

Heat Transfer Training Systems

Educational Training Equipment for the 21st Century

Bulletin 687-9C

H-6879 Nucleate Boiling Heat Transfer Demonstrator

Purpose

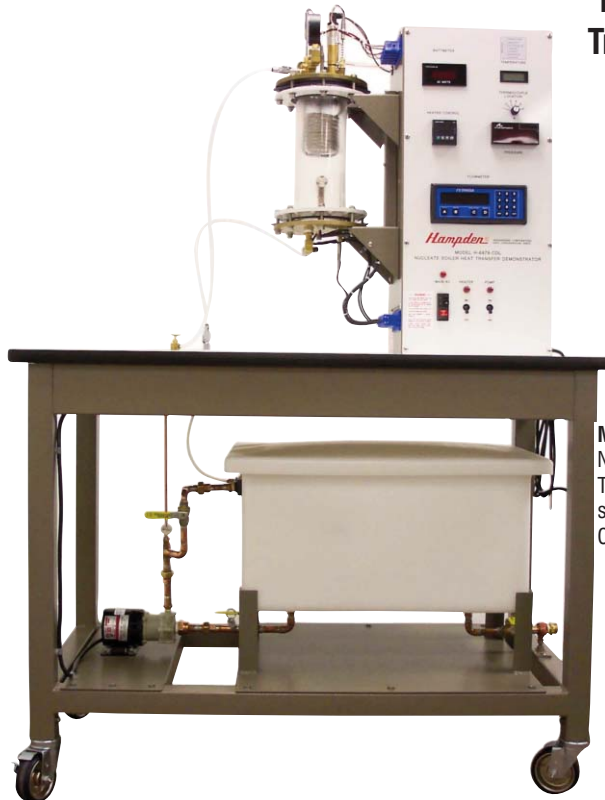
The Hampden **Model H-6879** Nucleate Boiling Heat Transfer Demonstrator is designed to show heat transfer by convection boiling, nucleate boiling and film boiling from a heating element in a pool at saturated conditions.

Description

The heart of this unit is the boiler vessel, this vessel is manufactured of 4" diameter Pyrex® conical glass pipe with 3/8" brass end plates secured with cast iron gasketed flanges. This assembly incorporates a chromium plated copper condenser fitted with a type T thermocouple and coupler for both inlet and outlet water temperatures, pressure relief with adapter tee and cap nut, male elbow flare, pressure transducer and, three type T thermocouples. Also included is one needle valve for charging the cylinder, one electric heater with type T thermocouple and one chromium plated copper heat core. This system allows water to be used as the primary liquid in a vacuum for low temperature boiling experiments.

The control panel consists of a digital temperature meter, thermocouple selector switch, pressure gauge, heater control, wattmeter, flowmeter, boiler vessel light, high pressure cutout switch, pump and heater circuit breakers with pilot lights, and main ground fault interrupter circuit breaker with pilot light. The panel is finished in instrument white enamel with black KEM enamel nomenclature.

The mobile bench consists of a 15 gallon tank with cover, water pump, needle valve, and inlet and outlet couplers. The tank shall include a drain ball valve with hose fitting. The bench is manufactured of 2" square mechanical tubing with lower stringers and 4" aprons finished in instrument tan texture. The top is 1-1/16" woodcore plastic laminate with black "T" molding. Provided are two swivel and two fixed casters.



Model H-6879-CDL
Nucleate Boiling Heat
Transfer Demonstrator
shown with
Computer Data Logging option
Dimensions: 64"H x 48"W x 24"D
Weight: 300 lbs.

Accessories

- 1 - inlet hose
- 1 - outlet hose
- 1 - Bulletin 687-9EX Experiment Manual
- 1 - Bulletin 687-9TM Teachers Manual

Services Required

- 120VAC-1Ø-15A-60Hz
- Corning Glass®

Computer Data Logging

This feature adds dual type T thermocouples, digital heater controller, digital wattmeter, power supply, accessory thermocouple receptacles (7) - temperature, wattage, pressure and flow recorder output signals, ultra-low infrared electro-optical transmitter, type T plugs, into the system. One interface package containing National Instruments I/O modules is provided for interfacing into a PC computer through the USB port.

Computer is included. LabVIEW® control software and templates for LabVIEW® control software are included.

Specify **Model H-6879-CDL** ♦



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

Hampden
ENGINEERING CORPORATION