



The new EverClean robots on the assembly line at the Greensea IQ Plymouth, MA production facility.

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Greensea IQ unveils its most advanced EverClean service robot.

Richmond, Vermont, 28 November 2023 – Greensea IQ, a leader in intelligent robotics and maritime solutions, has announced the launch of its most advanced, next generation EverClean service robot. The innovative improvements represent a significant leap forward in the realm of supervised reliable autonomy with Over the Horizon (OTH) operational capability for underwater hull maintenance.

EverClean is the first and only service ready to ensure that ship owners and

operators can enjoy the benefits of an always clean hull, today. Whether it is in port, or through resident systems onboard the ship, the latest robots take full advantage of the 17 years of development in control, autonomy, and navigation Greensea IQ has to bear on the hull fouling problem. The latest enhancements underscore Greensea IQ's commitment to the global shipping industry and its efforts to reduce carbon footprints by managing marine biofouling in a completely new way.

OPENSEA is Greensea IQ's extensively refined and modified software system that provides the next generation EverClean robots' tremendous capability to deliver fast and efficient hull cleaning today. The EverClean robot is packed with features like depth aided navigation, smarter obstacle avoidance, improved manoeuvring and enhanced user interaction capabilities. They provide even more precise hull relative navigation than before, a crucial evolution in making the robots faster and more efficient in cleaning ships. The EverClean robots can autonomously cover areas up to 50 square meters on a ship's hull, significantly reducing the level of operator oversight required at the ship's side, effortlessly detecting obstacles, and pausing only where required for human intervention. Keep out zones are more intuitively defined within the software and the likelihood of brush or coating damage, already very low, has been reduced even further.

The robot intelligence isn't the only upgrade to the new EverClean robot though, it has also had significant improvements in the robot itself, starting by an increase in the brush deck size. The EverClean robots will be able to double their production rate over that of the first EverClean robots meaning any given area can be cleaned twice as fast in half the 'stick time' (duration of operator supervision), optimizing cleaning efficiency and reducing operational drag for customers.

The EverClean robots also benefit from enhanced thrusters, markedly elevating responsiveness and control between operator and robot. These thrusters have already been proven to bolster the service robots' stability, agility, and adaptability in dynamic conditions. Not only this, but the thrusters have also been engineered for more efficient power utilisation and optimized distribution within the system. This means that the robots can do more with fewer amps of power, both significantly prolonging cleaning times on hull, while reducing recharging frequency to enable maximum robot availability.

With heightened demand for a cost-effective and sustainable solution to keep fleets perpetually clear of biofouling, it is also worth noting that the EverClean robots use fewer outsourced parts than predecessors, reducing production costs and improving manufacturability. Fewer high-risk and sole-source components mean a smaller, more robust supply chain leading to shorter build times to meet increased market demand.

"We are extremely proud of the new system," says Rob Howard, CGO at Greensea IQ. "The latest enhancements represent a major milestone in providing a reliable robotic solution to providing always clean hulls for ship owners and operators. The unrivalled capabilities and performance we can provide them with today, is a comprehensive solution that redefines efficiency and safety in underwater maintenance which not only meets the current demands for better performance and lower emissions of the industry, but also anticipates future needs."

These latest advancements in the robot follows EverClean's recent launch of EverClean IQ. EverClean IQ is revolutionary in underwater vessel maintenance, leveraging intelligent data collected during cleaning operations for the very first time. Equipped with cutting-edge sensors and cameras, the robots can record brush pressure feedback which can be cross-referenced with prior readings using the highly accurate hull relative navigation system. This allows the EverClean IQ system to build a unique data set on each of the hulls it services. More than just a very accurate 3D, XYZ-referenced hull map, this data set is also an ever-evolving knowledge base of areas of the hull where biofouling happens faster or more slowly, informing future coatings management and enhancing future robot cleaning efficiencies. EverClean IQ not only manages this data for its own future use but also transforms it into clear, concise reports for customers, offering insights into hull conditions over time through a user-friendly interface.

As part of EverClean's mission to establish a global standard for consistently clean and environmentally safe hulls, EverClean IQ aims to build the most comprehensive dataset on ship hull fouling. This initiative includes developing a digital validation process for clean hulls, empowering vessel owners with accurate information for informed decisions on maintenance and performance.

Taking pride in introducing a solution that not only meets current industry demands but also anticipates and addresses the evolving needs of

underwater maintenance, Greensea IQ is confident EverClean will play a pivotal role in establishing a new worldwide standard for consistently clean and environmentally safe hulls.

For more information about EverClean and Greensea IQ's maritime solutions, please visit: <https://greenseaiq.com>

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About Greensea IQ

Greensea IQ develops intelligent ocean solutions that drive technical advancement for defense, transportation, energy, and science applications.

The world on and beneath the waves has long been a source of fascination and mystery. As technology advances, our ability to explore and understand the oceans has grown exponentially. Greensea IQ is the merger of three companies at the forefront of this revolution – Greensea Systems, Bayonet Ocean Vehicles, and Armach Robotics. Each of these organizations has made significant strides in marine technology, revolutionizing the way we work in the ocean. Together, as Greensea IQ, emerges a more powerful and innovative company, committed to making the work that is done on and under the ocean more efficient, safer, and for the protection of earth and humankind.

Greensea IQ is the developer of OPENSEA, an open architecture robotics platform that provides control, navigation, and autonomy for the marine industry. One of the key strengths of OPENSEA's technology is its adaptability. The software can be integrated into a wide range of underwater vehicles, from remotely operated vehicles (ROVs) to autonomous underwater vehicles (AUVs). This flexibility makes Greensea IQ's solutions invaluable for various applications, including offshore energy, scientific research, and maritime defense.

Further notes to Editor

Greensea IQ continues to manufacture the Bayonet line of autonomous underwater ground vehicles (AUGV). Operating from the seafloor to the beachhead, Bayonet AUGVs travel through the harshest conditions where other systems can not. Bayonet AUGVs have been used for UXO search and classification and are suited for near shore inspection for offshore wind and defense, especially in the surf zone. Bayonet AUGVs are available as a Robot as a Service to reduce the initial upfront costs for customers to expand their fleet.

EverClean, the original always clean hull solution originally pioneered by Armach Robotics, will continue with Greensea IQ in a state-of-the-art remote operations center located in Plymouth, MA. EverClean is a proprietary, scalable service solution that provides preventative in-water cleaning and inspection data to maintain optimum vessel performance for extended periods of time.

Greensea IQ continues the progress being made in the field of marine technology by providing the software and hardware that contributes to the sustainable management of marine resources and the protection of underwater ecosystems, as well as the people working on and under the oceans.

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