WÄRTSILÄ

FUTURE-PROOF YOUR CRUISE VESSELS

Cutting-edge solutions for decarbonised operations

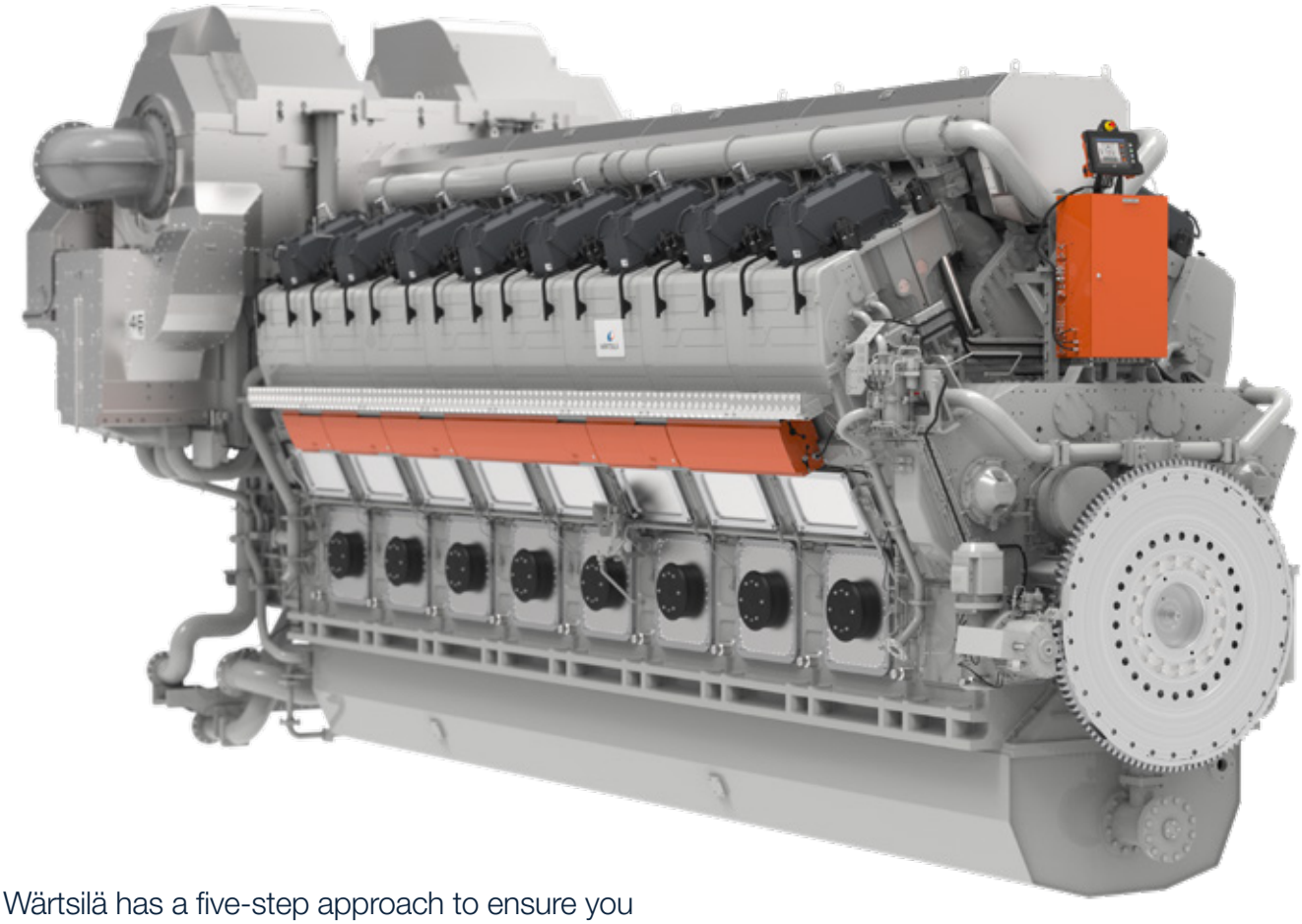
As a successful cruise operator, you are likely looking to go far beyond regulatory compliance and are instead embarking on a journey to fully decarbonise your operations. To reach this goal – and ensure continued success – you need a range of sustainable solutions to retrofit existing vessels and future-proof newbuilds.

Cruise vessels being built today will still be sailing in 30 years or more. Over that time new, more sustainable technologies and fuels will become available so it is essential to build with the future in mind. This means making your vessels simple to upgrade when the opportunities arise. Upgrading is also essential for your existing fleet if it is to remain on the right side of regulations, passenger demands and financiers' preferences.

KEY BENEFITS

- Take advantage of low-carbon fuels with multi-fuel engines
- Reduce fuel consumption with additional power sources
- Increase engine efficiency and make energy savings
- Optimise fleets, vessels and voyages with digital solutions
- Get the right solutions and ensure they perform optimally with expert services

The Wärtsilä 46TS-DF is a dual-fuel engine with high power and low emissions in a compact design, perfect for cruise ships.



