

# Heat Transfer Training Systems

Educational Training Equipment for the 21st Century

Bulletin 683C

## H-6830 Educational Mechanical Heat Pump

### Purpose

The Hampden **Model H-6830** Educational Mechanical Heat Pump demonstrates the principle that heat will move from a high temperature to a lower temperature as first proposed by Lord Kelvin over 100 years ago. The Hampden **Model H-6830** Educational Mechanical Heat Pump is known as a water to air system.

### Specifications

#### Base

11 gauge Furniture Stock Steel, finished in instrument tan texture

#### 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

#### Base Feet

Non-mar

#### Nomenclature

Silk-screened black KEM enamel

#### Schematic

Silk-screened black KEM enamel

#### Refrigerant

R-134a

#### Compressor

1/5HP Hermetic (2600 BTU) with vibration absorber, external line-breaker overload, and suction service valve

#### Condenser

Shell and Tube, condensing capacity is 15,000 BTU/HR @ 105°F condensing temperature

#### Refrigeration Line Accessories

Filter-Drier and Sight glass

#### Metering

Thermal Expansion Valve (TEV)

#### Power Measurement

Watt-hour meter measuring input to compressor

#### Evaporator

High efficiency staggered tube coil with rippled fins, rated 1,200BTU/Hr 10° T.D. Forced air cooled



**Model H-6830** Educational Mechanical Heat Pump  
Dimensions: 24"H x 48"W x 28"D, Shipping Weight: 425 lbs.

#### Temperature

Digital temperature meter with selector switch monitoring thermocouples located at the following points:

- A. Condenser water-inlet
- B. Condenser water-outlet
- C. Condenser inlet
- D. Condenser outlet
- E. Evaporator inlet
- F. Evaporator outlet

#### Flowmeters

R-134a:  
0.16 to 1.57 pounds per minute (PPM)  
Water  
0.2 to 2 gpm with flow control valve

#### Pressure Gauges

Evaporator: 0-500 psi  
Condenser: 0-250 psi

#### Control Panel Components

Electromagnetic Circuit Protector power switch and pilot light, 3/c power cord w/plug, High pressure cut-out switch

#### Accessories

- A. Inlet and outlet hose barbs for water-cooled condenser,
- B. Operating Instructions and Maintenance Manual.

### Services Required

12V AC, 1 $\phi$ , 60Hz

### Computer Data Logging

This feature adds six thermocouples, two flow transducers, four pressure transmitters, and one watt transducer 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-6830-CDL** ♦

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

**Hampden**  
ENGINEERING CORPORATION

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