

Heat Transfer Training Systems

Educational Training Equipment for the 21st Century

Bulletin 682-5A

H-6825

Vapor Jet Refrigerator/Heat Pump Demonstrator

Purpose

The Hampden **Model H-6825** Vapor Jet Refrigerator/Heat Pump demonstrates the principle that transferring heat from a cold to a hot source is impossible without external assistance, i.e. high grade heat input.

Description

This system consists of a steam generator, vapor generator, evaporator, condenser, ejector, throttle valve, pump, and instrumentation.

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:

Leveling

Nomenclature:

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

Schematic:

Black on white background with clear Lexan overlay secured to the panel with stainless steel screws.

Refrigerant:

R-123

Steam Generator:

Insulated stainless steel vented tank with 1500 watt immersion heater, provisions for vapor generator, drain valve, fill valve, removable cover and sight glass.

Vapor Generator:

Stainless steel tank with external pre-heat coil, two thermocouples, pressure gauge, pressure relief valve, high pressure cutout switch, solenoid valve, and sight glass.

Evaporator:

Corning Pyrex heavy wall conical glass with flange adapter, gaskets, and 1/4" brass end plates. Also included is the expansion valve assembly, 400 watt immersion heater, pressure relief valve, compound gauge, two thermocouples, variable autotransformer, AC voltmeter and AC ammeter.

Condenser:

Corning Pyrex heavy wall conical glass with flange adapter, gaskets, and 1/4" brass end plates. Also included is a pressure relief valve, high pressure cutout switch, compound gauge, two thermocouples, and cooling coil with 0.1m² of cooling surface.

Ejector:

Convergent-divergent nozzle with diffuser, two thermocouples and pressure gauge.

Throttle Valve:

Needle Valve

Pump:

Positive displacement with water jacket.

Instrumentation:

Temperature:

Digital temperature meter with selector switch monitoring nine type T thermocouples.

Pressure Gauges:

0-800KNm²

Compound Gauges:

-100 to + 100 KNm²

Flowmeter:

0-75gs-1 with control valve

Voltmeter:

0-250VAC

Ammeter:

0-3A

Main Circuit Breaker:

Ground fault circuit interrupter

Electromagnetic Circuit Protector Power

Switch with Pilot Light:

1-Pole Vapor generator

1-Pole Evaporator Heater

1-Pole Pump

1-Pole accessories

Low Water flow cutout switch

Accessories

- Operating Instruction and Maintenance Manual
- Enthalpy Diagram for R-123

Services Required

Electrical Input

220VAC single phase 50/60 Hz

Water

2 Gal./min. (250L/Hr). Temperature must not exceed 70 Deg.F (22 Deg. C)

Options

Model H-6825-WC Water Chiller

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

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