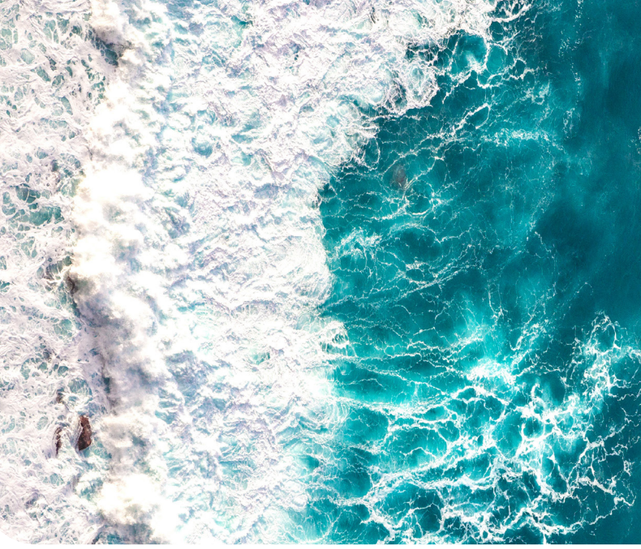
The cleanest energy is the energy that we never use

armada
TECHNOLOGIES

Armada Technologies is an Associate of the Ecochlor® Technologye Group



Making Waves: Hull Air Lubrication's Role in Carbon Emission Reduction

The hull air lubrication system market is growing, driven by environmental regulations like the EU ETS policy that targets carbon emission reductions from ships docking at EU ports. With the shipping industry prioritizing decarbonization and strict energy efficiency metrics in place, such as EEXI and CII ratings, there's a rising demand for energy efficient technologies like hull air lubrication systems.

Armada Technologies' Low Power, Sustainable Solution Is Changing the Game in Hull Air Lubrication

The Armada patented, passive air lubrication system (PALS), uses the ship's forward motion to create a precise air: water mixture for lubrication. Unlike traditional methods that rely on high-energy compressors, PALS consumes significantly less power, utilizing small capacity water pumps only in sub-optimal conditions. With its performance control system and machine learning, PALS ensures better bubble control and delivery.

Curious about how current air lubrication systems work? Air lubrication systems work by releasing microbubbles under the hull, creating an aerated water layer that reduces friction with seawater. Most systems utilize air compressors to generate the continuous flow of air, which is then passed beneath the ship's bottom plate surface through embedded piping and air cavities in the hull to make the layer of air bubbles. This minimizes drag as the ship moves through the water. Reducing drag is crucial because it decreases the power needed to propel the vessel, ultimately leading to lower fuel consumption, higher profit margins, and a cleaner environment.

Limitations of existing hull air lubrication models

Sea State Dependency: Limited efficacy in rough seas as the bubble carpet can escape to turns of bilges, reducing effective lubrication area and reduced air: water ratio.

Power Consumption: Air compressors demand extra power, sometimes requiring an additional auxiliary engine.

Compressors: Compressors need significant installation space. Additionally, they may contribute to higher vibration and noise levels.

Increased Drag Risks: Systems may raise vessel drag when not operational, countering potential energy savings.

Maintenance and Breakdown: With more compressors, there's a heightened chance of breakdowns, plus ongoing maintenance costs.

Fuel Savings Variability: Claims of 5-10% fuel savings are often overstated, with many systems realizing only 0-7% in actuality and often claim single point performance at a set speed/draft combination.

Are you ready to revolutionize the way your fleet navigates the waters?
Armada Technologies introduces the Next-Gen Hull Air Lubrication System, crafted to elevate efficiency and performance to unparalleled levels.

