



FREE and FORCED CONVECTION FROM FLAT, PINNED and FINNED PLATES

H112P



Year 1
study

Description

A bench top accessory designed to allow students to experimentally investigate both free (natural) convection and forced convection. The accessory includes a small, variable velocity wind tunnel with a digital velocity meter and a central aperture. Three plates with integral heaters and temperature sensors are also supplied that are designed to fit in the central aperture in the wind tunnel. A heated flat plate with surface thermocouple may be directly compared with a similar pinned plate and finned plate also fitted with a surface thermocouple. In addition to expanding understanding of the heat transfer enhancement from extended surfaces, the pinned and finned plates each have three thermocouples arranged at intervals along a fin and a pin. This allows investigation of the temperature distribution along the extended surfaces.

Related Laws/Applications

- Mechanical Engineering
- Nuclear Engineering
- Chemical Engineering
- Control and Instrumentation
- Plant and Process Engineering
- Building Services
- Engineering Physics
- Refrigeration
- Marine Engineering

Learning capabilities

- Investigation of the relationship between power input and surface temperature in free convection on flat, finned and pinned plates.
- Investigation of the relationship between power input and surface temperature in forced convection on flat, finned and pinned plates.
- Investigation of the use of extended surfaces to improve heat transfer from the surface.
- Determination of the temperature distribution along an extended surface.

Technical Specification

- Heat Exchanger Heated Area: 125 x 150mm
- Flat Plate Heat Exchanger: Aluminium
- Pinned Plate Heat Exchanger: Aluminium; 16 pins x Ø12.7mm
- 100W Heater mat on all Heat Exchangers
- Three thermocouples on Pinned and Finned Plates

Essential Ancillaries

- H112

What's in the Box?

- 1 x H112P
- 1 x Power Cable
- Instruction manual
- Packing List
- Test Sheet

Weights & Dimensions

- Weight: 20 kg
- Length: 350mm
- Width: 300mm
- Height: 1300mm

Essential Services

- H112

Ordering information

To order this product, please call PA Hilton quoting the following code:
H112P

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS