Emission measurement services

Emissions measurement by Wärtsilä engineers ensures compliance with environmental regulations. The analysis results give an overview of the engine's condition and indicate which components need to be adjusted to reach emission limits and improve performance.

Wärtsilä provides measurement of these parameters. Optionally, measurement can be done according to the IMO NO_X code and the ISO 8178 standard.

IMPROVE OPERATIONAL ECONOMY WHILE COMPLYING WITH ENVIRONMENTAL REGULATIONS

Tighter environmental regulations call for advanced emission controls and near-zero diesel emission levels. Emissions limits are set by the authorities in most industrialised countries, with regular measurements to check compliance. Targeting lower emission levels means that the methods for measuring and controlling them must become more accurate and reliable.

EXPERT EMISSIONS MEASUREMENT

Wärtsilä offers systems and services for emissions measurements that meet local and international regulations. The emissions measurement laboratory has internationally approved accreditation by FINAS (Finnish Accreditation Service) for measuring exhaust gas emissions according to the IMO NO_X Code (Marpol 73/78 Annex VI) and ISO 8178 measurement standards. Exhaust gas emission measurement is performed by Wärtsilä personnel using the latest measurement technology for on-site conditions. The portfolio includes continuous emissions monitoring systems, which provide on-line data on an installation's environmental performance. The following can be measured:

- Nitrogen oxides ($NO/NO_2/NO_X$*)
- Carbon monoxide (CO*)
- Carbon dioxide (CO_2*)
- Oxygen (O_2*)
- Sulphur dioxide (SO_2*)
- Methane (CH_4)
- Total hydrocarbon content (THC*)
- Compounds such as NH_3*, formaldehyde, benzene
- Filter smoke number (FSN*)
- Particles gravimetrically, both in stack and out of stack

*accredited compounds

KEY BENEFITS

- Comply with environmental regulations
- Increase engine efficiency and operational economy
- Ensure minimum environmental impact from engine operation throughout its lifecycle

AVAILABLE EMISSION MEASUREMENT SERVICES

Wärtsilä emission measurement services include:

- Certification measurements for Wärtsilä engines according to requirements of IMO NO_X Code and Environmental Protection Agency.
- On board verification & certification measurements according to IMO NO_X Code & EPA requirements.
- R&D measurements for different catalytic systems and new technology and development projects.
- PM (particulate matter) measurements for Wärtsilä engines and other engine makes. According to ISO 9096 & ISO 8178 methods.
- Other emission-related measurements can be done at the customer's request, such as flow profile measurements along with installing treatment devices such as SCR (Selective Catalyst Reduction) or scrubbers.

MEASURING PROCESS

Installation of the emission measuring equipment (standard setup), including stabilisation and calibration of the analyser, takes less than 8 hours. The measurements are carried out at different load points as specified by the authorities or regulations. It must be possible to start and stop the engine and change the load when needed.

The measuring of one load point normally takes 0.5-1 hour.

Upon completion of the measurement a written Measurement Report will be presented including condition statements and recommended actions. Measurement and analysis results are reported within three weeks.

APPLICABILITY

Wärtsilä emission measurement services are available for all engine types and applications: marine, energy, and oil & gas power plants. Stable, dry and clean ambient conditions are needed to ensure the reliability and accuracy of the measurements. A well-ventilated stable temperature location is preferred, in the temperature range +5°C to +45°C. Electrical power of 220V AC current is needed for the equipment.

SCOPE OF SUPPLY

Emission	Measurement method	Availability
Gas sampling and conditioning		Standard
Nitrogen oxides, NO_X*, NO and NO_2	Chemiluminescence (CLD) type analyser	Standard
Carbon and sulphur oxides, CO*, CO_2* and SO_2*	Non-dispersive Infra-Red (NDIR) type analyser	Standard
Oxygen, O_2*	Paramagnetic (PMD) or electrochemical sensor (ECS) type analyser	Standard
Exhaust gas flow and other parameters		Standard
Total hydrocarbon content, THC*	FID type analyser	Optional
Multi-component gaseous compounds, Methane (CH_4), ammonia (NH_3*), etc.	FTIR type analyser	Optional
Filter Smoke Number		Optional
Particulates	Gravimetrically, both in stack and out of stack	Optional

*accredited compounds

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