A FORWARD-THINKING, SUSTAINABLE DAY SAILER

PRESENTED IN JANUARY 2025 AS A WORLD PREMIÈRE AT THE BOOT IN DÜSSELDORF, THE GRAND SOLEIL BLUE IMMEDIATELY ATTRACTED ATTENTION DUE TO ITS MANY INNOVATIONS, INCLUDING THE USE OF MATERIALS THAT MAKE IT THE FIRST ECO-SUSTAINABLE PRODUCTION BOAT BUILT IN ITALY

Giuliano Luzzatto

Having seen the Grand Soleil Blue at the German boat show, Nautech was invited to trial it in Malcesine on Lake Garda, an apt location given that – among the many details of the yacht – there is also the electric motor, which is ideal for sailing on lakes when the wind is not sufficient.

ECO-FRIENDLY YACHT BUILDING

The Grand Soleil Blue is a 10-m (33-ft) yacht that has been developed through a collaboration between the yard and experts in the field, including Matteo Polli (Naval Architecture) and Nauta Design (Exterior and Interior Design). The yacht has been constructed using sustainable and reusable materials: a new project that represents the ongoing commitment of Cantiere del Pardo, with its historical Grand Soleil Yachts brand, to sustainability and respect for the marine environment. It is a significant milestone in eco-friendly yacht building, setting a new standard for future boat design and balancing elegance, performance and environmental responsibility.

AN ENTIRELY RECYCLABLE YACHT

The Grand Soleil Blue is a forward-thinking day sailer that offers a zero-impact sailing experience. It comfortably accommodates up to 4 people overnight and is intended for use as a weekender. At the end of its life cycle, the boat is entirely recyclable, with every

GS Blue layout

NauTech

interview

MATTEO POLLI, DESIGNER OF THE GRAN SOLEIL BLUE

From a structural point of view, are there any differences between building a boat with Elium resin and with traditional resin?
There are no substantial differences, but secondary bonding should be avoided. Therefore, glued structures are preferred, as is customary in mass production yards. The boat is built using counter-moulds that are glued and gusseted only at critical points where stronger bonding is required.

Are these glues also sustainable?
Yes, they are suitable for the type of resin and are accepted in the recycling process.

Could you please provide more information about Elium?
It is a thermoplastic resin produced by the French company Arkema. The Grand Soleil Blue is built with this resin instead of the traditional one. This allows the fibreglass to be separated at the end of the boat's life.

What is important when using Elium instead of traditional resin?
The resin is used in a specific way, at certain temperatures, and at a certain time during the infusion process. The quantities are also important, as is the catalysis.

Does Beneteau offer models that use the same technology? Could you confirm whether these models also use Elium resin, produced directly by Arkema?
Yes, the resin is still made by Arkema. Beneteau developed the know-how in-house from the beginning, while we used the know-how of an Italian start-up company.

About the fact that it is not possible to predict the condition of this resin in 20 years' time, have you conducted any specific tests on durability, etc.?
More than on durability, we have conducted tests on the resin's ability to absorb moisture and the potential problems this may cause. It is clear that it is not possible to know exactly what will happen over time, but we

Gianluca Naphtalina Camporesi

Matteo Polli

can understand how the resin will behave in a humid environment and the problems that may arise. For instance, this resin has been shown to be less prone to osmosis than polyester; however, it is possible that other issues may emerge over time that are not yet apparent. While we are aware of its sensitivity to heat, the long-term implications of this are yet to be determined. Similarly, the knowledge we have today about boats constructed using GRP 50 years ago was not available in the same form at that time.

Is Cantiere del Pardo already aware of the process for disassembling boats built with this technology?

There are already companies working on this, and Cantiere del Pardo is also working to agree on the standard that the product must meet in order to be recycled as efficiently as possible. In principle, it is possible to recycle any material.
However, if we are to achieve the best possible quality of the raw materials when we recycle, it is important to do so in the most efficient way.

NAUTECH'S SEA TRIAL

Although the Lake Garda is in fresh water and not the sea, it is internationally renowned as a sailing paradise thanks to its constant thermal winds. We had the opportunity to trial this 'small-maxi-yacht' in a range of wind conditions over several hours, and we can confirm that it provides a remarkable experience on board, both from the helm and as guests.

FUNCTIONAL DESIGN

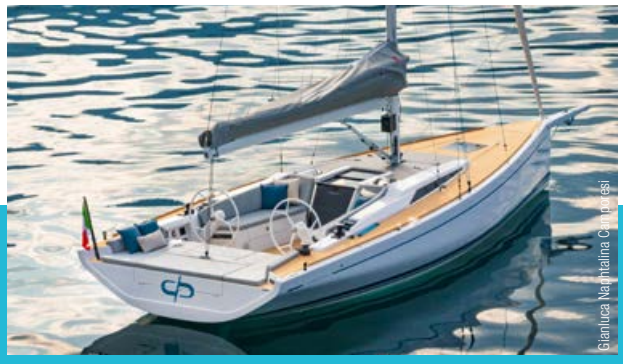
At wind speeds of 4-5 knots, it moves nimbly at the same speed thanks to its small, wetted surface. The moment the intensity increases, the boat's personality shifts noticeably, adopting a racing-like disposition. This transformation is attributed to the water lines designed by Matteo Polli, which result in the boat heeling on its side at a 20° angle. This design feature enhances stability and responsiveness at the helm, a testament to the effectiveness of the design.

