

# COMPUTERIZED CENTRIFUGAL FAN STUDY UNIT

## Mod. CED-FAN/EV



### INTRODUCTION

The CED-FAN/EV teaching unit allows the study of characteristic parameters typical of an industrial centrifugal fan. Measurements can be made by varying the operating conditions and compared with the data resulting from the theory. The unit is mounted on a shrouded frame and does not require maintenance. A data acquisition and analysis system for Personal Computer allows you to capture in real time the characteristic data of the CED-FAN, allowing automatic execution of measurements, production on video or printing of characteristic curves, disk archiving and printing real-world data.

The group is provided with a complete manual, where the unit description, commissioning, operating modes and some didactic experiences are provided with experimental results.

### TRAINING PROGRAM

- Determining the fan max flow rate
- Determining the max ventilation prevalence
- Adjusting a fan
- Using a Pitot tube and determining air velocity
- Using a calibrated diaphragm
- Determining the characteristic power curve absorbed by a fan when changing operating conditions
- Determining the efficiency characteristics curves when changing operating conditions

### TECHNICAL SPECIFICATIONS

- Centrifugal fan:
  - Max flow: 1500 m<sup>3</sup>/h
  - $\Delta H$  max: 1200 Pa
  - Max speed of rotation: 3000 rpm
  - Static blade
  - Diameter: 250 mm
- N. 2 additional interchangeable impellers: one with curved blades forward, one with curved blades backwards. Diameter: 250 mm
- Electric motor c.c. double shaft output: max power 1 kW at 3000 rpm
- Transparent plexiglas test tunnel, internal diameter 100 mm
- Fluid thread rectifier
- Partitioning damper
- Quick-release pressure plugs
- Pitot tube adjustable in height
- Temperature probe
- Differential micromanometer
- Diaphragm calibrated
- Load cell
- Rpm transducer
- Air speed probe
- Differential pressure transducer

**Control unit:**

- Electronic board and inverters for input / output signals
- Autonomous or remote operating modes (via PC, not included)
- USB interface for PC connection
- LCD display with keyboard for rpm control and to display:
  - voltage and current absorbed by the electric motor
  - rpm
  - axial torque
  - air speed
  - fan prevalence

**Data Acquisition and Analysis Software**

The data acquisition and analysis software automatically acquires the signals supplied by the installed transducers. The diagrams of the acquired data as a function of time are displayed on the screen or can be printed. It is also possible to run simulations by type in data from the keyboard. The software works on Windows computers only.

**Power supply:** 230 Vac 50 Hz single-phase - 1,2 kVA  
(Other voltage and frequency on request)

**Dimensions:** 2000 x 1000 x 900 (h) mm

**Net weight:** about 100 kg

**REQUIRED**

**PERSONAL COMPUTER**  
- NOT INCLUDED -

**SUPPLIED WITH**

**THEORETICAL - EXPERIMENTAL  
HANDBOOK**

**OPTIONAL**

**TRANSPARENT VENTURI TUBE**  
**Mod. AXD-V2/EV**  
For further air velocity study

