

# CUDDON

## FREEZE DRY

### MODEL SPECIFICATION SHEET:

# FD18

- **Stainless steel**
- **18kg capacity**
- **1.8m<sup>2</sup> shelf area**



#### Cuddon FD18 Specification:

Chamber - Over all dimensions	1.73m long x 1.06m wide x 1.61m high (AISI 304 S/S)
Vapour Condenser Capacity	18 kg in a 24hr period
Number of shelves	5 heat plates (1 Module)
Usable Shelf Area (m <sup>2</sup> )	1.8m <sup>2</sup>
Ice Capacity (kg)	18 kg
Shelf Dimensions (Depth is 1215mm)	3 @ 380mm, 1 @ 280mm,
Shelf Spacing (mm)	35mm
Shelf Temperature	-20°C to +70°C
Low temperature model: shelf freezing to -35°C and vapour condenser temperature -55°C	
Shelf Cooling Rate (+40°C to -20°C) (Min)	≤ 60
Shelf Heating Rate (°C / Min) (approx.)	1
Product Trays	S/S 2B finish - 8 per set (2 sets supplied)
Energy consumption ( based on 18kg of ice over 24hr period)	2 kWh / kg of wet product 2.2 kWh / kg of wet product if air cool condenser is used
Heating / Cooling medium	Glycol
Power Requirement	4kW, 50 or 60 Hz, single phase
Weight	1000kg (approx.)



MANUFACTURERS OF QUALITY FREEZE DRYING EQUIPMENT SINCE 1963

[www.cuddonfreeze-dry.com](http://www.cuddonfreeze-dry.com)

ISO 9001  
BUREAU VERITAS  
Certification



# A LITTLE BACKGROUND

## Experience and Expertise

Cuddon Freeze Dry has been developing and manufacturing freeze drying equipment since 1963. With over 40 years experience and more than 100 installations worldwide, our products are highly respected. Cuddon freeze dryers are MAF approved and used in the following industries:

- Dairy
- Nutraceutical
- Food Processing
- Pharmaceutical
- Research
- Disaster Recovery



## Quality and Service

All Cuddon Freeze Dry manufacturing is completed under ISO9001 accreditation. This ensures consistency, reliability and quality workmanship. Cuddon Ltd has been ISO9001 certified since 1993. Our dedicated staff pride themselves on providing world-class after sales service via the Internet, telephone or in person where required.



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FREEZE DRY

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# FD18 Specification Summary...

## Turn-Key Service

- Unless otherwise specified, Cuddon Freeze Dry sales include CIF freight to your nearest international seaport, installation/commissioning/staff-training by Cuddon engineers, and a full 12-month warranty.

## Capacity and Cycle Time

- Cuddon Freeze Dry's quality acceptance test is to sublimate and condense the vapour condenser capacity of ice within 24 hours. For the FD18, this equates to 18kg of ice.

## Construction Material

- Chamber, hinges, shelf modules, trays and vapour condenser constructed from AISI 304 stainless steel.

## Chamber

- Shelf module (x1) and vapour condenser are contained inside chamber.
- Acrylic door allows observation of both the vapour condenser and product trays during the drying cycle.
- Chamber is fitted with stainless steel pneumatically operated valves that isolate the vacuum line connection, drain, water defrost and vacuum release.

## Modular Shelf Heating Plates

- Plates fabricated from T304 stainless steel with 2B finish. FD18 contains 1 x shelf module with 5 heat plates (shelves). Top plate provides radiant heat only.

## Trays

- Two sets of T304 stainless steel trays are provided as standard. Tray trolley's optional.

## Heating System

- Electric boiler, connected in series with the heat plates. A cooling heat exchanger is provided in the circuit for reducing the temperature of the plates.
- Heating fluid is glycol based and is circulated by a centrifugal pump, allowing heated or cooled fluid to be circulated through the plates on demand of the electronic load controller.

## Vacuum System

- Vacuum pump is connected to the chamber by loop piping and pneumatic isolating valve. Pump exhaust is vented to the exterior of the building housing the freeze dryer.

## Refrigeration

- Refrigeration condensing unit is purpose-built with capacity control to allow economical use of the low-temperature R507 refrigerant. Includes air cooled condenser.

## Vapour Condenser

- T304 stainless steel tube in parallel circuits to form a direct expansion refrigerated coil.
- Defrosting ice after a product cycle is by water. Hot water recommended for fast defrost.

## Low Temperature Option

- A lower temperature option can be quoted if required, giving  $-55^{\circ}\text{C}$  vapour condenser temperature, and  $-35^{\circ}\text{C}/+70^{\circ}\text{C}$  shelf freezing/heating.

## Control System

- OMRON PLC interfaced with OMRON touchscreen control panel. Screen includes graphic overview of freeze drying system. Automated system will ramp/reduce energy to govern sublimation pressure to pre-set parameters.
- 15 x 15-step recipe programming capacity, 250 batch storage, software for data retrieval and analysis. In-built modem allows remote access for monitoring and service.