

# Heat Transfer Training Systems

Educational Training Equipment for the 21st Century

Bulletin 682-6A

## H-6826 Vortex Tube Refrigerator

### Purpose

The Hampden **Model H-6826** Vortex Tube Refrigerator permits the study of the characteristics of vortex tube refrigerating effects. The student has the opportunity to determine the ability to produce cold air from a device with no moving parts.

### Description

The Hampden **Model H-6826** Vortex Tube Refrigerator is table top mounted 36" high, 36" wide by 8" deep or 20" deep including legs. Its major components include:

- Vortex tube
- Heat exchanger
- Flowmeters
- Digital temperature indicator with Type T selector switch
- Thermocouples
- Pressure gauge
- Needle valve
- Air regulator
- Backlighting
- Main input AC circuit breaker with pilot light



**H-6826**  
Vortex Tube Refrigerator

The demonstrator is constructed of a 14-gauge furniture stock steel enclosure finished in instrument tan texture. The control panel is 11-gauge furniture stock steel finished in instrument white enamel. Provided is a cord rack for the power cord, water input and exit quick disconnect ports. Two legs are provided with levelers so the unit can be table top mounted.

Nomenclature is 3-ply brown white-core engraving stock secured to the panel with stainless-steel self-tapping screws.

This unit is provided with a complete Operating Instruction and Maintenance manual, Bulletin 682-601.

### Experiment Capabilities

- Performance Curves of a Vortex Tube:
  - Inlet pressure variations
  - Hot gas ratios
  - Cold gas ratios
  - Gas type variations (air and any other type of non-toxic non-explosive gas)
- Refrigerating Efficiencies and Comparison

### Services Required

**Air:**  
100 psi (700 kPa) @ 9 cu.ft./min (250 LPM)

**Electrical:**  
120V AC-1 $\phi$ -60Hz

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

**Hampden**  
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