

Heat Transfer Training Systems

Educational Training Equipment for the 21st Century

Bulletin 685-40C

H-6850-40 Shell and Tube Heat Exchanger

Purpose

The Hampden **Model H-6850-40** Shell and Tube Heat Exchanger is designed to provide students with a comprehensive study of shell and tube heat exchanger characteristics. Students will be able to determine the effects of water flow rates and inlet water temperatures on the overall heat transfer coefficient.

Description

The Shell and Tube Heat Exchanger consists of a seamless brass shell with copper tubes expanded into the tube-sheet for a leak proof fit. Segmented brass baffles, (equally spaced throughout the shell) ensure turbulent flow conditions. This design provides for high heat transfer coefficients within the heat exchanger. The entire heat exchanger is fully insulated to minimize any losses to the environment. The heat exchanger can be operated under either parallel-flow or counter-flow conditions by opening and closing the appropriate hand valves. Fluid temperatures are measured with thermocouples (output is displayed by a multi-point digital temperature meter). The monitored temperatures are as follows:

- Shell side inlet
- Shell side outlet
- Tube side inlet
- Tube side outlet
- (3) intermediate shell side temperatures
- (3) intermediate tube side temperatures

The shell and tube side water flow rates are measured with a pair of rotameters, having a full scale accuracy of $\pm 2\%$ and a full scale repeatability of $\pm 0.25\%$. The water flow rates are independently regulated with needle valves.



Model H-6850-40 Shell and Tube Heat Exchanger
Dimensions: 44"H x 44"W x 12"D, Shipping Weight: 200 lbs.

With the knowledge of the water flow rates and temperatures, the overall heat transfer coefficient can be derived. The unit is designed to be wall mounted on a sturdy wall. Complete operating instructions are provided.

Services Required

Electrical: 120V AC, 1 ϕ , 60Hz

Water: 8 gpm at 60 psi

Max. Hot Water Temp: 180°F

Computer Data Logging

This feature adds ten dual thermocouples and two flowmeters into the system. One interface package containing National Instruments I/O modules is provided for use with an PC computer through the USB port. Templates for LabVIEW® control software are included.

LabVIEW® control software and PC computer are included.

Specify the **Model H-6850-40-CDL**.



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

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