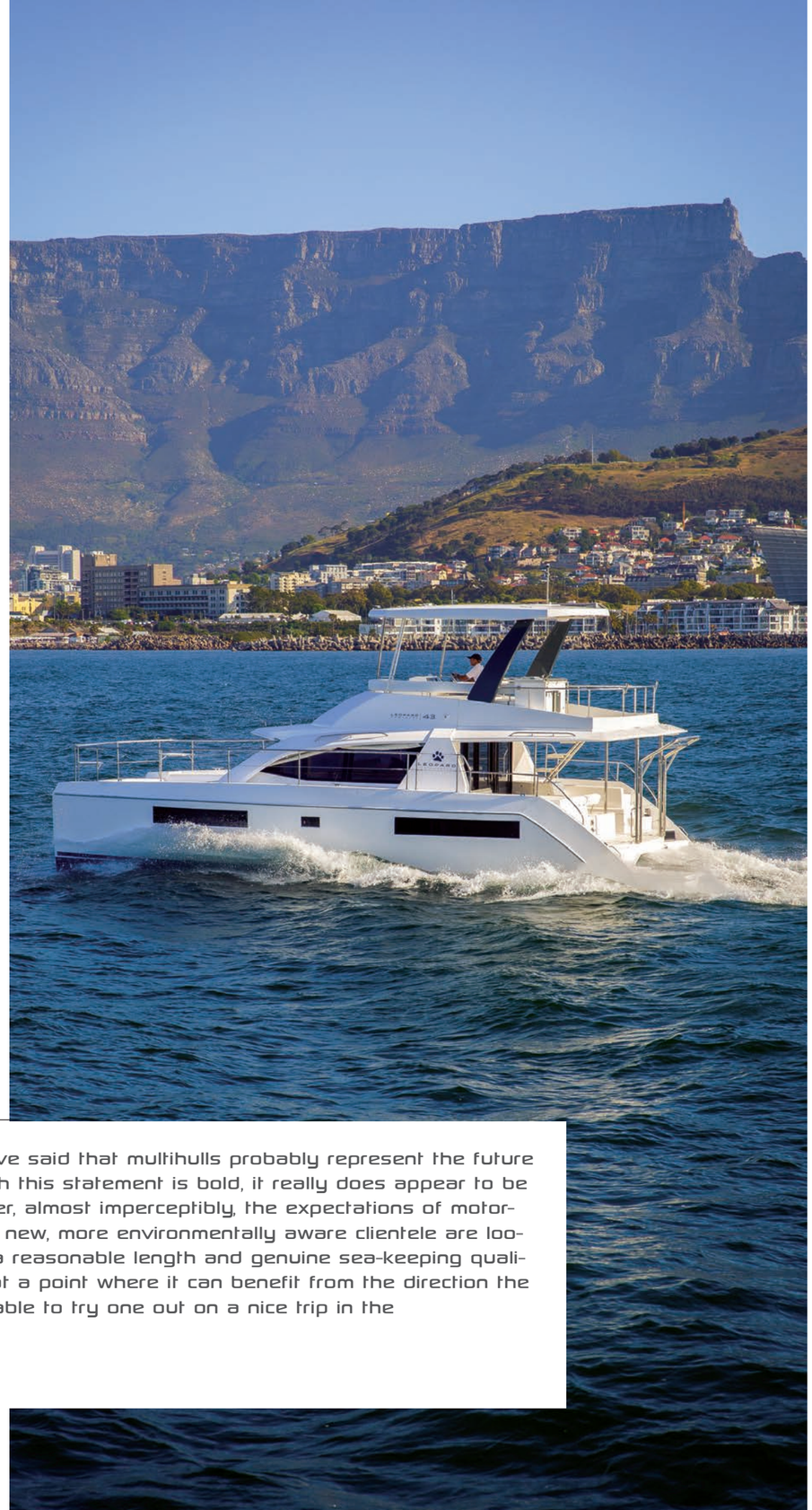
LEOPARD 43PC

A Power Cat full of energy

Philippe Echelle
P. Echelle and DR



Here at the magazine, we've said that multihulls probably represent the future of motor-boating, and though this statement is bold, it really does appear to be coming true. Slowly, however, almost imperceptibly, the expectations of motor-boaters are changing and a new, more environmentally aware clientele are looking at bigger boats. With a reasonable length and genuine sea-keeping qualities, the Leopard 43 PC is at a point where it can benefit from the direction the market is taking. We were able to try one out on a nice trip in the Mediterranean.

