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Küppers Elektromechanik GmbH

KEM Automotive

Test Stands

DESIGN | PRODUCTION | DISTRIBUTION | CALIBRATION

CONTENT

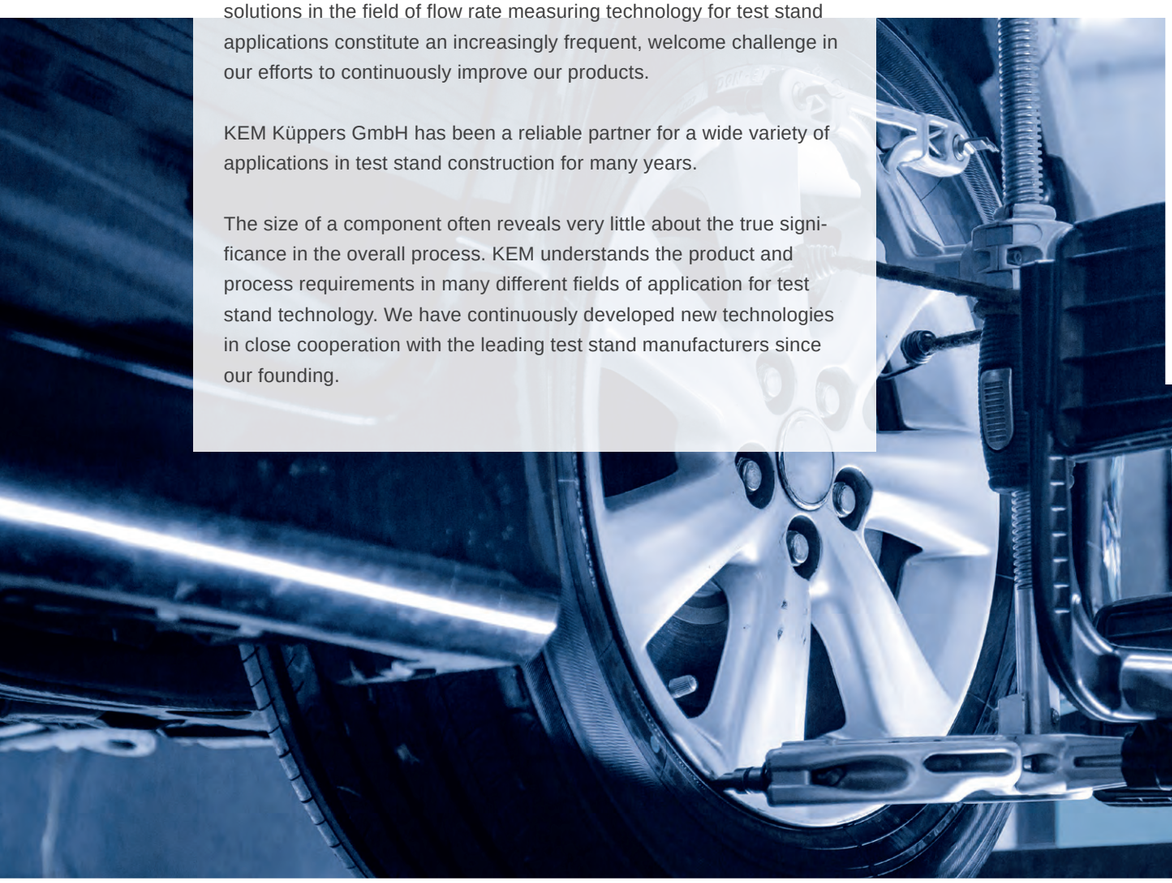
KEM KÜPPERS IN AUTO TEST STANDS

KEM has been a renowned supplier and system partner for test stand technology in the automobile industry for many years. The diversity of measuring tasks performed by our customers is based on numerous measuring media, applications and highly specific, sometimes extremely challenging conditions.

Our passion and understanding of the various customer processes allows us to consistently offer the best solution for your application with our selection of measuring technologies. Customer-specific special solutions in the field of flow rate measuring technology for test stand applications constitute an increasingly frequent, welcome challenge in our efforts to continuously improve our products.

