

Your Measurement and Metrology Partner

- Training courses
- Proficiency tests
- Calibration services
- Testing services
- Metrology consultancy
- Design of testing and calibration rigs

As a leading technological service partner for laboratories and industry we are in close touch with the latest developments in metrology and practical measuring techniques

Danish Technological Institute offers:

- Advanced accredited testing and calibration laboratories
- Primary/reference laboratories for water flow, temperature and length measurements
- International expertise and experience

Training Courses

We offer standard as well as company adapted training courses in for instance the following fields

- Temperature
- Humidity
- Water and energy flow
- Pressure
- Balances and weights
- Uncertainty analysis
- Laboratory management including ISO 17025

Our metrological training courses will provide information about

- Measuring units
- Main measuring principles and equipment
- Selection of measuring equipment for various installations
- Calibration principles
- Uncertainty analysis

On conclusion of each course a short test/examination is provided. A diploma is issued to each participant.



Aim of the courses

The courses aim to provide employees working in laboratories and industry with a theoretical and practical education within measurements and metrology so they have a sound basis for setting up and carrying out valid and correct measurements, resulting in better qualifications in connection with for instance process optimisation and reduction of energy consumption.

Content of the courses

A combination of theory, hands-on exercises and knowledge sharing among participants.

Your background

Engineer or technician with general knowledge of mathematics and physics.

You achieve a complete package consisting of

- Theoretical and practical knowledge in the various fields of measurements
- Practical skills in carrying out measurements
- A diploma documenting your participation in the course and your exam score
- Accommodation, meals in the daytime and course compendium.

Our background

We are a course provider with international experience. In the past 5 years, the members of our staff have i.a. carried out more than 40 courses in uncertainty analysis. More than 75% of the participants in our courses have an international background.

To find the next course schedules, please visit:
www.dti.dk/mettraining





Calibration, Proficiency Testing and Consultancy

Utilising the latest developments in laser technology Danish Technological Institute has developed innovative methods for characterizing flow conditions in liquids and gases based on Laser Doppler Velocimetry (LDV).

With 10 years of experience in this field we offer the following services:

- The only laboratory in the world that offers accredited, on-site calibration of water flow meters with diameters of 100-1000 mm, covering a flow range of 0.25-17000 m³/h with an expanded measurement uncertainty of 0.90%. This technique is especially suited for large district heating meters and other meters for which laboratory calibration is either inconvenient or impossible.
- On-site flow analysis of test rigs is an essential tool for ensuring fully developed flow profiles for calibration purposes.
- Determining flow profiles in combination with calibration or testing of meters to evaluate the influence of flow conditions.
- Investigating flow profiles distorted by pipe bends, valves, inserted sensors, etc.
- Pinpointing the areas of aberrant velocity profiles in heating/cooling chambers which is often an important parameter in system optimisation. Coupled with CFD simulation this offers a powerful tool for assessing construction errors and resulting loss in energy efficiency.



A wide scope of calibration and testing services

We offer accredited* calibration in the following metrological fields:

- Anemometry and airflow
- Humidity
- Length and geometry
- Balances and weights
- Pressure
- Temperature
- Water and energy flow

We are the Danish National Metrology Laboratory in the fields of water and energy flow and contact thermometry. We are part of the Danish Primary Laboratory for Length.

We offer type testing of flow meters and other instruments. For further information, please visit: www.dti.dk/calibration.

Proficiency tests in various metrological fields

Proficiency testing or intercomparisons are very efficient and cost saving when the laboratory has to document the applied calibration method and the calculated measurement uncertainty. Participation in interlaboratory comparisons is a requirement in ISO 17025. Participation also ensures that the laboratory receives confirmation of the performance of the traceability chain and to which degree the chosen method can be compared to the methods of other European laboratories.

The proficiency tests provided are accredited* according to the guidelines ISO Guide 43 and ILAC G13:2000, which are obligatory in many countries if the intercomparison report is used in connection with accreditation.

To find the next proficiency tests scheduled, please visit: www.dti.dk/proftests.

*Danish Technological Institute is accredited by The Danish Accreditation Service (DANAK) for providing proficiency tests and a wide scope of calibration and testing services. See www.danak.dk, accreditation no. 200 and 300 for detailed specifications of measurements, uncertainties and specification of tests. DANAK is a member of EA (European Co-operation for Accreditation) and ILAC (International Laboratory Accreditation).

Metrological consultancy and design of calibration and test rigs

We have a long tradition for designing our own calibration and testing facilities to comply with new standards and methods, for instance our water flow test rig and facilities for testing pipe systems. Based on this expertise we offer consultancy in designing calibration and test facilities for our customers.



Danish Technological Institute

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Danish Technological Institute is an independent, not-for-profit institute approved by the Danish authorities to provide technological services to businesses and to the society as a whole.

The Institute employs experts in hundreds of different fields at 40 centres organised under the auspices of 5 organisational units that define the main parameters for their work:

- Building Technology
- Industry and Energy
- Materials
- Productivity, Logistics and Informatics
- Industrial Development

The Institute adopts an interdisciplinary approach to innovation and to the task of improving the ability of small- and medium-sized companies to exploit new technologies and management tools.

Customer activities and close cooperation with a wide range of enterprises account for the majority of the Institute's turnover. The Institute has a turnover of approximately Euro 83 million.

The Institute participates in international programmes under the auspices of the EU, the UN and a variety of other national and international organisations. In recent years, the Institute has been particularly active in Eastern Europe.

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