

Multifunction Laboratory Mixer – FT141
Multifunction Laboratory Mixer - UHT – FT142**Features / benefits**

- ▶ 10 or 20-litre product capacity
- ▶ High-speed bottom-mounted emulsifying mixer
- ▶ Top-mounted gentle agitator with flexible scraper
- ▶ Simultaneous high shear mixing and sidewall agitation
- ▶ Vacuum capability
- ▶ Powered lift for tank lid
- ▶ Inlet funnel and valve
- ▶ FT142 has UHT capability: 140°C, 3 bar
- ▶ Representative results from small quantities of product
- ▶ Maximum flexibility enables development of a wide range of products
- ▶ Fast emulsifying for improved dissolving of powders
- ▶ Deaeration with vacuum
- ▶ Straightforward scale-up
- ▶ Simple to use FT141 is PLC controlled via a touchscreen as standard
- ▶ FT142 has an electronic control panel with PLC control available as an option
- ▶ Large-diameter hygienic outlet valve
- ▶ Full instrumentation
- ▶ Jacketed vessel for indirect heating and cooling
- ▶ Optional direct heating using steam
- ▶ Viewing window with light and wiper
- ▶ Range of process methods

Description

The FT141 and FT142 are multifunction batch process systems designed for the hygienic processing of up to either 10 litres or 20 litres of product, depending on the unit and option selected. Each system comprises the jacketed mixing tank, a high-speed mixer, a gentle agitator, a vacuum system, steam heating and water cooling of the jacket, water flush for the shaft seals. Direct steam heating of the vessel can be provided as an option.

The FT141 is capable of processing at 95% vacuum and up to 100°C. The FT142 extends the performance into UHT processing up to 140°C and 3 bar

Each tank is fitted with a large-diameter (51mm) manual outlet valve and a 25mm manual inlet valve complete with inlet funnel. All contact surfaces are 316 stainless steel. The vessels are equipped with a temperature sensor, a safety cut-out switch and a sight glass with a light and wiper. The clamped lid has a powered lift mechanism for easy raising. The heating/cooling jacket can be pressurised and is fitted with a safety valve.

A high-speed mixing head with variable-speed control is provided in the bottom of the vessel, carefully positioned in relation to the outlet valve to enable easy drainage. The standard mixing wheel has a stator and a single knife on top. The stator rings are available with different hole sizes from 1 to 4mm. Other types of mixing units, such as a double-bladed knife with blind plate or fibre-cut, can be provided on request.

A slow-speed gentle agitator is fitted on the vessel lid. This is a double-arm agitator with a flexible scraper on one arm to prevent burn-on of the product to the side of the vessel. A liquid-ring vacuum pump is used when required to process below atmospheric pressure.

A combined pressure and vacuum gauge is used to display the tank pressure. The FT142 includes as standard an automatic vacuum control. Options are available for a cooler on the connection pipe to the vacuum pump and for a condensation collector with sight glass in the vacuum line. The mechanical seals on the rotating shafts are automatically flushed with water via a solenoid valve, activated together with the motors.

The FT141 has a PLC control system with touchscreen display as standard. The FT142 has a standard electronic panel made of stainless steel, which includes start/stop controls, speed controls for the motors, temperature display, heating and cooling setpoints, plus emergency stop. Once the heating set point has been reached the temperature is maintained using on/off control.

Technical specifications

| | | |
|---------------------|----------------------|--|
| Mixer speed | Variable to 3,000rpm | |
| Agitator speed | Variable to 36rpm | |
| Maximum vacuum | -950 mbar gauge | |
| Jacket pressure | 4 bar max | |
| Maximum temperature | 100°C - FT141 | |
| | 140°C - FT142 | |
| Tank insulation | 30mm | |

Overall dimensions

| | Lid Closed | Lid Open |
|--------|------------|----------|
| Length | 1.20m | |
| Width | 0.8m | |
| Height | 2.00m | 2.30m |

Packed and crated shipping specifications

| | | |
|--------------|-------------------|--|
| Volume | 5.7m ³ | |
| Gross weight | 700Kg | |

Requirements

Scale



| | |
|---------------------------|---|
| Electrical supply: | 380-415V / 3ph / 50Hz / 10A 208-220V / 3ph / 60Hz / 10A |
| Steam (indirect heating): | 13 kg/hr max at 4 bar |
| Steam (direct heating): | 75 kg/hr max at 4 bar |
| Water: | 8.5 l/min at 4 bar constant pressure x2 supplies 8mm inlet |
| Drainage | |
| Compressed air: | 100 l/min max at 6 bar |
| Electricity three-phase: | 6kW max (400V version runs off a standard 16A supply) |

Optional Accessories

- ▶ FT141-10 Ten Litre Multifunction Laboratory Mixer
 - ▶ FT141-20 Twenty Litre Multifunction Laboratory Mixer
 - ▶ FT142-10 Ten Litre UHT Multifunction Laboratory Mixer
 - ▶ FT142-20 Twenty Litre UHT Multifunction Laboratory Mixer
 - ▶ FT141/142-1 PLC Control System with 6 inch Touch Screen
 - ▶ FT141/142-2 Recipe System (up to 100 recipes)
 - ▶ FT141/142-3 Direct Steam Injection Connection with Valve
 - ▶ FT141/142-4 6L Funnel
 - ▶ FT141/142-5 Automatic Vacuum Control Valve
 - ▶ FT141/142-6 Water Inlet to Prove a Measured Quantity of Water into the Vessel
 - ▶ FT141/142-7 Pipe Cooler for High Temperature Operation
 - ▶ FT141/142-8 PH Control Socket
 - ▶ FT141/142-9 TS Control Socket
 - ▶ FT141/142-10L Safety Shield for Tank Lid (10 Litre Unit)
 - ▶ FT141/142-20L Safety Shield for Tank Lid (20 Litre Unit)
 - ▶ FT141/142-11 PH Titration Arrangement on Tank Lid
 - ▶ FT141/142-12 Blanking Plate
 - ▶ FT141/142-13 Double Knife
 - ▶ FT141/142-14 Stator Ring with 4mm Holes
 - ▶ FT141/142-15 Stator Ring with 1mm Holes
- All options must be specified at time of order.

Ordering codes

- ▶ FT141-10: 10 Litre Multifunction Laboratory Mixer
- ▶ FT141-20: 20 Litre Multifunction Laboratory Mixer
- ▶ FT142-10: 10 Litre UHT Multifunction Laboratory Mixer
- ▶ FT142-20: 20 Litre UHT Multifunction Laboratory Mixer

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



armfield.co.uk

Aftercare

Installation
Commissioning
Training
Service and maintenance
Support: armfieldassist.com