

CHALLENGES AND SOLUTIONS FOR AIR SPEED AND AIR FLOW RATE CALIBRATION

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ABSTRACT

One of the first and necessary steps in the increase of confidence in the result of a measurement is the calibration of the used instrument. Moreover, the principle of a reliable calibration is reinforced through the concept of traceability.

The terms "calibration" and "traceability", which apply equally across metrology and whose definition is given by the VIM (International Vocabulary of Metrology), are examined and put in the context of the challenges for air flow and air speed calibrations.

From the definition of the standards to the way to evaluate the repeatability, the reproducibility, all the concepts are discussed with a special focus on the importance of calibration fluid and conditions.

The presentation outlines also the basic principles of the air speed and air flow calibration methods, both the more accurate and the less ones. Some calibration examples are given to enhance the understanding of the presented concepts.

KEYWORDS

calibration, air flow rate, air speed, measurement error, traceability, uncertainty

REFERENCES

VIM (2008). *International vocabulary of metrology – Basic and general concepts and associated terms*, www.bipm.org