

CUDDON

FREEZE DRY

MODEL SPECIFICATION SHEET:

FD1000

- Stainless steel
- 1000kg capacity
- 92.25m² shelf area



Cuddon FD1000 Specification:

Chamber - Over all dimensions	5.01m long x 2.63m wide x 2.52m high (AISI 304 S/S)
Vapour Condenser Capacity	1000 kg in a 24hr period
Number of shelves	16 heat plates (4 Modules) (15 useable)
Usable Shelf Area (m ²)	92.25 m ²
Ice Capacity (kg)	1000 kg
Shelf Dimensions (Depth is 1025mm)	1500mm
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 - 180 per set (2 sets supplied)
Tray Dimensions	495mm (w) x 1025mm (d) - 3 trays per shelf
Energy consumption (based on 1000kg 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	160kW, 50 or 60 Hz, 3 -phase
Weight (unloaded)	13600kg



MANUFACTURERS OF QUALITY FREEZE DRYING EQUIPMENT SINCE 1963

www.cuddonfreeze-dry.com

ISO 9001

BUREAU VERITAS
Certification



FD1000 Specification Summary...

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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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 FD1000 this equates to 1000kg of ice.

Construction Material

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

Chamber

- Shelf modules (x4) and vapour condenser are contained inside chamber. FD1000 has a door at both ends, allowing wet and dry room application.
- Two viewing ports, each 180mm in diameter, are provided in the doors, 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. FD1000 contains 4 x shelf modules, each with 16 heat plates (shelves).
- Each 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

- Roots blower and backing pump are connected to the chamber by 304 Stainless Steel lines 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 defrost optional using heat recovery from the refrigeration system.

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.