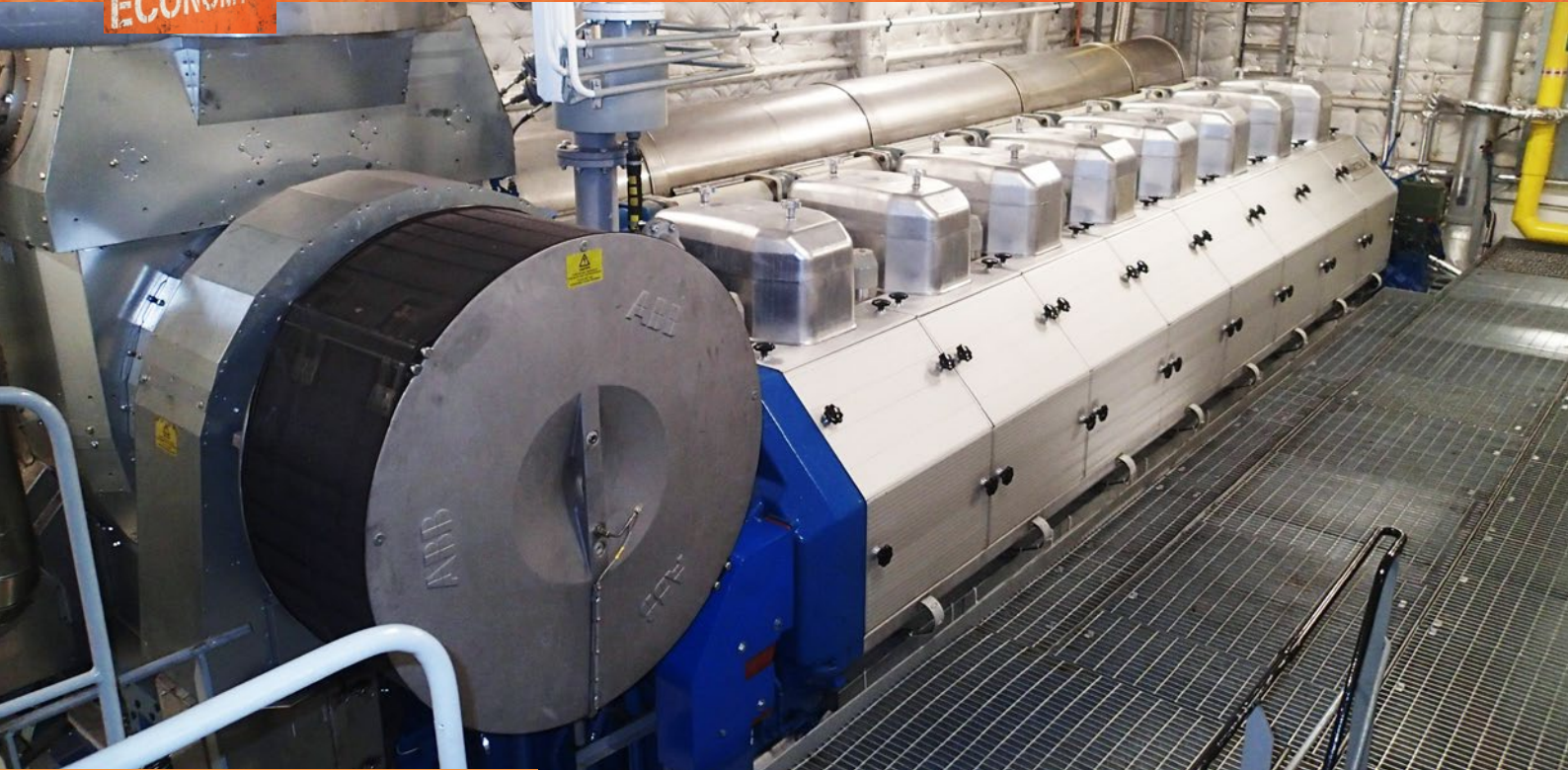


ENERGY
ENVIRONMENT
ECONOMY

WÄRTSILÄ 50DF TURBOCHARGER PERFORMANCE UPGRADE



Wärtsilä 50DF is the ultimate fuel flexibility engine. It is designed to give high output with fuel flexibility, low emissions, efficiency and reliability. The 50DF turbocharger performance upgrade for marine applications improves engine performance in gas mode operation with the latest ABB TPL 73-A and TPL 77-A turbocharging technology.

The Wärtsilä 50DF turbocharger performance upgrade increases engine performance in gas mode operation by increasing the waste gate margin around 10 percent. This makes it possible to fully control the charge air pressure on each load also in hot ambient conditions, thus the engine can be operated in all loading points.

INCREASED ENGINE PERFORMANCE

With the Wärtsilä 50DF turbocharger performance upgrade you get increased engine performance via improved waste gate margin. This enables operation with all loads.



KEY BENEFITS OF THE UPGRADE:

- Improves engine operation in all loading points in gas fuel operation
- The Operational Expenditure (OPEX) can be reduced thanks to the increased waste gate margin
- The increased waste gate margin also makes it possible to operate engines optimally even in hot ambient conditions (taking into account e.g. the speed determined in the charter contract)
- The turbocharger efficiency is better maintained over the maintenance interval
- The turbocharger upgrade will lower the fuel oil consumption over the total overhaul interval
- Does not increase emissions

PERFORMING IN ALL LOADING POINTS

The Wärtsilä 50DF turbocharger performance upgrade for marine applications is most beneficial for customers operating in hot ambient conditions. Since the waste gate margin in gas fuel operation is improved the engines can be operated in all loading points. In installations with several engines the operation can be planned and optimised by using most efficient loads and taking into account the needed power and number of engines running.