KEM Küppers GmbH has been a reliable partner for a wide variety of applications in test stand construction for many years.

The size of a component often reveals very little about the true significance in the overall process. KEM understands the product and process requirements in many different fields of application for test stand technology. We have continuously developed new technologies in close cooperation with the leading test stand manufacturers since our founding.



With application-specific measuring ranges from < 1 ml/min up to 500 l/min, at process pressures over 500 bar and media temperatures between -40 and +350°C, the KEM product range meets customer requirements for high-precision flow meters and signal evaluators with a broad selection of measuring technologies and equipment versions.

KEM develops application-specific special solutions in close cooperation with the leading manufacturers of test stands and test rigs. Measuring ranges starting at < 1 ml/min under fluctuating pressure conditions are typical requirements in test stand construction.

Your process is our passion. We are driven by your application. With this approach and understanding internalised by every one of our company's employees, your requirements are our incentive for continuous further development.

It starts with close, personal customer contact and continues through product development, quality management, production, order processing and customer service.

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KEM KÜPPERS APPLICATION OVERVIEW

- Transmission test stands
- Engine test stands
- Pump test stands
- Test stands for urea and AdBlue
- Retarder test stands
- Test stands for gasoline and diesel injection systems
- Contamination tests
- Diagnosis test stands
- Test stands for drive technology
- Test stands for leakage measurement
- Test stands for lubricants
- Mobile hydraulic measurements
- Test stands for life expectancy tests

Overview of typical test stand media

- Oil
- Oil foam
- Cooling water
- Contaminated oils and cooling media
- Water
- Urea
- Gasoline
- Diesel
- Kerosene
- Substitute fuels
- Biofuels
- Alcohols
- Skydro

KEM KÜPPERS OIL MEASUREMENT APPLICATIONS

In some of the various oil measurement or oil consumption measurement applications, flow meters are exposed to extreme conditions. Flow meters have to withstand very high medium temperatures, pressures, ambient temperatures and flow rates at fluctuating viscosities with consistent measurement accuracy.

Even extremely difficult media or conditions such as contaminated oils or oil foam are a welcome challenge.

Due to the sometimes difficult ambient conditions such as temperatures, vibrations or aggressive measuring media, KEM flow meters have to meet extreme requirements. Our quality standards for the highest precision with an extremely long service life of our flow meters guarantee their success in test stand applications.

Typical applications are found in test stands for engines, transmissions, retarders, valves, oil supply pump circuits and numerous other applications.

High-precision manufacturing and high flexibility in the implementation of specific customer requirements are distinguishing features of KEM.

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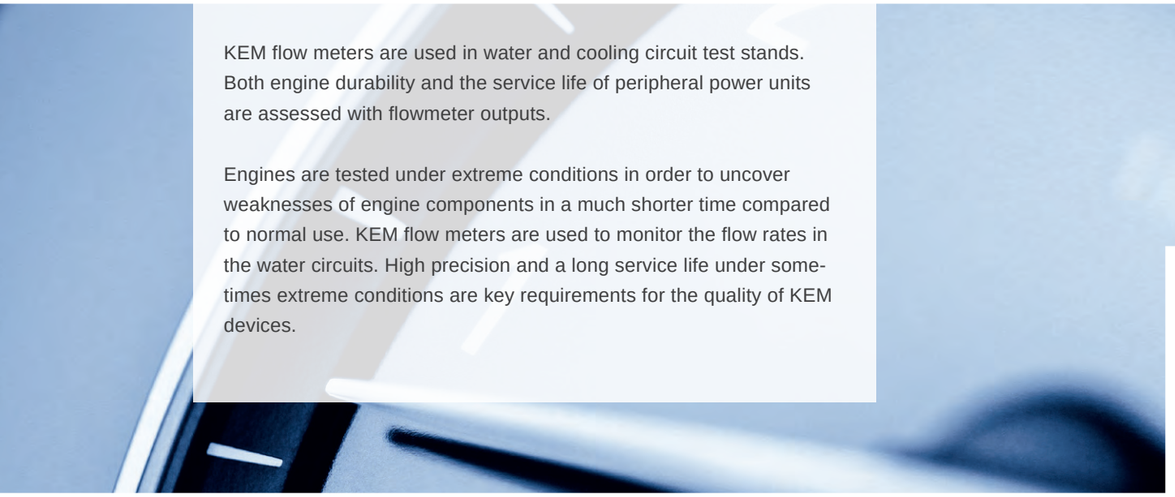
KEM KÜPPERS WATER AND COOLING CIRCUIT APPLICATIONS



KEM flow meters are used in water and cooling circuit test stands. Both engine durability and the service life of peripheral power units are assessed with flowmeter outputs.

Engines are tested under extreme conditions in order to uncover weaknesses of engine components in a much shorter time compared to normal use. KEM flow meters are used to monitor the flow rates in the water circuits. High precision and a long service life under sometimes extreme conditions are key requirements for the quality of KEM devices.

KEM KÜPPERS AdBLUE AND UREA APPLICATIONS

In test stands for AdBlue urea applications, the requirements that have to be met by flow meters are especially difficult. Highly corrosive media are measured in minimal quantities under very unfavourable ambient conditions. For these challenging measuring tasks, the flow meters and electronics are in part made of special materials.

KEM KÜPPERS MOBILE HYDRAULIC MEASUREMENT APPLICATIONS

KEM flow meters are mostly installed in operational vehicles in the prototype stage and record a variety of values under actual conditions in this “mobile test stand”.

Applications are found in oil, water, diesel and gasoline circuits.

KEM KÜPPERS INJECTION PUMP APPLICATIONS (in formular 1)

All requirements can be met by the broad measurement range of the TCM 0650 with a single flow meter.

Fuel and substitute test stand for final testing of gasoline pumps. The pumps are utilised for Formula 1 racing. Every single gasoline pump is tested and qualified on the test stand with a wide variety of operating parameters before it is delivered to the motor sports customer.

In the area of flow measurement, the task is to specify a highly accurate measuring instrument for a wide variety of operating parameters. The conditions of use comprise a wide temperature range and process pressure spread. This causes a change in the viscosity of the fuel.

KEMKÜPPERSENGINEAPPLICATIONS

Engine test stands are used to check and verify extensive information and performance data. In addition to the rotational speed and torque to calculate the output, the measurements here include exhaust fume, vibration, noise, temperature behaviour and fuel consumption parameters.

Diesel, gasoline and kerosene fuels are used.

Modern test stands no longer work with stationary operating points but with dynamic cycles (driving cycles) intended to represent realistic conditions of use for the engine.

EQUIPMENT USED BY US

Turbine flow meters are often used for low viscosity applications that also demand the lowest possible pressure loss through the flow meter. We also offer ways to electronically compensate for viscosity in the form of our SCE electronics used in applications with very broad viscosity ranges and simultaneous high measurement accuracy requirements. This is achieved by electronic linearisation of our flow meters with viscosity compensation.

With our selection of hard metal and ball bearing gear flow meters with a wide variety of measuring ranges and designs, we offer measuring equipment proven in practice with many different test stands. The benefit of gear flow meters is that they exhibit a rapid response behaviour, offer a wide measuring range spread and are virtually independent of viscosity. Special ball bearings and adapted clearances enable precise consumption measurements for all types of fuels and hydraulic fluids.

Our Coriolis mass flow meter with a measuring accuracy of ±0.1% of reading plus zero point stability is used for applications with the very highest measuring accuracy requirements. This measuring instrument has also proven itself in practice for applications where the user works with a wide variety of different media and viscosities, or where moving parts are not desirable. The mass meter is a good alternative for broad measuring ranges that often can only be realised by cascading several volumetric flow meters. Furthermore, our mass flow meter simultaneously measures the mass flow rate, volume flow rate, temperature and density.

KEM flow meters – the right solution for every requirement.

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