

CENTRIFUGAL AIR COMPRESSOR STUDY UNIT

Mod. CC-1/EV

INTRODUCTION

The study unit allows to study the main characteristics of a centrifugal air compressor.

The wheeled bench is equipped with a front panel, on which are placed the maneuvering devices and all the necessary tools for carrying out the tests.

TRAINING PROGRAM

- System start up
- Inlet and Outlet compression temperatures measurement
- Inlet Compressor air flow rate measurement
- Power and efficiency of a centrifugal compressor
- Air flow rates with unified throttling devices measurements
- Checks and calibrations of the safety organs (pressure switch, pilot valve)
- Measurement of load losses with different pipes
- Compressor performance at variable speed

TECHNICAL SPECIFICATIONS

Single-stage two-cylinder reciprocating compressor, controlled by a belt drive by an electric motor c.a. with frequency variator:

- No-load device and pilot valve
- Supply check valve
- Flow rate: 260 l/min (referred to the suction conditions)
- Max flow pressure: 9 bar
- Rpm sensor

Air tank:

- Capacity: 100 l
- 0÷10 bar dial gauge
- 1÷9 bar adjustable pressure switch, for compressor insertion and deactivation
- Safety valve
- Exhaust valve

Device for measuring the air flow aspirated by the compressor:

- Calibrated flange mounted on damping vessel
- Differential micromanometer with inclined scale for measuring the differential pressure at the flange

Group of flow rate measurements and load losses

- N. 3 diaphragms calibrated to UNI standards calculated for a max. Full scale capacity of 300 l/min, mounted on a 3/4" pipe and complete with a throttle valve downstream and pressure taps



- N. 5 pipes of different diameter, shape and length, for the determination of pressure losses according to the air flow, complete with throttle valve downstream and pressure taps
- Pressure reducing valve
- Flowmeter for measuring the air flow rate with regulation range 0 ÷ 25,000 l/h
- "U" differential pressure gauge 0 ÷ 300 mmHg for the measurement of differential pressure and load losses respectively in calibrated diaphragms and in pipes with different profiles
- N. 2 Pt100 resistance thermometers for measuring the air temperature upstream of the diaphragms and the pipes under test
- N. 2 pressure gauges with 0 ÷ 10 bar dial

Electric control panel:

- Digital multimeter to measure: voltage, current and power drive motor
- N. 2 digital thermometers for instant reading of the temperature
- Differential magnetothermal switch
- Voltage presence warning lamp

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

Dimensions: 2100 x 950 x 2000 (h) mm

Net weight: about 400 kg

SUPPLIED WITH

**THEORETICAL - EXPERIMENTAL
HANDBOOK**

