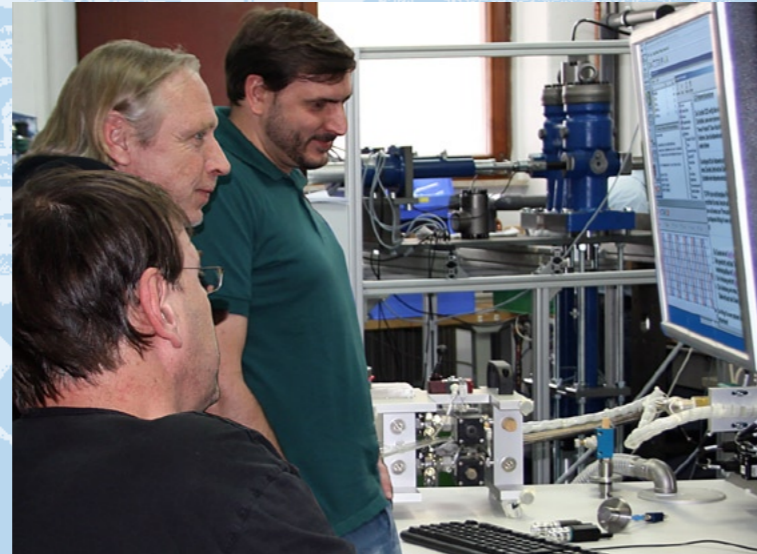


Training in measurement systems, flow elements and sensors

We provide training courses on our measurement systems, flow measuring elements and sensors.

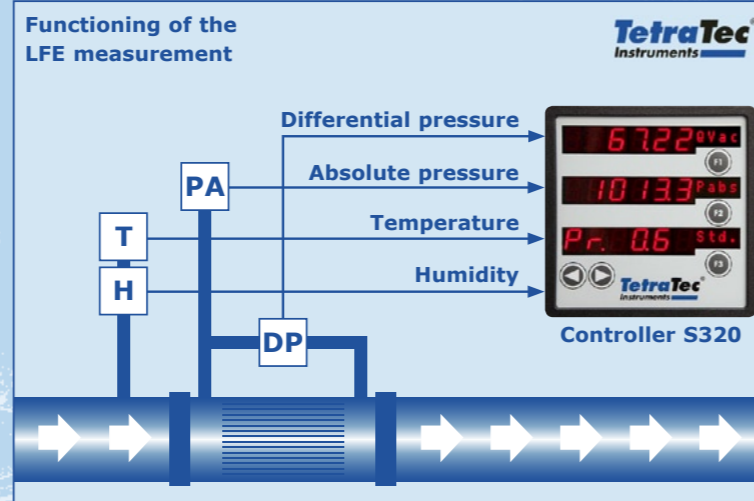
The training spectrum ranges from the hardware of the measuring systems, the physical functioning of the sensors and flow elements and covers from calibration right up to the software.

With our training, we want to create in all participants a thorough grounding in a range of topics. As only with a good understanding of the measurement task and the measuring instrument can the pitfalls of testing practice be mastered successfully and independently.

