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SwissCat S48’

A bespoke epoxy catamaran



Established by a passionate sailor (Jurg von Ins) in 2009, the SwissCat yard is made up of a talented team, building hand-made multihulls. The proof was clear to see, at the recent International Multihull Show, with the all-new SwissCat S48. It’s a seductive boat (the first 3 have already been sold) and we were able to spend two full days on board testing her...

A bespoke catamaran

The concept behind the Swiss 48 embraces the founding values of the brand: a limited production run, built by skilled craftsmen, allows the buyer to benefit from the advantages of a well-mastered, high-tech industrial process, real personalization and true blue water objectives. The

required budget is significant of course, but the owner participates directly, if he wishes, in defining his future catamaran: he has real latitude within the catalogs of options on offer. Customization is available mainly in terms of equipment, decor and fittings (finishes, upholstery, colors, cabinetry) in 2, 3 or 4 cabin ver-

sions; the technical aspects (construction, rig, motors) are amongst the top of the range.

A story of a boatyard

The Balaruc plant, in the South of France, was originally created to build 30 meter tuna boats before being bought by Sud Composites, who have now built around twenty catamarans here.

- 1 : The quality of the composite work (epoxy, glass, carbon reinforcements) and the lacquered (personalized) finish offer an extra seductive touch to the Swiss 48’
- 2 : Even in light airs, the S48 is a lively and fast catamaran
- 3 : The cutter rig (Harken furlers - Proengin drums) is particularly well suited to short-handed blue water crews. The 3 sails are attached on a composite compression beam that integrates the bowsprit. A beautiful job!
- 4 : The helm station (mechanical steering linkage) and the sail handling console are real highlights on the 48!
- 5 : Flush-deck covers and non-slip surfaces with remarkable grip and clear decks! The daggerboards are handled by means of an Antal line-driver winch positioned on a composite tubular support. A simple winch handle sends the board up or down



This ideal location for small-scale production made it possible to repatriate all the tooling from Turkey in 2015. The transformation of the vast hangar into a modern industrial workshop equipped with all the necessary resources and adapted to the latest safety standards, followed by the construction of a mini-marina (for in-water finishing and seatrials) completed the setup: SwissCat’s second life could now begin!

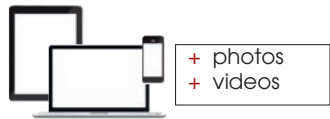
The S48: Lines which show a clear personality

The boat which was shown at La Grande Motte is a significantly reworked version of the prototype 45 footer previously tested by Multihulls World. An optimized sail plan, a redesigned infusion-built coachroof, larger motors and customized fittings all serve to rejuvenate the boat, whilst relying on an excellent platform that has proved its worth offshore. The 2017 coach-roof offers an optimized perspective, and which, being taller, avoids the “capped” effect of the previous design; the toughened-smoked glass windshields also characterize the lines, providing superior light quality and durability compared to polycarbonate: real added value! The paint finish (color to suit the owner’s desires) on this model gives a relaxed feel in the sunshine, and adds to the impression of quality. The tight lines, the sleek sailplan (the lacquered mast and boom coordinate with the hull), the not too high topsides, the integration of the beautiful composite cross beam (forward beam and compression beam), the willing lines of the bows and the sugars-

coops all contribute to a flattering look and a cleverly original and elegant design.

An exacting build quality in composite

The S48’s hull is made in direct infusion in one go, to avoid having to join the outer half-hulls. This monobloc polymerization is made possible by removable tooling which allows the formation of non-moldable shapes (the topsides, outboard). This approach allows the one-shot infusion of the entire lower structure (hulls and nacelle) and integrated galley. Epoxy construction is often reserved for racing boats because the resin is expensive, more delicate to infuse in series and requires strict cleanliness and safety measures. Why choose it? Because its mechanical properties are superior to polyester or vinylester resin as is its resistance to fatigue (much less sensitive to the transverse micro fractures that result from the forces exerted by the sea and from being at anchor). Its adhesion to foam is also better (thus guaranteeing the homogeneity of the composite in the very long term) and its porosity is 4 times lower. All of these high-tech features, added to the absence of shear by shrinkage (movement of the outer layers over the foam core), explain the exclusive use of this resin in aviation and in space technology. The yard is helped by the skills of a consultant specializing in the infusion of Sicomin resins to optimize the operation. The deck construction process obeys the same rules. I personally watched them preparing the



hull-deck assembly and found the quality of “composite work” to be of a high standard. The deck is glued to the hull via a wide-area joint by means of a special Spabond epoxy resin, reserved for structural assemblies that are subjected to heavy loads. The bond is then continued with lamination. I noted carbon stringers in the bilge which stiffen the line of the keel, as well as carbon strips in the hull areas which take the most stress (rudders, frames). The black fiber is also used generously in reinforcements on the main bulkheads as well as around the deck edges, in the compression beam and in the construction of embedded chainplates. The bottom of the nacelle is reinforced by a generous framework of omega stiffeners; the main bulkhead, intimately laminated to the structure meets the hull with carbon omegas which distribute the load; the secondary bulkheads are reassuringly fixed, and the mast support consists of a Prepreg carbon tube. All beautiful work!

