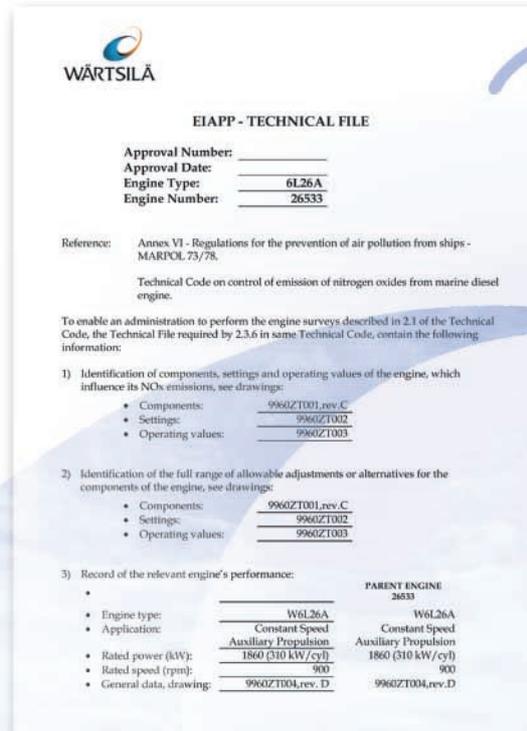


EIAPP certificate (Engine International Air Pollution Prevention)



WÄRTSILÄ

EIAPP - TECHNICAL FILE

Approval Number: _____
Approval Date: _____
Engine Type: 6L26A
Engine Number: 26533

Reference: Annex VI - Regulations for the prevention of air pollution from ships - MARPOL 73/78.

Technical Code on control of emission of nitrogen oxides from marine diesel engine.

To enable an administration to perform the engine surveys described in 2.1 of the Technical Code, the Technical File required by 2.3.6 in same Technical Code, contain the following information:

1) Identification of components, settings and operating values of the engine, which influence its NOx emissions, see drawings:

- Components: 9960ZT001,rev.C
- Settings: 9960ZT002
- Operating values: 9960ZT003

2) Identification of the full range of allowable adjustments or alternatives for the components of the engine, see drawings:

- Components: 9960ZT001,rev.C
- Settings: 9960ZT002
- Operating values: 9960ZT003

3) Record of the relevant engine's performance:

	PARENT ENGINE	
• Engine type:	<u>W6L26A</u>	W6L26A
• Application:	<u>Constant Speed Auxiliary Propulsion</u>	Constant Speed Auxiliary Propulsion
• Rated power (kW):	<u>1860 (310 kW/cyl)</u>	1860 (310 kW/cyl)
• Rated speed (rpm):	<u>900</u>	900
• General data, drawing:	<u>9960ZT004,rev.D</u>	9960ZT004,rev.D

The EIAPP certificate has to be issued by the authorities. The "Technical file" is needed to obtain an International Air Pollution Prevention (IAPP) certificate.

Technical File

The recently modified IMO regulations require, amongst other things, a limited NOx emission level. New marine installations have already to comply with these standards, assuming that the flag authorities ratify these regulations.

The regulations also apply in cases;

- an engine is replaced by a new one
- or the output is increased by more than 10%
- or substantial modifications are applied affecting the NOx emission.

Wärtsilä can deliver the Technical File and engine part codification needed for the EIAPP certificate of existing Wärtsilä engines including the emission measurement report.

Application for the IAPP certificate requires a "Technical File":

- If a shipowner wants to obtain the IAPP (International Air Pollution Prevention) certificate for his ship, he needs to present the EIAPP certificate of the engine(s) concerned.
- In order to obtain the EIAPP certificate one needs to provide a Statement of Compliance from an authorised

classification society and a NOx measurement report, showing that the engine complies with the new NOx emission limits.

- To obtain a Statement of Compliance one needs to provide a "Technical File".

Preparing for the Technical File of existing engines:

The normal procedure is to start by measuring the actual emission level. Most engine types can be adjusted to fulfil the NOx emission level requirements, usually by minor adjustments to injector nozzle specification and fuel injection timing.

Whether the engine must be adjusted or not, the engine components concerned have to be coded and marked. These so-called IMO codes will be issued by Wärtsilä, and relevant parts delivered in future must carry the required specific IMO code.

