

# CAMASS® Calibration Technology for Gas Flow

**The use of technological advanced systems for measurement and control of gases depends to a great extent on the calibration. In order to guarantee the highest measurement accuracy, each COMBIMASS® and VACOMASS® System is precisely calibrated at the CAMASS® calibration centre with exactly the real process conditions.**

Unlike liquids, the characteristics of gas flows depend much more on the process conditions, the gas composition and the real flow ratio in the tube. If such parameters are ignored, significant restrictions as far as measurement results are concerned will be expected.

Therefore each COMBIMASS® and VACOMASS® system is calibrated under real process conditions before dispatch in order to guarantee the highest measurement accuracy.

**At the CAMASS® calibration centre, exactly the same pressure and temperature conditions that will be encountered later in the plant is simulated with the corresponding gas mixtures.** If required for difficult applications, even the corresponding tube geometries will be constructed.

### **Even for corrosive and explosive gases**

There are five test stands for turbulent and laminar gas flow profiles in the state-of-the-art CAMASS® calibration centre in Ulm/Germany. Hermetically closed loops made up of special materials allow the safe handling even of corrosive and explosive gases and

gas mixtures. For the reproduction of the piping and the adaptation of the measurement system, variable fittings up to 9 m or longer are available if required.

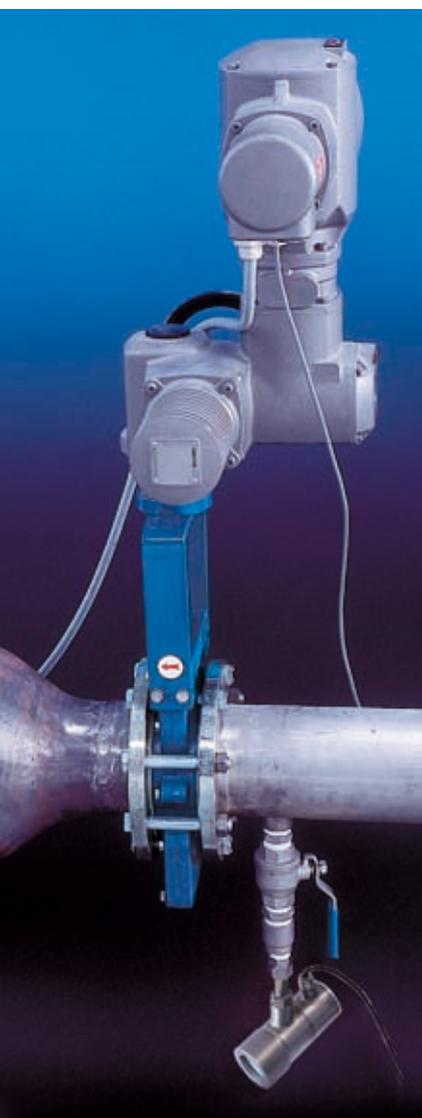
### **Measurement standards**

In order to guarantee the highest accuracy, we use as reference custody transfer approved differential pressure measurement devices that have been proved by the excise office.

In addition, standardised pressure and temperature transmitters enable the exact determination of the process conditions and the volumetric gas flow on site.

In addition, laser Doppler Velocimetry, an optic calibration-free measurement system with an accuracy of  $\pm 0,2\%$ , serves as standard for reference measurement.

State-of-the-art computer and simulation programs which have been developed based on many years of experience provide a basis for the calculation of the calibration data and the determination of correction factors for the temperature compensation. The data is transferred without accuracy loss to the measurement systems.





### **CAMASS® services for gas flow**

As expert for gas flow and the possibilities of our **CAMASS® technology centre**, we are a capable contact person especially in the case of demanding process applications. In addition to the calibration of measurement systems, our service contains the determination of gas flow and performance data of valves, compressors, vents and flow components.

### **Use the CAMASS® technology centre for your product development!**

The low, medium and high pressure stands and the technology test stands of the CAMASS® centre allow the calibration of numerous industrial gases, process gases and gas mixtures:

- air and compressed air, oxygen, carbon dioxide, steam
- nitrogen, helium, argon, neon, methane, propane, butane, acetylene, ethane, ethylene
- hydrocarbons in different compositions
- hydrogen and hydrogen/hydrocarbon mixtures
- biogas in different compositions
- ammonia, hydrogen sulphide, chlorine
- nominal diameters up to DN 500 plus specials
- process pressures from 0,1 to 100 bar absolute
- process temperatures up to 800°C
- standard flow velocities form 0,01 to 1200 m/s
- standard volumetric flows up to 336 000 m³/h