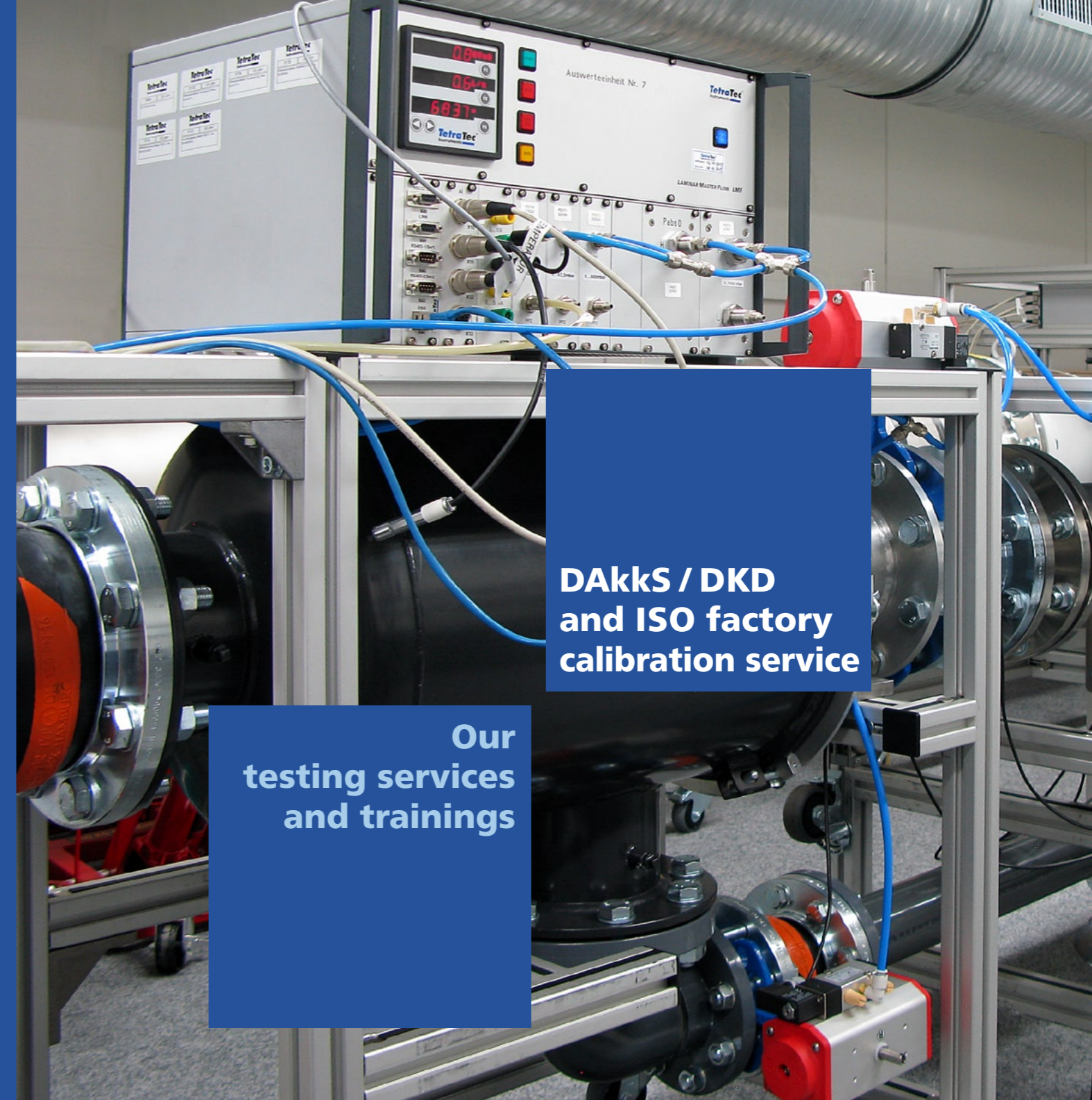


A selection of training topics:

- Flow measurement and control with air and gases
- The physics of flow elements
- Transfer and calibration standards
- Traceability and measurement uncertainty
- The physics of leak testing



Errors excepted, subject to technological changes.



**DAkks / DKD
and ISO factory
calibration service**

**Our
testing services
and trainings**

DAkks accredited DKD calibration services

As a service partner we can offer you our competent assistance and advice, both at our premises and even on-site at your premises, in the operation and care of our measuring systems for pressure, flow and leak testing with air and gases.

With our calibration service you are on the safe side when it comes to regular recalibration and adjustment of instruments. If you want to analyse the physical behaviour of your products, our laboratory can help you. If you would like to increase the application know-how of your staff, then we bring your team up-to-date with the latest developments.

Our calibration laboratory is in accordance with standard DIN EN ISO 17025 by the German Accreditation Office (DAkks) accredited under registration number D-K-17589-01-00 for testing volume and mass flow rates of gas and air flows.

The former accreditation body DKD (German Calibration Service) was merged into the German Accreditation Office (DAkks) with effect from 1.1.2010. The DKD persists as a body for technical coordination between various calibration laboratories and the Federal Institute for Technical Physics (PTB for short) based on voluntary membership. We are member of the expert committee "Flow measured variables" of DKD.

