

## Scraped Surface Heat Exchanger System – FT25

**HYGIENIC DESIGN  
DUPLICATES FULL-SCALE CRYSTALLISATION PROCESS  
DATA LOGGING FACILITY**

The FT25 is a lab-scale crystalliser with scraped surface heat exchangers designed with superior control and flexibility to replicate the production-scale process. Emulsions of different oils and water can be carefully crystallised into their desired structure, perfect for end products or further processing.

The operator can choose the parameters required for the particular formulation: these include margarine, shortening and ice cream processes. these include **margarine, shortening and ice cream** processes.

The FT25 has a number of configurations according to the required use.

Armfield's pilot-scale technology is well established at offering developers the opportunity to run small trials, which provide enough information to enable scale-up to larger plants with confidence.

The formulations go through similar physico-chemical changes as they would in a production plant and real time data logging permits results to be recorded and repeated.



### Features / benefits

- ▶ Duplicates full-scale process
- ▶ Fast, accurate new product development
- ▶ All process parameters under operator control for maximum flexibility
- ▶ Rugged and reliable units
- ▶ Only requires electricity and water to function
- ▶ Full control of barrel speeds upto 1400rpm
- ▶ Temperature control system incorporated
- ▶ Integral control panel enabling simple control and monitoring of all major variables
- ▶ Enclosed self-contained, mobile, stainless steel service cabinet for easy cleaning and wash down with removable panels
- ▶ Stainless steel barrel with PEEK scrapers
- ▶ Hygienic design
- ▶ In-cabinet refrigeration

### Available Options:

- ▶ Variable speed pinworker for margarine and soft spreads
- ▶ Air incorporation system
- ▶ Computer data logging facility
- ▶ Integrated CIP Pump

## Description

The FT25 Scraped Surface Heat Exchanger Series, mounted on a stainless-steel frame is supplied with a large 15.4 inch HD touchscreen and PLC control system. The working platform can accommodate one or two barrels (B) and a variable speed pinworker (P) alongside the hopper and connection ports.

The unit is housed in a Stainless Steel (304) cabinet with removable sides for easy access. It uses a refrigeration system supplied within the cabinet with a chilled, food-grade refrigerant, which is pumped through the barrel jackets.

An air incorporation system with pump and control can also be added if required. Enhanced CIP system is also available.

Small batch sizes enable rapid product testing saving time, ingredients and utility costs.

**Note:** For Scraped surface heat exchanger applications involving product heating, UHT, or combined heating and cooling, please enquire about our FT174XA – Modular Miniature HTST/UHT Process System.

## Requirements

## Scale



### ► Electricity supply:

- 220-240v 1ph 50Hz (30 A max)
- 220-240v 1ph 60Hz (30 A max)

### ► Water supply:

For refrigeration cooling Cooling water supply with flow rate of 3l/min @ 3bar and ≤20°C

## Control Console – HMI

The FT25 utilises a cleanable touchscreen HMI with intuitive displays. All process parameters can be accessed and changed via the process HMI screen including coolant temperature, individual motor On/Off and rotational speeds and, where fitted, air incorporation flowrate.

The process screen also incorporates key alarms to inform the operator of events preventing operation such as over pressure.

Realtime data is displayed from sensors and other devices providing the operator with instantaneous temperatures, pressure as well as motor currents and RPMs.

A graphing screen can also be called up where individual outputs can be displayed on a graph.

## Datalogging

The FT25 can data log all operational parameters when activated by the operator. The data will be stored in discreet data files which can be downloaded to a USB stick to allow for offline analysis using spreadsheets. **Supplied as standard, the FT25 can log data.**

## Overall dimensions (For FT25 20 bar)

Length	1.01m
Width	0.72m
Height	1.45m
Packed and crated shipping specifications	
Volume	2.1m <sup>3</sup>
Mass	390Kg

## Available Models

**Included in all models is a food grade refrigeration unit for process cooling.**

### Continuous Margarine Crystalliser

FT25-BP: One barrel and one pinworker.

FT25-BBP: Two barrels and one pinworker. 40 bar systems are available for BBP models.

*Both systems include a resting tube for product settling.*

### Continuous Ice Cream Freezer

FT25-BA: One barrel and air incorporation. Overrun can be achieved up to 300% (dependent on product).

### Combined Ice Cream and Margarine System

FT25-BBPA: Two barrels, one pinworker and air incorporation. 40 bar systems are available for BBPA models.

## Technical specifications

### Heat Exchanger Barrel

Heat transfer area	0.045m <sup>2</sup>
Shaft/barrel volume ratio	1 : 3.5
Scraper blades	4 PEEK scrapes along stainless steel shaft, 2 pairs with 180° separation
Barrel length	0.35m
Barrel working pressure	20 bar or 40 bar

### Pinworker

No of pins on shaft	36
No of pins on barrel	36

### Barrel/pinworker drives

#### Variable speed AC motors, inverter controlled

Speed range	100-1400rpm
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### Refrigeration system

Food grade refrigerant	-30°C capability (Coolflow LVF50)
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### Feed pumps

Pump Type	Progressive cavity pump
Process throughput	Up to 20l/h, independent of back pressure
Particulate capability	Up to 0.6mm
Fibre handling capability	Up to 25mm
Air incorporation system	Air Pump with fine filter and digital flow controller

**NOTE:** Air supply is injected into the inlet of the feed pump.

## Available Configurations

In addition to being available in 20bar and 40bar setups the following process configurations are available:

- Barrel with Air Incorporation
- Barrel and Pinworker
- Two Barrels and Pinworker
- Two Barrels and Pinworker with Air Incorporation

**Terminology:** Throughout this document, barrel refers to a scraped surface heat exchanger (SSHE).

**Armfield standard warranty applies with this product**

## Knowledge base

- > 30 years expertise in research & development technology
- > 52 years providing engaging engineering teaching equipment

Benefit from our experience, just call or email to discuss your laboratory needs, latest project or application.

An ISO 9001:2015 Company



**armfield.co.uk**

## Aftercare

Installation  
Commissioning  
Training  
Service and maintenance  
Support: [armfieldassist.com](http://armfieldassist.com)