Wärtsilä has a five-step approach to ensure you remain competitive, compliant and profitable:

1 – Be fuel flexible

Net-zero carbon cruising will only be possible when net-zero carbon fuel is widely accessible. This is still some decades away, but a range of lower carbon fuels are already available. The availability of these fuels varies around the world but will continue to improve as demand increases. The best way to future-proof your vessels is to ensure they are fuel flexible – able to run on whatever fuel makes the most sense for your operations.

Wärtsilä engines are already able to run on LNG, bioLNG, biodiesel and methanol as well as hydrogen blends of up to 25%. These fuel-flexible engines serve as an excellent base for continually reducing greenhouse gas emissions as we wait for the zero-carbon fuels of the future.

2 – Set up additional power sources

Power doesn't only come from fuel – you can reduce emissions through increased use of electrification.

- Shore power connection – enables the hotel load to be powered by the local grid when in port, eliminating the use of auxiliary engines and associated emissions and noise.
- Battery hybrid systems – integrating these systems into the power production and energy management system enables emission reductions of up to 10%.
- Energy management systems – when properly integrated into the onboard energy plant, energy management systems – such as our Nacos Platinum integrated automation platform – enable the optimal use of available energy sources, including fuel cells.
- Wind and solar energy sources – although competing with passengers for deck space, these emission-free power sources can reduce fuel consumption and emissions.

3 – Boost efficiency

Increasing the energy efficiency of your cruise vessel is an effective way to reduce both emissions and costs. Our latest generation of engines, such as the Wärtsilä 46TS-DF and Wärtsilä 31, are a great starting point for future-proof cruise vessels as they take engine efficiency to a whole new level.

Recovered heat from cooling water and lubrication oil cooling can be reused for the production of hot water or used as direct energy with our Smart heat

Photo: Princess Cruises

recovery + system. Similarly, when running on LNG the cold energy of the LNG can be effectively used in the HVAC system to keep energy losses to a minimum.

Wärtsilä can also enable hydrodynamic efficiency improvement with a hull air lubrication solution or our EnergoProFin propeller cap that minimises propeller drag.

4 – Adopt digital innovation

Reliable data and predictive insights help you optimise energy efficiency at the fleet, vessel and voyage levels. This leads to improved performance, cost savings and a reduction in emissions as well as greater transparency over vessel operations. The end result is insight into current and potential incidents and issues that need attention, increasing safety and improving efficiency.

With an increasingly complicated onboard environment, digital solutions are becoming more effective and central to improving energy efficiency and creating a competitive advantage. This means not only considering how to best sail and maintain your assets, but also how to meet service power needs while keeping passengers safe and happy.

Our solutions, such as the Fleet Operation Solution, use predictive analytics to allow for more proactive operations. We combine data collected from your vessels with your near-future plans and third-party information like weather forecasting data.

5 – Partner with experts on smart services

Equipment and systems are a critical part of the solution – but how do you choose the optimal package for your operations and ensure that it delivers the expected results over your vessel's lifetime? Wärtsilä has a range of services that can help.

Decarbonisation services

Make sure that you get your decarbonisation strategy right first time with Wärtsilä Decarbonisation Services. A systematic analysis of your fleet based on several years of real operational data provides a clear picture of a vessel's environmental performance now and in the future.

The data allows us to make a digital model of your vessel and simulate the effects of various technologies on its environmental performance. We can then advise on what measures are technically and economically feasible. The service is applicable to both existing fleets and newbuilds.

Comprehensive lifecycle services

A major contributor to long-term sustainability and reduced emissions is vessel efficiency. Having the right solutions is a great start, but ensuring they perform optimally over their entire lifetime is the key to success.

Benefit from better control over maintenance costs, access to remote support and predictive maintenance, improved asset availability and even a guarantee for your asset's performance. Future-proof your vessel with access to solutions and services that maintain, improve and optimise its profitability and environmental compliance over its whole lifecycle.

"At Carnival Corporation we are totally committed to decarbonising our operations. A systematic, data-driven approach is essential. By working closely with Wärtsilä, a company with a depth of experience and expertise, we can establish a model that will allow us to get it right first time."

Chris Millman, Vice President, Corporate Marine Technology, Carnival Corporation

WÄRTSILÄ MARINE POWER LEADS THE INDUSTRY IN ITS JOURNEY TOWARDS A DECARBONISED AND SUSTAINABLE FUTURE.

Our broad portfolio of engines, propulsion systems, hybrid technology and integrated powertrain systems delivers the efficiency, reliability, safety and environmental performance needed to support our customers to be successful.

Our offering includes performance-based agreements, lifecycle solutions and an unrivalled global network of maritime expertise.

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