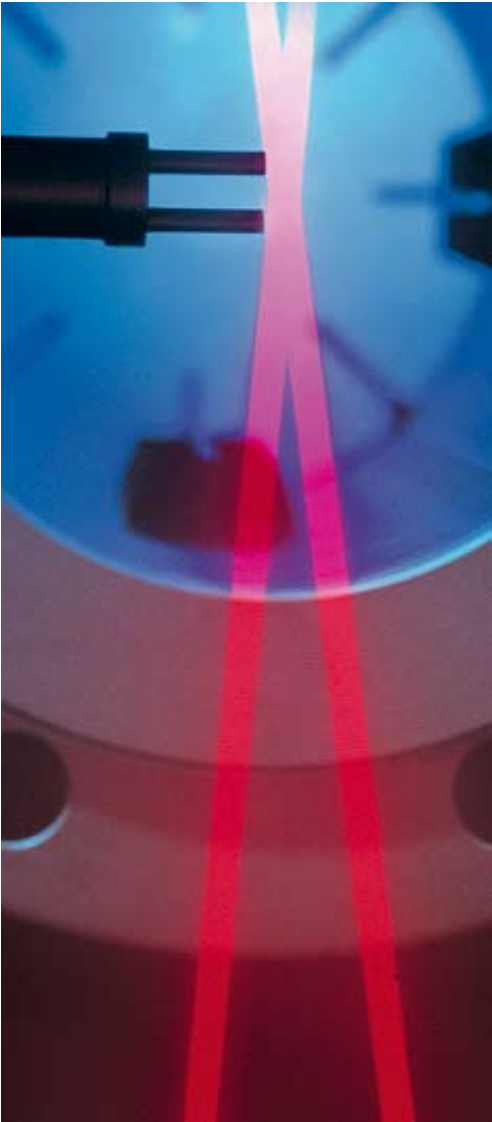


CAMASS®

Calibration Centre

Gas flow
technology
and
services



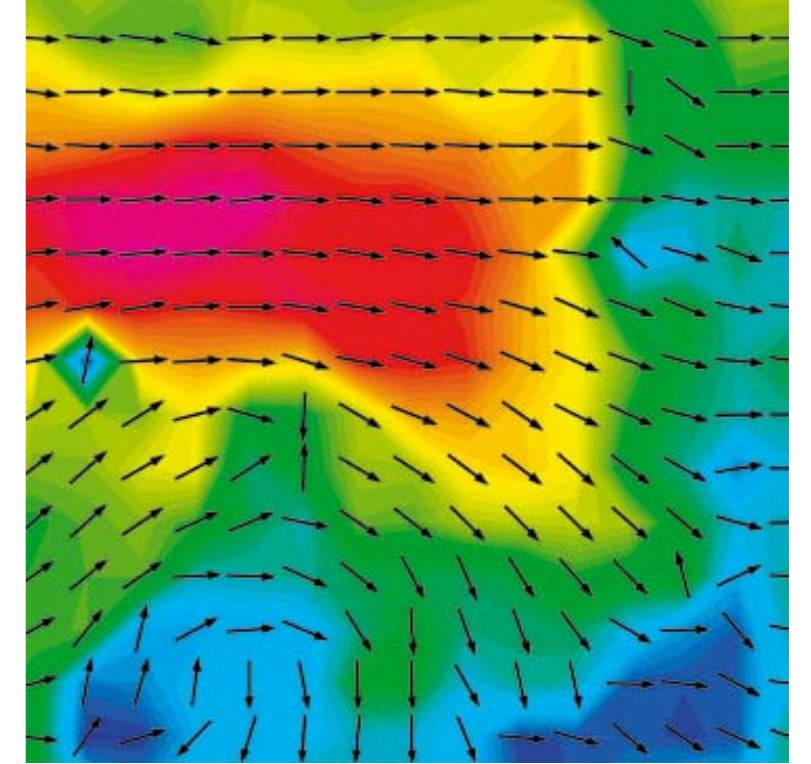


CAMASS® Calibration technology for gas flow measurement and control

When using technologically sophisticated systems to measure and control gases, calibration becomes the decisive factor for success. In order to ensure optimum measuring and control accuracy, each **COMBIMASS®** mass flow meter and **VACOMASS®** air distribution system is precisely calibrated in the **CAMASS®** Calibration Centre under real operating conditions.