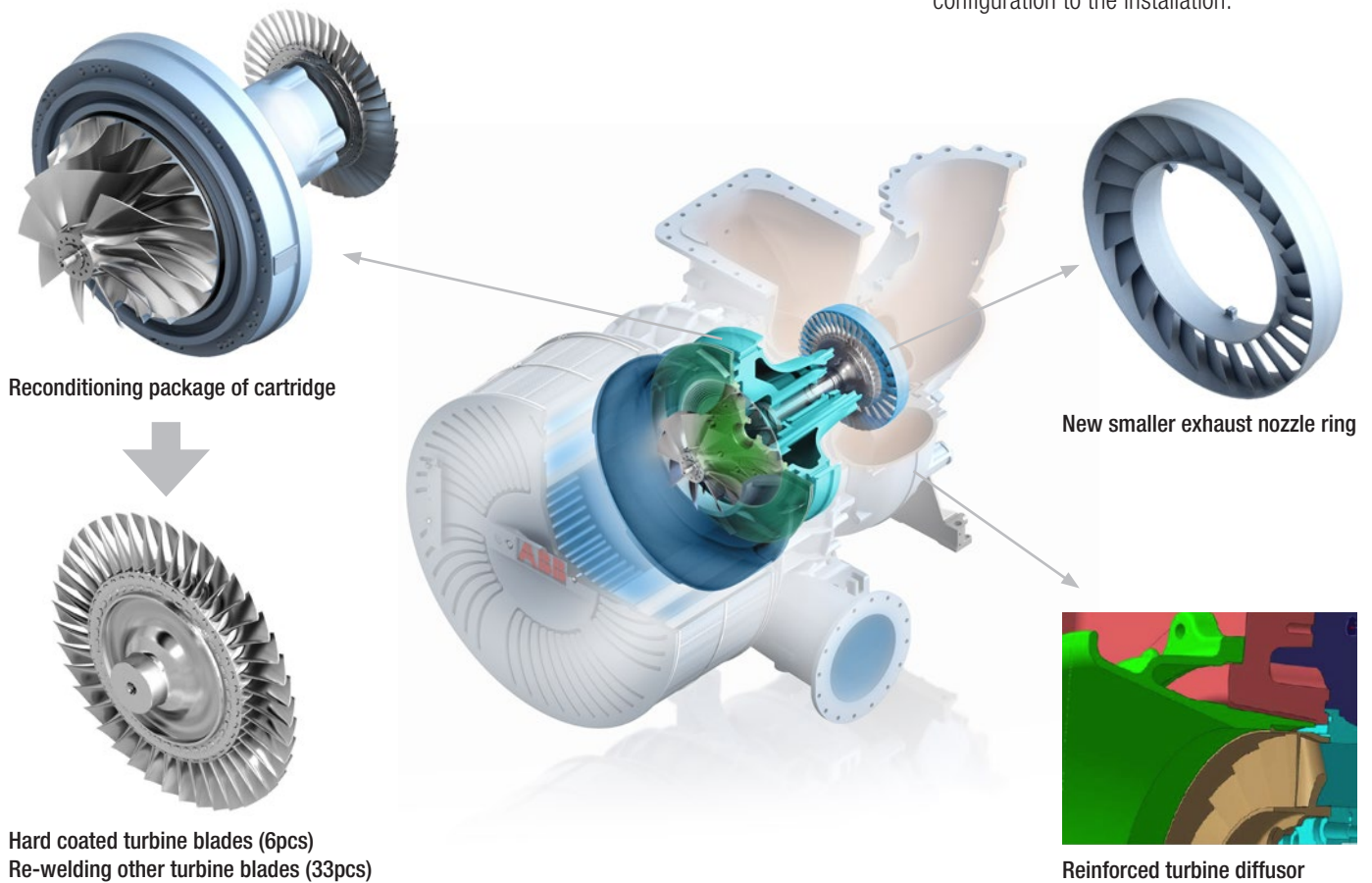
The key component in the turbocharger upgrade package is the new smaller nozzle ring, which increases turbocharger speed and waste gate margin. In hot conditions the air density is thinner, which reduces the waste gate margin. Due to the increased waste gate margin it is possible to operate the engine with high load. With high engine load the fuel consumption is lower.

EASY INSTALLATION

The most beneficial time to conduct the turbocharger upgrade is during a scheduled turbocharger overhaul

- Installation of nozzle ring and diffuser can be performed by Wärtsilä experts
- The reconditioning of the turbocharger cartridge will be performed in an ABB service station
- The engine control system upgrade shall be performed by Wärtsilä experts (4 hours per engine)

This solution has been developed to be easy to install, with minimal downtime. To ensure optimal installation, Wärtsilä conducts a performance check to verify the applicability of the final turbocharger configuration to the installation.



ABOUT WÄRTSILÄ

Wärtsilä is an experienced operator, with a proven track record in operation and maintenance services since the 1990's. Globally, more than 20 GW of generating capacity in both marine and land based installations – a total of more than 500 installations – is covered by Wärtsilä's service agreements.

Wärtsilä's extensive global service network and efficient spare parts logistics ensure that you can focus on your core business, resting assured that your maintenance needs can be optimally met, whenever and wherever.