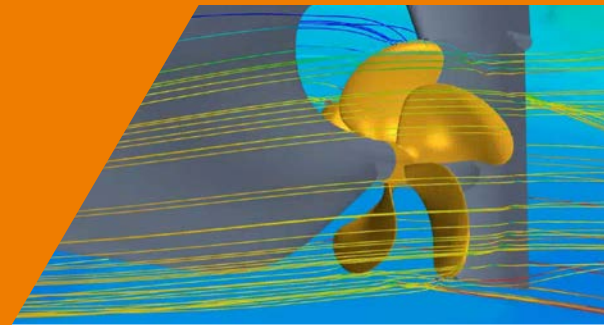
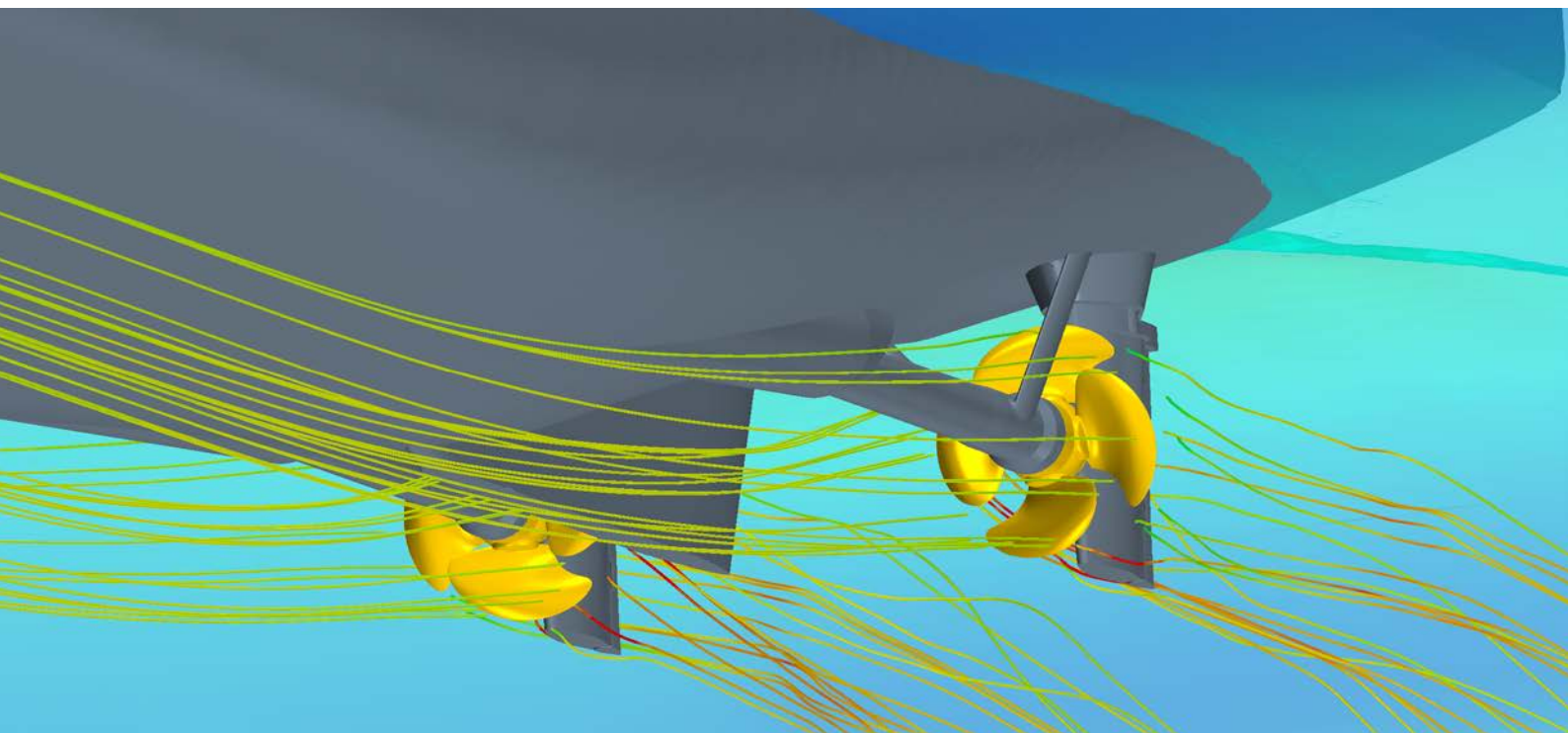


OPTI Design



The Wärtsilä OPTI Design is the result of more than 100 years of experience and the use of the most advanced design tools available. By being able to thoroughly analyse both propeller performance and the interaction between propulsion unit and the vessel hull, it enables full-scale testing and provides maximised efficiency.



