Product Flyer

LubeSampler

V&F
Analyse- und
Messtechnik
GmbH

LubeSampler

Oil Dilution Monitoring Background

Dilution of the engine oil by ethanol-containing fuels e.g. Super E10 and diesel fuels containing biodiesel e.g. B7 can significantly alter the lubricating properties and in turn cause engine damage.

Due to ethanol having a higher enthalpy of evaporation and a lower vapor pressure fuels with higher ethanol contents tend to yield unfavorable mixtures compared to conventional gasoline especially during the cold start and warm-up phases of the engine.

Thus, fuel ingress into the oil in these engine states becomes very likely. For diesel engines the post-injection states initiating DPF (Diesel Particulate Filter) regeneration are of particular interest. Though the chemical and physical properties of biodiesel and diesel components are similar biodiesel fuels also lean towards diluting the engine oil during DPF regeneration.

LubeSampler

The LubeSampler is a software controlled lube oil sampling and separation device in order to measure the lube oil dilution of residual fuel components of combustion engines. The LubeSampler has been developed to permit a quick and time-resolved measurement technology for the oil dilution of combustion engines.

The engine lube oil can be sampled continuously via a circulation pump. Using a spindle valve a small portion of the oil can be injected into the integrated partial pressure generator. There the separation of the fuel and the oil takes place via thermal desorbtion.

Using the LubeSampler device all relevant low mass fractions of fuel compounds are converted into a gas phase. For the quantitative determination of those gaseous fuel compounds the sensitive ion molecule reaction (IMR-MS) mass spectrometry is applied.
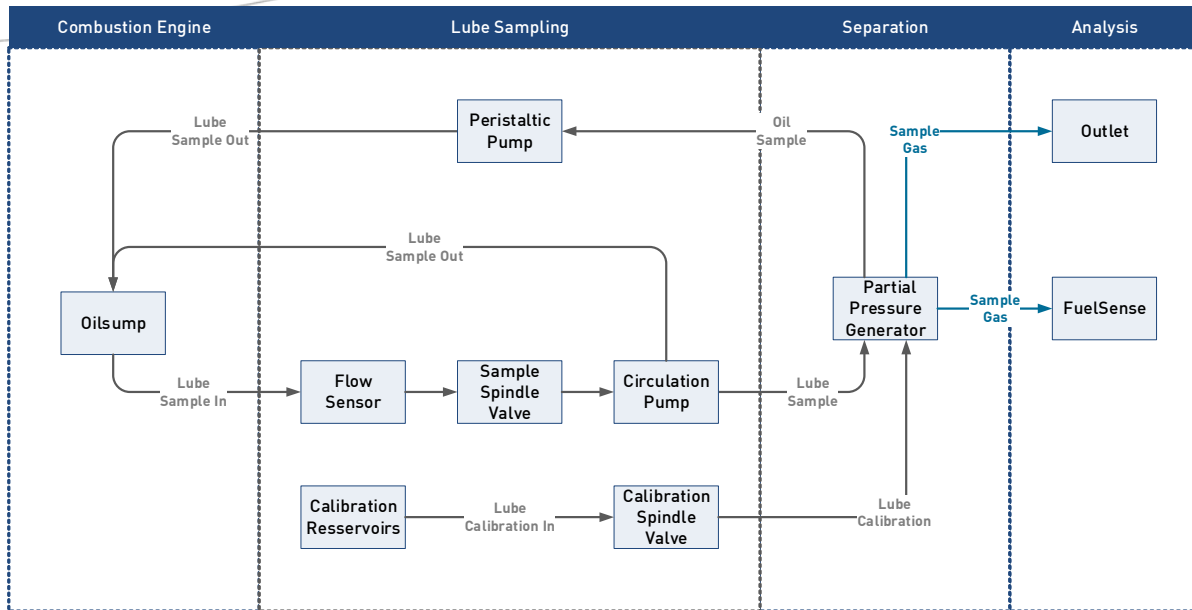
The LubeSampler is fully controlled via a user friendly software package - the V&F LubeSampler program - that has been designed using the highly approved Microsoft.net technology.

High Operating Comfort

The user can attach the LubeSampler with an Ethernet cable to a standard PC running with Windows 7, 8, 10, etc. that meets the following requirements:

- A standard PC with Ethernet connection
- Microsoft.NET Framework 4.0

Schematic Setup for Oil Dilution Measurement

Combustion Engine	Lube Sampling	Separation	Analysis

Lube Sample Out → Peristaltic Pump ← Oil Sample

Sample Gas → Outlet

Lube Sample Out

Oilsump

Partial Pressure Generator — Sample Gas → FuelSense

Lube Sample In → Flow Sensor → Sample Spindle Valve → Circulation Pump → Lube Sample

Calibration Resservoirs — Lube Calibration In → Calibration Spindle Valve — Lube Calibration

Features, Benefits

- continuous sampling of engine lube oil
- separation of the fuel and the oil takes place via thermal desorbtion
- user friendly software package
- automation via AK interface
- minimized service and operation costs

Specification, Technical Data

Technical Data	Value	Technical Data	Value
Oil withdrawal	Up to 1l/min	**Ambient temperature**	20 °C – 35 °C
Max. oil temperature	115 °C	**Power**	230V / 50Hz or 110V / 60Hz 550W
Oil consumption	200 µl/min	**Dimension (WxHxD)**	510 x 300 x 380 mm
Start-up time	1 h	**Weight**	12 kg