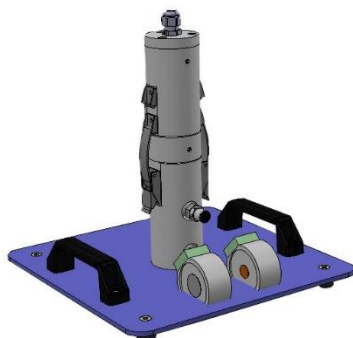
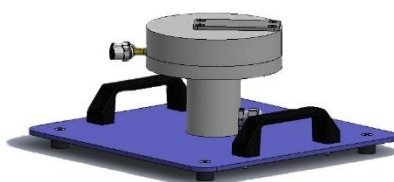


RADIAL AND AXIAL HEAT CONDUCTION STUDY UNIT



Axial conduction unit
PCT010



Radial conduction unit
PCT011



Measurement and control unit with
data acquisition
PTC001

Experimental capabilities

- Study of thermal exchanges by conduction.
- Study of the laws of linear and radial conduction.
- Determination of 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

Each module can be purchased independently.

Operating principle

The principle of the bench is to study the axial and radial conduction.

The axial conduction can be studied on different diameters and different materials such as brass and stainless steel.

The radial conduction is studied on a disc

The robust design of this equipment makes it perfectly suited for use in schools.

Its anodized aluminum structure on multidirectional wheels with brakes makes it extremely robust as well as a great flexibility of integration into your premises. The manufacturing of this equipment meets the European machine directive.

Illustrations

Technical details

A: PCT010 axial conduction unit

The unit is installed on a steel plate with handles equipped with four anti-slip feet.

It consists of a cold source consisting of an insulated D25 mm brass cylinder equipped with cold water circulation and a hot source consisting of an insulated D25 mm brass cylinder equipped with electrical resistance. Each source is instrumented by 3 thermocouple type temperature probes. The module offers the possibility to test different samples:

- a D25mm brass cylinder insulated and instrumented by 3 thermocouple type temperature probes
- a brass cylinder D15mm insulated and instrumented by 3 temperature probes thermocouple type
- a stainless steel cylinder D25mm insulated and instrumented by 3 temperature probes type thermocouple

B: Radial conduction unit PCT011

The unit is installed on a steel plate with handles equipped with four anti-slip feet.

It consists of a brass disc with a diameter of 110 mm and a thickness of 3 mm, isolated from the outside.

The disc is heated in its center by an electrical resistance and cooled on the outer perimeter by a circulation of water.

The disc is instrumented by 6 thermocouple temperature probes distributed over its radius.

C: Measurement and control module with data acquisition PTC001

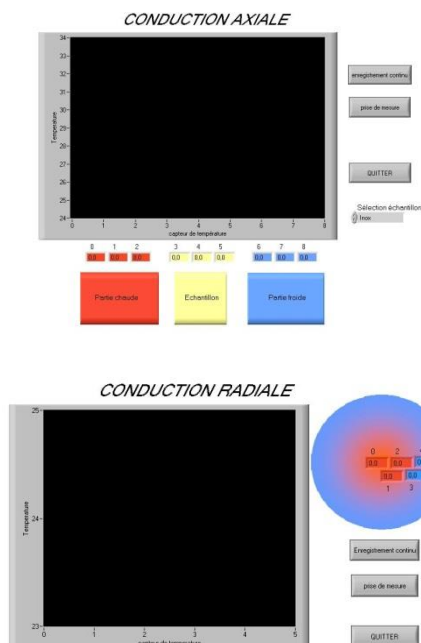
The module is installed on an aluminum profile structure equipped with four anti-slip feet.

It has safety features: general power disconnect and 30mA differential circuit breaker.

On the side, connectors are used to connect the conduction test modules (probes, resistance control output, etc.).

The front panel includes the buttons for starting the system and a 7" touch screen for displaying all measurements (element temperatures, heating power, etc.). the module has a WIFI router for connection to a computer. Data acquisition software is provided and is license-free.

Data acquisition software:



The data acquisition system has the following characteristics:

1.Measures connected to the data acquisition system:

-temperatures:

- axial hot source: 3 probes Tc T
- axial sample Brass D25mm: : 3 probes Tc T
- axial sample Brass D15mm: : 3 probes Tc T
- axial sample Stainless steel D25mm: : 3 probes Tc T
- axial cold source: 3 tc T probes
- radial test disc: 6 Tc T probes

-electrical power of the heating cartridge in use

2.Software Features:

- Visualize the measured values on a schematic diagram
- plotted data evolution curves according to position
- Save the data to a file in spreadsheet format.
- the software provided is unlicensed.

3.Accessoires

The acquisition system is delivered with a USB key including all the necessary software (acquisition software ...) The Connection to the PC is made by WIFI.

Services required

- Power supply : 230 V mono – 50 Hz – 6 A
- Water supply : 3 L/min – 1 bars

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
- Wiring diagram
- Data acquisition software
- Certificate of conformity CE