

# Scraped Surface Heat Exchanger System – FT25

Issue: 1

The FT25 range of miniature-scale scraped surface heat exchangers has built-in control and flexibility with a graphic representation of the process on the touch screen control panel.

The operator can choose the parameters required for any particular formulation, these include margarine/icecream/crystallisation processes.

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

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

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

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



**Start Screen & Hard Chrome Barrels**



## 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:

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

## Description

The FT25 Scraped Surface Heat Exchanger Series utilises the Armfield monocoque stainless steel cabinet with HMI touch screen.

The working platform can accommodate one or two barrels (B) and a variable speed pinworker (P) alongside a progressive cavity feed pump (C).

The unit housed in a Stainless Steel (304) uses a refrigeration system supplied within the cabinet and utilises a chilled, food grade refrigerant, which is pumped through the barrel jackets. An air incorporation system can also be added if required.

Small batch sizes enable rapid product testing.

Enhanced CIP facility available (FT52).

### Note:

For Scraped surface heat exchanger applications involving product heating, UHT, or combined heating and cooling, please enquire about our FT174X - Modular Miniature HTST/UHT Process System.

## Requirements

## Scale



- ▶ Electricity supply: (see ordering codes)
- ▶ Water supply: For refrigeration cooling  
Cooling water supply with flow rate of 3l/min @ 3bar and  $\leq 20^{\circ}\text{C}$

## 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. From the HMI historical data can also be saved to a USB stick by the operator for later analysis via software such as Microsoft's Excel.

## 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.

## Overall dimensions

Length	0.78m
Width	0.65m
Height	2.6m

## Packed and crated shipping specifications

Volume	2.1m <sup>3</sup>
FT25	390Kg

## 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	20.0 bar or 40.0 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	0-1400rpm
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### Refrigeration system

Food grade refrigerant	-25°C capability (Tyfoxit 1.20)
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### Feed pumps

#### Progressive cavity pump

Process throughput	0-20l/h, independent of back pressure
Particulate capability	Up to 0.6mm
Fibre handling capability	Up to 25mm
Air incorporation system	Air pump with digital flow controller

**NOTE:** Air incorporation system uses an integrated air pump and fine filter supplying air to the suction feed.

## Typical Configurations

### Continuous Margarine Crystalliser

FT25BP-IF-C:	One barrel and one pinworker
FT25BBP-IF-C:	Two barrels and one pinworker A resting tube for product settling and food grade refrigeration unit for process cooling are supplied. A range of oil emulsions can be processed.

### Continuous Ice Cream Freezer

FT25BA-IF-C:	One barrel Air incorporation via a small air compressor and refrigeration. Overrun can be achieved up to 300% (dependant on product).
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### Combined Ice Cream and Margarine System

FT25BBPA-IF-C:	Two barrels, one pinworker plus air incorporation and refrigeration.
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## Optional Accessories

CIP (clean in place) option - FT52

## Ordering codes

- ▶ FT25BA/BP/BBP/BBPA-A 220-240v 1ph 50Hz (30 A max)
- ▶ FT25BA/BP/BBP/BBPA-G 220-240v 1ph 60Hz (30 A max)

## Knowledge base

- > 28 years' expertise in research & development technology
- > 50 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



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## Aftercare

Installation  
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Support: [armfieldassist.com](mailto:armfieldassist.com)