

## FLUIDISATION AND FLUID BED HEAT TRANSFER MODULE F300E



Year 1  
study

### Description

A glass cylindrical chamber with an air distribution plate at the bottom end allows the granular material supplied to be fluidised by a controlled and measured air flow. An adjustable cylindrical heater with surface thermocouple and power meter can be immersed at any level in, or out of the bed to allow measurement of the local heat transfer coefficient. A moveable pressure tapping and separate thermocouple allow the pressure and temperature within the bed at any depth to be measured. The pressures, temperatures and air flow rate are recorded by a combination of instrumentation on the Compressible Flow Range F300 base unit and the optional module.

### Related Laws/Applications

- Grain drying
- Chemical Reactions
- Combustion
- Mixing
- Drag Forces
- Fluidised
- Boundary Layer
- "Difficult Fuels"
- Compact Fuel Burning

**Learning capabilities**

- Observation of the behaviour of particles in a bed with upward air flow.
- Investigation of the relationship between bed height, bed pressure drop and upward air velocity through a bed of granular material.
- Investigation of the effect on the surface heat transfer coefficient for a hot surface in an air fluidised bed due to Superficial velocity, depth of immersion and particle size
- Investigation of the effect of distributor design on bed behaviour.
- Demonstration of segregation of particles by size and/or density.

**Technical Specification**

- 3 x Thermocouples
- Four grit size granules supplied
- Bed Chamber: Nominal Ø105mm x 220mm long

**Essential Ancillaries**

- F300

**What's in the Box?**

- 1 x F300E filled with grit
- 1 x Dispenser
- 1 x Ruler
- 3 x Grit options
- 1 x Air Filter
- 1 x Manometer Fluid
- Instruction manual
- Packing List
- Test Sheet

**Essential Services**

- Maximum air requirement: approximately 150 litres free air per minute at a pressure of up to 300 kN m<sup>-2</sup> gauge supplied to the F300 base unit.

**Ordering information**

To order this product, please call PA Hilton quoting the following code: F300E

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS