

# HM 170.40

## Three-component force sensor



The illustration shows HM 170.09 in the force sensor HM 170.40.

### Description

- **force sensor for experiments on bodies immersed in a flow**
- **measurement of drag force, lift force, and moment**

A drag body or a lift body for HM 170 is placed in the force sensor. The force sensor delivers measured values of drag force and lift force of a body immersed in a flow. Additionally, the moment is recorded.

The measured values are digitally displayed on the measuring amplifier. They can be evaluated in the optionally available system for data acquisition HM 170.60.

The force sensor is fitted with an angle scale.

### Learning objectives/experiments

- together with a body for HM 170:
  - ▶ determination of the drag coefficient ( $c_d$  factor)
  - ▶ determination of the lift coefficient
  - ▶ determination of the moment coefficient

### Specification

- [1] three-component force sensor to measure drag force, lift force, and moment
- [2] digital display of drag force, lift force, and moment on the measuring amplifier
- [3] angle display on a scale

### Technical data

Measuring ranges

- force:
  - ▶ lift:  $\pm 4\text{N}$
  - ▶ drag:  $\pm 4\text{N}$
- moment:  $\pm 0,5\text{Nm}$
- angle:  $\pm 180^\circ$

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase

120V, 60Hz, 1 phase

UL/CSA optional

LxWxH: 370x315x160mm (measuring amplifier)

Dxh: 115x150mm (force sensor)

Total weight: approx. 6kg

### Scope of delivery

- 1 force sensor
- 1 measuring amplifier
- 1 manual

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### Required accessories

HM 170            Open wind tunnel

### Optional accessories

HM 170.01	Drag body sphere
HM 170.02	Drag body hemisphere
HM 170.03	Drag body circular disc
HM 170.04	Drag body circular ring
HM 170.05	Drag body square plate
HM 170.06	Lift body flag
HM 170.07	Drag body cylinder
HM 170.08	Drag body streamline body
HM 170.09	Lift body aerofoil NACA 0015
HM 170.10	Drag body paraboloid
HM 170.11	Drag body concave shape
HM 170.12	Lift body square plate
HM 170.13	Lift body aerofoil NACA 54118
HM 170.14	Lift body aerofoil NACA 4415
HM 170.21	Aerofoil with slat and slot flap
HM 170.60	System for data acquisition