

CUDDON

FREEZE DRY

MODEL SPECIFICATION SHEET:

FD80

- **Stainless steel**
- **80kg capacity**
- **9m² shelf area**



Cuddon FD80 Specification:

Chamber - Over all dimensions	2.41m long x 1.1m wide x 2.01m high (AISI 304 S/S)
Vapour Condenser Capacity	80kg in a 24hr period
Number of shelves	10 heat plates (1 Module)
Usable Shelf Area (m ²)	9m ²
Ice Capacity (kg)	80kg
Shelf Dimensions (Depth is 1730mm)	7 @ 620mm, 1 @ 550mm, 1 @ 480mm
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 - 18 per set (2 sets supplied)
Tray Dimensions (Depth is 865mm)	14 @ 610mm, 2 @ 540mm, 2 @ 470mm (1 x set)
Energy consumption (based on 80kg 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	12kW, 50 or 60 Hz, 3-phase
Weight	1900kg



MANUFACTURERS OF QUALITY FREEZE DRYING EQUIPMENT SINCE 1963

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
- Nutraceuical
- 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.



CUDDON
FREEZE DRY

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FD80 Specification Summary...

Turn-Key Service

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

Capacity and Cycle Time

- Cuddon Freeze Dry's quality acceptance test is to sublime and condense the vapour condenser capacity of ice within 24 hours. For the FD80, this equates to 80kg of ice.

Construction Material

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

Chamber

- Shelf module (x1) and vapour condenser are contained inside chamber.
- Large viewing window is provided in the door, allowing 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. FD80 contains 1 x shelf module with 10 heat plates (shelves). Top plate provides radiant heat only.
- Shelf module is removable from the chamber for maintenance or cleaning, and is done by rolling onto a trolley which is provided.

Trays

- Two sets of T304 stainless steel trays are provided as standard.

Heating System

- Variable controlled electric boiler, connected in series with the heat 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.
- A cooling heat exchanger is provided in the circuit for reducing the temperature of the plates.

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 water 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°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 12-step recipe programming capacity, 250 batch storage, software for data retrieval and analysis. In-built modem allows remote access for monitoring and service.