



# *Absorption Cycle Refrigerator*

**816**



- *Demonstrates the Operation of An Ammonia-Water Absorption Refrigerator*
- *Electrically Driven With Optional Computerised Data Acquisition.*
- *Allows Investigation of Refrigerator Performance Under Load.*
- *All Major Components Visible.*
- *Two year Warranty.*



## ***Introduction***

The absorption refrigerator 816 is a fully operational ammonia-water refrigerator with all of the major refrigeration components visible.

The unit is robustly constructed entirely from standard commercial components. With the built in load and optional instrumentation students can investigate a refrigeration system that operates from an electrical heat source.

Originally invented by Albert Einstein and Leo Szilard the absorption refrigerator has no moving parts and utilises a mixture of ammonia-water and hydrogen. The cycle is complex and not easily understood without reference to an operating unit.

The unit has thermocouples located at 10 strategic and important locations around the refrigeration circuit. These together with a comprehensive system diagram and description in the manual, assist in student understanding of this complex system.

## ***Description***

Model 816 is one of a range of trainers designed to provide practical training in the fields of Refrigeration and Air Conditioning.

Each trainer has been carefully designed to provide instruction in specific topic areas that trainees are required to study as part of most Refrigeration and Air Conditioning courses.

On the model 816 all of the main absorption cycle components are visible at the rear of the unit. An instrumentation console with digital wattmeter and multi-way temperature indicator allow all of the important system parameters to be recorded. The system allows the ammonia generator and evaporator load to be independently varied and measured using the wattmeter.

An optional computerised Data Acquisition system C816A, allows all 10 thermocouples to be monitored as well as the ammonia generator power consumption and load current and voltage. This allows the system start condition to be monitored, which aids student understanding plus the system performance variation with change of load. All parameters can be monitored and plotted against time or transferred to a spreadsheet for analysis.



## Specification

### Detailed

The unit is mounted on a wheeled steel frame and incorporates:

Electrically driven ammonia-water absorption refrigeration system with insulated freezer compartment. All major components of the refrigeration system: generator, absorber, condenser and reservoir are visible

Variable electrical load inside the freezer compartment  
Variable generator heater.

### Instrumentation

- Digital temperature indicator
- Digital wattmeter to give instantaneous indication of generator heater input and evaporator load.
- Optional Computerised Data Acquisition System.

### Safety

The unit is also protected by double pole combined switches and circuit breakers and a residual current circuit breaker to protect against earth leakage.

### Operating Manual

A comprehensive operating manual includes:

- Notes on theory and principles
- Detailed description of system circuit and operation.
- Sample test results.

## Dimensions

Height: 730mm Depth: 400mm  
Width: 430mm  
Shipping Weight: 25kg (approximate)

## Services Required

### Electrical

Either: A: 1 Amp.220-230 Volts, Single Phase, 50Hz (With earth/ground).

OR

B: 2Amp.110-120 Volts, Single Phase, 60Hz (With earth/ground).

## Optional Equipment

Computerised Data Acquisition system C816A

## Ordering Information

**Order as:** Absorption Cycle Refrigerator 816

**Plus:** (Optional) Computerised Data Acquisition system C816A

## Electrical Specification

Either: A: 220-230 Volts, Single Phase 50Hz (With earth/ground).

OR

B: 110-120 Volts, Single Phase 60Hz (With earth/ground).

## Language

Either: English, Spanish or French

## Shipping Specification (Approx)

Net Weight: 25 kg  
Gross Weight: 50kg.  
Packing Case Dimensions: 80 x 80 x 120cm  
Packing Case Volume: 0.77m<sup>3</sup>

## Also Available on Request

- Further detailed specification
- Additional copies of instruction manual
- Recommended list of spares for 5 years operation

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