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Healthier oceans with revolutionary proactive cleaning technology for ships

With Semcon as a technology partner, Jotun, the world leader in marine coatings, is releasing a new sustainable innovation for the proactive cleaning of ships. Jotun Hull Skating Solutions (HSS) includes a remotely operated robotic vehicle, the HullSkater, which inspects the underwater hull and removes any biofilm detected. This results in reduced fuel consumption and CO₂ emissions as well as reduced spreading of aquatic invasive species.

Maritime transport is responsible for about 3% of global greenhouse gas emissions, according to the International Maritime Organization (IMO). With Jotun's new solution for proactive cleaning, emissions from a typical market average performing bulk carrier can be reduced by 22,000 tonnes CO₂, or 12.5%, over a 60-month period. The overall fuel cost saving potential is USD 4 million.

Advanced robotics for underwater conditions

The Jotun HullSkater is an advanced remotely operated vehicle, specially designed for the inspection and proactive cleaning of vessels in challenging operations. It is always on board the vessel, ready for operation whenever the ship is idle. This provides shipping companies with increased operational flexibility as well as a smaller environmental footprint.

Semcon has been part of the development of the Jotun HullSkater from the early start and has been responsible for feasibility and concept studies, mechanical design, structural and dynamic analysis, control system design, software development, electronics development, prototype manufacturing and testing.

"This is a ground-breaking project when it comes to proactive hull cleaning and we are proud to have contributed with our knowledge and experience in robotics combined with digital solutions. The fact that the operation is carried out both above the surface and underwater makes it more challenging than one of our average projects", says Sindre Nævdal, Project Manager at Semcon.

How does it work?

Vertical and sometimes even upside down, the HullSkater stays on the hull using the force from its magnetic wheels, each equipped with electric motors for propulsion and steering. The vehicle has several cameras and sensors to support the operator with data for navigation and to document the fouling on the ship's

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hull. The specially designed motorized brush keeps the hull free from fouling. The vehicle is connected to the operator's control centre through an umbilical, and can be operated remotely from any location in the world with 4G coverage. Inspection and proactive cleaning of a hull will normally take around 2 to 8 hours depending on size and condition.

About Jotun Hull Skating Solutions

Jotun has developed the revolutionary proactive cleaning solution for the most challenging operations. A primary component of Jotun Hull Skating Solutions is the unique, on-board Jotun HullSkater, the first robotic technology that has been designed for proactive cleaning. In combination with premium SeaQuantum Skate antifouling and a set of services, the Jotun Hull Skating Solutions will help ship operators combat early stage fouling, and significantly reduce fuel costs, greenhouse gas emissions and the spread of aquatic invasive species. Partners involved: Kongsberg, Semcon, DNV GL, Telenor, Wallenius Wilhelmsen.

[Read more about Jotun Hull Skating Solution.](#)

[Read more about Semcon's contribution.](#)

[Download video and images.](#)

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