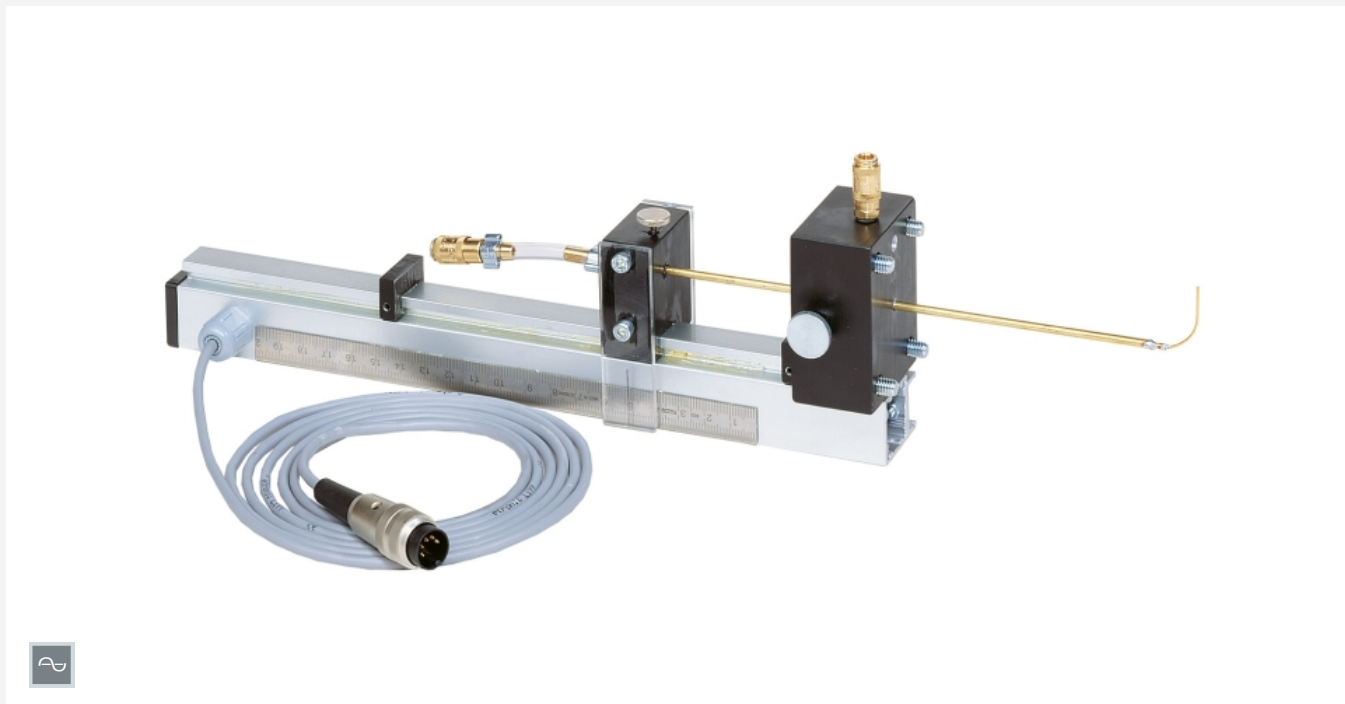


HM 240.03

Electronic total pressure sensor



Description

- **electronic measurement of static and dynamic pressure**
- **record pressure distribution in the wake of a cylinder in conjunction with HM 240.04**
- **accessory for HM 240**

The simplest and therefore most common type of total pressure sensor is the Pitot tube. Total pressure sensors are used to accurately measure differential pressure and to determine flow velocities of fluids. They are used for a wide range of purposes, for example to determine the airspeed in aviation, to measure wind speeds in meteorology or to determine the flow velocity in pipes.

Used in conjunction with HM 240, the HM 240.03 accessory allows the electronic measurement of static and dynamic pressure. The Pitot tube can be adjusted vertically and is attached to HM 240's intake pipe. The total pressures at various positions in the intake pipe are recorded. The position of the Pitot tube is measured electronically. An additional measuring point measures the static pressure. Both measuring points are connected to HM 240. The measured values are analysed using the HM 240 software.

In addition, used in conjunction with the HM 240.04 accessory (pressure distribution on a cylinder), it is possible to record the pressure distribution downstream of a cylinder under transverse incident flow.

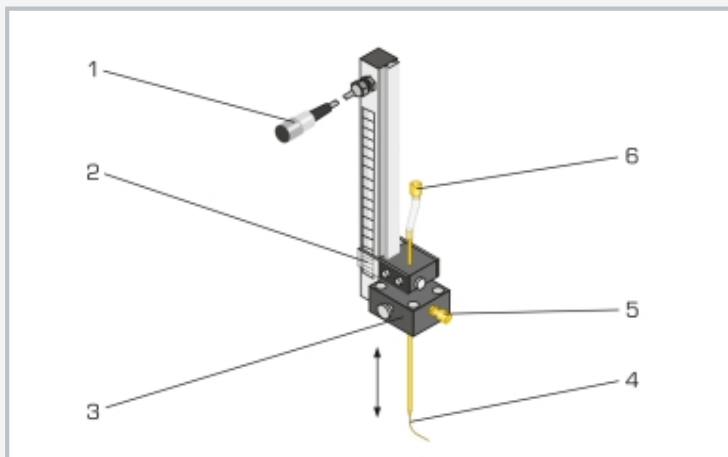
HM 240.03 is part of a series that allows experiments on the principles of incompressible air flow. The software for data acquisition and visualisation makes the experiments especially clear and enables fast execution of experiments with reliable results.

Learning objectives/experiments

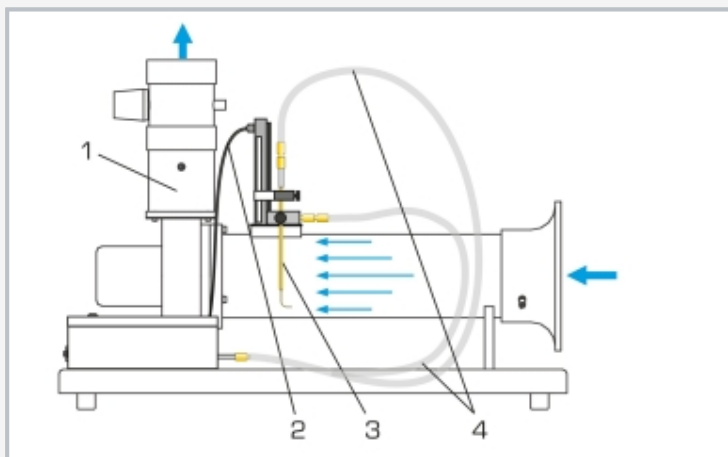
- in conjunction with HM 240
 - ▶ measurement of the total pressure and the static pressure in HM 240's intake pipe
 - ▶ recording pressure distribution over the cross section
 - ▶ determining velocity distribution over the cross section
- in conjunction with HM 240.04
 - ▶ measurement of the total pressure in the wake of a cylinder
 - ▶ determine drag coefficient from the pressure distribution in the wake of a cylinder
 - ▶ demonstrate wake depression

HM 240.03

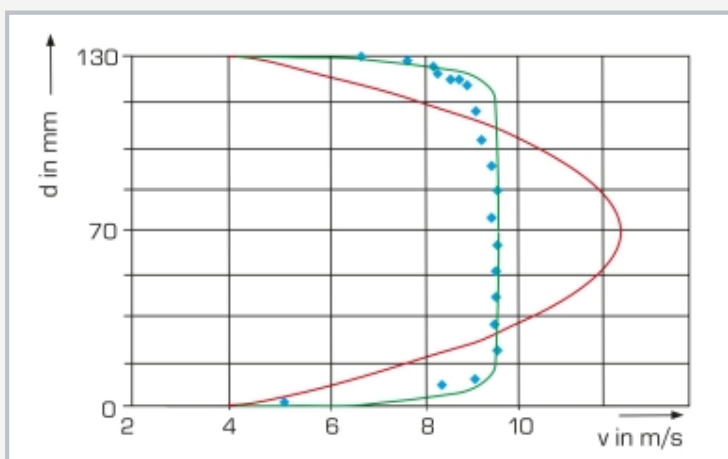
Electronic total pressure sensor



1 connection to HM 240, 2 vertical adjustment, 3 bracket, 4 Pitot tube, 5 measuring point for static pressure, 6 pressure measuring point connection to HM 240



Representation of the experimental setup with HM 240
1 HM 240, 2 electronic connection to HM 240, 3 HM 240.03, 4 pressure measuring points connections to HM 240



Velocity profile in the intake pipe
blue: measured values, green: turbulent flow, red: laminar flow; v velocity, d pipe inner diameter

Specification

- [1] electronic total pressure sensor for measurement of static and dynamic pressure
- [2] accessory for HM 240
- [3] vertical adjustment of the Pitot tube
- [4] electronic detection of the position
- [5] in conjunction with HM 240.04 measurement of the total pressure in the wake of a cylinder
- [6] display and analysis of the measured values using the software in HM 240

Technical data

Pitot tube

- outer diameter: 0,71 mm
- inner diameter: 0,41 mm
- vertical adjustment: 0...130mm

LxWxH: 120x75x350mm (retracted)

Weight: approx. 1kg

Scope of delivery

- 1 holder
- 1 Pitot tube
- 1 set of instructional material

HM 240.03

Electronic total pressure sensor

Required accessories

HM 240 Principles of air flow