OPTI Design is based on years of proven experience during which time thousands of fixed and controllable propellers have been designed and produced. Current propeller designs are made using the most advanced technology and state-of-the-art equipment to ensure the highest possible levels of performance and efficiency.

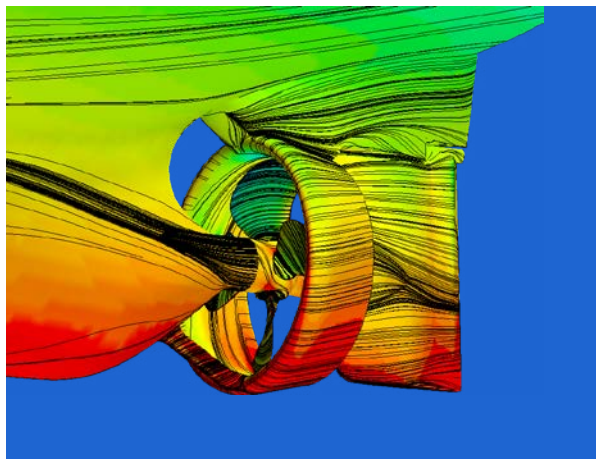
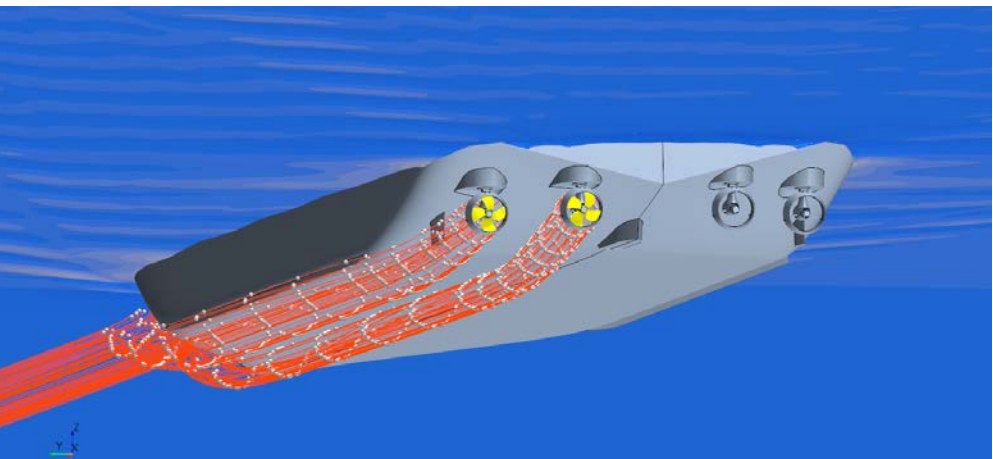
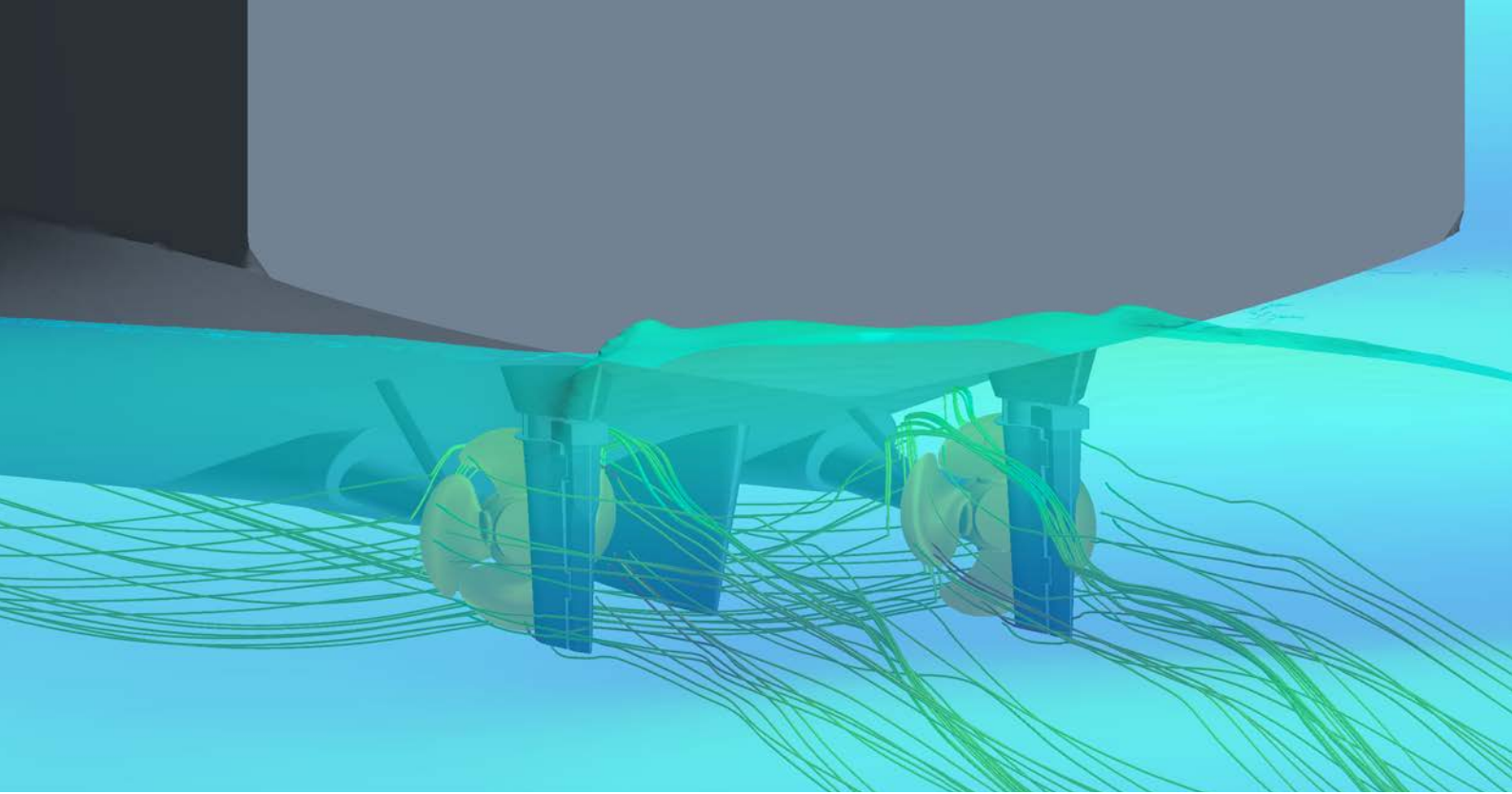
As a result, owners and operators gain the benefits of lower operating costs and a reduced environmental footprint through less fuel consumption and fewer exhaust emissions.

