



1. General

The IC106D unit allows to acquire the basic knowledge concerning the trays principles. The most common industrial method to dry solid materials in bulk consists in making a hot air stream pass over drawers full of wet material.

The utilisation conditions may be modified to emphasise the aspects of the industrial drying techniques from a theoretical and practical point of view.

The unit is supplied with manuals which described all parts of the trainer, the installation and utilisation procedures, as well as many exercises with the relative results.

2. Composition

The unit consists of:

- Heating resistance: 0 to 3 kW.
- Axial fan max flow rate 2500 to 2700 m³/h (50/60 Hz).
- Dimensions of the drying compartment: 0.45x0.45x0.4 m.
- No. 3 trays in anti-corrosion material, movable.
- No. 2 dry bulb thermometers (-10 to +100 °C).
- No. 2 wet bulb thermometers (-10 to +100 °C).
- No. 1 pycnometer.
- No. 1 anemometer with digital indicator.
- No. 1 stop-watch.
- No. 1 electronic balance (0 to 5 kg) with digital indicator.
- No. 1 electrical resistance power regulator.
- No. 1 fan speed electronic regulator.

3. Description

The air is forced inside the drying chamber by means of a fan placed at one end of the tunnel.

It is possible to adjust the speed of the air inside the drier by modifying the speed of the fan by means of an electronic control.

A battery of electrical heating resistances is placed before the drying compartment to heat up the air. The power dissipated in these resistances can be adjusted.

A rack of three trays having a total load capacity of 5 kg of solid material is suspended to the arm of a balance, with accuracy of 2 g.

The ducts upstream and downstream of the compartment are designed to produce a uniform air flow in the trays.

Two thermometers for the measurement of the temperature upstream and downstream of the working sections and a psychrometer for the control of the humidity are provided.

The apparatus is mounted on a wheeled frame.

4. Experiments

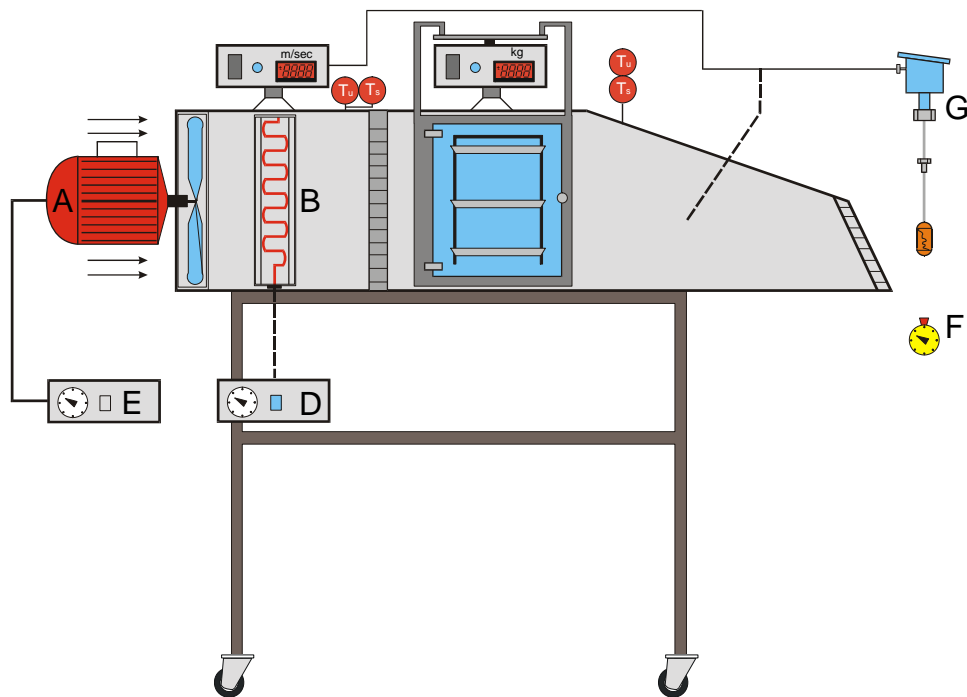
- Utilisation of a psychrometric chart.
- Mass balance.
- Verification of the drying rate states.
- Determination of the drying curves.
- Determination of the working parameters of a real scale plant.
- Influence of the air temperature on the drying rate.
- Influence of the air speed on the drying rate.

5. Required services

- Electrical supply: 220/240 V single-phase – 50/60 Hz, 3.5 kW

6. Dimensions and Weights

- Dimensions: 1900 x 650 x 1400 h mm
- Weight: 200 kg



Key of drawing

- A. Axial fan
- B. Electrical resistances
- C. Electronic balance
- D. Electrical resistance power regulator
- E. Fan speed electronic regulator
- F. Stop-watch
- G. Anemometer
- Tu No. 2 wet bulb thermometers
- Ts No. 2 dry bulb thermometers

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