

The FT31 is a simple, compact fluidised bed dryer, conveniently portable and easy to operate.

The Fluidised Bed Dryer offers a number of significant advantages when compared with conventional drying techniques.

Fluidised Bed Dryer – FT31

SMALL BATCH SIZES FOR MINIMISED WASTAGE
SMALL FOOTPRINT FOR FITTING ONTO A BENCHTOP
RAPID START UP FOR FASTER RESULTS



Features / benefits

- ▶ Drying times and therefore residence times range from a few seconds to a few minutes – often less than 15 minutes are required for complete drying
- ▶ Materials with moisture contents from a few percent to over 80% may be dried
- ▶ The drying air temperature range is ambient to 200°C which covers the majority of drying operations
- ▶ High rates of heat and mass transfer
- ▶ A wide range of materials can be processed including organic and inorganic compounds, pharmaceutical chemicals, foods and fuels, minerals and agglomerating materials
- ▶ In addition to drying, other processes may be investigated, eg mixing and blending of solids, size reduction, agglomeration and granulation

Description

The dryer is of simple, compact design, conveniently portable and easy to operate, the only requirement being a mains power supply.

Air is drawn through a mesh filter in the base of the cabinet and blown by a centrifugal fan over a 2kW finned electrical heater and through a stainless steel filter gauze. The air is then delivered to the distributor gauze at the base of the dryer body which supports the bed and distributes the air uniformly.

The air blower is controlled by a thyristor circuit to give a smooth variation over a wide range of motor speeds, enabling efficient fluidisation to be achieved for a variety of materials and giving fine control of the drying temperature. Readings are selected and displayed using a digital meter.

The unit can be manually operated or interval timing can be carried out with the timer unit, which gives a 0-10 minute timing range and an alarm facility to notify completion of the operation.

The tube unit locks into position on the cabinet top by a simple bayonet fitting and the base of the tube is removable to allow replacement of the distributor gauze. A filter bag is employed to retain any stray particles of the sample being fluidised, allowing the passage of the exit gases.

Requirements

Scale



- ▶ Electrical Supply: **Single phase**
- ▶ FT31-A: 220-240V / 1ph / 50Hz
- ▶ FT31-B: 120V / 1ph / 60Hz
- ▶ FT31-G: 220-240V / 1ph / 60Hz

Technical specifications

Power Consumption	3kW
Temperature Range	20-200°C (±1°C)
Timer Range	0-10 minutes
Max Sample Weight	5kg

Overall dimensions

Length	0.26m
Width	0.32m
Height	0.465m

Packed and crated shipping specifications

Volume	0.6m ³
Gross weight	80kg

Experimental Work

- ▶ Simple drying of a material to give moisture content and the drying time (or residence time) required
- ▶ Determination of drying curves to assess the feasibility of fluidised bed drying of a material on an industrial scale. Drying curves are irrelevant to the mechanism of drying – they may be used as a basis for heat and mass balance, thermal efficiency of drying and dryer design
- ▶ Calculation of heat transfer coefficients for different conditions – important in dryer design and comparison of fluidised beds with other drying methods

Applications

- ▶ Powders
- ▶ Granular products
- ▶ Particulates
- ▶ Cereals and grains
- ▶ Pigments and dyes
- ▶ Biomass
- ▶ Metal powders
- ▶ Catalysts, resins, and polymers

FT31 with 5l tub with bag and temp humidity probe



Ordering codes

- ▶ FT31-A
- ▶ FT31-B
- ▶ FT31-G

Armfield standard warranty applies with this product

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

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Commissioning
Training
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Support: armfieldassist.com