

## FT74DI

### Direct Steam Injection UHT System



#### FEATURES

- Compact, mobile, easy to install
- Throughputs of product up to 20lph for product and 60lph for CIP
- Temperatures up to 150°C
- Pressures up to 9 bar
- Fine control over vacuum pressure allows control of retained water content
- Membrane control console
- Fully enclosed hoseable cabinet
- Fully instrumented
- Progressive cavity feed pump
- Sanitary product extraction pump
- Sanitary design - 316 stainless steel and food compatible materials throughout with the ability to CIP
- Computer data logging facility
- Sanitary tri-clamp fittings on all product lines
- Indirect heating capability to UHT temperatures

#### BENEFITS

- Small installation space required
- Low product volumes required for processing
- Fully flexible system allowing testing on many different products
- Suitable for use in wet areas

MINIATURE SCALE R&D TECHNOLOGY





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Armfield has developed a miniature scale direct steam injection UHT unit capable of treating small batches of product with full operator control of all process variables such as temperature, back pressure and condensed vapour uptake. The unit is mounted on a stainless steel cabinet for ease of cleaning. All process variables are displayed on the membrane control panel mounted on the cabinet. The unit is self contained, complete with product feed pump, pressurised hot water circulator, tubular heat exchanger for heating and cooling, flash off vessel, steam injection point, vapour condenser, vacuum set and product extraction pump. Requires connection to a suitable steam supply and to mains water.

### Description

The Armfield FT74DI has been designed for the UHT treatment of small quantities of material by direct steam injection. The unit is capable of handling batch volumes as small as 2 litres. Liquid feed is pumped from the feed tank by a progressive cavity pump to be preheated in tubular heat exchangers using pressurised hot water as the heating medium. Steam is injected directly into the process via our unique miniature venturi mixer injector. Steam input is controlled automatically by one of the world's smallest control valves which has been specially developed by Armfield. The control valve's actuation is directly positioned by a three term PID controller, to give smoother direct acting response hence smooth control of process temperature. A temperature of 150°C at 20lph flow is possible in the unit dependant on product. A selection of holding tubes is available from 2 seconds upwards so that the process fluid can be held at the treatment temperature for the correct length of time. A bypass tube is available for indirect heating. System back pressure is fully controlled by the use of a hygienic valve. Water added to the process fluid by steam injection is quickly removed in a partially evacuated flash tank. This flash evaporation rapidly cools the product and by controlling the applied vacuum, as little or as much of the condensed steam as required may be removed. Treated product is pumped away using a hygienic pump and additional tubular heat exchangers cool it down further.

Data logging of the process variables is available. CIP of the unit can be achieved by circulating cleaning fluid through the unit and a specially designed tank cleaning nozzle which is supplied with the unit.

### Applications

- Baby foods
- Condiments
- Confectionery
- Cream
- Culture media
- Fruit and vegetable purees
- Fruit juices and cordials
- Gelatine products
- Gravies
- Ice cream
- Health and nutritional products
- Milk
- Pharmaceuticals
- Sauces and soups
- Yogurts

### Unit specifications

Product throughput: 20lph (0 - 5USgph)  
Max working pressure: 9bar  
Vacuum: down to 400mbar  
Pressurised hot water circulator temperature: up to 150°C

### Services required

Culinary grade steam: (5kg/hr @ 5 - 10bar)  
Cooling water: (480l/h)

### Electrical Supply

FT74DI-A: 220-240V/1ph/50Hz, (35A)  
FT74DI-G: 220V/1ph/60Hz, (38A)

### Optional accessories

**UOP10:** Steam generator

**FT74DI-90IFD-USB:** data logging accessory  
Requires user supplied PC with USB interface running Windows 98, 2000 or XP.

**FT74DI-50:** steam conditioner

### Overall dimensions

Height: 1.50m  
Width: 0.85m  
Depth: 0.83m

### Shipping specification

Volume: 1.50m<sup>3</sup>  
Gross weight: 160kg