



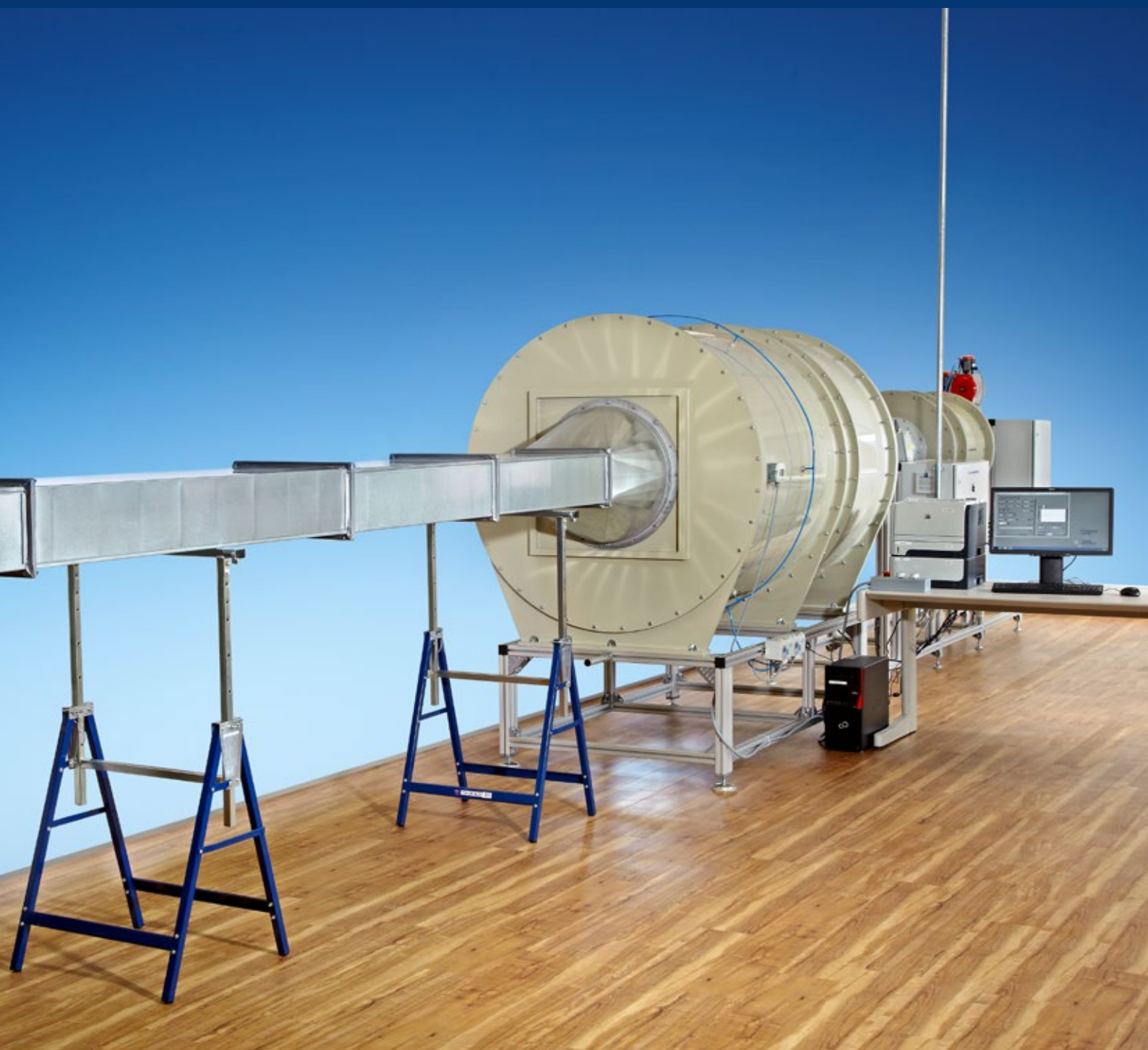
Walcher
Meßtechnik



halstrup
walcher

Flow rate calibrations

DAkKS and ISO calibrations for instruments used to measure flow rate in air conditioning and process air systems



CALIBRATION OF FLOW RATE INSTRUMENTS

GUARANTEEING RELIABLE MEASUREMENTS IN AIR DUCTS

Are you involved in the measurement of air flows and consumption in the area of air-conditioning and process air technology? As a manufacturer or user of primary elements, volume flow instruments (anemometers, vane probes, thermal probes, etc.) or ventilators, you have to ensure that your equipment is working reliably.

