

## STEAM to WATER HEAT EXCHANGER H931



**Year 1**  
study

### Features

- Safe and Suitable For Unsupervised Student Operation
- Responds Rapidly to Control Changes
- Negligible Operating and Maintenance Costs
- Two year Warranty

### Description

The H931 Steam to Water Heat Exchanger Unit has been designed to provide visual and quantitative results related to heat transfer in shell and tube type water cooled condensers.

Three interchangeable manifolds allow investigation of single, double or four pass cooling water flow through the condenser tubes.

The unit is self-contained and designed for bench top use

having its own steam generator and condenser tubes housed in a single thick walled glass cylinder.

Instrumentation monitoring the cooling water flow rate, temperature and pressure drop through the tubes allow an interesting and important range of experiments to be conducted. The unit is easily controlled and stabilises quickly allowing many different conditions to be investigated in a single laboratory period.

### Related laws

- Mechanical Engineering
- Chemical Engineering
- Plant and Process Engineering
- Marine Engineering

### Learning capabilities

- Visual demonstration of filmwise condensation and

nucleate boiling.

- Demonstration of the increase in heat exchanger effectiveness due to increasing the number of tube passes at constant flow rates.
- Measurement of the effect of coolant flow velocity and the number of tube passes on pressure drop.
- Investigation of the effect of increasing flow velocity and the number of tube passes on the overall heat transfer coefficient.
- Investigation of the saturation pressure/temperature relationship for H<sub>2</sub>O at low pressures.

### Technical Specification

- Panel: High quality ABS
- Digital Thermometer: Resolution 0.1°C.
- Differential Pressure transducer and Display.
- Flow meters x 2: 10 to 90 cm<sup>3</sup> s<sup>-1</sup> and 1 to 12 g s<sup>-1</sup>.
- Pressure Gauge: Range: - 100 to +100 kN/m<sup>2</sup>.
- Safety Features:
  - - Steam chamber pressure relief valve, pressure switch and heater high temperature cut out.
  - - All electrical components earthed and fuse.

### What's in the Box?

- 1 x H931
- 1 x Transformer (115V only)
- 1 x 3m Reinforced PVC hose
- 1 x 3m PVC drain hose
- 1 x spanner
- 1 x Single pass manifold
- 1 x double pass manifold
- 1 x 1m drain/filling hose
- 9 x spare 'o' rings
- Instruction manual
- Packing list
- Test sheet

### Weights & Dimensions

- Weight: 41 kg
- Weight: 45 kg (115V version)
- Length: 1080mm

- Width: 610mm
- Height: 960mm

### Essential Services

- 3.1 kW 220/240 Volts, Single Phase, 50Hz. (with earth/ground)
- 3.1 kW 110/120 Volts, Single Phase, 60Hz. (with earth/ground)
- Water: Cold water, continuous supply, 100 litres/hour at 17m head minimum.

### Ordering information

To order this product, please call PA Hilton quoting the following codes:

H931/230

H931/115

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 2 YEARS