

FILM and DROPWISE CONDENSATION H102K



Year 1
study

Description

The Film and Dropwise Condensation Module H102K is used with the H102 Heat Exchanger Service Unit which supplies both electrical power and instrumentation for the module via a control console that is supplied with the H102K module.

A vertical, thick walled glass cylinder steam chamber is fitted with plated brass cover plates. The lower plate carries an electric heating element which converts water to steam at a rate which is determined by the electrical power input. This steam flows upwards to the Dropwise and Filmwise condensers where it is condensed by transferring heat to the cooling water, and the condensate returns to the lower end of the vessel for re-evaporation.

Three steam baffles are fitted in the chamber to reduce the amount of splashing which results from the vigorous

boiling. A thermocouple is located in the base of the chamber to record both the steam and saturated water temperature. The chamber pressure is limited by two methods for operator safety.

Related laws

- Mechanical Engineering
- Nuclear Engineering
- Chemical Engineering
- Control and Instrumentation
- Plant and Process Engineering
- Building Services
- Engineering Physics
- Refrigeration
- Marine Engineering

Learning capabilities

- Visual demonstration of Filmwise and dropwise condensation, and of nucleate boiling.
- Measurement of heat flux and surface heat transfer coefficient in both Filmwise and dropwise condensation at pressures up to atmospheric.
- Demonstration of the effect of air in condensers.
- Investigation of the effect of air in condensers.
- Investigation of the saturation pressure/temperature relationship for H₂O between about 20°C and 100°C.
- Demonstration of Daltons Law of Partial Pressures.

Technical Specification

- Condenser: 90(L) x Ø12.7mm
- Surface Area: 3700mm²
- Internal Diameter of Chamber: Ø76mm
- Normal Water Capacity: 0.5 litre
- Surface Area of Heating Element: 14400mm²
- 3kW Heater
- Pressure switch setting: 5...10kN/m²
- Pressure Relief Valve setting: 10...15kN/m²

Essential Ancillaries

- H102

What's in the Box?

- 1 x H102K
- Safety Spectacles
- 1 x Gloves
- Instruction manual
- Packing List
- Test sheet
- Wiring Diagram
- Spares

Essential Services

- H102

Ordering information

To order this product, please call PA Hilton quoting the following code:
H102K

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS