

Product Name :

Combined Convection And Radiation

Product Code :

Transfer Lab0013

Description :

Combined Convection And Radiation

Technical Specification :

Combined Convection And Radiation

Specification of Combined Convection And Radiation

- A small-scale accessory designed to demonstrate combined convection (free and forced) and radiation from a horizontal heated cylinder. It consists of a centrifugal fan with vertical outlet duct at the top of which is mounted the heated cylinder.
- Comprises a heated cylinder mounted in a vertical air duct, with a fan at the base of the duct which can be used to provide a variable air flow over the cylinder.
- Heater rating 100 Watt at 24V DC.
- K-type thermocouples measure the air temperature upstream and the surface temperature of the cylinder.
- The air flow is electronically adjustable over the range 0 - 7 m/s by an variable speed fan.
- The air flow is manually adjustable
- The air flow rate is measured by a vane type anemometer in the outlet duct.
- The

accessory is mounted on a PVC baseplate which is designed to stand on the bench top and connect to the Heat Transfer Service Unit without the need for tools.

Technical Details:

The equipment consists of a centrifugal fan with a vertical outlet duct at the top of which is mounted a heated cylinder. The mounting arrangement for the cylinder in the duct is designed to minimize loss of heat by conduction to the wall of the duct.

The surface of the cylinder is coated with heat resistant paint which provides a consistent emissivity close to unity. A K-type thermocouple attached to the wall of the cylinder, at mid position, allows the surface temperature to be measured under the varying operating conditions.

A variable fan blows air through the outlet duct and a vane type anemometer within the fan outlet duct allows the air velocity in the duct to be measured. The fan is a variable speed fan with electronic control. On a manually adjustable throttle plate allows the air velocity to be varied.

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