Technical systems fully mastered

The evolution of cruising multihulls has led to significant technical developments. Our tour of the

innards of the 48 was conducted by Jean Charles Tolmos who is in charge of this department at SwissCat. The water and fuel tanks are structurally bonded to the hull and fitted with large inspection hatches, and they are accessible under the aft bunks (the watermaker is installed in an intermediate locker). Once the saloon upholstery is removed and the inspection hatches open, the electrical installation becomes perfectly clear to see. The 24V battery bank is housed in the forward beam at the foot of the mast support strut, and logically, the adjacent locker houses the main circuit breakers (house bank, generator, windlass) while the 3 adjoining ones are home to the electronics. Note the ability to access beneath, throughout the area, for cleaning or fitting additional elements if needed. Below the chart table is the 12 / 220V inverter-charger as well as the generator control unit (an essential option with the air conditioning fitted on this boat). There is also the electrical panel, which has had a lot of work put into it, separating it into logical zones (port, starboard, navigation equipment, systems ...). We also noted various tank gauges (water, fuel, black water) as well as the switches

and warning lights for the 6 electric pumps on board. At the back of the main board (accessible from the port passageway) is the control cabinet, which contains all the 24V DC and 220V AC converter / dock or shore-power connections. Everything is labeled and clear, and the effort which has gone into achieving this is really appreciable, as is the case everywhere on board, especially with the careful cable routing.

Fitted out for blue water

The cabinetry on this model has been entrusted to a recognized subcontractor, but the next S48 will have internal woodwork completed in-house, to better integrate the “personalization” approach. Decorative effects make use of top-quality, darker materials (Wengé-corian) selected by the owners and with lighter floors and ceilings in Bolon and Alcantara. This highly-equipped version (reversible air-conditioning, generator, abundant refrigerators) for tropical use benefits from the passive ventilation and extractors designed by the yard. The cabin and deck saloon volumes, and the interior design, are very contemporary. The yard’s objective is to reach a certain level of quality, setting standards in semi-custom production for the next models to be built.

Engine compartments

The layout of all the equipment is well thought-out. The surfaces are painted, the engine cut-outs are of good quality and are clearly visible and the electrical connectors are treated with an anti-spray and protected by thermo conduits. The power supplies all run in rails: there are no stray wires. The motors are 4-cylinder, common rail injection of 2,2l displacement with a maximum speed at 3,000rpm for a unit weight of 264kg with the sail drive. The fuel consumption will be 4 l / h at 2,200 rpm (at 8 knots) and 6 l / h at 2,600 rpm (at 9 knots) per engine.

THE KEY ESSENTIALS

1: The helm-station on the Swiss S48 is remarkable: ergonomics, fiber set-up, powered winches and simplicity. It allows you to make the most of the superb rig.

2: Construction in epoxy infusion: stiffness, durability, moisture-resistant.

Sea trial: two half-days on board

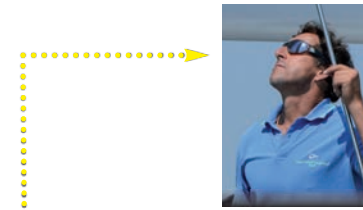
With the prototype 45', we took on the return trip to Cannes (towards Toulon) in heavy conditions which had tested the strength of the boat and its ability upwind in up to 45 knots of Mistral with a difficult sea. The medium conditions of our current test will therefore be very complementary. We were sailing with 10-11 knots of thermal breeze and a flat sea; the S48's rig, clearly designed for short-handed, blue water use, is fractional. The Southern Spars mast is an 8/10th sleeved in the middle which narrows elegantly at the masthead, with the top section being self-supporting. The halyard of the gennaker is almost at the masthead, whilst that of the solent is level with the capshrouds and that of the staysail, level with the lowers. So the rig is perfectly secured: two reefs / staysail makes for a nicely reduced sailplan to take on heavy weather in complete safety (which had allowed us to keep going apace in a furious gale with the prototype 45 footer).

