

Product Name :
Extended Surface Heat Transfer

Product Code :
ALABS-A104-320

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Description :

Extended Surface Heat Transfer

- A small scale bench top accessory designed to measure the temperature profile and heat transfer along a horizontal extended surface (cylindrical pin).
- A small diameter uniform rod is heated at one end and heat flowing along the rod by conduction is lost to the surroundings by a combination of natural convection and radiation. The resulting heat transfer gives a temperature profile that may be investigated and predicted by conventional analysis.
- The apparatus consists of a solid cylindrical matt black brass bar of 10mm diameter and effective length of 350mm supported in a frame and heated at one end. At intervals of 50mm from the heated end are eight thermocouples recording the surface temperature so that a temperature profile along the bar may be developed. An additional thermocouple records the ambient temperature.
- The heater is located inside an insulated cylinder at one end of the apparatus. The heater input power is controlled through the variable 240v ac supply from the **Heat Transfer Service Unit** and is designed to

operate at up to 20 Watts

- All instrumentation and power supplies plug directly into the **Heat Transfer Service Unit** and readings are displayed on digital panel meters.

Experimental Capabilities:

- Measuring the temperature distribution along an extended surface and comparing the result with a theoretical analysis.
- Calculating the heat transfer from an extended surface resulting from the combined modes of free convection and radiation heat transfer and comparing the result with a theoretical analysis.
- Determining the constant of proportionality/thermal conductivity of the rod material



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