Product Flyer

GasOxidizer

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V&F
Analyse- und
Messtechnik
GmbH

GasOxidizer

Problems through Oil Consumption of Combustion Engines

The importance of examining the oil consumption of internal combustion engines has increased during the past years, because it is an important factor for the design and the test of engines. The topicality of the subject "oil consumption" is primarily a result of the present and future environmental developments.

The hydrocarbon emissions are raised directly by oil components reaching the exhaust gas. Indirect effects of the oil consumption on the gaseous emissions of internal combustion engines can be explained primarily by changes of the emission control system. Additives in the oil can work as catalyst poison when being a component of the exhaust gas and thereby affect negatively the conversion rate and the life span of the catalyst.

Likewise, oil droplets reaching the exhaust gas at a cold start can diminish the catalyst function and cause increased emissions. By this, particularly the emissions of NOx (nitrous gases) are increases by a catalyst impaired by oil consumption.

Technologies for Oil Consumption Monitoring

Currently, conventional methods like gravimetry and volumetry are available for an oil consumption measurement in internal combustion engines. These methods show considerable disadvantages mainly concerning the measurement time and are not suitable for measurements at transient operating points.

Attempts to develop a technology which permits quick and possibly time-resolved online measurements pursue nowadays often the approach to prove oil emissions in the exhaust gas. Here particularly the tracer or marking technology has a big potential. Tracer procedures do not show the disadvantages of conventional procedures for oil consumption measurement. They have shorter measuring times and are favorable for the measurement of the low oil consumption of modern engines through their higher sensitivity.

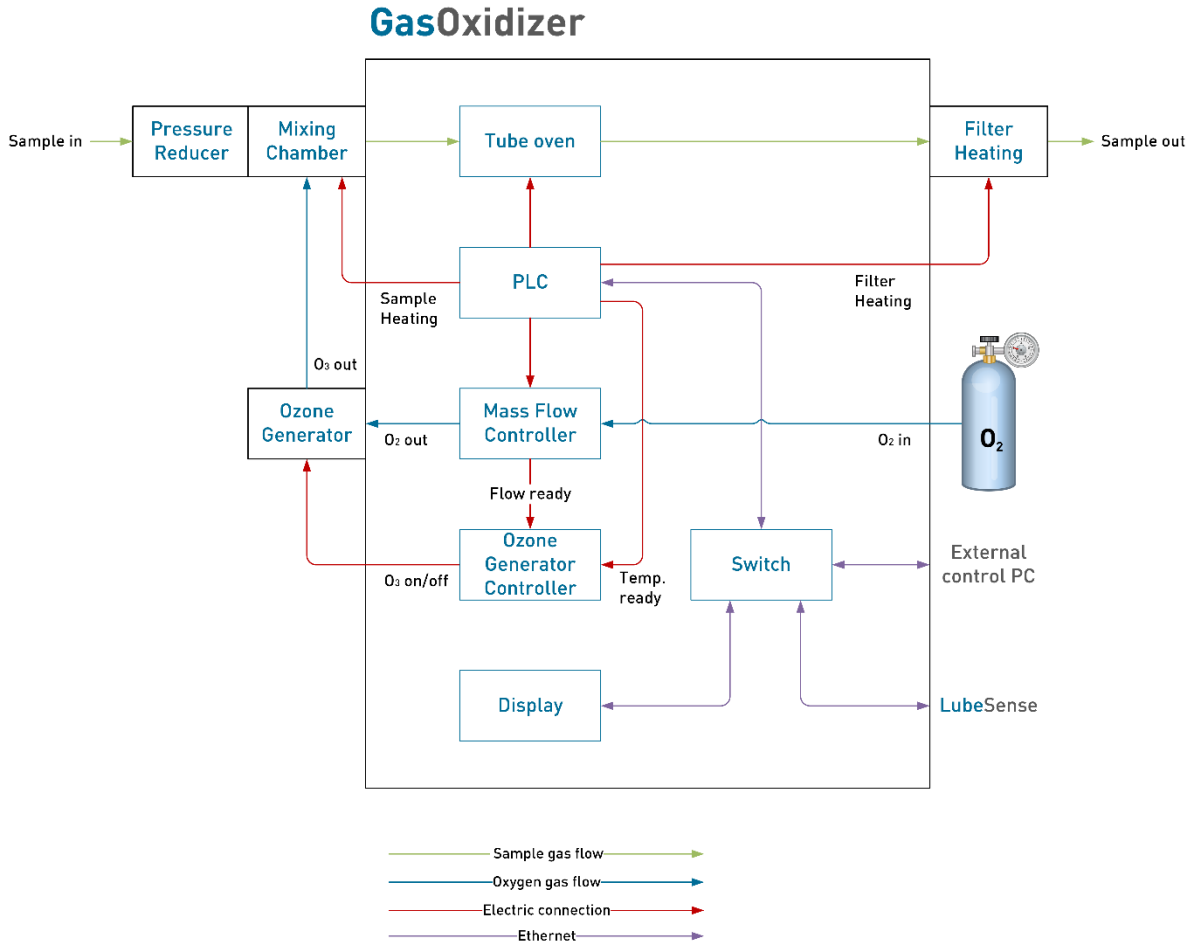
The tracer procedures are based on the following principles. The oil is either mixed with a substance which is not in the fuel, or a compound contained in the oil is used for the analysis. These compounds called tracer are part of the chemical conversion in the furnace chamber and then are identified in the exhaust gas and correlated with the spent oil amount. Amongst others, sulfur is used for the retrieval of the oil in the exhaust gas as marker (tracer). With the SO_2 tracer method sulfur is measured as of sulfur dioxide (SO_2) in the exhaust gas.

GasOxidizer

To guarantee that all sulfur compounds can be measured in the exhaust gas as SO_2, the V&F GasOxidizer is applied. With this device all sulfur compounds are oxidized to SO_2 by adding a mixture of oxygen (O_2) and ozone (O_3). For the quantitative determination of SO_2 in car exhaust gases the sensitive ion molecule reaction (IMR-MS) mass spectrometry is applied.

High Operating Comfort

The user can attach the GasOxidizer with an Ethernet cable to a standard PC running with a Windows operating system.



The GasOxidizer is fully controlled via a user-friendly software package - the V&F Viewer program - that is used to control the LubeSense process mass spectrometer. Alternatively, the GasOxidizer can be controlled via AK interface.

Features, Benefits

- Suitable for diesel, gasoline and CNG engines
- Pre and post turbocharger or each cylinder
- Detection level below 1g/h
- Time saving, easy installation and operation
- Minimized service and operation costs

Specification, Technical Data

Technical Data	Value	Technical Data	Value
Max. Temperature	1200 °C	**Max. gas inlet pressure**	5 bars
Warm-up time	1 h	**Oxygen consumption**	80 ml/min
Cool-down time	approx. 5 h	**Power**	230 V/50 Hz 1200 W
Ambient temperature	20 °C – 35 °C	**Dimension (WxHxD)**	860 x 490 x 285 mm
Gas inlet consumption	up to 1 l/min	**Weight**	24 kg

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