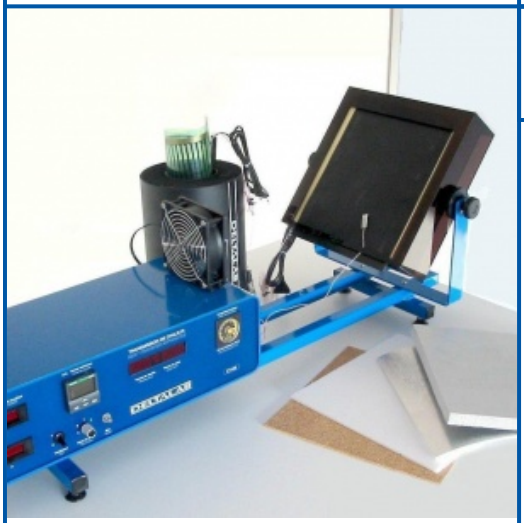
STUDIES OF THE MODES OF TRANSMISSION OF HEAT



Non contractual photo

SERVICE : POWER SUPPLY (220 V, 50 HZ, SINGLE PHASE)
DIMENSIONS : 400 X 450 X 1000 MM

WEIGHT : NET WEIGHT: 12KG

REFERENCE : ET100

This apparatus makes it possible to highlight and study the different modes of heat transfer, namely conduction, free or forced convection and radiation.

The device is based on the use of a flexible heating plate, low inertia and temperature controlled. The measurement of the heating power required to maintain this plate at a chosen set temperature makes it possible to determine the various heat exchanges.

Experimental possibilities

- Influence of the inclination of a flat plate on heat transmission by natural or forced convection.
- Determination of the thermal conductivity of different materials.
- Study of the chimney effect in free or forced convection.
- Study of the radiation of a "black" plate and a "gray" plate and determination of the emissivity factor of this latter surface.

Technical specifications :

The unit comes with two plates. One has a black face and a shiny face; the other is uncoated. The comparison of the results obtained with these two plates makes it possible to show the exchanges by radiation. These plates are placed on an orientable support to study the free or forced convection (by means of a fan) of a flat plate. By superimposing a plate of one of the supplied materials on the heating plate, it is possible to study the conduction. The chimney effect can also be approached by placing a heating plate in a conduit of insulating material.

The apparatus is composed of :

- Two flexible heating plates, of low thermal inertia, regulated in temperature. One has a matte black face and the other shiny side and the other plate is uncoated. The heating power of the plates is about 50 W.
- A set of plates of different insulating materials for the study of conduction:
- A tilting support on which are placed the hotplates and the different plates of materials to study.
- A tubular duct made of insulating material for the study of the chimney effect.
- A fan for the demonstration of forced convection.
- An electronic box consisting of an on-off regulator, two meters with reset device to determine the heating power needed to maintain the temperature of the plate, a voltmeter, an ammeter and a digital thermometer with a probe. platinum for measuring the surface temperature or the ambient temperature.
- A frame supporting the electronic box and the plate holder.

- A technical bulletin
- The appliance must be mounted on a table (not supplied) and protected from drafts and changes in temperature.