In contrast to liquid media, the properties of flowing gases are far more dependent upon the operating conditions, the gas composition and the actual flow ratios in the pipeline. If these parameters are not taken into account, the measuring results will be considerably limited.

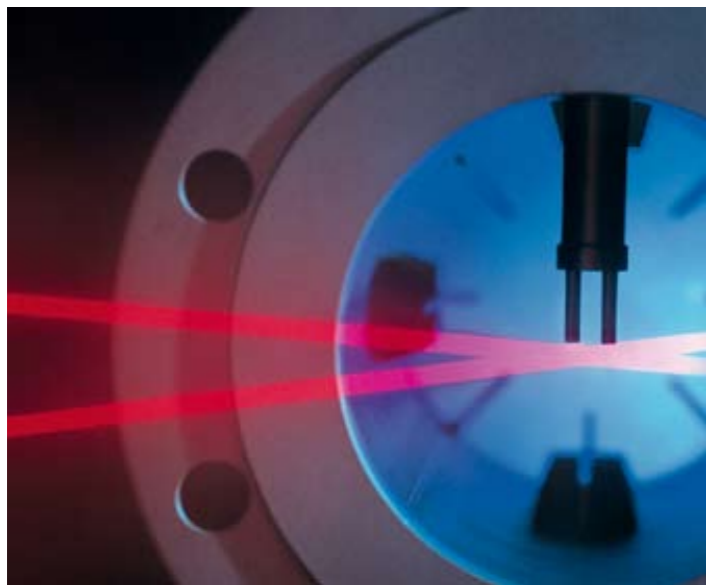
Therefore, in order to be able to guarantee optimum measuring and control accuracy, each individual **COMBIMASS®** and **VACOMASS®** system can be calibrated under real plant conditions before delivery. To do this, the pressure, temperature and load status which will later be encountered in the plant are precisely simulated with appropriate gas mixtures. For difficult applications, corresponding pipe routes are actually reproduced upon request.



CAMASS® Accuracy

In order to guarantee optimum accuracy, measuring sections, standard orifices and precision inclined-tube gauges, pre-tested by the Bureau of Standards, are used as reference. In addition, calibrated pressure and temperature transmitters enable precise determination of the local operating conditions and volumetric flows.

Additionally, laser doppler anemometry, an optical, non-calibrated measuring process with an accuracy of $\pm 0.2\%$, is the standard for reference measurements. The latest computer and simulation programs, based on decades of experience, are used to calculate calibration data and define the correction factors for temperature compensation. The data is transferred to the measuring system without any loss of accuracy.





CAMASS® Service portfolio

The CAMASS® low, medium, high-pressure and technology test benches allow the following extraordinary range of measurements:

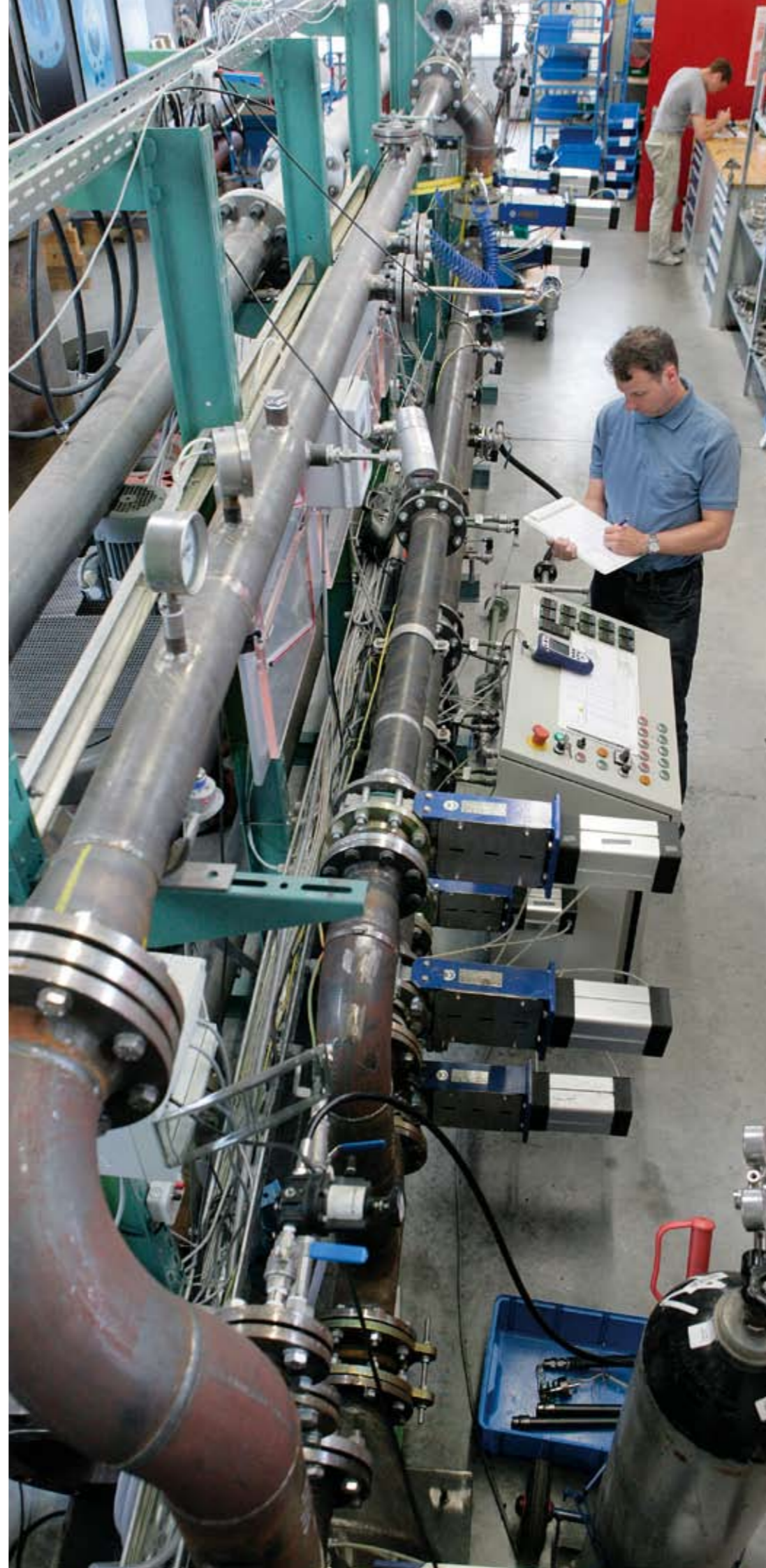
- Nominal widths up to DN 500
- Operating pressures of 0.1 to 100 bar (abs)
- Operating temperatures up to 500 °C
- Standard speeds of 0.01 to 600 m/sec
- Standard volumetric flows up to 90 000 Nm³/h

Use the CAMASS® Calibration Centre for your products. We will be pleased to advise you!



CAMASS® Calibration technology solutions for practical application

State-of-the-art computers and simulation programs are based on decades of experience. Even special tasks can be solved in the CAMASS® Technology Centre:
The figure below shows the asymmetrical inlet pipes with offset of a diaphragm control valve. The gas mass flow measuring system is calibrated with high precision, completely without inlet and outlet sections, even with a changing control valve stroke.



Gases and gas mixtures

In the ultra-modern CAMASS® Calibration Centre in Ulm, test benches are available for stable turbulent and stable laminar flow profiles. Hermetically sealed loops of special materials allow safe handling, even of corrosive and explosive gases and gas mixtures. Variable installation lengths of up to 9 m and, if required, longer, are at disposal for reproducing pipe routes and adaptation of the measuring systems.

CAMASS® Low, medium, high- pressure and technology test benches

The CAMASS® low, medium, high-pressure and technology test benches are designed for numerous technical gases, process gases and gas mixtures

- Air and compressed air, oxygen, carbon dioxide, water vapour
- Nitrogen, helium, argon, neon, methane, propane, butane, acetylene, ethane, ethylene
- Hydrocarbons of differing composition
- Hydrogen and hydrogen/hydrocarbon mixtures
- Biogas of differing composition
- Ammonia, hydrogen sulphide, chlorine



CAMASS® Technology Centre - Our services

Our competence as gas flow experts and the possibilities offered by our CAMASS® Technology Centre, make us an efficient partner, particularly in the case of sophisticated process applications.

Apart from the calibration of measuring systems, our services include the determination of flow and performance data at valves, compressors, fans and flow components.

Use the CAMASS® Technology Centre also for your product development!





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