

Online Oil Consumption Measurements at Crankcase Ventilation Systems of SI and Diesel Engines

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Crankcase ventilation systems can have a significant influence on the oil consumption of reciprocating engines. The oil separation systems are mainly qualified by gravimetric means at dynamometer. Additionally there are sometimes particle size measurements in the blow-by stream. Information of the oil consumption and the droplet size at transient operation are with these two measurement techniques not possible.

In this paper result of oil consumption measurements of the crankcase ventilation system of SI- and diesel engines at stationary and transient operation are presented. This was achieved by gravimetric measurements, mass spectroscopy and a special constructed optical device. The mass spectroscopy enables online-information of mass concentration and further chemical analysis of the blow-by. The optical measurement device gives information of concentration and droplet size. Together the two devices give both overlapping and additional information, which can be compared to gravimetric measurements. The here presented results show the possibilities to optimize cylinder-pistons system by additional information and the crankcase ventilation system using the described measurement techniques. Further the time consuming and expensive work at dynamometer can be reduced clearly.