Regular calibration is essential if you want your instruments to deliver constant and accurate measurements. These measurements are based on recorded consumption (required volume of air) or providing proof of a constant flow rate. This is often vital for guaranteeing consistent product quality in production applications, occupational health and safety for employees or protection of the environment – especially when working with hazardous materials. However, reliable instruments are also essential for optimising processes in ventilation systems.

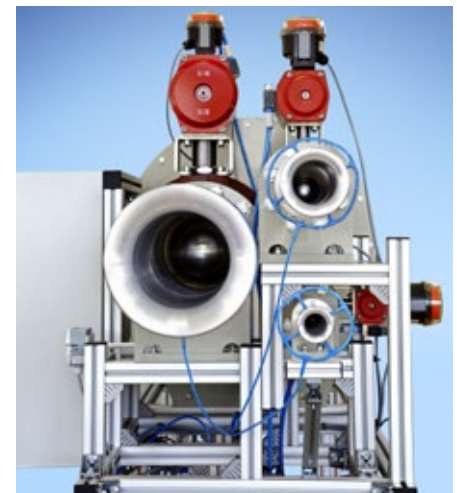


Walcher Meßtechnik GmbH operates a calibration laboratory accredited by the Deutsche Akkreditierungsstelle GmbH (DAkkS) in accordance with DIN EN ISO/IEC 17025 to guarantee the correct functioning of measurement systems. It is approved for calibrating a variety of measurements including flow rate (volume flow/mass flow) of the medium "air". The reference value for the laboratory is a **maximum flow velocity of 10 m/s**. The test facility is therefore perfectly designed for the calibration of measurement systems for air conditioning and process air ducts.

MODERN VOLUME FLOW MEASUREMENT FACILITY

The modern air flow measurement facility ensures reliable results and calibration processes. It offers the following features:

- Volume flow and mass flow measurements based on the differential pressure principle
- The full cross-section of the duct is taken into consideration; measurements are not point-specific (friction is greater at the edges and velocity higher in the middle)
- Generation of an even air flow with several different flows/measurement points (min. five for a DAkkS calibration)
- Regulated air volume flow from 25 to 4,500 m³/h or air mass flow from 30 to 5,400 kg/h
- Test facility offers a uncertainty of less than 1% of the measured value (mass flow)
- Adaptor for duct diameters from 50 to 700 mm (round/rectangular) in accordance with DIN EN 1505 and 1506 are available (others on request)
- Highest level of precision – measurements take account of the air density in the system and outside air (documented in the calibration certificate)



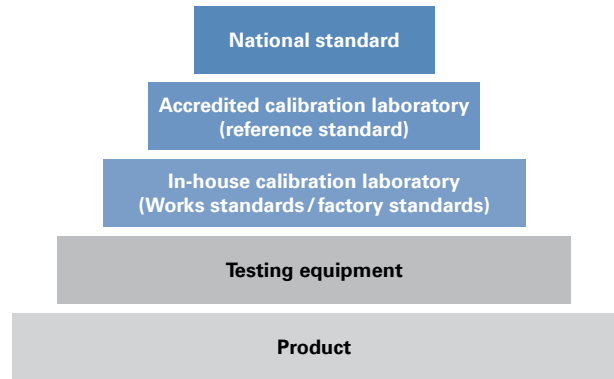
High precision inlet nozzles for accurate measurement results



CALIBRATION PROCEDURE

Calibration is performed by comparing a calibration object with a defined standard (see graphic). DAkkS calibration is performed in a flow rate calibration laboratory with **pre-defined testing procedures** and the **reference standard**.

No adjustments are made to the test objects/instruments during a calibration. Recalibration is recommended if (external) adjustments/changes are made. Calibration is precisely adjusted to reflect the duct diameter, calibration object and measurement. It is offered for equipment from all manufacturers.



The calibration test stand collects and documents volume flow and mass flow measurements in highest precision.

- ✓ Visual inspection of the calibration object
- ✓ Adaptation/Assembly on the test facility
- ✓ Calibration procedure performed in accordance with the pre-defined standard (compliant with DAkkS or ISO, calibration points may also be selected by the customer)
- ✓ Calibration certificate with target and actual values as well as statement of the uncertainty (only for DAkkS)
- ✓ Calibration mark on the instrument if required

For pressure transmitters and measurement systems, the halstrup-walcher service department also offers optional programming, linearisation, scaling, adjustment and repair services. We will contact you as soon as possible if we detect technical defects. The instruments should be recalibrated when changes are made after a calibration.

YOUR ADVANTAGES AT A GLANCE

- ✓ Objective calibrations based on the differential pressure principle and independent of the manufacturer
- ✓ Observation of the flow profile across the full cross-section of the duct, not a point-specific measurement
- ✓ Short throughput times → calibration objects are quickly available for operation
- ✓ Express service (on request)


DAKKS CALIBRATIONS



The DAkkS calibration certificate is recognised internationally. DAkkS calibration takes into account all the relevant environmental factors. The uncertainty

is considered and stated for each measurement point. Testing procedures are more comprehensive because measurements are taken at a number of points. DAkkS calibration is recommended for instruments providing measurements relevant to quality, e.g. in calculating the static pressure drop of a primary element.

ISO FACTORY CALIBRATIONS



The factory calibration certificate documents measurement results of the ISO calibration. This is a faster procedure which takes measurements at fewer points. However, factory calibration can also be performed for smaller volume flows from approx. 1 m³/h. To record ventilator fan curves, an ISO factory calibration can also be performed (on request). ISO factory calibration is recommended for guideline measurements and development purposes (e.g. for process optimisation, calculating curves etc.).

LABORATORY CALIBRATION SERVICE



The Halstrup Walcher Group offers a tailor-made calibration service for flow rate (volume flow/mass flow) in the laboratory (DAkkS/ISO). We have years of experience in the area of DAkkS pressure calibrations.

YOUR CALIBRATION

Please provide the following information when completing your flow rate calibration enquiry:

1. Calibration object, incl. number, type and connection dimensions

- Volume flow instrument (installed in air ducts), balometer
- Ventilator fans (ISO calibration only)
- Complete volume flow measurement sections (e.g. duct or pipe section with primary element and differential pressure transmitter)
- Primary element (measuring orifices, dynamic pressure probes, venturi nozzles, Wilson flow grids,...)

2. Required calibration certificate (DAkkS or ISO, German or English)

3. Flow rate range with unit (air flow velocity, volume flow, mass flow, ventilator fan curve)

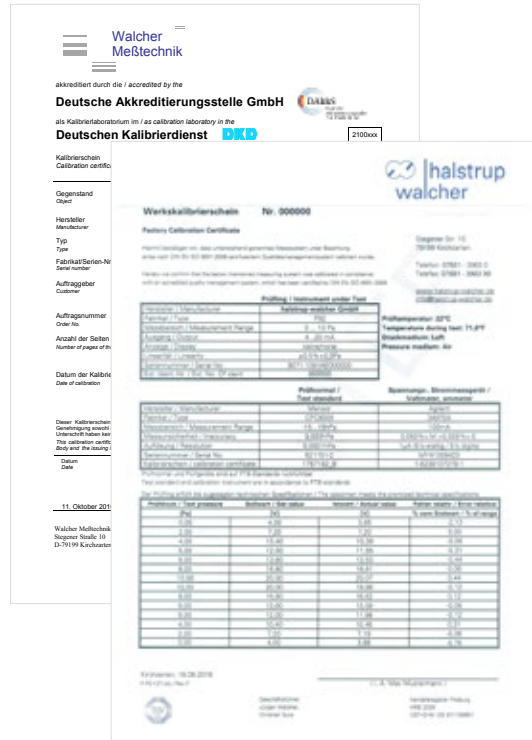
4. Output signal for the measurement (display, PC / USB, analogue output, pressure connections)

5. Number of measurement points (standard, other)

UNITS

<p>Earth</p> <ul style="list-style-type: none"> • Kilogrammes [kg] • Grammes [g] <p>Volume</p> <ul style="list-style-type: none"> • Cubic metres [m³] • Litres [l] • Cubic centimetres [cm³] • Cubic feet [ft³] 	pro	<p>Time</p> <ul style="list-style-type: none"> • Hours [h] • Minutes [min] • Seconds [s]
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SAMPLE CALIBRATION CERTIFICATES



Flyer of flow rate calibration laboratory – Date: 11/2016 – Subject to technical changes without notice