

## HM 226

### Wind tunnel for visualisation of streamlines



#### Description

- wind tunnel with fog generator
- various models included
- illuminated experimental section with sight window
- low-turbulence flow

Streamlines can be visualised in steady flow in the wind tunnel by using fog, smoke or tufts. In this way, a clear impression of an instantaneous flow field can be presented and problematic flow areas, such as stall, can be shown.

The experimental unit HM 226 is an open wind tunnel, in which streamlines, flow separation and turbulence can be made visible by using fog. The evaporated fog fluid is non-toxic, water soluble and the precipitate does not affect common materials. Precipitates can be easily wiped off with a cloth.

The air flow is generated by a fan. To achieve a low-turbulence flow, the air flows through a stabilisation chamber with a flow straightener. Fog is added to the flowing air through several nozzles. Then the air flows around or through a model in a experimental section and the flow field becomes visible. The experimental section has a black background and a sight window; additional lighting makes the streamlines clearly visible.

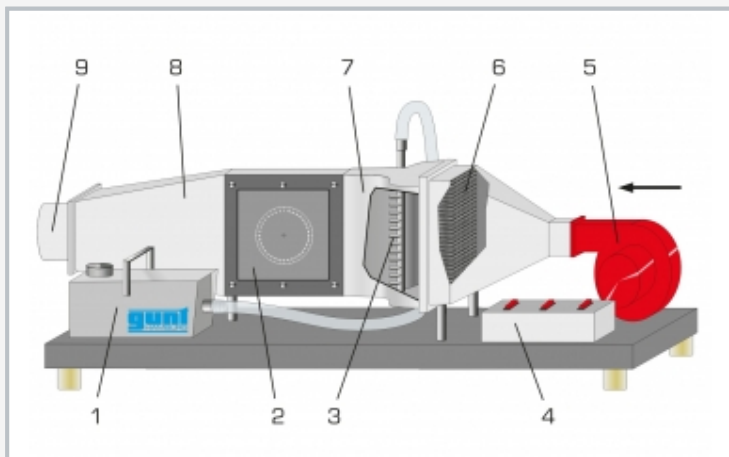
Four interchangeable models (cylinder, orifice plate, aerofoil and guide vane profile) are included. The aerofoil's angle of attack is adjustable.

#### Learning objectives/experiments

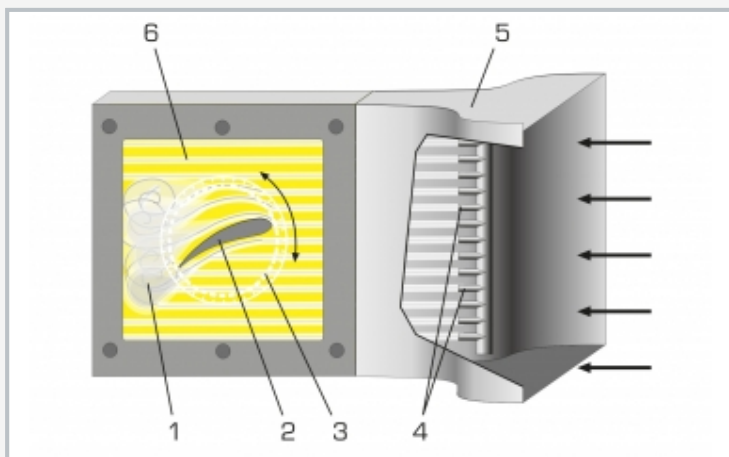
- visualisation of streamlines
- flow around or through differently shaped models
- flow separation and turbulence
- stall as a function of the angle of attack

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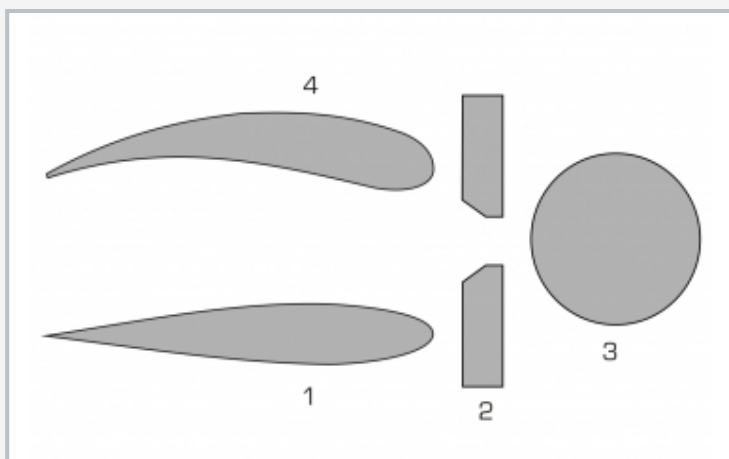
## Wind tunnel for visualisation of streamlines



1 fog generator, 2 experimental section with sight window, 3 distributor for fog with nozzles, 4 switch cabinet, 5 radial fan, 6 stabilisation chamber with flow straightener, 7 intake contour in nozzle design, 8 diffuser, 9 air outlet



detailed view of the experimental section  
1 turbulence, 2 model, 3 scale for adjusting the angle of attack, 4 nozzles for injecting fog, 5 intake contour in nozzle design, 6 illuminated experimental section



1 airfoil, 2 orifice plate, 3 cylinder, 4 guide vane profile

### Specification

- [1] visualisation of streamlines flowing around and through different models
- [2] open wind tunnel with radial fan and a fog generator
- [3] operation with non-toxic and water-soluble fog fluid
- [4] illuminated experimental section with sight window and black background
- [5] low-turbulence flow through stabilisation chamber with flow straightener
- [6] distributor with nozzles for injecting the fog
- [7] four different models, angle of attack at airfoil and guide vane profile adjustable
- [8] scale for displaying the angle of attack

### Technical data

#### Experimental section

- transparent area: 252x252mm
- cross-section: 252x42mm
- airfoil pivotable by 360°

#### Models

- cylinder: diameter: 60mm, height: 24,5mm
- airfoil: 15x24,5x100mm
- guide vane profile: 20x24,5x100mm
- orifice plate: 2x 25x24,5x10mm
  - ▶ orifice opening: 10mm

#### Radial fan

- max. volumetric air flow rate: 480m<sup>3</sup>/h
- max. pressure difference: 300Pa

#### Fog generator

- power consumption: 700W

230V, 50Hz, 1 phase  
230V, 60Hz, 1 phase  
LxWxH: 1400x500x490mm  
Weight: approx. 50kg

### Scope of delivery

- 1 experimental unit
- 1 fog generator
- 1 set of models
- 1 fog fluid (5L)
- 1 hose
- 1 set of tools
- 1 set of instructional material

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Optional accessories

020.30009

WP 300.09

Laboratory trolley