The Wärtsilä SFOC (Specific Fuel Oil Consumption) Reduction Package for Sulzer ZA40S is a solution for engine efficiency optimisation and fuel oil consumption reduction on marine Cruise and Ferry applications.

The fuel oil bill has the biggest impact on shipping companies’ operational (OPEX) balance sheets. This is why fuel efficiency is such an essential requirement for marine vessels, especially Cruise, RoRo and Ferry ships.

Wärtsilä’s SFOC Reduction Packages, available for IMO compliant and non IMO compliant engines, reduce the SFOC considerably. Tests performed have demonstrated that 2% or 3.5% fuel savings can be achieved for IMO or non IMO configurations respectively. The packages also considerably reduce visible smoke (FSN) at lower operational loads, lowering the visibility limit to 20% of the engine load.

Benefits of the Wärtsilä SFOC Reduction Package

- Guaranteed FOC savings up to 3.5%
- Improved engine efficiency through fine tuning engine operation, e.g. combustion
- Reduced carbon emissions and smoke visibility
- Possible monitored performance via Condition Based Maintenance (CBM)
  - Longer service intervals without increasing risk of degrading performance or component failures
  - Minimised planned and unplanned downtime
  - Maximised installation safety and availability under all operating conditions
- Reduced OPEX costs
- Reasonable ROI, less than two years with engine running 5000 hours per year
BASIC AND EXTENDED RETROFIT PACKAGES

The basic package for IMO compliant engines consists of a new injection system configuration, a hydraulic variable inlet closing device, and a new dedicated turbocharger configuration (for Sulzer 8ZAL40S and 16ZAV40S engines provided with the ABB VTR 454 type). With proper engine fine tuning, the package will improve all thermodynamic parameters, improving engine efficiency by reducing fuel consumption.

The extended package for non IMO compliant engines consists of the basic package with the addition of dedicated compression ratio optimisation to maximise the efficiency improvement achieved by fine tuning the engine.

A dedicated Marine Audit is mandatory for both packages in order to define the initial status of the engine(s). The audit consists of collecting relevant operating data regarding emissions, performance and fuel consumption, and a deep data analysis of this data to determine achievable fuel savings.

No major modifications to the engine are required. Installation is recommended in conjunction with a major overhaul.

The solution is designed for engines with or without EIAPP (Engine International Air Pollution Prevention) certification. Other applications can also be considered after a dedicated audit.

Scope of supply

Basic package

- Parts
  - Injection system modification (injector tips & plunger and barrel)
  - Variable hydraulic valve drive system (VIC)
  - T/C nozzle ring (limited to 8L and 16V cylinders only)
- Wärtsilä Services
  - Technical auditing
  - Injection system fine tuning & parts installation
  - Starting of Injection (SOI) adjustment & fine tuning & T/C matching
  - Final marine audit with measurement campaign in order to certify the results

Extended package

- Optimization of the compression ratio for engines not IMO compliant.