

Product Name :
Astra Scientific Compressible Flow Unit

Product Code :
Fluid Mechanics Lab0007



Description :

Astra Scientific Compressible Flow Unit

Technical Specification :

DESCRIPTION:

A advanced versatile apparatus, based around a variable-speed air compressor, designed to teach the concepts of compressible flow. The basic unit contains everything required to demonstrate the fundamental principles,

A radial fan with infinitely variable speed control draws in air from the environment. At the intake the airflow is accelerated in a measuring nozzle. Further down the measuring section the air flows through interchangeable measuring objects. Drawing in the air and the arrangement of the measuring objects on the intake side of the fan minimizes turbulence when flowing into the measuring objects. All measuring objects are made of transparent material and provide excellent insight into the inner structure.

FEATURES:

- Investigate flow of compressible fluids
- Subsonic and transonic air flow
- Variable speed on the radial fan for adjusting the mass flow rate
- Minimized turbulence by drawing in air and optimum arrangement of the measuring objects
- Transparent measuring objects with connectors for pressure measurement provide insight into the internal structure
- Measuring nozzle for determining the mass flow rate
- Pressure losses in subsonic flow in pipe elbows and various pipe sections
- Pressure curve at subsonic and transonic nozzle flow
- Orifice for determining volumetric flow rate by differential pressure measurement
- Record fan characteristic curve using a throttle valve
- Digital displays for pressures, velocity and speed

SPECIFICATIONS:

- Radial fan

Max. Speed: 31000min^{-1}

Max. Volumetric flow rate: $226\text{m}^3/\text{h}$

Max. Head: 318mbar

Max. Power consumption: 1,8kW

- Measuring objects

Pipe section: 1m

Ø 16, 24, 34mm

90° pipe elbow

2 nozzles, inner diameter: 12...34mm

With sudden enlargement

With gradual enlargement (de Laval nozzle)

Orifice with orifice disks

Ø 12, 19, 25, 32mm

Throttle valve: Ø 34mm

- Measuring ranges

Speed: 0...99999min⁻¹

- Pressure:

1x 0...25mbar

1x 0...600mbar

1x 0...1000mbar

Velocity: 0...65m/s

- 230V, 50Hz, 1 phase

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