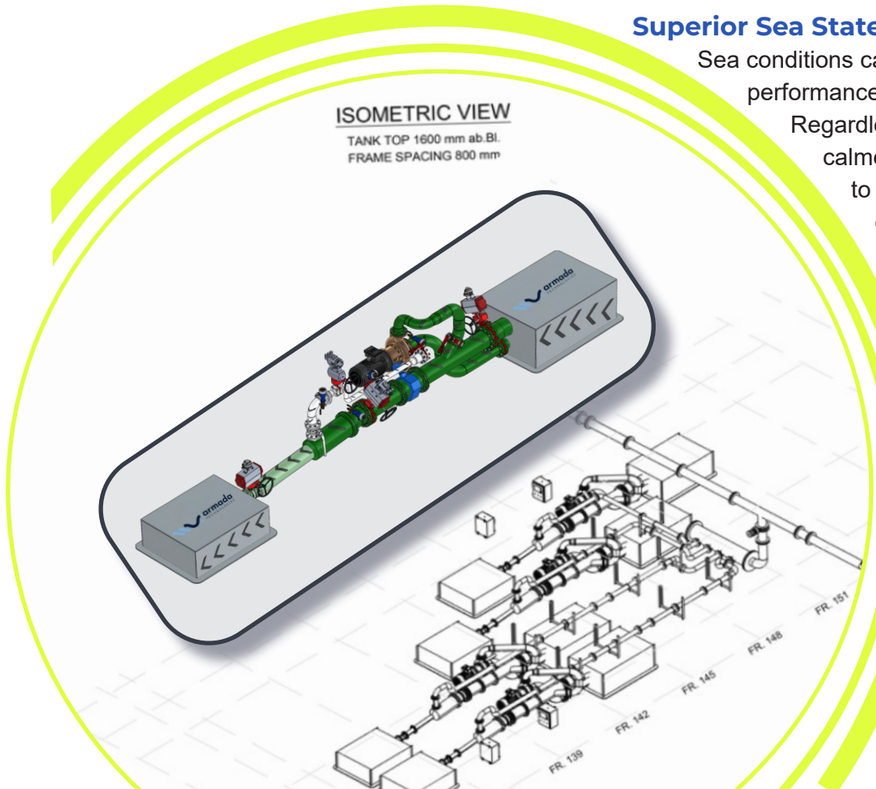
Optimal Bubble Distribution

With PALS, each bubble counts. Our cleverly engineered venturi system, partnered with the vessel's forward motion, naturally forms an optimal bubble spread that ensures thorough lubrication of the hull without using compressors!

PALS stands out with its innovative passive air injection mechanism, tailored to adapt bubble production precisely to your ship's type and operating conditions—be it speed, depth, or weather—guaranteeing continuous 'smooth sailing' unlike traditional air lubrication systems that may experience diminished performance at deeper drafts and lower speeds.

Unmatched Versatility Under Varied Conditions

Slow steaming and energy regulations are the new industry normals, and PALS is engineered to excel under such conditions. Utilizing minimal energy, our boost pumps step in under less-than-ideal circumstances to maintain peak performance. That translates to consistent efficiency, even with slow speed or higher sea states.



Superior Sea State Adaptability

Sea conditions can heavily influence performance—but not so with PALS. Regardless of choppy waters or calmer seas, PALS is designed to maintain its drag reduction effectiveness.

Armada targets a flat operating curve, meaning PALS performs well over a very broad spectrum of speeds, drafts and sea conditions.

Explore the edge PALS gives your fleet and step into the age of *smart, sustainable shipping.*

"We are standing on the shoulders of the academics and engineers who came before us in air lubrication technology. But I think that there is significant scope for improvement and we have accepted the challenge to bring Armada's PALS to the next level with the potential for double-digit net fuel savings on an ongoing basis."

– Alex Routledge, Armada CEO

Ready to revolutionize your ship's efficiency and operating costs?

The cost of PALS varies depending on the ship, but it offers low capital investment and operating costs compared to other hull lubrication technologies. By eliminating compressors and using less power, PALS not only reduces drag but also provides economic benefits to shipowners in a short period of time.

For vessels with short-duration, multi-port routes, PALS still delivers significant fuel savings and CO_2 reductions. In fact, it not only reduces fuel consumption for achieving ordered speeds but also enables higher speeds with the same power delivery. This speed increase is especially attractive for liner trades with tight schedules, allowing more time in port and increased financial benefits.

Ready to unlock the potential of PALS for your ship?

Take action now and start enjoying its quick ROI and environmental benefits to significantly reduced carbon emissions!

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