EASE OF HANDLING

During the test Matteo Polli, who was on board at the time, expressed admiration for the ease of handling and the responsiveness at the helm, even in windy conditions. In addition, the VMG is comparable to, and potentially superior to, a standard 10-m racer designed by Matteo Polli. In terms of the technological spin-off from the racing world that the GS Blue has benefited from, the Grand Soleil 44P has achieved a remarkable level of success, securing the title of ORC World Champion for the last four consecutive years.

EXTERIORS

The GS Blue offers a high level of comfort, particularly in the extra-large cockpit, worthy of a 40-footer, where a removable table can be conveniently stored in a stowable bag under the deck. The boat is equipped with a sun canopy, and the comfortable aft sundeck is a noteworthy feature, representing an original and unexpected possibility for a boat of only 10 m, yet perfectly aligned with the design and intended use. The fold-down stern bathing platform enhances the GS Blue's overall functionality.



Exteriors

Interiors

INTERIORS

The below-deck area is characterised by a sober and elegant open space, typical of the Nauta style. The low deckhouse, which contributes significantly to the GS Blue's aesthetic appeal, necessitates seating due to the limited headroom. However, it should be noted that this boat is designed for open-air enjoyment. The day set up can accommodate up to eight people around the table, while for the night is a suitable weekender for a family with two children.

component meticulously selected to ensure reusability, preventing today's materials from becoming tomorrow's waste. This eco-conscious approach has been integral to the design process, leading to a pioneering vessel that incorporates several innovative design and construction methodologies. For the Grand Soleil Blue project, Cantiere del Pardo received co-financing from the Emilia-Romagna region as part of the PR-ERDF 2021/2027 programme – Action 1.1.1 – Call for experimental research and development projects.

SUSTAINABLE CONSTRUCTION AND DESIGN FOR DISASSEMBLY

The GS Blue represents a significant development in the field of boat construction, employing thermoplastic resin technology Elium by Arkema. This innovation addresses a critical issue in the marine sector: end-of-life recycling. Traditionally, composite boats have been constructed using thermosetting resins, which pose significant challenges in terms of recycling. Thermoplastic resin facilitates the separation of the resin and glass

or carbon fibres for reuse or eco-responsible disposal. A smart design approach enables the straightforward separation of boat accessories and components, emulating end-of-life practices in the automotive industry. This critical process guarantees that every component of the GS Blue can be effectively disassembled and recycled, thereby minimising environmental impact.

ELECTRIC PROPULSION, LITHIUM BATTERIES AND HYDROGENERATION

The GS Blue is equipped with a 6 kW electric motor, integrated with a direct Pod Drive transmission from E-Propulsion. This compact and maintenance-free solution operates with near-silent performance and offers a straightforward plug-and-play installation. It is an optimal solution for zero-emission navigation. The standard configuration will include an 8 kW, 48V lithium battery bank (LiFePO4) from E-Propulsion, offering a recharge time of 7.2 hours.

> **The sails are made from thermoplastic materials to further reduce the environmental impact**

As with the boat that we tested, this configuration can be upgraded to double the storage capacity without impacting recharge time, as the charger is able to compensate for the increased battery capacity. While sailing, the E-Propulsion Pod Drive motor efficiently recharges the GS Blue's batteries through hydrogeneration. This process involves the generation of energy by the propeller's moved by the boat under sail, ensuring a minimum recharge of 250W even at speeds of approximately 6 knots.

SOLAR PANELS

The installation of solar panels provides renewable energy autonomy by recharging the battery bank feeding the electric motor and supporting onboard services. The standard battery pack enables the GS Blue to cruise for 30 nautical miles at approximately 5 knots, equating to 6 hours of continuous motor operation or 12 hours with the doubled battery pack. The integrated photovoltaic system, manufactured by Solbian with around 340 W of power, is fully incorporated into the deckhouse, walkable, and features a non-slip finish. The system has been designed to recharge the motor battery while transferring excess energy to the service battery bank. This ensures optimal charge balancing for overall energy efficiency.

THERMOPLASTIC SAILS

In line with the project's sustainable philosophy, the sails are made from thermoplastic materials. This further reduces the environmental impact. The 4T FORTE sails have been developed by OneSails and are the world's first "green sails". The company's membranes and assembly process have been designed to meet the highest standards in terms of environmental impact and recyclability. Traditional glues, resins and solvents have been replaced with an innovative hot-melt process, while the base polymer is 100% recyclable through standard waste disposal methods.

HULL AND SAIL PLAN

The boat has a narrow bow, especially compared to the volumes borrowed from the trend dictated by ocean-going racers, which continue in a very flared broadside towards the stern. The maximum beam is considerable, a good 3.70 m, but its flared shape allows for a reduced wetted surface and excellent form stability when the boat is heeled. The standard T-keel lead torpedo of 1,200 kg (out of a total of around 3,800) at 2.20 m draft. The high aspect ratio allows for better efficiency, and together with the shape stability, has made it possible to keep the ballast lighter, to the benefit of performance. The keel blade is made of duplex steel fairing with fibreglass shells, which are also naturally recyclable.
The rudder blade is single to improve hydrodynamic efficiency and avoid the drag of a double blade, a solution frequently employed on boats with a wide beam.
The mast, without backstay, is set back to provide a bow triangle with augmented surface area available for the self-tacking jib, while concurrently reducing the square-top mainsail area. This approach is intended to mitigate the necessity to reduce the mainsail to higher wind conditions.