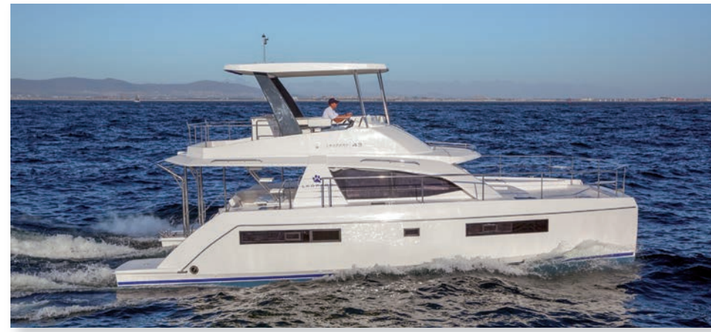
← *Even with this amount of chop, the Leopard 43 PC's trim is perfect*

A CAREFULLY DESIGNED HULL

The two versions (L40 sailboat and Power Cat 43PC) are variations of the same plan and Alex Simonis' idea is to maintain the same philosophy for the 48'/51' project which is the culmination of several years' design of power catamarans. The underwater hulls of the Power 43 are totally different than those of its closest sailing cousin: the turn of the bilge has been significantly lessened, to reduce wake and give better passage through the water, and the forefoot of the bow submerged to smooth the lines to the maximum. The keels have been done away with, replaced by small skegs which allow the boat to be beached and stored on the hard, well-balanced while protecting the prop shafts and propellers. The bows are very fine-entry, the ski-shape forward and the nacelle are high for the size of boat. The deep U-sections of the forward half of the hulls, which generate a very deadening hull form to counteract pitching, contribute to a well-balanced trim, and increase the boats capabilities going through a choppy sea. The aft third is hollowed out in the form of a tunnel to allow space for the propeller and improve the angle of the propshaft, at 8°. A deep planing extension provides the double effect of fighting against the bow riding up, while allowing the flow of water from the propeller to be evacuated during acceleration. The Simonis-Voogd design team entrusted the hydrodynamic optimization research to the prestigious German company, Numeca, one of the world leaders in physical measurements, who have also worked with the likes of Airbus, Emirates New Zealand and Oracle (AC72) and even Groupama 3! The reputation of this breeding ground of scientists is global, and their expertise is seen everywhere from wind generators to rocket motors or formula one racing cars. They are the high-flyers of digital hulls and fluid mechanics in general.

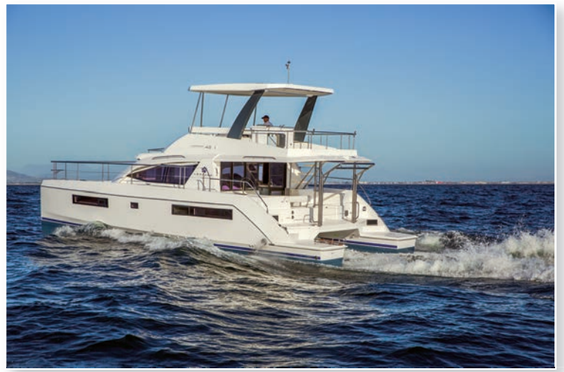
MODERN AND EFFICIENT POWERFUL MOTORS

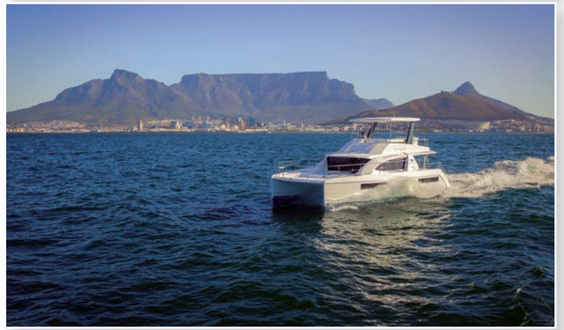
Yanmar's 6BY3 series comes in two versions, both based on the same 3 liter/6-cylinder block. The naturally-aspirated version develops 220 hp (in itself, quite remarkable) and the turbo version 260 hp (which would be a very honorable figure for a gasoline-fuelled car engine of the same size!), obtained at the moderate engine speed of 4000rpm. This very good result is achieved thanks to the combined performance of the superb multi-valve (4 per cylinder) heads boosted by a low pressure turbo, direct injection rails and electronic control of the combustion parameters. The analogue instruments have gone, to be replaced by a multi-function screen (optional) which displays engine speed, oil and turbo pressure, water temperature, alternator charging rate, engine power as a percentage and fuel consumption. There are alarms for coolant temperature, oil pressure, charging and presence of water in the fuel. All that's missing is something to detect an obstruction in the raw-water cooling (most of the time caused by some sort of plastic packaging) which could warn of an incident before the motor temperature rises to a critical level. These Yanmars comply with the latest draconian standards for European and American requirements. The theoretical consumption is 5 liters/hour at 1,500 rpm, 10 at 2,000 rpm, 27 at 3,000 rpm, 40 at 4,500 rpm and 55 L/hr at maximum revs of 4,000 rpm. They are very compact, and these 358kg lumps deliver their amazing performance with no evidence of smoke or odor.



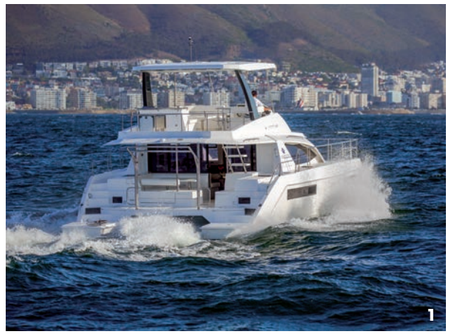
↑ *Nicely-drawn lines with a successfully integrated flybridge*

↓ *The spectacular hull extensions house the cleverly-designed propeller tunnels, helping create the 43's great performance and efficiency*





↑ *The 43 is a powerful, well-balanced and agile catamaran*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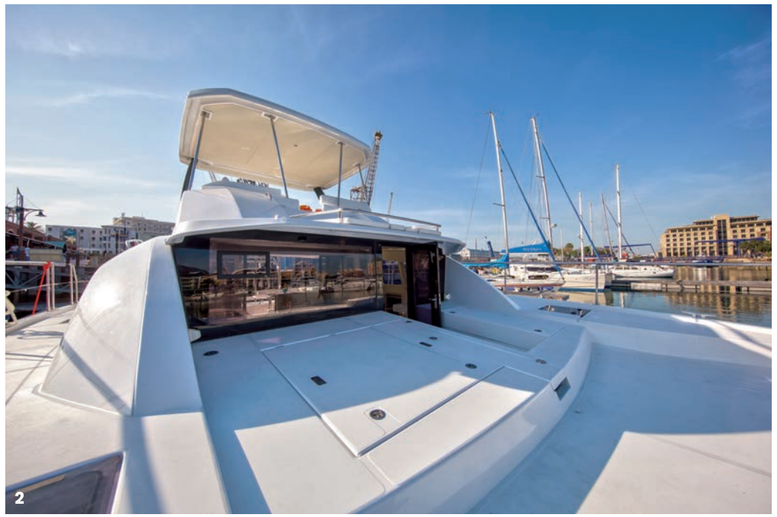
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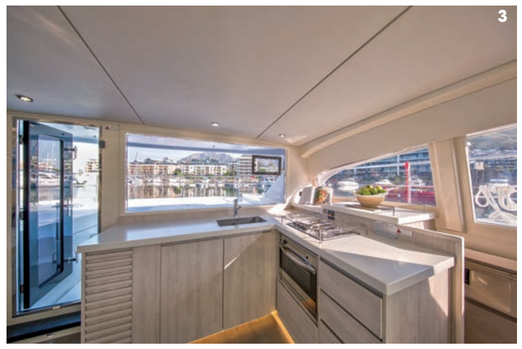
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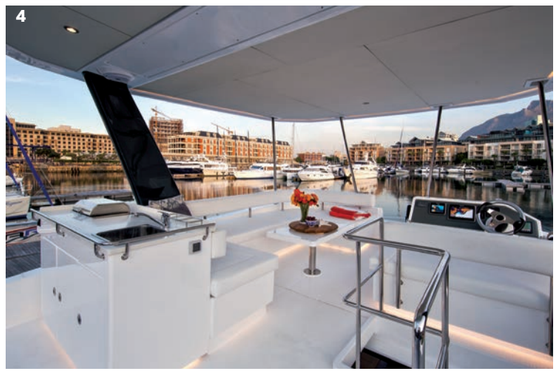
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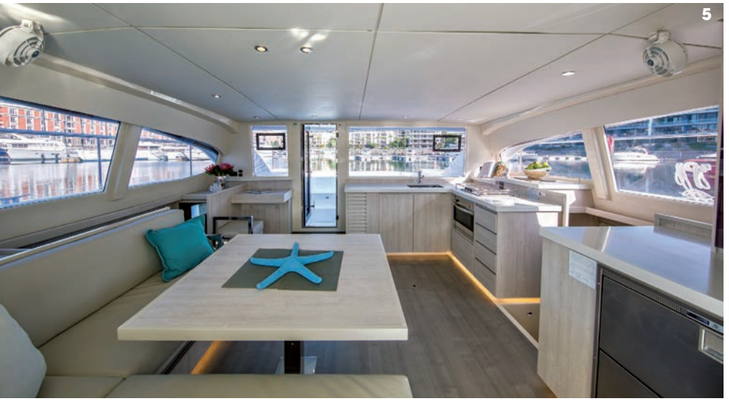
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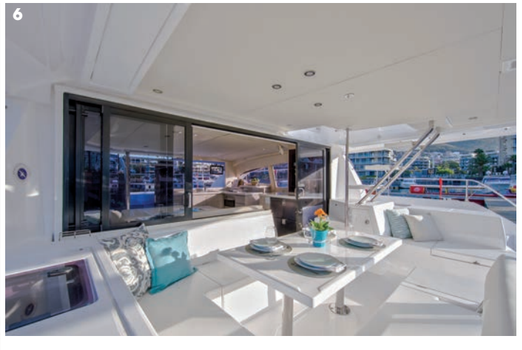
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1- A seaworthy power catamaran capable of taking on uncomfortable sea conditions in total safety / 2- The forward door makes for easy movement about the boat, completely removing any congestion in the salon / 3- The chef has excellent facilities and can work in peace, without being disturbed by the crew's movements, while still being at the heart of things on board / 4- The flybridge is a marine terrace, enclosed by a tubular guardrail. A lot of space for a 43-footer! With a wet bar, relaxing seating, helm station and sunbathing area access forward / 5- What amazing volumes! The secret to the 43's conviviality lies in the adaptability and synergy of the different spaces, allowing a large crew to fully enjoy the boat / 6- With the sliding doors open, the deck salon reveals a dining area to seat twelve. Note the reversed access to the flybridge

ATTRACTIVE LINES

The 43 PC fits well within its reasonable length, even demonstrating a dynamic personality, shown by graceful sea-keeping and well-proportioned lines. The flybridge integrates well into the overall profile. The design of the black-finished bimini structure is clever. The contrast between the curves of the coachroof and the stretched lines of the decks and the topsides give the boat a deliberate style: the windshield in the nacelle has a good vertical surface area (and includes a door). The overall perception from outside is pleasant. The boat is neither arrogant nor ostentatious. The buyer would be best to choose a tender of a size and weight suited to such dynamic and aesthetic qualities.

A CONVINCING INTERIOR VOLUME, FITTED OUT IN REFRESHED STYLE

Even more than on board sailboats (where sail-handling determines design constraints known and accepted by everyone), power catamarans have to meet the demands of certain sailors who might not have so much experience of this different nautical culture. These boats have one unique aim: for enjoyment as a family or with friends and making the most of the marine environment, without excess. So they need to be instantly welcoming and attractive in terms of their ease of use. The perception of the various spaces, their different uses and their interconnection is one of the major factors largely missing on the sailing versions, but which are accentuated by motor yachts and their flybridges. The way you live on board a powercat differs substantially to a sailboat, and it is quite amazing (and all credit to the designers) that a product with the same origins can satisfy both parties. If so why the reason for a total change of style across the whole Leopard range since the arrival of the 51 PC and the 43 PC? It is probable that the quality interior design in Sherry Wood, in which the yard have become past-masters, has been difficult to transpose on to the Power Cats, and that it was unthinkable to have two production lines going! There is no more traditional cabinet-work on the 43 PC, but a very contemporary atmosphere is generated by the use of highland ash, where light tones and shades of unbleached beige dominate, giving a functional and effective character as well as being easy to look after. It's a shame that the fabric of the upholstery is a bit plain. The L-shaped galley opens out, with excellent worktops, vast and abundant storage space and refrigerator drawers which perform well and are practical: they can carry 15 days' worth of supplies for a hungry crew! The chef will be happy aboard the 43 PC, and will be able to go about his business while one part of the crew enjoy refreshments on the flybridge terrace, with others on the aft platform, enjoying a swim, while the kids enjoy eating around the cockpit table. Sun-worshippers will have already taken over the sun loungers, forward. This on-board harmony is possible thanks to the ease of moving about the vessel and access to these different spaces. The version we tested had four comfortable cabins, separated by two shower/heads compartments which were satisfactory but whose volume can't compete with that of the owner's version. But then the average length of time on board probably won't be the same either.

SEA TRIAL

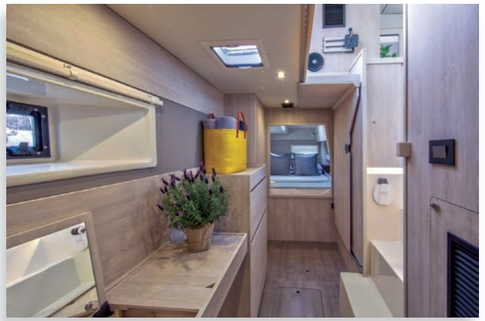
Before setting off, we fired up the motors and had a look in the engine compartments. Each access panel (the motors are found under the after bunks) is equipped with two electric rams which are essential for easy opening and therefore good surveillance of the machinery area. Automatic extinguishers are fitted, but not observation cameras which could be useful. Insulation has been carefully installed, but even though the available space doesn't allow for a very high performance cocoon effect to be achieved, the result is good, given that the program for this boat is unlikely to include much sailing by night. The Yanmar 31s produce an acceptable level of noise, with no knocking or vibration transmitted through the boat. At full revs, they are noisy, which is to be expected at this size.

On deck, the stainless tubular guardrails, which are a good replacement for the usual stanchions, circle the whole boat including the aft of the flybridge. Neat! One area where this could be improved though is the steps down to the sugarscoops, which might benefit from some sort of pushpit, as this is a high risk area for falling overboard. The access ladder for the flybridge is the other way round compared to its usual position, which is important. Safety is excellent and the prevention of falls has been taken into account! I thoroughly approve of the helm station, with its simple layout, but which is ergonomic for helming. It's a shame the ignition key panels are not protected by a cover, or in a recess. The layout of this maritime balcony is seductive, with a large U-shaped bench seat and a wet bar at the center of the great viewpoint. The wind was blowing at 15 knots and the previous day's storm had kicked up a confused chop: an ideal testing ground for checking out the dynamic qualities of the 43 PC. Covering a few miles at nine knots demonstrated that the sea was really quite choppy, with the appearance of a well-dug mogul field. Progressively picking up the engine revs to try and find the best balance between speed and passage through the water, I noted that at 11 knots, the result was the most acceptable and decided this was probably a good cruising speed for long distance (with consumption at 25 to 30 liters per hour depending on load). The trim was perfect, motion dampened and helming was not tiring. The torque and the power available could encourage you to go further: between 12 and 15 knots, the boat was remarkably easy and did not role, despite several wave trains and also a surf generated by the deep

