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Propel ready for S1 electric outboard motor production and sales

- **Propel S1 electric outboard motor will enter production in Q1 2023 for distribution across Europe**
- **S1 design delivers simplicity, reliability, and robustness, and shares modular technology with the already-launched Propel D1 inboard electric motor**
- **Anglo-Dutch engineering team is completing extensive S1 test and development programme**
- **Propel B1 modular battery solution provides further user-friendly solutions for marine electrification**
- **Growth of Propel's product range and expansion of dealer network comes just as European cities plan emissions legislation on waterways**
- **Innovative marine propulsion technologies will be presented at the METS Marine Equipment Trade Show in Amsterdam on November 15 - 17**

Amsterdam, 14 November 2022 – One year on from making its global debut, Propel, the state-of-the-art marine propulsion division of Saietta Group plc, is close to completing the testing and development of its S1 electric outboard motor. The Propel S1 will join the D1 inboard electric motor that has been on sale since the summer of 2022, as well as its new B1 modular 'suitcase' battery solution.

Propel will present its range of breakthrough electric marine propulsion technologies on Stand 121 in Hall 1 at the METS Marine Trade Show in Amsterdam on 15 - 17 November.

Contributing to the Saietta Group's mission to help clean the air in the world's largest cities, Propel's product range is defined by simple and robust designs with clean, sustainable, efficient propulsion. Customers can place orders now for delivery in time for the 2023 European boating season.



Propel will begin series production of the S1 in early 2023 at a new assembly line at Saietta Group's facility in Apeldoorn, The Netherlands, which has worked closely with the group's UK manufacturing design teams. Distribution plans are also underway with 10 experienced dealers in The Netherlands already nominated and going through training and onboarding. Discussions with dealers and distribution partners in several other key markets across Europe are at an advanced stage and agreements will be announced in the coming months.

The European market for leisure marine outboard motors sees 200,000 sales per year and is worth US\$900m. The rate of transition to electric motors is set to accelerate significantly in the coming few years as major cities plan to introduce new inland marine emissions legislation. For example, Amsterdam has decreed all vessels must be electric by 2025. It is forecast that 74% of outboard motor sales in Europe will be electric by 2030.

"Leisure boat owners and operators will soon have no option but to switch to electric motors as cities implement new rules to clean up their waterways," said Sander van Dijk, Managing Director and CTO of Propel.

"Adding the S1 outboard electric motor to our D1 inboard solution means we are in a prime position to offer customers robust and efficient zero emissions propulsion for a broad range of leisure craft. As such, we are accelerating our manufacturing and sales strategies so we are ready to lead the transition to electrified marine propulsion."

Wicher Kist, CEO of Saietta Group said: "Propel's rapid progress has been enabled by Saietta's highly effective and proven axial flux motor technology. It's already proven in the D1 inboard electric motor and it works fantastically in this new S1 outboard application, too: clean, highly responsive, easy to use and totally silent.

"Once you experience the Propel way, you will never want to go back to noisy and smelly petrol motors. I have been testing the advanced prototypes on the water over the summer and this product is in a different league to other electric outboard motors in terms of its refinement, power delivery and user experience."

The Propel S1 outboard range will expand over the next 12 months. Joining the 10kW (equivalent of 25 hp) version will be an entry-level 7 kW and higher-power 13 kW variants. And, by the end of 2023, in addition to the 'standard' propeller – which is fully optimised for the torque of the AFT140i motor – Propel will also introduce versions specifically optimised for working vessels and RIBs.

B1 modular battery solution and controllers

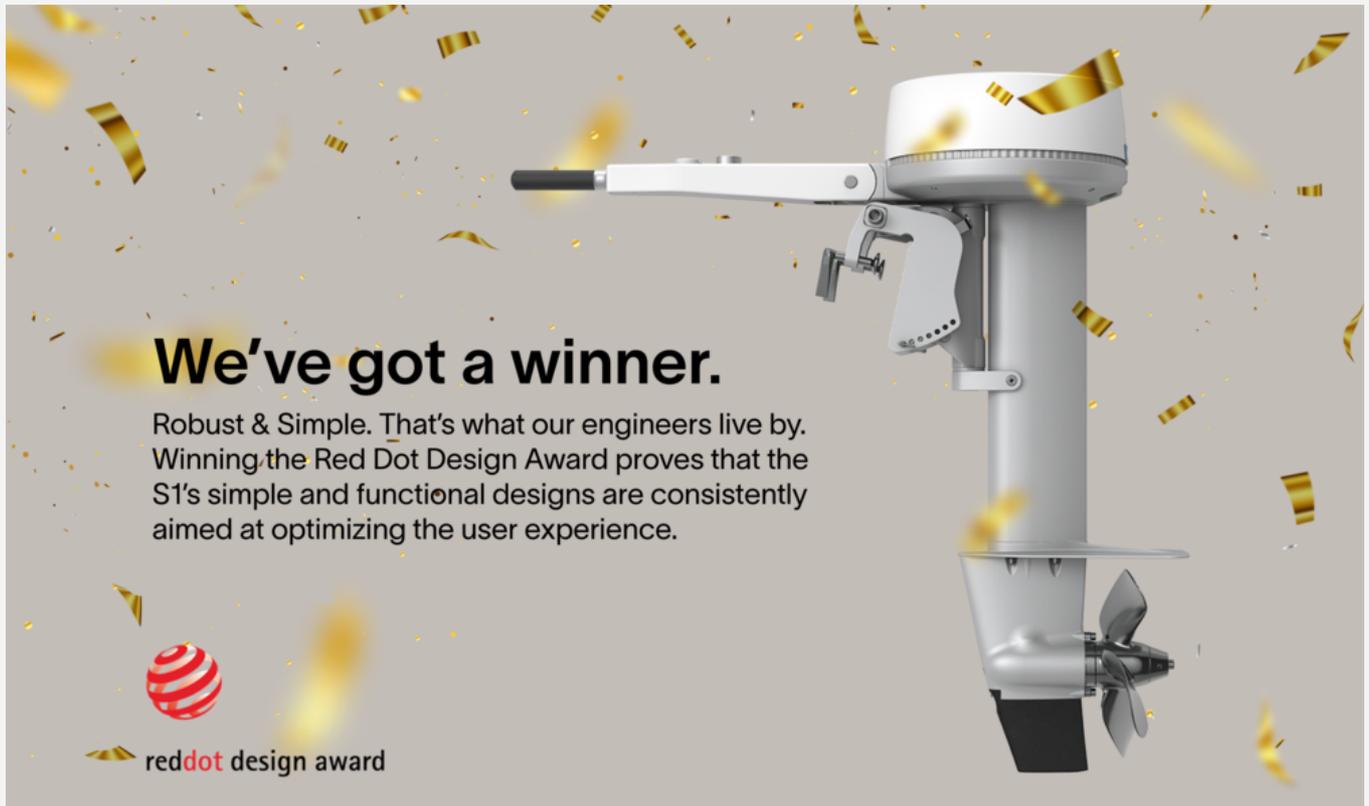
Alongside its D1 inboard and prototype S1 outboard, Propel will also present its modular B1 battery solution at METS. Modular 48V 1.7 kWh 'suitcase' battery packs are equipped with integrated battery management system (BMS) and CAN bus communications capability. These B1 batteries will be available in stacks of four, six or eight packs to offer 6.8, 10.2, or 13.6 kWh capacities, offering the flexibility for future expansion and easy removal when the boat is inactive for long periods.



The modularity of the battery packs was conceived specifically to make it simple to split the packs over two or more locations, making the use of these batteries in refit installations much simpler.

Award-winning design

The design of the Propel S1 remains true to the company's key principles of simplicity, robustness and reliability, providing an optimal user experience and long-term sustainability. This successful formula was recognised earlier this year when the S1 scooped a prestigious Red Dot Design Award.



A simple form, designed and engineered to be durable, and allowing for easy service and repair by owners or dealers, means the S1 can endure for a long lifetime of dependable use.

The motor is started with a simple flick of a switch. The colour display on the tiller or remote controller gives owners all the information they need to safely enjoy their time on the water. The display's clear and simple animated graphics makes using the S1 easy even for those with minimal boating experience, and a great choice for rental fleet operators.

The motor's form is clean, with its round upper casing following the 'pancake' shape of the AFT140i electric motor. The motor, controller and electronics are positioned above the waterline, a fundamental contributing factor to maximising reliability, and to providing easy access to critical components. This design also ensures significantly reduced drag compared to competitor products, which place the motor and gearbox under the water line resulting in underwater housings with a large diameter.



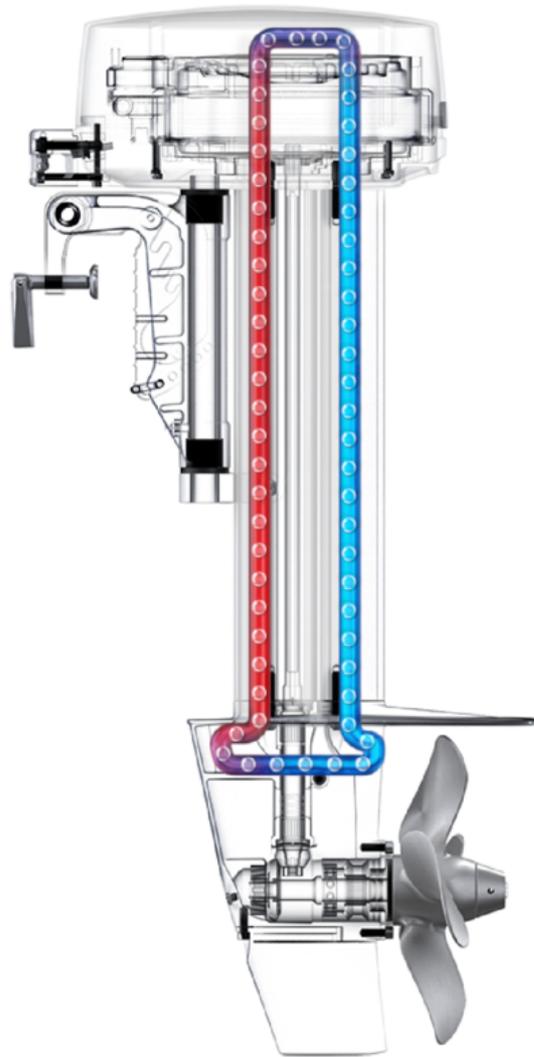
An advanced motor controller is integrated on top of the electric motor, sharing the cooling system and connected by bus bars. This integration significantly improves packaging and assembly, it reduces cost and simplifies the overall design. It also optimises reliability and contributes to easier servicing for the dealer network.

The 12.8" propeller is a bespoke design created by engineers with aero and computational fluid dynamics expertise developed in elite motorsport. Providing 1,440 rpm maximum propshaft speed, the propeller helps deliver an exceptionally efficient 62.1% conversion of the torque generated by the AFT140i motor to forward drive for the vessel. A Propel-developed log-strike mechanism ensures optimum safety and minimised damage to the propeller, motor and the boat's transom in the event of underwater strikes.

Engineering, testing and development

The development of the S1 saw the Propel team in Amsterdam – now 15-strong – working hand-in-glove with engineers at Saietta Group’s LDE (Light Duty eDrive) unit at Silverstone Technical Centre in the UK, and with colleagues setting up the production line in Apeldoorn, The Netherlands.

A bespoke version of the Group’s proprietary AFT140i electric motor has been developed specifically for the leisure marine use case. This axial flux eDrive solution with integrated controller – the result of five years extensive R&D in the UK – has been designed and developed for exceptional reliability and high torque density, and is enjoying success in automotive applications in Europe, North America and Asia.

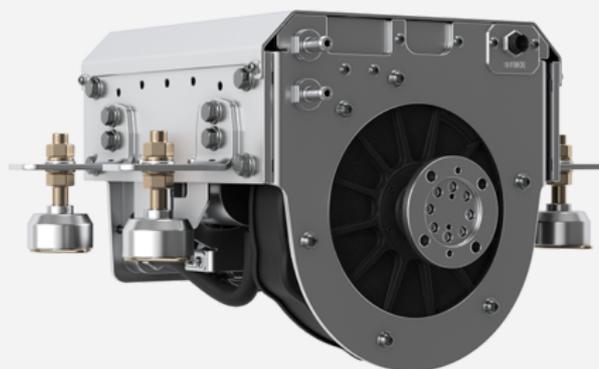


A dedicated test programme for the Propel S1 included the use of a special purpose-built rig for outboard motor endurance and load testing at Silverstone. Much of the software and hardware development, further lab testing, and prototype builds were undertaken by the Propel team at its facilities in Amsterdam. More recently, the exhaustive testing and validation regime has included benchmark tests against a range of currently available marine outboard eMotors using a dedicated fleet on Amsterdam's waterways. This included endurance testing to validate the durability and reliability of the S1.

Building on the success of the D1

The new S1 outboard joins the D1 inboard electric motor that has been on sale since the summer of 2022. Propel has already produced over 100 examples of the D1 and production will be ramped up inline with the growth of Propel's European distribution network.

The Propel D1 is an inboard electric crate motor designed specifically to replace ageing diesel engines. It kick-started Propel's market entry and was the first realisation of its strategy of providing solutions for a hassle-free transition to marine electrification.



The D1 shares the 10kW Saietta AFT140i electric motor and several other critical components with the S1. This modular design strategy further supports customers and service agents by making it easier to maintain, repair and stock parts across Propel's product range.

Without a gearbox, the Propel D1 is highly efficient. The motors and controllers are cooled using a closed-loop arrangement, crucially meaning a virtually maintenance-free experience for customers. The D1 range uses only low voltage motors, making it safer to install and operate.

All D1 inboard motors are shipped with a high-quality sunlight readable 5-inch display and a side mount throttle lever, as well as a DC-inverter to power onboard 12V devices.

Both the D1 and S1 can also be seen at the METS E-nnovationLab, an initiative showcasing sustainable marine propulsion technologies. The E-nnovationLab can be found in the Elicium building of the RAI Convention Centre.

ABOUT PROPEL

Propel is the next-generation marine propulsion division of leading global engineering company, Saietta Group. It exists to deliver the best in Dutch design, conceiving and delivering solutions to propel boating into the electric era while advancing affordable and accessible electric propulsion and battery systems that support the transition to decarbonisation and clean mobility on waterways.

Find out more about Propel at www.propel.me

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