

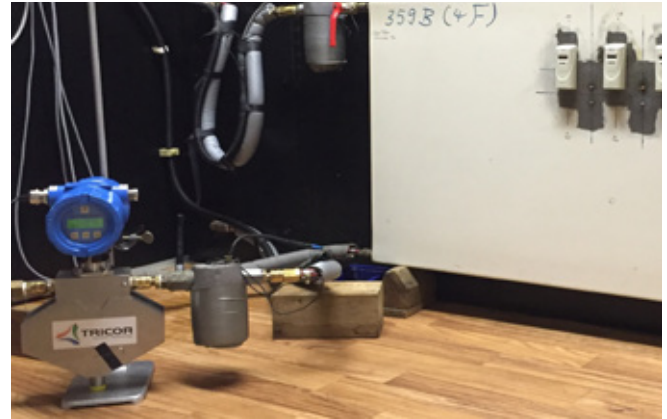


APPLICATION SPOTLIGHT

Calibration of a thermotechnical test stand



Calibration of a thermotechnical test stand at the Thermotechnical Institute (WTI) of the Mannheim University of Applied Sciences



APPLICATION

The Thermotechnical Institute (WTI) of the Mannheim University of Applied Sciences is one of three centers of expertise in Germany appointed for the type approval and DIN testing of heating cost allocators according to Section 5 of the Heating Costs Ordinance.

Measurements for approvals are taken under highly constant thermal conditions using an especially designed test stand. The specimens (heating cost allocators) are mounted on a radiator. Hot water is circulated through the radiator. The supply and return temperature as well as the mass flow and volume flow of the hot water are measured with high accuracy. A permanently installed external device is used for measuring the volume flow according to the Coriolis principle.

TECHNICAL DATA

Medium	Hot water
Temperature	68-194 °F (20-90 °C)
Pressure	1.5-15 psi (0.1-1 bar)
Measurement range	5-200 l/h

PRODUCT

A TRICOR Coriolis Mass Flow Meter TCM 0325 for liquids and gases.

CHALLENGE

For accreditation as an internationally recognized test laboratory according to DIN EN 17025, the flow meter that is used has to be calibrated using a DAkkS-

calibrated measurement standard; a relatively low flow rate has to be measured as accurately as possible over a wide range of 5 to 200 litres per hour. Since the hot water contains suspended matter in the form of tiny lime and rust particles, the measuring device should not have any components that are moveable or susceptible to deposits.

Furthermore, the flow meter that is used has to ensure the required accuracy across the entire measuring range for the medium being used, with calibration according to DAkkS standards. The applicable accuracy limit was less than 2 % of the measured value.

SOLUTION

The TRICOR Coriolis Mass Flow Meter TCM 0325 was integrated into the hot water circuit and serves as a reference for the internal calibration of the existing, permanently installed flow meter. The TCM 0325 supports flexible and portable operation. It is calibrated at the prescribed regular intervals according to DAkkS standards in KEM's own calibration laboratory certified according to DIN EN ISO/IEC 17025:2005.

BENEFITS

- Reliable, reproducible measurement results
- Coverage of the entire calibration measurement range with just one measuring device
- High measuring accuracy
- Flexible and portable application
- Calibration and certification according to DAkkS standard