H-6807

Fluidization and Fluid Bed Heat Transfer Demonstrator

Purpose

The Hampden **Model H-6807** Fluidization and Fluid Bed Heat Transfer Demonstrator demonstrates air flow through packed or fluidized bed of granular material as well as heat transfer.

Description

The Demonstrator consists of a vertical glass enclosure complete with distribution chamber, distributor, heater, bed material, temperature probe and filter. Instrumentation and control includes a flowmeter with needle valve, orifice, chamber manometer, differential manometer, heater control, wattmeter, circuit breaker, temperature control and digital temperature meter with switch.

Specifications

Base:
1.5" square mechanical tubing finished in instrument tan texture with levellers.

Control Panel:
14 gauge furniture stock steel finished in instrument white enamel.

Control Panel Enclosure:
14 gauge furniture stock steel finished in instrument tan texture.

Nomenclature:
3-ply brown/white core engraving phenolic secured to the panel with stainless steel screws.

Chamber:
Clear with distribution chamber, distributor, and filter. Unit is designed for quick removal.

Electric Heater:
Consists of a 250 watt heater with one Type J and one Type K internal thermocouples.

Component Plate:
Provides mounting fixtures for thermocouple, electric heater, pressure probe and pressure relief valve. The thermocouple, electric heater and pressure probe can be quickly adjusted for height.

Temperature Control:
Variable autotransformer.

Thermocouples:
Two Type K

Temperature Control:
Digital high limit controller, 0-399°C for Type J thermocouple. Unit includes thumbwheel setting and reset pushbutton.

Temperature Indicator:
4-digit, 0.1 resolution, °F or °C unit select and break protection upscale.

Flowmeter:
8.2 SCFM (233 ltr/min) with needle valve

Differential Manometer:
0-30cm with orifice plate assembly with red oil.

Chamber Pressure Manometer:
0-20cm with red oil.

Chamber Pressure Relief Systems:
With water lock.

Power Switch:
Electromagnetic circuit breaker 1-pole

Panel Lamp:
Internal with frosted lens

Power Cord:
3/conductor 6ft. long (2 meters)

Aluminum Oxide:
Two grades

Services Required

Electrical:
120V AC - 1ϕ - 60Hz

Clean Instrument Air:
200 ltrs per minute with regulator

Experimental Capabilities

- Effects of Distributor Design on Bed Behavior
- Effects of Superficial Velocity, Depth of Immersion, and Particle Size
- Separation of Particle Size and Density
- Air Flow and Pressure Drop Through Granular Materials, Packed and Fluidized Beds
- Behavior in a Fluidized Bed of a Wide Range of Granular Materials from onset of Fluidization to Entrainment.

Computer Data Logging

This feature adds 3 dual thermocouples, 2 differential presssure transmitters and 1 digital wattmeter output into the system. One interface package containing National Instruments I/O modules is provided for interfacing into an IBM compatible computer through the RS-232 port. Templates for LabVIEW® control software are included. Computer not included.

Specify **MODEL H-6807-CDL**

All Hampden units are available for operation at any voltage or frequency

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