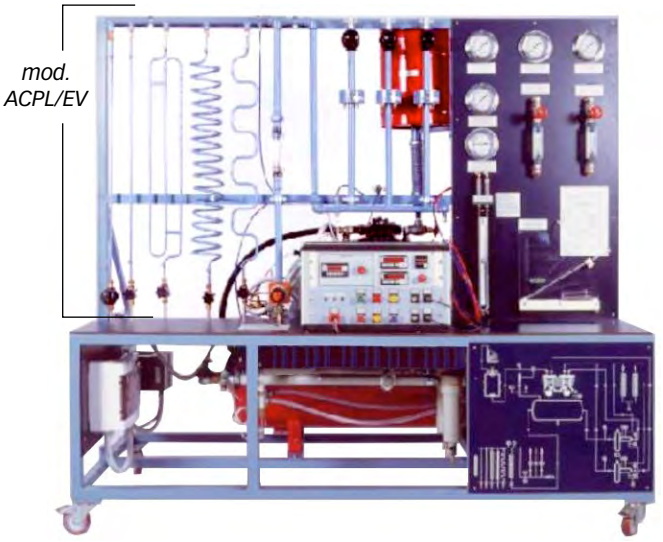
TWO-STAGE VARIABLE SPEED PISTON COMPRESSORS STUDY UNIT

Mod. VC-PD/EV



mod. ACPL/EV

INTRODUCTION

The study unit allows to study the main features of a two-stage compression double-stage air compressor.
The system includes two water chillers for cooling the air generated by the compressor, complete with thermoresistances for measuring the air and water temperature at the inlet and outlet.
The bench is wheeled and 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
- Measurement of temperatures at different compression stages
- Measurement of cooling water flow and determination of the amount of heat subtracted from the compressed air in the chillers
- Measurement of the air flow aspirated by the compressor
- Determination of the power and efficiency of an alternative compressor
- Measurements of air flow rates with unified throttling devices
- Calculation of compressor efficiency
- Compressor performance at variable speed

TECHNICAL SPECIFICATIONS

Two-cylinder reciprocating dual stage compressor, driven by a belt drive by an electric motor c.a. with frequency variator:

- No-load device and pilot valve
- Supply check valve
- Flow rate: 450 l/min (referred to the suction conditions)
- Max delivery pressure: 11 bar
- Rpm sensor

N. 2 tube bundle coolers:

- Nominal air flow rate: 1,2 m^3/min
- Max working pressure: 16 bar
- Air temperature: 0 ÷ 150 °C
- Water temperature: 0 ÷ 90 °C

Air tank:

- Capacity: 200 l
- 0÷16 bar dial gauge
- 1÷11 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

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 - 3 kVA
(Other voltage and frequency on request)
Dimensions: 2100 x 950 x 2000 (h) mm
Net weight: about 415 kg

REQUIRED

UTILITIES (PROVIDED BY THE CUSTOMER)

- Tap water: 600 l/h, 2÷3 bar

SUPPLIED WITH

THEORETICAL - EXPERIMENTAL HANDBOOK

OPTIONAL

UNIT FOR THE STUDY OF PRESSURE LOSSES IN COMPRESSED AIR CIRCUITS Mod. ACPL/EV

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