PCT011

AXIAL HEAT CONDUCTION STUDY UNIT

Experimental capabilities

- **Study of thermal exchanges by conduction.**
- **Study of the laws of linear and conduction.**
- **Determining the thermal conductivity of different materials.**
- **Study of the resistance of a contact surface and of the variation.**
- **List of temperature gradients according to different transfer levels.**
- **Study of the influence of the addition of a conductive paste between the samples and the heat source**

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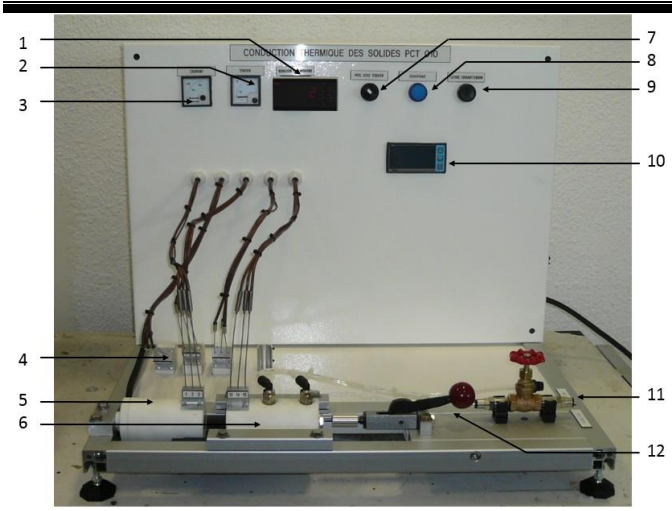
Operating principle

The principle of PCT 011 bench is studying the radial conduction.
The axial conduction can be studied on different diameters and different materials such as brass and stainless steel.
The robust design of this equipment makes it perfectly suited for use in schools.
Its anodized aluminum frame with legs gives it great strength as well as great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive

Illustrations



T: 15 temperature plugs by T type thermocouple

Electrical box includes:

A white light of voltage presence

A general power disconnect

USB output for supervision

Technical details

1. Temperature regulator

Allows to regulate the temperature of the resistor

2. Ammeter

Allows to measure the current flowing through the resistor

3. Voltmeter

Allows to measure the current flowing through the resistor

4. Sample + support

Storage area of the samples used for axial conduction (D25mm stainless steel, brass D25 and brass D15)

5. Axial module - Heat source

Consisting of a brass cylinder D25 mm equipped with a heating cartridge

6. Axial module - Cold source

Consisting of a brass cylinder D25 mm equipped with a circulating cold water

7. Switch

Turning on the system

8. Operation indicator of the resistor

9. Push button

Allows you to read the power used by the resistor on the voltmeter and ammeter

10. Multi-line temperature display

11. Cooling system (network)

12. Lever maintaining the axial modules

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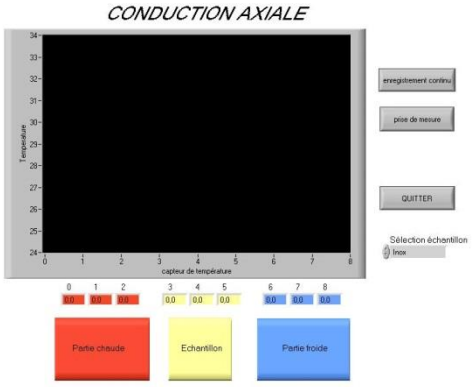
The conduction unit is composed of:

- An aluminum chassis profile with a study module of the linear conduction equipped with a thermal energy source provided by an electrical resistor and a connectable cooling circuit.

- An electrical console comprising: thermostat with a calibrated loop / measurement and display of temperatures, interface analog / digital all of the modules temperature probes. USB output to visualize in real time the heat transfer and temperature measurements on DIDATEC computer interface using a PC.
- Achievement of experiences in adiabatic conditions (isolation according to the outside)

- **Study module of the linear conduction:**

– Metallic cylinder Ø 25 mm heat emitter, isolated from the outside, equipped with three temperature probes distributed linearly.
– Metallic heat receiver cylinder, isolated from the outside, equipped with three temperature probes. This element is cooled by circulating cold water
– Brass demonstration cylinders Ø25, in stainless steel Ø25 and in brass Ø15, different metals are isolated from the outside. They are equipped with three temperature probes spaced linearly. The sample change occurs rapidly by simple action on a spring clamp lever. This module allows to study the influence of the nature of materials and the contact surface between the elements on the transmission of heat energy.



Visualization of supervision interface

Services required

- Power supply: 230 V mono – 50 Hz – 16 A
- Water supply: 3 L/min – 3 bars
- Dimensions: (LxWxH mm): 700 x 700 x 600
- weight (Kg): 40

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
- Monitoring software by USB connection
- Software :
- Certificate of conformity CE

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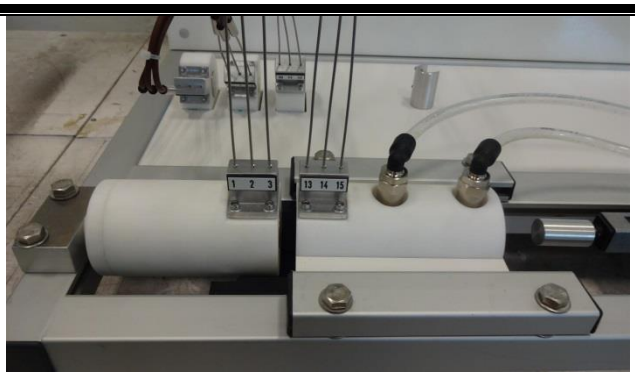

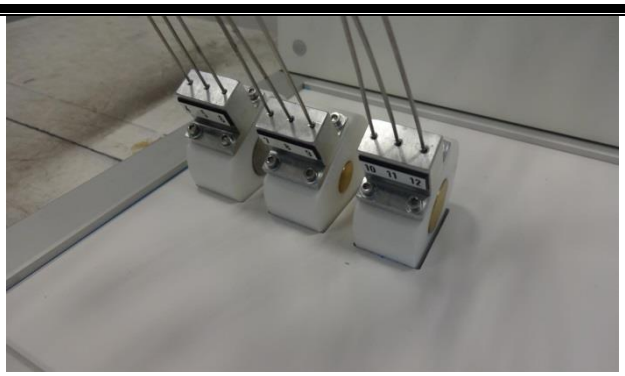

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