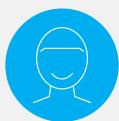
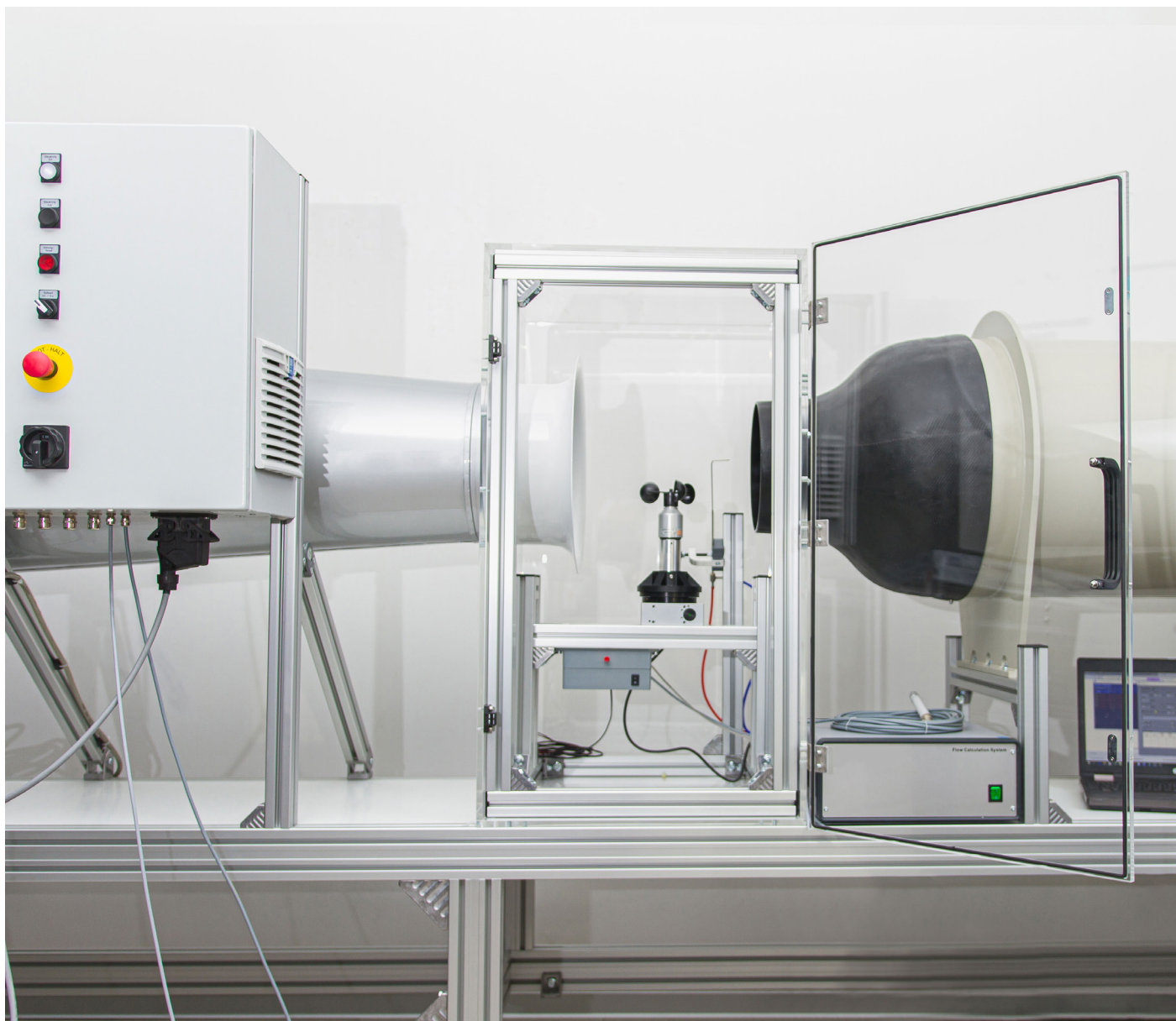


Calibration System for Wind Speed and Direction

The system can be used to calibrate the wind speed and wind direction of an ultrasonic anemometer, cup wind speed transmitter, and wind vane. A wind tunnel creates a homogenous airflow.



