

CENTRIFUGAL FAN



Experimental capabilities

- **Determination of the fan characteristics depending on the speed, of the suction and discharge pressures**
- **Study of a centrifugal fan**
- **Study of the QH curves of the fan**
- **Using a column manometer for the pressure measurements.**
- **Flow rate measurement with Pitot tube.**
- **Measurement of the electrical power to the motor, efficiency determination.**
- **Verification of Bernoulli's equation.**
- **Highlighting of the aerodynamic lines.**

Operating principle

The VEA 050 is a bench that allows experiments on the fundamentals of air flow. The experimental unit comprises a centrifugal fan with variable speed, allowing to generate different speeds of air flow. A fan output damper can be used to adjust the air flow rate allowing the study of the characteristic curve of the fan. When used in conjunction with the power measurement device, it is possible to determine the efficiency of the fan. It is possible to study the air velocity profile within the pipe using a Pitot tube and to position it at different heights in the duct through a metallic ruler.

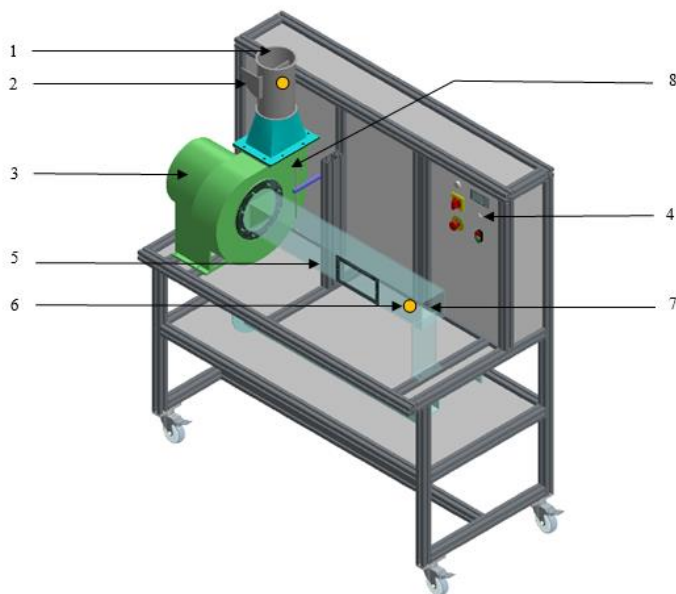
The cylindrical inlet pipe may be replaced by a rectangular section duct having a hatch allowing to insert a layout in order to study the flow of air around the latter.

The robust design of this equipment makes it perfectly suited for school use.

Its anodized aluminum structure on wheels makes it very robust as well as a great flexibility of integration into your premises. The chassis is split into two parts with a connection by flexible sleeve.

The manufacture of this equipment meets the European machine directive

Illustrations



Technical specifications

- 1- Air outlet of the fan**
- 2- Damper** allowing to vary the volume of air sucked
Adjustable outlet valve
- 3- Centrifugal fan**
Engine: 0,35 kW
Speed: 0 to 2900 rev/min
Maximum volume flow rate: 480-1320 m³/h
- 4- Electrical box with:**
Controller
Electronic speed controller
Setpoint by potentiometer
Rotation speed
Digital indicator of the rotational speed of the fan
Electric power
Digital indicator of the power used by the fan in operation
- 5- Air flow duct**
A round profile duct
A rectangular profile duct with hatch to dispose a layout
...
- 6- Two measures of pressure** ●
Pressure measured using a water column manometer
Or pressure measured using a differential pressure sensor
- 7- Air intake in the duct**
- 8- Pitot tube**
Measurement of air velocities at different heights in the duct, allowing to plot the air profile

Services required

- Electrical supply: 230 Vac - 50 Hz - 20 A
- Power supply Type 1 Phase + Neutral + Earth
- Dimensions: (LxWxH mm): 1500 x 700 x 1000
- weight (Kg): 70

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE