



WÄRTSILÄ 46 TURBOCHARGER PERFORMANCE OPTIMISATION FOR MARINE APPLICATIONS



REDUCE FUEL OIL CONSUMPTION WITH THE LATEST TURBOCHARGING TECHNOLOGY

The Wärtsilä 46 Turbocharger Performance Optimisation solution improves fuel economy by upgrading to the latest ABB TPL 73 turbocharger technology.

IMPROVED EFFICIENCY AND REDUCED THERMAL LOADING

Upgrading to the latest compressor type improves the speed margin since the same boost pressure can be reached at a lower speed. Thermal loading is reduced because the engine exhaust gas temperature is lower. The improved efficiency and reduced thermal loading also result in lower lifecycle maintenance costs.

FAST INSTALLATION, GOOD RETURN ON INVESTMENT

The Wärtsilä 46 Turbocharger Performance Optimisation solution is designed for Wärtsilä 46 marine applications with TPL 73 turbochargers and has approval by DNV GL and LR. It is delivered as a turnkey solution including installation and all required spares. The engine downtime required for installation is about 8 hours. Installation can also be done during the voyage.

The optimum time for upgrading the turbocharger compressor is at 50,000 running hours (according to Safety Design Concept, Sicherheitskonzept = SIKO), when the turbocharger requires a complete overhaul. Upgrading to the latest generation turbo compressor wheel instead of carrying out extensive maintenance is a profitable investment.

KEY BENEFITS

- Reduced fuel oil consumption
- Increased speed margin
- Improved lifecycle support
- Fast installation, engine downtime about 8 hours
- Turnkey solution
- Complies with IMO regulations

TECHNICAL DESCRIPTION

Wärtsilä and ABB have co-developed an upgrade kit for TPL 73 turbochargers to make the latest turbocharging technology available for Wärtsilä 12V46 marine applications. The kit utilises the high efficiency compressor technology from the new TPL-C series turbochargers adapted for TPL73-A and connected to the optimum nozzle ring specification.

The performance upgrade kit includes the following equipment:

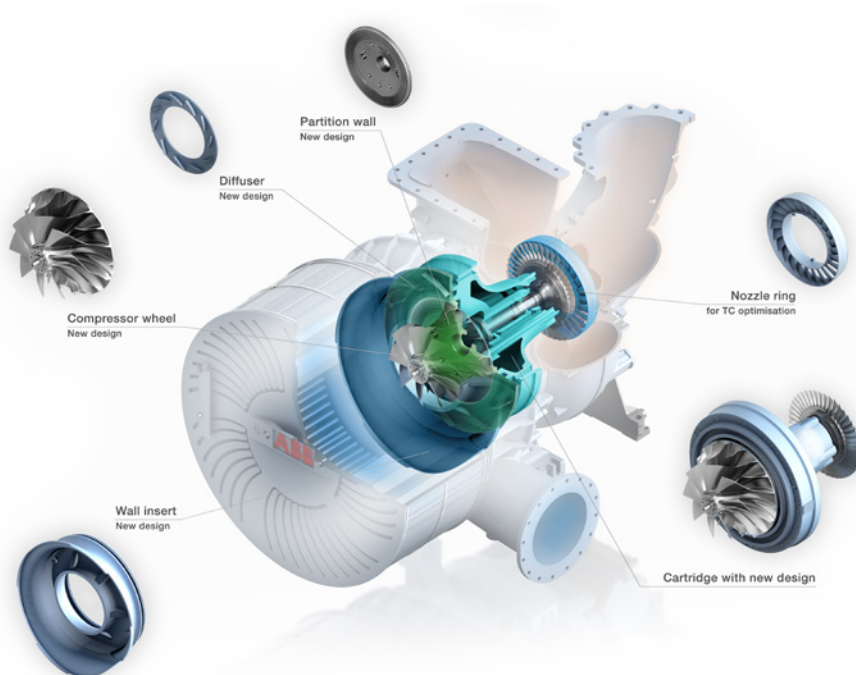
- Cartridge
- Wall insert
- Air diffuser
- Nozzle ring

TURNKEY DELIVERY

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. If fuel consumption measurement is possible, this can be done upon request.

The delivery includes:

- Installation of cartridge, air diffuser, wall insert and nozzle ring
- Technical File amendment
- On-board handover reference test to be done after upgrade for follow-up purposes



SAVINGS AT 85% LOAD WITH CLOSED EWG:

Parameter	Unit	TPL73-A30 Standard (Reference)	TPL73-A32
Fuel consumption	[%]	0	- 0.6
	[g/kWh]	0	- 1.1
TC efficiency	[%] –pt.	0	+ 1.0
Speed margin	[%]	0	+ 10.0
TC inlet temperature	[°C]	0	- 12.0

Table – Operational differences of TPL73-A30 vs. TPL73-A32

The Wärtsilä 46 Turbocharger Performance Optimisation solution improves turbocharger efficiency and reduces fuel consumption. At the same time inlet and outlet temperatures are reduced, resulting in lower lifecycle maintenance costs.