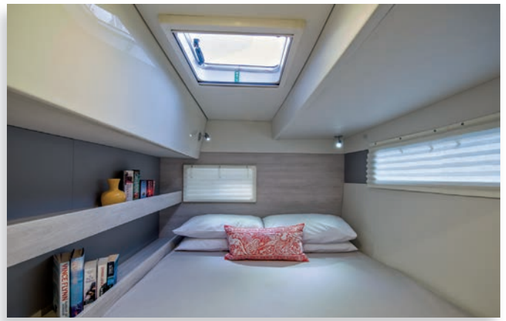
A WORD FROM THE ARCHITECT

I have been asked on a number of occasions what it is that sets the Leopard 51 and 43 Power Cats apart from boats, and why it is that we believe their efficiency and ride is better than those with which they are in direct competition. The solution we looked to for this problem was to design a hull shape, which would be less sensitive to trim over a range of loading conditions at different speeds. The way we wanted to do this, was by finding a perfect balance between the trim generated by the bow wave and the downward force of the propellers. This would be counteracted by a dynamic lifting force in the stern generated out of a specific tunnel designed to partly house the propeller. The idea itself sounds simple enough, and propellers in tunnels are also nothing new as it has been used for decades to improve propeller efficiency. But the idea of using the tunnels not only to improve propeller efficiency, but also to reduce the trim of the yacht is far less common and may even be unique. On a power catamaran at high speed, everything is about the trim angle. If it is too much, all you will do is to burn fuel as the resistance becomes excessive for the speed… power catamarans don't plane and don't respond to trim-tabs so your only option is to get it right from the start in the hull design

Alexander Simonis
June 2016

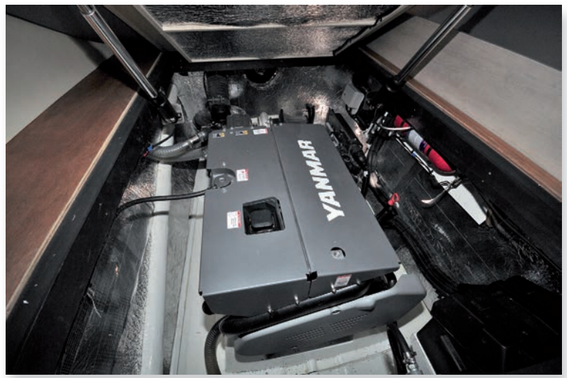


The "highland ash" atmosphere is neat, very contemporary and easy to look after. Check out the space in the owner's version!



An efficient design...

The 6-cylinder Yanmar 31 turbo motors develop 260 hp. Opening the engine compartments is easy, thanks to two electric rams



depths along the edge of the shoreline. Pitching had disappeared and the agility with which the boat passes through the water was now clearly apparent. Accelerating again (something I would not have thought possible a few minutes earlier) the 43 footer was now surfing along at 18 knots without slamming, then 20.6, which was our maximum (consumption 80 to 90 liters/hr at this speed). The boat showed itself to be of a serious and high performance hydrodynamic design, and the combination of the Yanmars and the four-bladed propeller is successful and the power produced from the tunnels is remarkable. On our way back, we were faced with a significant chop and a 15 knot westerly wind on the nose! These conditions allowed the 43 to show off its abilities and to slip through the water with amazing ease. No slamming and no pitching over this rough course, just a perfect helm response: between 15 and 19 knots, the fineness of entry through the water was astounding… and it was soon time to come back to a more sedate speed.

CONCLUSION

The conditions on the day of our test were not severe, but the sea state was sufficiently confused to show up the capabilities or otherwise: dynamically the results were really very positive and the boat inspired total confidence. It is agile and fast, with very well-balanced trim (something essential to comfort and performance) and the speed could be higher (the motors on our test boat were restricted), perhaps up to 23 knots according to the builder. Available in 3 or 4-cabin versions, this Power 43 will give a lot of pleasure to her crew. Eight people could happily enjoy cruising, given the complementary living spaces. The amount spent on fuel would depend on the mileage run obviously, but even more on the speed, because the easiness of the boat and the reserves of power encouraging you to go faster are the other side of the coin to very good handling.

- Top-notch dynamic qualities
- Modern and high performance motors and propellers
- Excellent combination of conviviality and intimacy with the layout
- Ease of use and maneuverability
- Pleasing lines

- Some of the interior marine hardware a little "light"
- Fixings of the hinges and stops of some of the doors and drawers
- Sliding mechanism of the heads compartment door too light
- Height of the lifeline at the sugarscoop steps
- No aft pushpit at the sugarscoops

