

HM 220 Air flow experimental plant

In practice, when designing turbomachines or pipe systems it is important to know the flow course and the corresponding pressure and velocity distribution. The experimental plant HM 220, together with the extensive range of accessories, offers a variety of fluid mechanics experiments.

The illustrative experiments provide an in-depth understanding and knowledge of the physical laws of steady flows. The experiments impart knowledge about determining the flow course, pressure distribution and velocity profiles.



- use of various pipe elements
- adjustment of the air flow through a frequency converter
- up to 20 pressure measuring points
- calculation of the volumetric flow rate and the flow velocity from the measurement results
- representation of system characteristics
- recording the different velocity profiles in both the free jet and the pipe cross-section
- representation of the increase in pressure loss due to pipe friction at different pipe elements
- optimal formation of the air flow due to a low-loss inlet and the large length of the pipe section

The HM 220 experimental plant allows an extensive range of experiments with the varied accessories:

Measuring and investigating the air flow via a Pitot tube		Boundary layer measurements on a flat plate in longitudinal flow via a Pitot tube (HM 220.02 accessory)	Change in volumetric flow rate		Measurement and investigation of air flow	
In a free jet	Within a pipe		In an orifice plate or nozzle	In an iris diaphragm	Via a Venturi tube (accessory HM 220.01)	In different pipe fittings
Velocity profile v in the air outlet jet	Velocity profile v along the pipe cross-section s_y	Velocity distribution (green) and boundary layer thickness (blue)	Comparison of the change in volumetric flow rate Q through an orifice plate A or nozzle B	Velocity profile (red) along the contraction in cross-section (green)	Investigation of pipe friction losses in pipe bend (green), segment bend (purple), pipe angle (orange)	