The area of the mainsail has been increased by 5m², as has the overlap of the genoa, and the reacher has gone from 103 to 127m². With the 48 being significantly lighter than the 45 prototype, we understand that the performance in light and medium airs has improved. The Hydranet radial mainsail by Incidences is quickly hoisted thanks to the perfectly calibrated Liros halyard (fine, without any friction or creep when tightened) and to the Lewmar 50 electric winch, whose speed of hauling-in and power are remarkable. No need to worry about crossing the lazy jacks thanks to the boom spacers; The low-friction Harken sliders, which limit the sail bunching up aloft, function perfectly (you still need to be at the mast to help a little with lowering sail). As soon as the reacher is unfurled, the S48 picks up with ease. There is only 11-12 knots true, but the log is showing a steady 8.5 knots.

With full sails, I observe from the camera-tender a catamaran with a dynamic attitude, nicely agile in these lower medium

airs. The fine-entry bows with penetrating forefoot and the absence of a bowsprit bridle dragging in the water, favor light airs work, while offering progressive anti-loading volumes in a bigger sea. The concave form of the hull (from the lower hull to the central curve aft) remains marked. The moderate aft volumes are designed to limit the pitching effect of more curvaceous shapes (with breaking following sea). All the characteristics result in good aptitude in light airs, very satisfactory average speeds in medium airs (but without beginning to surf at the top of this range) and excellent abilities in a breeze, both upwind and downwind.

The daggerboard system (reinforced carbon) is innovative: the daggerboard wells are offset outboard, to optimize the interior space, and are equipped with bearings in ErtalyteTX, a hi-tech material, and are watertight (optimized fitting), used in competition, and lubricated during manufacture. The lifting / lowering of the boards is done with a winch coupled with an Antal line (on a small captive winch) located on a composite bracket fixed on the top of the daggerboard well itself. Just perfect for cruising, with no lines coming back along the deck! The traveler lines (unfortunately also black in color!) come back to the 50 manual winch, but with one turn, it's possible to take the load to one of the two neighboring 50 electric winches (especially useful for gybing) while keeping a fully functional deck space in case of a problem. Having figured out how everything worked, it was time to play with the boat; a series of tacks brought me up to speed! Furling the gennaker (solidly tensioned by means of the structural bowsprit and good rigging angles) with its well-sized drum, is easily set before the genoa is hoisted. From the helm station, I unfurled the sail with the aid of the sheet on the electric winch, and trimmed sail on this boat which performs very well in this type of weather. Before launching into a tack, I furled the genoa to two thirds (very quickly with the Lewmar 50) and easily went through the wind and



THE RIG BY ALBERT JACOBSSOONE

Seven-times participant in the America's Cup, three-times winner of the Tour de France sous voile, World and European champion in IMS, IRC, 4 seasons on Orma 60s with victories in Grand Prix, 5 seasons on a TP52, offshore sailing, Fastnet...

“The SCC yard was established in Balaruc over 2 years ago now. My contact with the management was made through Denis Cressant (marketing), Julien's father (currently in Bermuda in the Artemis team) with whom I sailed and worked on their 6th America's Cup project. So Denis and the SwissCat team are very conscious of the importance of detail in the preparation of boats! The yard has the will to build catamarans that meet the requirements of the owners. In other words, well finished and fitted out with the best equipment. Eric Kaiser and Fabien Morisseau (industrial manager, who also worked on the America's Cup), offered me the chance to take care of the rigging and ropes part of the SC 48. With the carbon mast delivered and assembled, I looked after finalizing stepping the mast and the rig adjustments. All the running rigging was made with LIROS rope on which I did all the splices and fitted the hardware. Eric Kaiser, in charge of construction, left me to the decision-making, to propose the best solutions. Living a few kilometers from the shipyard, I regularly go over the boats to make improvements requested by the owners, which gives the opportunity to discuss future projects and define the specifications most suited to the program of the boat and its owner.”



6 : Each SwissCat is truly personalized. The woodwork has now been taken over in-house at Balaruc to optimize production

7 : The quality interior light is diffused by smoked-tempered glass windshields



- ◆ Design and construction of the forward cross beam
- ◆ Composite epoxy construction in infusion
- ◆ Superb rig, perfectly adjusted (mast, boom, sails, furlers)
- ◆ Excellent deck layout
- ◆ Dynamic and multi-purpose qualities



unfurled on the other tack (perfect kinematics with the furling line which returns in line with the compression beam). This little section of the cutter rig soon becomes an second nature which is preferable to the flapping sheets of a traditional genoa. I'm starting to get a taste for trying this all solo, with this rational, clear and effective deck layout. Handling the staysail is identical; under gennaker, it offers a little extra performance, but is especially useful offshore in stronger winds. Reducing the mainsail is very easy: the single line system (on the 1st and 2nd reefs) slides effortlessly and the process remains clear throughout the maneuver. Simply beautiful! Re-hoisting back to full main is child's play, no need to wake the crew at night: a (careful) crewman will manage this alone. Even though the superb Jefa steering linkages require fine tuning to be at their maximum fluidity, the beautiful Carbonautica steering wheel and the rudders with very directional profiles, make piloting the 48 a pleasure. Close-hauled, with the autopilot engaged in wind mode, the responsiveness of the SwissCat to the variations of



