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Alfa Laval invests in the development of air lubrication technology for sustainable shipping

Air lubrication for marine vessels is a developing solution that will radically reduce fuel consumption and environmental impact. Having acquired a minority stake in Marine Performance Systems B.V., a Rotterdam-based maritime technology company, Alfa Laval will be instrumental in making this long-sought technology a commercial reality.

Energy-efficient sailing on a bed of bubbles

The idea of using bubbles to reduce a vessel's friction – which is the largest driver of fuel consumption as it moves through the water – has existed for well over a century. Nonetheless, it has taken time to realize. Alfa Laval has chosen to invest in Marine Performance Systems, whose unique method of producing bubbles with fluidics is a breakthrough that will reduce fuel consumption by 8–12% at a vessel's normal service speed.

“The use of fluidics creates a larger air layer of superior quality,” says Frode Lundsteen Hansen, who founded Marine Performance Systems in 2018 with innovators Pieter Kapteijn and Fulko Roos. “Our FluidicAL technology enables truly effective air lubrication, with immediate environmental benefits and substantial savings for shipowners. Alfa Laval shares our belief that this technology will facilitate the transition to green shipping.”

“The investment brings Alfa Laval full circle, since air lubrication technology for marine vessels was first pursued and patented by our founder Gustav de Laval in 1883,” says Sameer Kalra, President, Alfa Laval Marine Division. “The technology did not result in any product in his time, but our founder's vision has new importance today. Air lubrication will smooth the marine industry's path to a sustainable future.”

Offsetting the costs of going green

By reducing the amount of fuel burned, air lubrication will have a direct effect on greenhouse gas emissions. In addition, it will provide critical fuel cost savings for shipowners, who need to offset the expense of rapidly shrinking their environmental footprint.

“Fleets cannot be replaced overnight, so existing vessels will need to rely on clean-burning fuels to lower their emissions,” Lundsteen Hansen explains. “In a low-margin industry where fuel represents up to 60% of a shipowner's costs, the premium price of those fuels is a heavy burden. With very small means, air lubrication can provide significant relief.”

Indeed, the patented FluidicAL technology requires no structural modifications or vessel recertification, which makes it ideal for retrofitting as well as for newbuilds. Compatible with any vessel size and any fuel type, it comprises evenly spaced bands of oscillators under the vessel's hull. Using high-efficiency fluidics, each oscillator produces tens of thousands of microbubbles per second, creating a stable, uniform layer of air that significantly reduces friction between the hull and the water beneath.

Proven in operation at sea

The high performance of FluidicAL technology and its ability to operate in various conditions have already been demonstrated at full scale. In late 2020, a pilot installation was made on the general cargo vessel M/V Tharsis, with excellent results and clear savings over months of operation.

“With our FluidicAL solution in place, M/V Tharsis made 25 controlled runs in loaded and ballast conditions,” says Lundsteen Hansen. “As expected, there was a 60% reduction in specific drag over hull’s flat area, which meant considerably less fuel was consumed. Not only was there no impact on stability or manoeuvrability, the sailing was also noticeably smoother.”

A balanced solution with wide potential

Given the emission-reducing benefits of air lubrication, as well as the fuel economy it offers to shipowners, investing FluidicAL technology is a logical step for Alfa Laval.

“This is a unique solution that is relevant for all vessels says Kalra. We are pleased to have a stake in Marine Performance Systems and the work of bringing their air lubrication solution to customers.”

“We are proud of our innovation and how far it has come,” says Lundsteen Hansen. “With Alfa Laval’s support, FluidicAL technology will soon make positive waves in the marine industry.”

For further details about FluidicAL air lubrication technology, please visit:

www.marineperformancesystems.com

To learn more about Alfa Laval’s environmental technologies and approach to sustainable shipping, please visit: www.alfalaval.com/marine

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Editor's notes

This is Alfa Laval

Alfa Laval is active in the areas of Energy, Marine, and Food & Water, offering its expertise, products, and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes, creating responsible growth, and driving progress – always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It's all about *Advancing better*[™].

Alfa Laval has 16,700 employees. Annual sales in 2020 were SEK 41.5 billion (approx. EUR 4 billion). The company is listed on Nasdaq OMX.

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