Range of services with DAkks / DKD and factory calibration:

Measured variable	Range	Uncertainty (k=2)
Flow (air)	0.06 up to 10 l/h	± 0.6 up to ± 0.8 % o.R.
	10 up to 6.000 l/h	± 0.4 up to ± 0.65 % o.R.
	6 up to 60 m ³ /h	± 0.3 up to ± 0.65 % o.R.
	60 up to 250 m ³ /h	± 0.3 up to ± 0.65 % o.R.
	250 up to 10,000 m ³ /h	± 0.3 up to ± 0.6 % o.R.
Flow generation (air)	up to 90 m ³ /h compressor operation	
	up to 10,000 m ³ /h vacuum operation	

With gases, please note the system for DAkks accreditation.



ISO factory calibrations and testing services

Our calibration laboratory offers factory calibrations for all types of flow meters, as well as for the measured variables of pressure, temperature and humidity.

All of our factory calibrations and testing services are traceable to national standards in accordance with the requirements of DIN EN ISO 9001:

- Flow of air and gases
- Pressure
- Temperature
- Humidity
- Current
- Voltage

In our testing laboratory, we are able to offer the testing of flow elements, sensors and components as an "extended workbench".

Here we can check flow meters, sensors and restrictors or part of a series for customers by automated testing. Our range of services includes:

- Determination of characteristics
- Classification/grouping
- Endurance testing
- Pressure dependency
- Sensitivity to temperature
- Reproducibility of measurements



DAkks / DKD calibrations:

- Volume flow
- Mass flow
- Volume and Mass of flowing gases and air. (Carried out on our premises.)

Factory calibrations:

- Volume flow
- Mass flow
- Pressure
- Temperature
- Relative humidity of air and gases. On our premises and on-site.

On-site calibrations we carry out as factory calibrations.

Our calibration services we offer for flow measurement devices of all manufacturers.

We are a member of the German Calibration Service:




Management System
ISO 9001

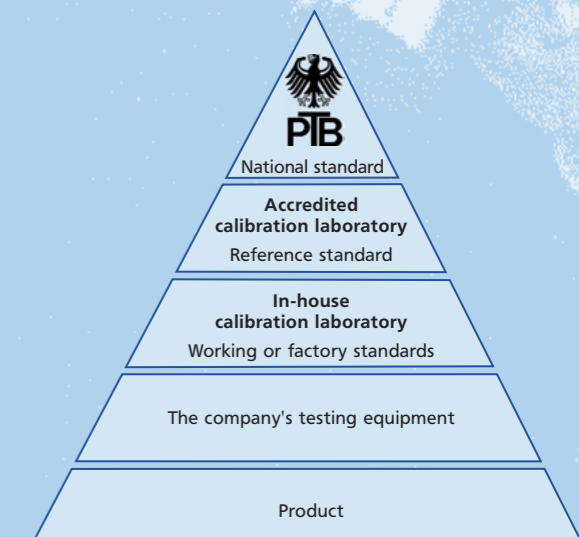
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All of our calibrations are traceable to national standards and norms with which the PTB (Physikalisch-Technische Bundesanstalt) and the highest calibration authorities in other countries represent the physical units in accordance with the International System of Units (SI).

In our calibration laboratory, the appliances and equipment as well as the statistical methods used are regularly reviewed. Exact compliance with the running times and the fixed number of readings guarantee quality and transparency.

The implementation of the calibration is characterized by the constant monitoring of the entire process. In the evaluation of the measurement results all relevant environmental influences are of course taken into account and documented. Our qualified team with its expert knowledge and experience of measurement technology guarantees the accuracy of the values.

Calibration hierarchy: traceability chain from the product to the national standard



Extended range of services with factory calibration:

Measured value	Range	Uncertainty (k=2)
Absolute pressure	35 up to 800 mbar	± 0.25 mbar
	800 up to 1,200 mbar	± 0.1 mbar
	1,200 up to 3,500 mbar	± 0.25 mbar
Differential pressure	0 up to ± 50 mbar	± 0.01 mbar
	± 50 up to ± 250 mbar	± 0.05 mbar
	± 250 up to ± 5,000 mbar	± 0.05 % F.S.
Relative pressure	0 up to 1.4 bar	± 0.05 % F.S.
	0 up to 14 bar	± 0.05 % F.S.
	0 up to 140 bar	± 0.05 % F.S.
Temperature	0 up to 100 °C	± 0.1 °C
Humidity	0 up to 100 % RH	± 2 % RH