- ◆ Metal block for the daggerboard (as opposed to composite)
- ◆ No markings on the deck to indicate the various functions (clutches, traveler, genoa cars)
- ◆ No sacrificial stainless strip for lines coming off the winches
- ◆ Fit of the ceiling and floor panels in the course of being corrected)
- ◆ Steering linkage adjustment needs optimizing



the breeze is truly amazing and to be admired: it seems to be able to anticipate! Congratulations are in order for the large sheet pocket which keeps the helm station clear of all the dangerous spaghetti (especially if they slip in the water while maneuvering under motor!) Also for the design of the anchoring system and the pivoting davits (perfect efficiency, lightness and aesthetics).

Conclusion

This catamaran is at the same time, both reassuring and fun. A great part of the pleasure experienced on board comes from the care taken with the deck plan design (quality of the maneuvers, size of the winches, clarity, efficiency) which allows you to manage the superb fractional rig with its magnificent mast and boom! The perception of quality construction is real, and barely perturbed by some details of interior finishing. Some minor imperfections are being corrected for this top of the range build. The Swiss 48 is close to entering the restricted club of yachting excellence.

TECHNICAL SPECIFICATIONS

Builder	SwissCat Yachts (Balaruc les Bains, France)
Naval Architect	Sébastien Schmidt
Design team	(coachroof and interior) BYD Group, Barcelona (Tia Simmo-Raul Gonzalo)
Construction	Dyvinicell H 80kg/m³- glass-carbon-epoxy foam sandwich in infusion process
Overall length	15m
Hull length	14m
Beam	7.56m
Light displacement	11.4t
Maximum laden displacement	15.2t
Mast	19m (air draft: 22m) Southern Spars in pre-preg carbon, post-cured under high pressure
Standing rigging	Nitronic rod forestay/ shrouded Kevlar capshrouds
Mainsail	71.5m² Hydranet radial by Incidences
Genoa	47.5m² Hydranet radial by Incidences on Harken furler
Staysail	24.9m² on Harken furler
Gennaker	127m² on Profurl furler
Running rigging	Dyneema DSK100
Motors	45hp Yanmar 4JH45C
Transmission	Saildrive
Propellers	Flexofold three-bladed
Batteries	500Ah 24V service bank
Solar panels	600W
Lightning protection	By submersible cable through the mast support strut
Fresh water	2x240l
Fuel	2x320l
Holding tanks	2x120l
Electronics	Raymarine Hybridtouch series
Water heater	75l
Watermaker	70l/h
Ex-tax price	€ 830,000 loaded, ready to sail

THE COMPETITION

MODEL	NEEL 45'	CATANA 47	CLASS 4	OUTREMER 45'
YARD	Neel	Catana	O'Yachts	Outremer
UPWIND SAIL AREA M²	106	139	126	106
WEIGHT IN TONNES	6,5	10,9	7,5	8,7
PRICE EX-TAX	€550000	€669 000	€594000	€498900

The hull design by Sébastien Schmidt is elegant: the personalized color scheme really highlights the quality of the epoxy sandwich construction

The genoa, on its Harken furler, is secured to the composite compression beam: the furling line passes through the beam to meet the sail maneuvering winch

The superb carbon mast by Southern Spars (and boom) is lacquered to match the hull color. This generously sectioned tube is stiffened by a rod section and held by clever rigging

The deck layout of the 48 is a total success. The installation is seamanlike, ergonomic and its function deserves nothing but praise and is a pleasure to use



The Swiss 48 is cutter-rigged. The division of the sailplan offers many advantages and only one small disadvantage: you need to partially furl the genoa for tacking

The tack of the reacher is clipped to the composite bowsprit which extends from the compression beam. The choice of furling gear and also the stiffness of the rig allow for easy furling despite the large sail area

The superb Carbonautica wheel and Jefa linkages will guarantee precision helming and reliability in all conditions

The coachroof windshields in toughened glass provide an excellent quality of light and durability

The daggerboards give a draft of 2.90 m. The raising and lowering mechanism is innovative, as it is fixed directly onto the daggerboard well via an arch and an Antal Line Driver winch

8 : Serenity and quality in the cabins (here forward, to port)

9: Light and ventilation (permanent passive forced circulation) have been carefully designed

10: The build quality (glass-epoxy foam sandwich, with carbon reinforcements, in infusion and post-firing) of this semi-customized catamaran is outstanding.

