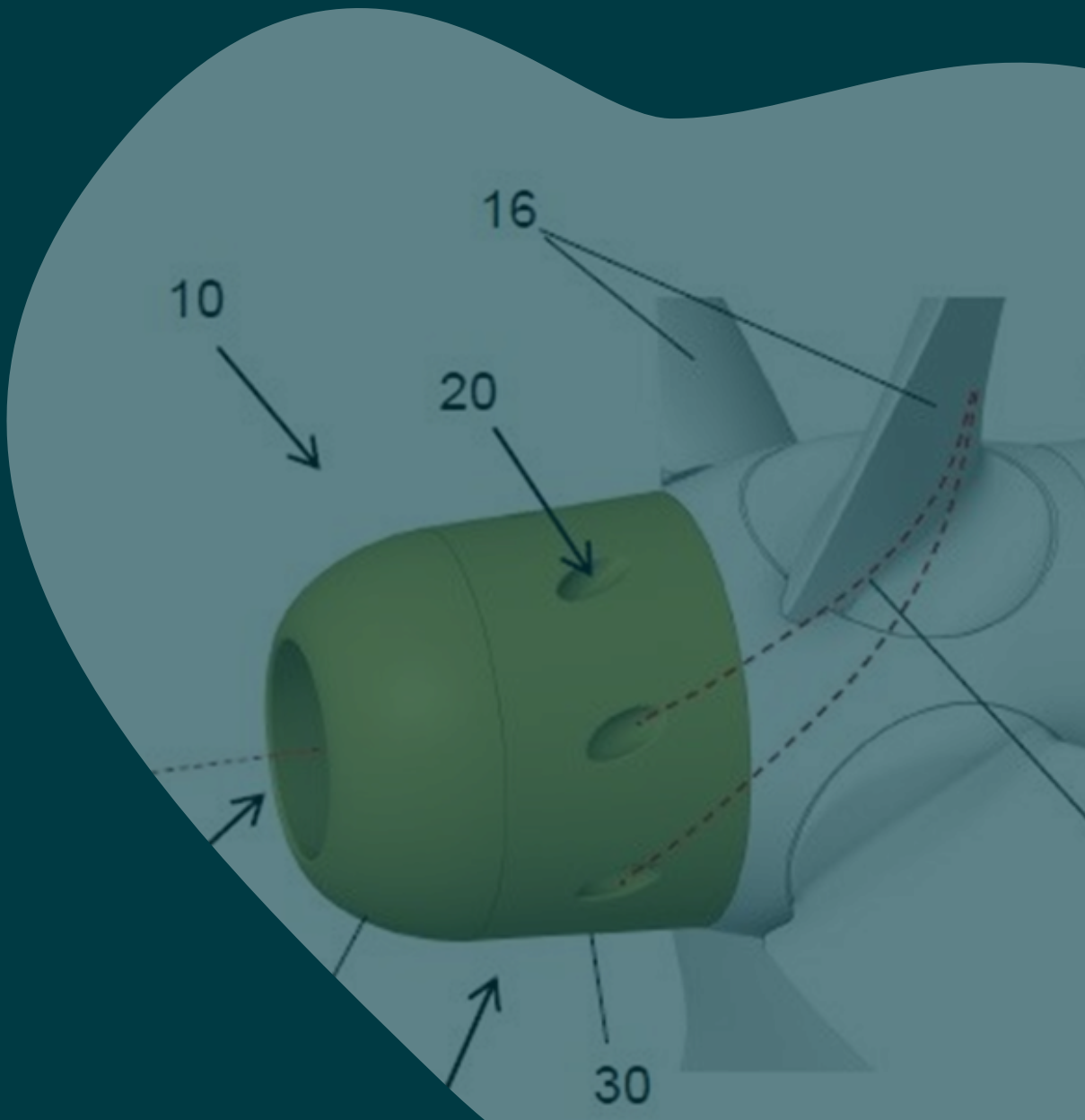
EcoMarine Propulsion

PROPELLING A GREENER FUTURE

FAQ’s

Everything You Need to Know About the Eco Boss Cap



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What is the Eco Boss Cap?

The Eco Boss Cap is an energy-saving device that attaches to a ship's propeller to improve its efficiency. It reduces fuel consumption and emissions by eliminating the propeller's hub vortex cavitation, which in turn boosts propulsive performance. In essence, it replaces a standard propeller boss cap with a hydrodynamic design that recovers wasted energy, helping ships run more efficiently.

How does the Eco Boss Cap improve propeller efficiency and save fuel?

It works by eliminating the hub vortex – the swirling flow behind a propeller that normally wastes energy. By removing this turbulence, more of the engine's power translates into forward thrust rather than being lost in cavitation. This means the propeller pushes the vessel more effectively, resulting in lower fuel burn for the same speed (or the ability to achieve slightly higher speeds using the same power). The design has no moving parts, so it simply streamlines the water flow and reduces drag.

How much fuel savings or performance gain can be expected?

Approximately a 5% improvement in fuel efficiency is typically observed with the Eco Boss Cap. In practice, this means a ship might use around 5% less fuel to maintain the same speed. Conversely, if you use the same power as before, you could see a modest speed increase (on the order of 2% higher speed at the same horsepower) as another way to realize the efficiency gains. These savings directly translate to reduced fuel costs and emissions over time.

Does the Eco Boss Cap provide benefits beyond fuel savings?

Yes. In addition to fuel and cost savings, it offers several other benefits for ship operation:

- Reduced vibration and noise: Smoother propeller flow means less propeller-induced vibration and lower underwater noise levels. This improves crew comfort and decreases noise pollution that can disturb marine life.
- Less rudder erosion: By calming the propeller's wake and cavitation, the Eco Boss Cap virtually eliminates the aggressive hub vortex that can cause rudder erosion. This helps protect the rudder and reduces long-term maintenance and repair costs.

These improvements contribute to a quieter, smoother operation and can extend the lifespan of propulsion components.

How does the Eco Boss Cap contribute to environmental sustainability?

The primary sustainability benefit comes from lower fuel consumption, which directly cuts greenhouse gas emissions. Every percentage of fuel saved is roughly the same percentage reduction in CO_2 and other exhaust pollutants. By achieving about a 5% fuel savings, the Eco Boss Cap helps ship owners meet stricter emissions regulations and reduce their carbon footprint. Additionally, the reduction in underwater noise and cavitation can lessen the impact of shipping on marine ecosystems. Overall, installing the Eco Boss Cap is a practical step toward greener and more sustainable maritime operations.

Is it suitable for all types of vessels and operating speeds?

The Eco Boss Cap is effective on virtually any type of vessel – from large commercial ships (tankers, bulk carriers, container ships) to high-speed craft and even fishing vessels. Its efficiency gains do not depend on the ship's size or propulsion type; it improves the propeller's performance across the board. The device also works in all operating conditions. Even if a ship is slow-steaming or operating at reduced speeds, you can still expect around a 5% fuel saving on average, similar to when sailing at full speed.

Are there any negative effects or downsides to using the Eco Boss Cap?

No, there are no known negative side effects. The Eco Boss Cap's design has been tested on thousands of installations with no adverse impact on the hull structure or shafting. It's a passive add-on that doesn't interfere with the engine or propeller mechanics. There is also no impact on the vessel's handling or manoeuvrability – installing the cap won't affect the ship's ability to steer, stop, or reverse normally. Furthermore, since it has no moving parts and fits flush on the propeller, it operates reliably without introducing new maintenance headaches or points of failure.

Can it be installed on existing ships, or is it only for new builds? Do we need any modifications to the ship?

The Eco Boss Cap can be easily installed on both existing vessels and new-build ships. It is designed as a retrofit-friendly solution – meaning you can add it during a routine dry-dock to an in-service ship, or include it during the construction of a new ship just as you would a standard propeller cap. No major modifications are required to the propeller or shaft; you do not need to change your propeller design or engine setup to accommodate the cap. It's made custom to fit your propeller's dimensions but otherwise is a straightforward replacement of the conventional boss cap.

What is involved in the installation and how long does it take?

Installation of the Eco Boss Cap is straightforward and quick. The device is attached by fastening it onto the propeller boss with bolts, much like installing a conventional propeller boss cap. No welding or special structural work is needed – it's a bolt-on installation using the provided hardware and standard tools. In terms of time, the process is typically completed in about 5 to 6 hours by a team of 3–4 workers. This means it can be done during a normal dry-dock maintenance period without causing significant downtime. All necessary installation instructions and materials (bolts, gaskets, etc.) are provided to ensure a smooth fitting.

What is the return on investment (ROI) for installing the Eco Boss Cap?

Thanks to the fuel savings it provides, the Eco Boss Cap usually pays for itself quite quickly. For many operators, the fuel cost reduction (around 5%) means the investment is recovered within about a year or even in a matter of months– the exact payback period depends on the vessel's fuel consumption and fuel prices. After reaching payback, the continued fuel savings directly translate into ongoing cost reductions for the remaining life of the device. In addition, by improving efficiency and sustainability, the Eco Boss Cap can enhance a vessel's operational profile (e.g. better compliance with efficiency regulations and potentially higher charter appeal), adding intangible value beyond the immediate fuel cost savings.