PCB300

Air screw compressor study unit

Experimental capabilities

- **Study of a screw compressor**
- **Calcul de la puissance, du rendement, du travail**
- **Study of air-water exchanger**
- **Study of pressure losses in diaphragms (suction and discharge)**
- **Pressure and flow measurement**
- **Relation flow-pressure**

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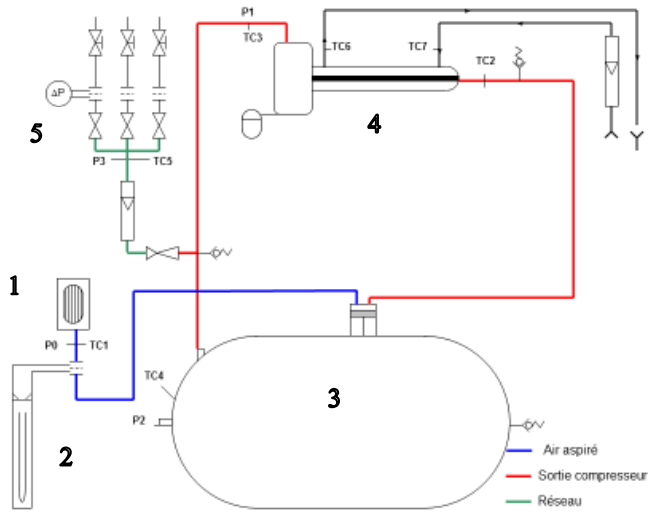
version : FT-PCB300-STD-A

PCB300

Operating principle

The bench PCB300 allows to study the operating principle of a screw air compressor.
The ambient air is drawn at the level of the filter where a diaphragm is found allowing measuring the incoming air flow by means of a manometer column.
The air passes successively through two air water exchangers connected to the water networks of the institution.
At the output of exchanger, the air return in the tank then at the level of a pressure reducer connected three outlet diaphragms to measure the outlet flow rate using a differential pressure sensor. The robust design of this device makes it suitable for use in schools.
The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises. The manufacture of this equipment complies with the European standard for machinery manufacturing.

Illustrations



6. **Instrumentation**
   - Seven air temperature sensors and water ar different points of the installation
   - Four pressure gauges
   - Three safety valves
   - A differential pressure gauge
   - Four diaphragms (compressor suction and discharge)
   - An air float flowmeter
   - A cooling water flowmeter 30 - 300 L/h
   - Un wattmeter
   - A differential pressure sensor

Technical details

1. **Air filter**

2. **Measure of air flow intake for diaphragm and pressure gauge in U**

3. **Air compressor**
   - Construction acording CE normes
   - Volume draw to treat : 17,8 m3/h
   - Maximum pressure : 8 bars
   - power : 3 cv
   - power : 2,2 kW
   - tank capacity 270L

4. **air-water exchanger first floor**
   - tubular exchanger cooled by water (exchange by co and counter current) water separator with automatic drainer at the output

5. **Measurement of flow rate by diaphragm**
   - automatic pressure reducer for the output pressure control (3 bars)
   - float flowmeter
   - 3 outlet diaphram
   - Control valve at the output and exhaust silencer

Services required

- Electrical supply : 400 Vac – 50 Hz – 20 A
- Electrical network : 3 phases + Neutral + Earth.
- Water supply : 15 L/min – 3 bars
- Water drain : on the floor
- Dimensions: (LxWxH mm): 2100 x 800 x 2000
- weight (Kg): 250

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

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