State-of-the-art design

To achieve a perfect match between the propeller, engine and hull, the design has to be absolutely right. The Wärtsilä OPTI Design is the result of highly experienced design engineers in our European R&D headquarters having access to the very latest and most sophisticated software and analysis tools. Computational Fluid Dynamics (CFD) is used to calculate the propeller performance and, most importantly, the interaction between the propeller and hull. This provides extremely accurate information to achieve design and parametric optimisation.

Key benefits

- Reduced fuel consumption.
- Improved EEDI.
- Short turn-around cycles allow for additional low cost design iterations on the hull shape and main propulsion parameters (diameter, RPM of blades).
- Cost attractive evaluation of retrofits and energy saving devices.
- Early propulsion and drive-line design choices can be checked.
- Full scale CFD can be used for trim optimisation studies, which provide a good initial set of data for fine-tuning with the Eniram system.
- Duration of model tests can be reduced and full-scale performance can be covered.



The best combination

In the past, the flow along the ship's aft and the propeller were separately optimised. While the propeller flow along the vessel hull, as represented by a wake field, has always been taken into account, the interaction between ship and propeller, however, was assumed not to change for different propeller designs. With modern CFD tools it is now possible to calculate the ship and the propeller together, and thus find the best combination.

The CFD calculations can be made for both model scale and full scale conditions. Where until now the performance was always judged using a model scale test, the CFD makes it possible to analyse the performance at full scale, which is what really matters for the ship owner.

Greater efficiency

This state-of-the-art design protocol optimises the vessel's overall propulsive efficiency. Fuel savings of up to 4 percent are possible, and with each Wärtsilä propulsion unit being individually customised to meet specific application requirements, the vessel's EEDI/ EEOI is improved. This in turn leads to reduced exhaust emissions. The OPTI Design provides the efficiency gains, and our expertise and analysis tools will ensure to meet the pressure pulse and noise and vibration requirements from the end users.