



# armfield

## CONTACT PLATE FREEZER



### FT34MkII

issue 4

*The FT34MkII demonstrates an industrial fast freezing process in a simple, practical and student friendly configuration. It directly illustrates the large improvements in taste and texture which can be achieved by fast freezing processes compared with the slower freezing times of a domestic refrigerator.*

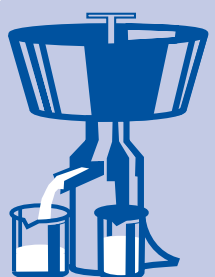
*An informative wallchart is supplied free with each FT34MKII Contact Plate Freezer. It describes the industrial freezing process and highlights the importance of freezing food quickly.*

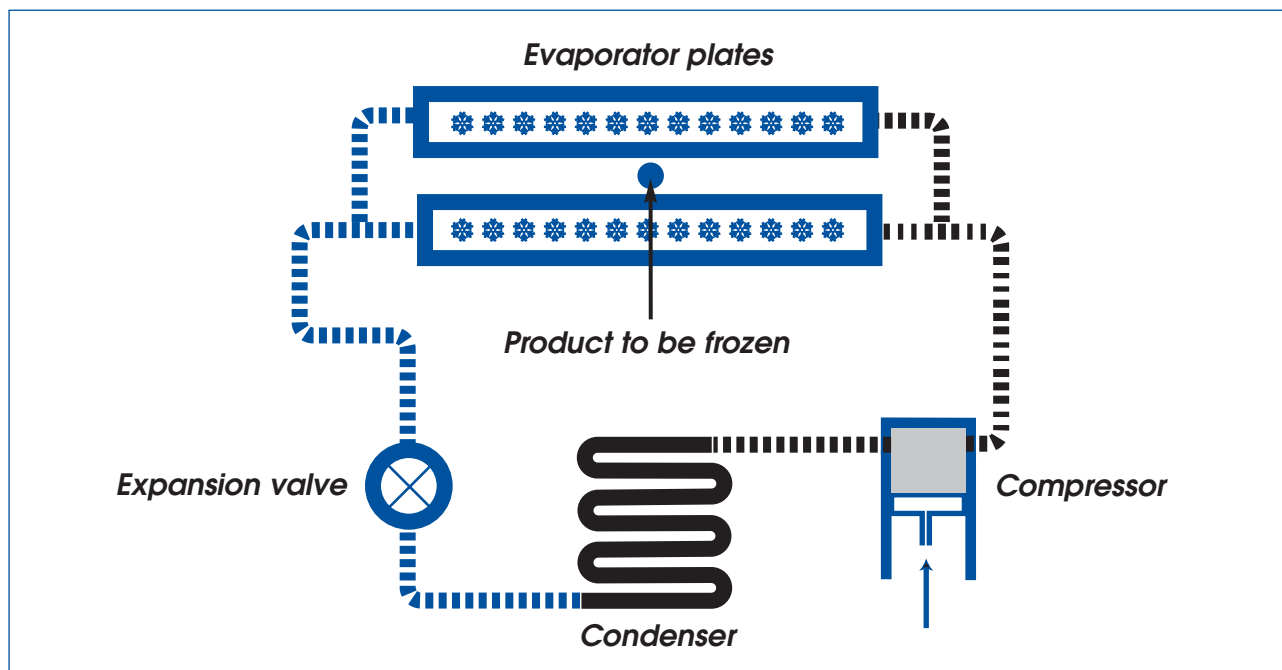
#### DEMONSTRATION CAPABILITIES

- *Food preservation*
- *Effect of freezing on food*
- *Fast freezing v slow freezing*
- *Taste and texture assessments*
- *Freezing rates*
- *Links with biology (food structure)*
- *Effect of temperature on bacteria*
- *Links with physics (refrigeration)*
- *Temperature sensing*
- *Quality assurance/Quality control (QA/QC)*

Food Process Engineering and Technology

FT





FT34MkII: Schematic diagram

*The FT34MkII Plate freezer allows foods to be quick frozen using an industrial freezing process.*

*Five thermocouples are provided which can be positioned in different points of the product being frozen. This allows the effect on the freezing process of parameters such as the shape of the product, the packaging, portion size, etc. to be investigated.*

*The flexibility and simple operation of the plate freezer make it ideal for project work at a wide variety of levels. At a basic level, the difference between fast and domestic freezing can be evaluated. At higher levels a frozen food product can be assessed for a large number of attributes and the interaction of different attributes considered.*

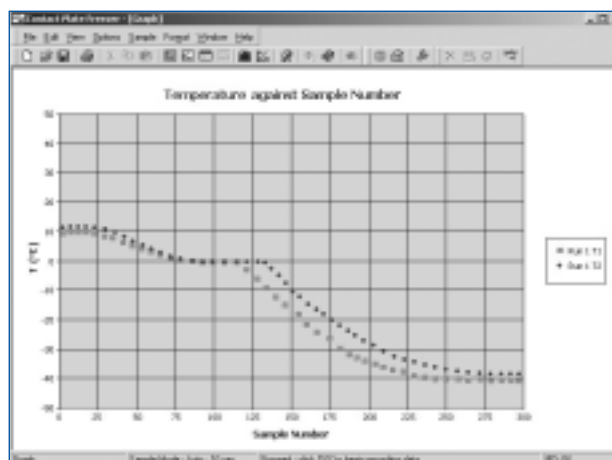
*The FT34MkII is supported by comprehensive teacher and student instruction sheets giving detailed explanations, operational instructions, investigations and suggestions for project work.*

### **Data logging**

*Freezing is an ideal application for demonstrating the importance of data logging. The five temperature sensor outputs are available for this.*

*An optional data logger is available which can be used to display the freezing curves on a computer. This illustrates the freezing characteristics and shows the Thermal Arrest Time, during which ice crystals are formed. The operational data may be logged to a PC.*

*Windows™ software is included to display tables and graphs of the logged data and to allow the data to be exported to a spread sheet.*



## DESCRIPTION

The FT34MkII Contact Plate Freezer uses the familiar Armfield vacuum formed ABS base onto which is mounted a refrigeration unit employing an environmentally friendly refrigerant R404A. One 180 x 250mm, fixed and one height adjustable freezing plate are positioned adjacent to the refrigeration unit.

A hand operated lever raises and lowers the adjustable freezing plate into close contact with the product to be frozen which is placed on the fixed plate.

Bagged, wrapped and boxed products may be quick frozen.

Five temperature probes are provided to monitor the product throughout the freezing process.

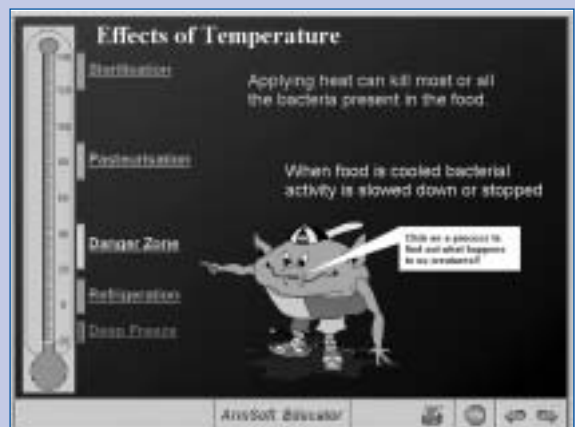
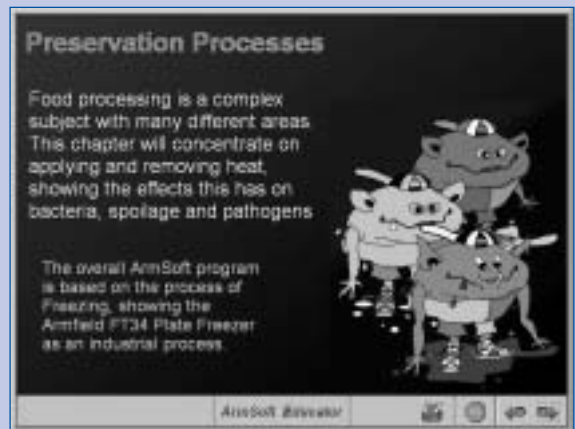
All controls and instrumentation are housed in the base unit.

Outputs to connect the plate freezer to a PC via the Armfield Data Logging Accessory FT34-90IFD-USB are also provided.

## EDUCATIONAL SOFTWARE

An associated CD ROM is available, aimed at secondary school level students, which demonstrates the effect of heat and cold on typical bacteria present in food. Industrial freezing methods are illustrated, together with the associated scientific background. Full descriptions of techniques used on the Armfield Contact Plate Freezer are given.

The package is illustrated by pictures, diagrams and cartoons designed to present the subject in an entertaining and relevant manner.



## TECHNICAL SPECIFICATION

Plate Temperature (both plates):	<-35°C
Temperature Sensors:	5 Thermocouples
Refrigerant: (Environmentally Friendly)	R404A
Display:	Digital display for temperature sensors
Outputs:	±5 volts represents ±50° C
Freezing Area:	180 mm x 250 mm
Maximum thickness of sample:	38 mm

## ORDERING DESCRIPTION

- *The Contact Plate Freezer has two freezing plates of 180 x 250mm. One is fixed and the other is height adjustable and both are serviced by a refrigeration unit.*
- *Bagged, wrapped and boxed food products up to a maximum size of 160 x 230 x 38mm may be quick frozen.*
- *Five temperature probes are provided to monitor the product throughout the freezing process.*
- *A comprehensive operations manual and wall chart are included in the supply.*

- *An optional data logging accessory and Windows based educational software is also available.*

## SERVICES REQUIRED

Electrical supply:	
FT34 MkII-A:	220/240V/1ph/50Hz @10 amps
FT34 MkII-B:	120V/1ph/60Hz @20amps
Cooling water:	(eg. Tap and drain)

## OPTIONAL ACCESSORIES

### FT34-90/ID-USB

#### *Data Logging Accessory:*

*Comprises: interface device, software and leads. Requires a customer supplied PC with USB interface, running Windows 98, 2000, ME or XP.*

*FT34-401 Armsoft Educator: CD Rom based software. Requires a PC with CD ROM, 800 x 600 display resolution at 256 colours, Windows 95 or Windows XP.*

## OVERALL DIMENSIONS

Height:	0.55m
Width:	1.0m
Depth:	0.5m

## SHIPPING SPECIFICATION

Volume:	0.5m <sup>3</sup>
Gross weight	40Kg

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