Easy to use & labor-saving automatic calibration with IMS4 CalibLab



On-line calculation of measurement uncertainty



Room conditions monitoring

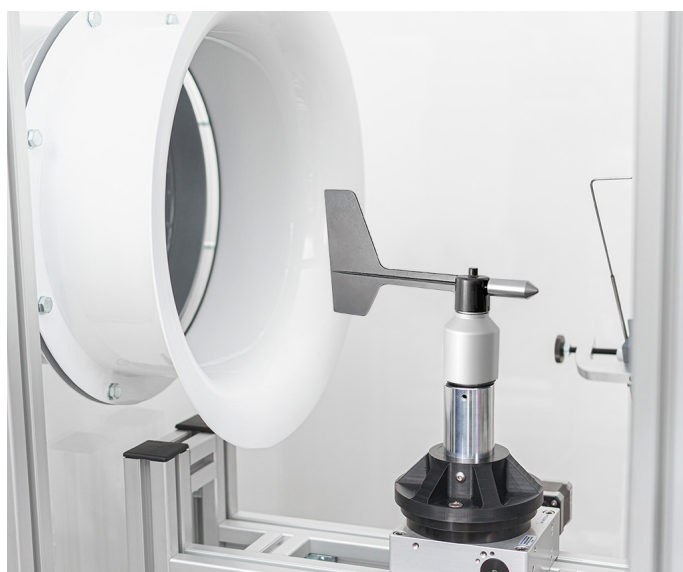


Complete calibration system including software and database

The calibration process is automated where possible. The software controls the wind tunnel airflow and sensor rotation, takes readings from the reference, and values from the calibrated anemometer. The system allows calibration of instruments without electronic output too – the reading is taken and submitted into the system manually by an operator.

Wind speed

For wind speed calibrations the wind tunnel provides a stable measurement of up to 80 m/s. The short times required to reach the required speed in the tunnels mean that you won't have to wait long for your work.



Calibration of wind direction sensor using the rotary table

Wind direction with automatic rotary table

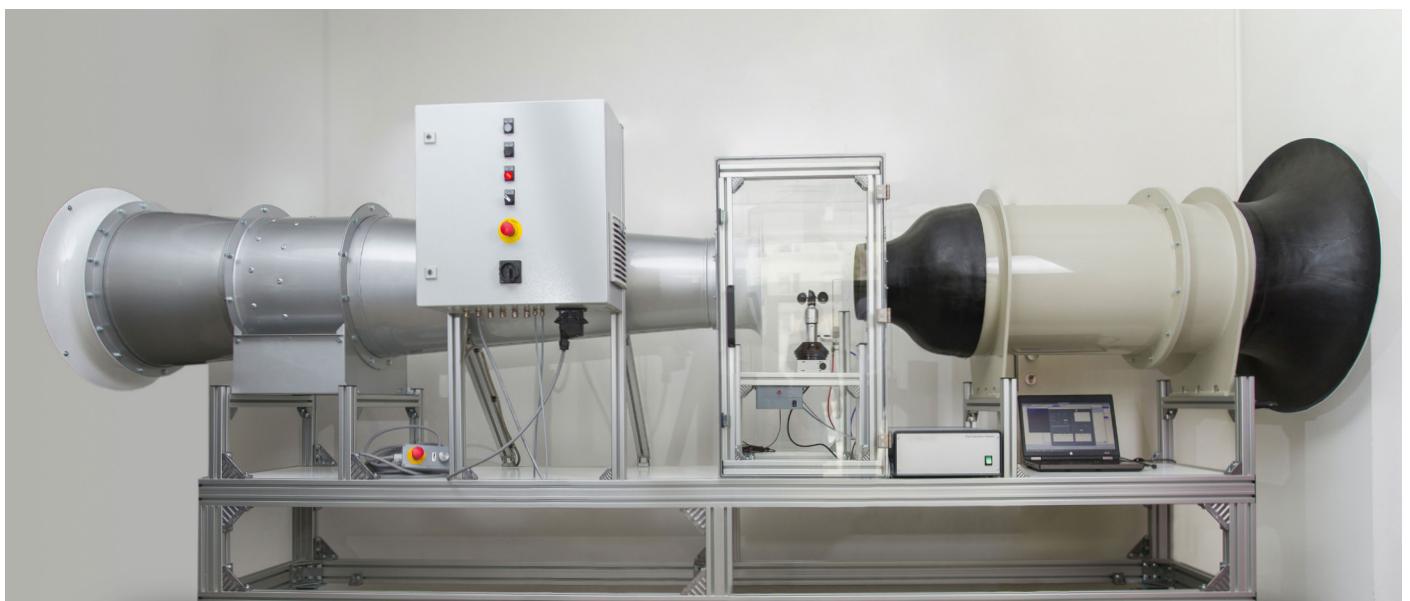
The calibration system also includes calibration of the wind direction. The added value of our solution is the rotary table, which allows the calibration of the direction in wind tunnels. Thanks to the precise manufacturing and drive of the stepper motor, the high sensitivity, and accuracy of this rotary table are ensured. Wind direction calibration works in the full range of 360° with a step of 0.1°. It works independently of the tunnel and therefore it is possible to calibrate the wind direction at different airflow intensities. Of course, everything is implemented in our calibration software IMS4 CalibLab and thus easy operation via the user interface is ensured.

