

Alfa Laval Sonihull

Protect vessels and equipment with
ultrasonic anti-fouling technology



Solution overview

Modern biofouling management

Alfa Laval Sonihull ultrasonic anti-fouling technology is the world's leading chemical-free biofouling management solution. Backed up with decades of experience in the maritime industry, it has a proven track record on thousands of commercial vessels.



Cleaner and smarter with ultrasound

Each year, marine biofouling adds an estimated USD 100 billion or more to commercial shipping costs. External build-up of algae, weeds and barnacles adds significant drag, which increases fuel consumption and greenhouse gas (GHG) emissions. Inside the vessel, organisms can clog cooling systems and cause premature equipment failure – or survive to be released as invasive species in a new environment.

Using ultrasound, Sonihull offers a cleaner, more cost-efficient way of dealing with biofouling issues. Simple and effective, it improves energy efficiency and reduces the need for mechanical cleaning. As a result, it quickly pays itself back through fuel and maintenance savings alone.

Cover: The hull of a cold-stacked vessel after nine months. The unpainted surface to the left is protected with Sonihull – unlike the surface to the right.

Why choose Sonihull?

- Effective prevention of biofouling – without releasing biocides, microplastics or other harmful substances into the environment
- Significant fuel savings when applied to hull and propulsion systems
- Reduced downtime and costs through prolonged intervals between mechanical cleanings
- No disturbance to crews, vessel structures, sonar or electronic equipment
- Easy installation without dry docking – no through-hull fittings



Sonihull application areas

Without biocides, Sonihull ultrasonic technology inhibits biofouling on any solid surface exposed to raw seawater. It can be used for biofouling management in a wide range of applications throughout your vessel.

- Hull and vessel structures
- Propulsion systems
 - Propeller
 - Thrusters
 - Waterjets
- Sea chests
- Tanks
- Coolers
 - Box coolers
 - Plate coolers
 - Shell-and-tube coolers
- Freshwater generators
- Pipework
 - Strainers
 - Intakes
 - Pipes
 - Valves



Simply effective technology

Sonihull combats biofouling without the use of harmful substances, major equipment or manual labour. It safeguards efficiency and extends the time between mechanical cleanings.

How Sonihull works

Sonihull uses ultrasound to create microscopic agitation, which has a gentle but continuous effect. It keeps hulls and equipment clean by eliminating microorganisms on wetted surfaces. This stops biofilm from forming, which makes the surfaces less inviting for larger organisms. Likewise, the microscopic movement of the water prevents barnacle and mussel larvae from attaching.

The agitation is caused by non-inertial cavitation, a low-energy process that produces no shockwave and no risk of surface erosion or pitting:

- Sonihull generates acoustic pulses in targeted ultrasonic frequencies, which are transmitted through the material the transducers are attached to.
- The pulses create an oscillating pattern of decreasing and increasing pressure on the material surface.
- Microscopic bubbles form as the pressure drops and implode as the pressure increases.



See the film

Typical results with Sonihull protection

Propellers – unprotected

Barnacles, algae and hard deposits impair efficiency



Propellers – protected

Clean surfaces retain their hydrodynamic properties



Box coolers – unprotected

Biofouling build-up inhibits effective heat transfer



Box coolers – protected

Clean surfaces provide high cooling efficiency



Sea chest grating – unprotected

Biofouling build-up obstructs water inflow



Sea chest grating – protected

Free flow of water maximizes cooling potential



Shrinking costs and footprint

Biofouling management with Sonihull safeguards vessel economy and the environment – in a variety of areas.

Avoiding biocides is just one way it reduces impact.

Direct fuel savings

Keeping the hull clean reduces hydrodynamic drag, which means less propulsion power needed – and therefore less fuel. Propellers, thrusters and waterjets can benefit from Sonihull as well.

Sonihull can eliminate propeller coatings, and it extends propeller cleaning intervals from months up to years. Compared to an uncleaned propeller over a five-year period, a propeller with Sonihull can provide up to 3% fuel savings.*

Indirect fuel savings

Biofouling decreases thermal efficiency, so preventing it is important in sea chests and cooling systems. Sonihull keeps them clean for longer, which further reduces engine fuel consumption – and can avoid engine downtime due to overheating.

Reduced emissions

Burning less fuel means lower fuel costs and rapid payback for a Sonihull system. But it also contributes to an improved Carbon Intensity Indicator (CII) rating and lower fuel-related emissions overall.

Ecosystem protection

Using no biocides or cleaning chemicals, Sonihull avoids potential harm to aquatic ecosystems. By keeping organisms from attaching to the hull, sea chest and more, it also reduces the risk of spreading invasive species.

Extended lifetime

Keeping submerged surfaces clean for longer means less downtime and lower maintenance costs. But Sonihull can also prolong the life of hulls, propellers and other equipment. That means less frequent repairs and fewer replacements over time.

* Source: Glofouling GEF-UNDP-IMO, 2022

Sonihull systems

We ensure comprehensive biofouling protection through customer-focused design. Each Sonihull solution is engineered for simplicity and effective performance. You can be sure of robust ultrasound transmission, matched to the application and the surfaces involved.



Easy, cost-effective installation

Installing a Sonihull system is a simple and non-invasive process, so installation can be timed conveniently to match your vessel's schedule. There are no through-hull penetrations, which means no dry docking is required.

With no expensive anodes to install or replace, Sonihull also saves both CAPEX and OPEX compared to impressed-current technology.

Versatile attachments

From marine-grade aluminium and stainless steel mounting rings to a wide range of adapters, there are options for attaching to different surfaces and structures according to vessel requirements. A universal pipe adapter, for example, fits flat surfaces like sea chests and box coolers but also curved hulls and pipes of more than 35 mm in diameter. There are also offset adaptors for hard-to-reach surfaces.

Scalable flexibility with Sonihull Xtreme

Sonihull Xtreme is the newest addition to the Sonihull range, offering sophisticated protection with features like auto recovery and selectable ultrasonic tracks. Its advanced algorithms and intelligent thermal management ensure thorough performance optimization, allowing the system to adapt dynamically to varying operational conditions.

Up to 16 transducers can be combined in an Xtreme system, which allows multiple surfaces and types of equipment to be covered by a single control unit. The transducers can connect from up to 100 m away with no loss in performance, and individual transducers or groups can act as independent systems, running different ultrasonic tracks.

Vessel types covered

Offshore



Workboats



Commercial



Superyachts



Fishery



Cruise



Navy



Let's find the answer to your needs

Contact us today to discuss how you could benefit from biofouling management with Alfa Laval Sonihull ultrasonic anti-fouling technology.

Visit our website



The Sonihull product range



Alfa Laval Sonihull

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Contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

This is Alfa Laval

The ability to make the most of what we have is more important than ever. Together with our customers, we're innovating the industries that society depends on and creating lasting positive impact. We're set on helping billions of people to get the energy, food, and clean water they need. And, at the same time, we're decarbonizing the marine fleet that's the backbone of global trade.

We pioneer technologies and solutions that free our customers to unlock the true potential of resources. As our customers' businesses grow stronger, the goal of a truly sustainable world edges closer. The company is committed to optimizing processes, creating responsible growth, and driving progress to support customers in achieving their business goals and sustainability targets. Together, we're pioneering positive impact.



Alfa Laval reserves the right to change specifications without prior notification.

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