Naval Architects: Simonis-Voogd
Builder: Robertson & Caine
Construction: Balsa core/Glass/Poly-Vinylester sandwich
Length: 13m
Beam: 6.72m
Displacement: 11.7t light, 13-15t laden
Motors: Yanmar 6BY3 2x260hp
Fuel Capacity: 1000l
Water Capacity: 750l
Price of the standard boat in € ex-tax: 379,000
Price of options in € ex-tax
2X260hp motors: 9,091
Electronics Pack + autopilot + engine controls at the chart table: 9,741
220v electrics pack: 5,195
6kW generator: 25,818
4x70W solar panels: 6,104
63l/H watermaker: 19,156
Cockpit shower+ deckwash pump: 976
Davits: 3,896
Side shades for cockpit and flybridge + exterior upholstery: 1,479
20kg Delta anchor + 50m of chain: 1,494
Delivery to Cape Town: 12,857
Delivery by sea to Europe or USA: 31,500
CE safety equipment: 4,613
Post-delivery inspection check: 6,501
Price of the boat we tested: 563,333 (an exceptional discount will be available on this display model at the 2016 Cannes Boat Show, giving a price of €509,000 ex-tax)

VIDEO

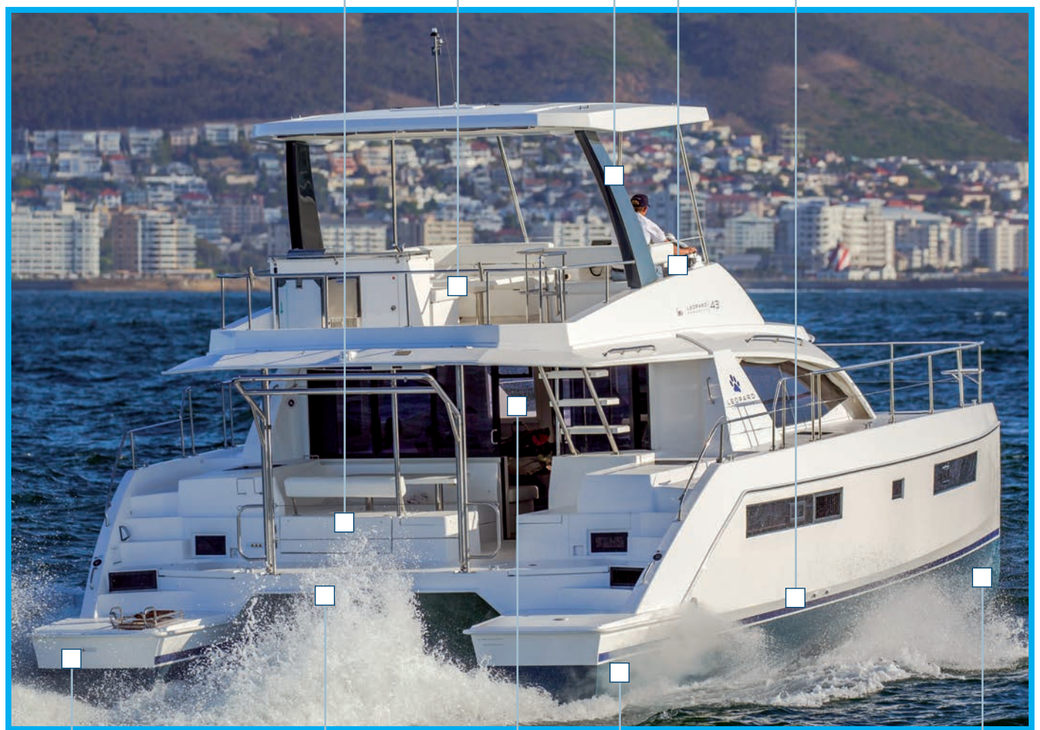
The bimini frame is nicely styled, with a neat black finish

The helmsman is comfortably seated on the flybridge, but inside controls would be essential for safety in fresh conditions or at night, as well as when maintaining gentle speeds

The flybridge is comfortable and safe, and can accommodate the entire crew at anchor

The motors placed well forward in the hulls contribute to the boat's good dynamic balance

This reversible bench seat and the exterior salon are really neat: sliding panels open this space up to be a 12-seater dining area



No green water showing from the tunnel: a sign of the vertical lift of the hulls and the consistency of the design

The hull extensions perfectly play their anti-pitch part

The interaction between the different spaces is one of the 43's strong points. The forward door gives incomparable access between the different living areas

This picture clearly shows the dynamic behavior of the hulls and their overall balance. The underwater hulls are coming nicely clear of the water, and the boat is perfectly trimmed

The sugarscoops house the tunnels which accelerate the flow of water from the propellers, contributing to good performance