Reference [Pitot tube]

The reference of airflow is data from a pitot tube. It comes with coefficients, which must be used to calculate wind speed from pressure difference in the measurement chamber. The pressure difference is measured by a precise pressure gauge and the calibration software performs calculation.

Eiffel-type wind tunnel

The wind tunnel of the Eiffel-type has an open and no air recirculation. The blower is at the end of the tunnel in an outflow diffuser. In this procedure, the flow guidance happens through a smoothing chamber (with a rectifier and sieves) and a nozzle. This system is connected to a closed section of measurements. The closed section is indispensable as a consequence of the low pressure arising due to the structure of the blower.



Eiffel-type wind tunnel

Göttingen-type wind tunnel

The wind tunnel according to the Göttingen-type is circular and has a closed circuit. In the case of this type, the distance between the blower and the section of measurements is very large in comparison to wind tunnels designed differently. The main advantage of a wind tunnel according to the Göttingen-type is that the power requirements of the blower are significantly reduced.

Calibrated anemometer

We can easily connect all types of anemometers to our calibration system, using standard peripherals (USB, RS-422, RS-485, RS-232) or a logger directly to a computer.



Göttingen-type wind tunnel

Wind Tunnel

Technical specifications

Diameter of jet outlet	from 180 to 800 mm*
Length of measuring section	from 215 to 1000 mm*
Flow velocity	from 0.3 to 80 m/s*
Working gas air	AIR
Electricity connection	240 V – 400 V / 50 Hz*
Dimensions (length)	from 4.441m to 11.000 m*

* Depends on the wind tunnel used

Differential pressure transducer

Range	25 Pa, 100 Pa, 400 Pa, 2500 Pa
Accuracy	0.25 %

Ambient pressure sensor

Range	800 mbar – 1 100 mbar
Accuracy	0.5 %

Ambient temperature and humidity sensor

Temperature range	-40 °C to + 60 °C
Relative humidity range	2 % to 98 %RH
Temperature accuracy	±0.2 °C
Relative humidity accuracy	±2 %RH

Environmental

Operating temperature	+10 °C to 40 °C
Operating relative humidity	20 % to 90 %
Transport and storage temperature	-25 °C to +55 °C

* Modifications are possible on request.

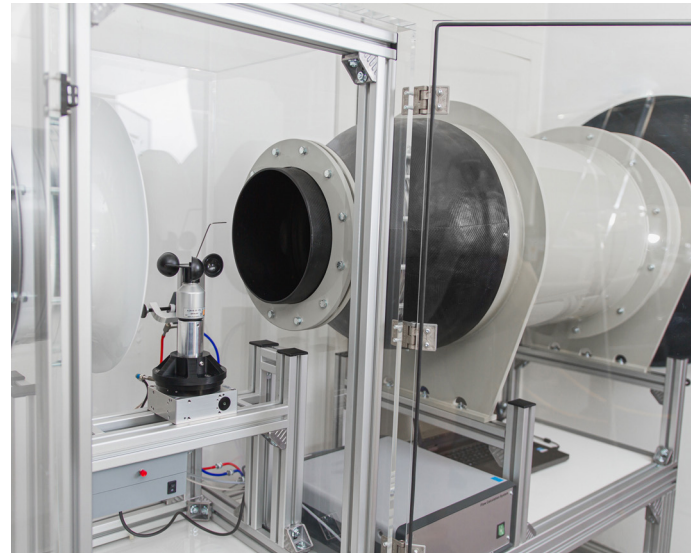
Rotary table for wind direction

Technical specifications

Range	360°
Resolution	0,1°
Backlash	< 0,1°
Circular runout	< 0.02 mm
Standard step motor	NEMA 17.42 mm



Control panel of wind tunnel



Measurement chamber



Inlet nozzle



IMS4 CalibLab



ISO Quality Certified Company

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