

Fixed Pitch Propellers



Wärtsilä is the leading solutions provider in the marine industry. This position of leadership reflects not only the extensive range of Wärtsilä's marine offering, but also the company's remarkable technical achievements. Like all Wärtsilä products and solutions, the Fixed Pitch Propeller (FPP) is based on years of proven experience during which more than 10,000 FPPs have been produced.





The latest in Fixed Pitch Propeller solutions

Our Fixed Pitch Propellers are designed using the most advanced technology and state-of-the-art solutions to ensure the highest possible levels of performance and efficiency. As a result, owners and operators gain the benefits of lower operating costs and a reduced environmental footprint through less fuel consumption and fewer exhaust emissions.

High quality production processes

To ensure the highest fatigue strength, Wärtsilä maintains complete control over the production process. The result is an efficient production process with minimized weights. Wärtsilä has developed more than 25 different bronze alloys for marine propellers, the most commonly used being Cunial® bronze.

This copper, nickel, and aluminium alloy has unparalleled durability and reliability. The propellers can be produced with any required number of blades in diameters up to 12 meters. Both the propellers and shaft lines are designed to meet all class

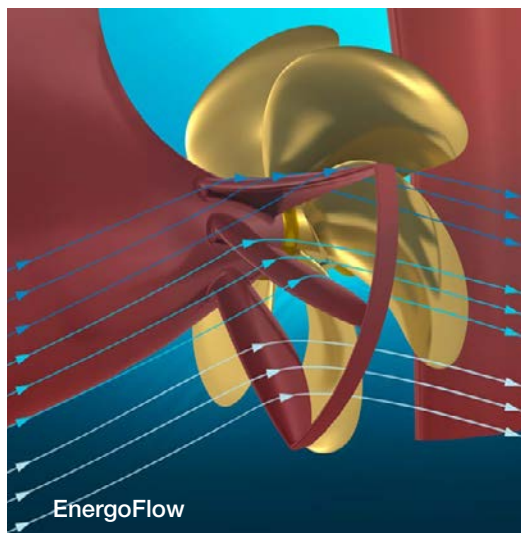
notations including ice applications and are compliant with environmentally acceptable lubricants (EAL), as required for propulsors operating in US coastal waters.

Energy saving solutions

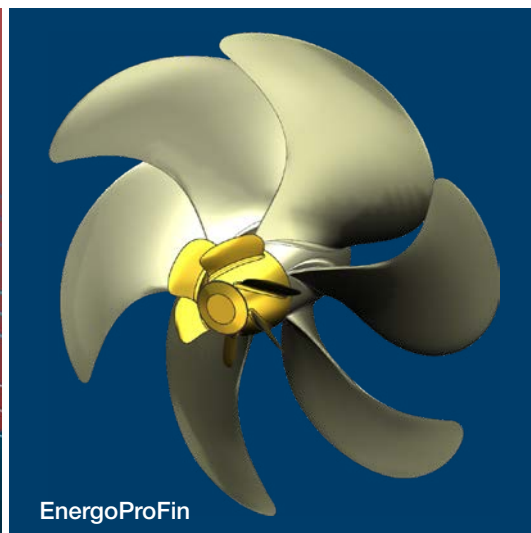
Wärtsilä continues to develop solutions that save energy and improve the efficiency of ship propellers.

- **Optimised Blade Sections** are standard with Wärtsilä Fixed Pitch Propellers. The high lift characteristics, combined with optimal thickness and camber distribution, achieve higher efficiency and balanced cavitation behaviour.
- **The Tip Rake Concept** features an extended tip, smoothly curved to the pressure side of the blade with optimised geometrical parameters developed to achieve efficiency improvements. Tip Rake also provides lower pressure pulses and a reduced noise level.

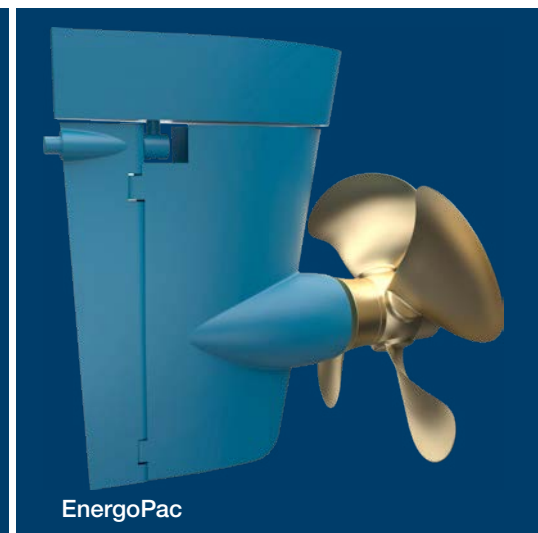
- **Wärtsilä EnergoFlow** creates optimal inflow for the propeller, significantly improving the vessels propulsive efficiency up to 10% for bulk carriers and up to 4% for container vessels.
- **Nozzles** are often required for heavily loaded propellers on tugs, fishing vessels, offshore and other vessels.
- **The Wärtsilä EnergoProFin** is an innovative propeller cap with fins that rotates together with the propeller. By weakening the hub vortex, resistance is decreased and propulsion thrust is increased, resulting in average fuel savings of 2%.
- **EnergoPac** is Wärtsilä's optimised propulsion and manoeuvring solution that reduces fuel consumption by integrating the propeller and rudder design. It is fully optimised for energy efficiency without compromising either manoeuvrability or comfort levels.



Energoflow



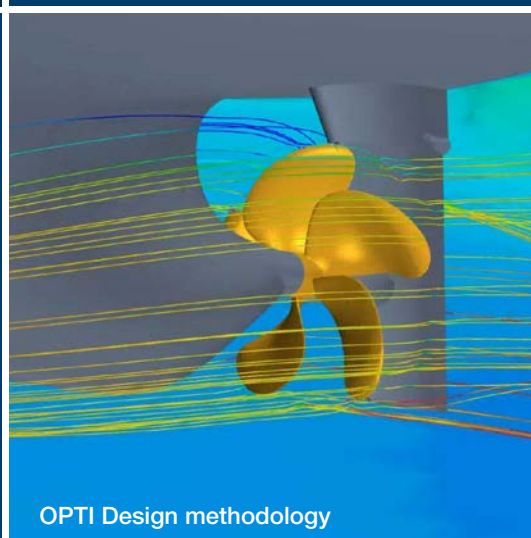
Energoprofin



Energopac



Nozzles



OPTI Design methodology



- **Redesigning and replacing** existing Fixed Pitch Propellers using Wärtsilä's state-of-the-art design tools can achieve notable efficiency improvements. For example, by designing the propeller to accommodate slow steaming at reduced vessel speed and power levels, efficiency improvements of up to 15% are possible.
- **The OPTI Design technology** enables Wärtsilä to deliver products that create the maximum benefit for the ship owner. CFD calculations analyse not only the propeller performance, but most importantly also, the interaction between the propeller and hull. At the same time, it reduces the risk of defects and costs related to imperfections, while shortening the entire design process.

For ultimate performance, the best combination of above items requires a holistic design approach.

Key benefits

- Optimal performance and efficiency, while minimizing noise and vibration levels
- Excellent hydrodynamic guidance
- Improved vessel EEDI/EEOI
- Minimised propeller weights with Wärtsilä's unique Cunial® propeller material
- Available with pollution free stern tube arrangement
- Easy to maintain, good reparability characteristics
- Reduced fuel consumption when combined with Energoflow, Energoprofin or Energopac and OPTI Design methodology
- Manufacturing close to shipyard with rapid and local support during ship building.

Services



Backed by a worldwide service network Wärtsilä has the marine industry's most extensive network of service and repair facilities with 160 locations in 70 countries

worldwide. Wherever and whenever service support is needed, Wärtsilä can be relied on to be there.

References



Research vessel "Endeavour"



Research vessel "G.O. Sars"



Cruise ship "MSC Poesia"



Research vessel "Pourquoi Pas?"



Royal Research Ship "James Cook"



LNG powered Ro-Ro ship "El Coqui"

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