- Onboard emission measurements, according to the very specific IMO regulations, have to be carried out after the modifications with a light fuel oil of ISO-DMA quality. The emission measurement concerns much more data than just the NO_x in order to carry out the validity checks. During this emission test a complete test protocol has to be made specifying engine parameters like speed, load etc.

Simultaneously with the adjustment, coding and marking of the engine, Wärtsilä will compile the technical file required for certification.

Specification

The Technical File is a record containing all details of parameters, including components and settings, that may influence the NO_x emissions of the engine.

The Technical File contains: identification of coded parts, reference to or identification of the relevant settings for injection timing etc., allowable deviations, statement of engine performance, engine test report and verification procedure instructions

The Technical File can be complemented with the NO_x measurement report (when made) and the "Statement of Compliance" (when issued by the classification society) or ultimately the "EIAPP certificate" (when issued by the authority).

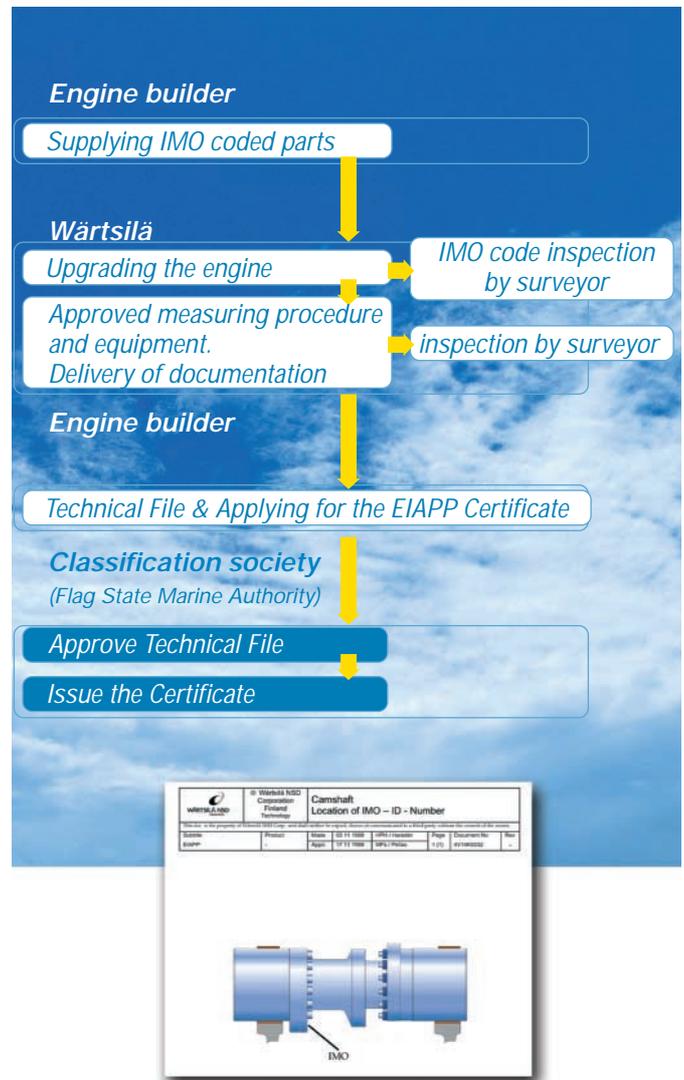
Preparing for the Emission Measurement:

Wärtsilä offers a system for emission measurements which meets the IMO Annex Vi of Marpol 73/78 Regulations for the Prevention of Air Pollution from Ships, NO_x Technical Code, ISO 8178-4. This code demands certified equipment, accurate calibrations, correct measurement procedures and skilled personnel.

Specification

The NO_x measurement report specifies:

- Engine speed and torque for power calculations.
- Fuel consumption for calculations according to ISO 3046-1
- Temperatures of charge air, exhaust gas, cooling water and lubricating oil
- Pressures and humidity in the charge air system
- Exhaust gas composition with regard to NO_x, CO, CO₂ and O₂.
- The measurements will be performed in accordance with the Technical Code for a number of different load conditions corresponding to the application category.



Key components have to be coded.

Note

- The product "Technical file" in the context of EIAPP certification of existing engines means solely the compilation and delivery of a Technical File as described above.
- The product "Emission Measurement" in the context of EIAPP certification of existing engines means solely the compilation and delivery of a Measurement report as described above.
- Further assistance like assistance in obtaining the "Statement of Compliance" from a specific classification society has to be agreed upon separately.

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