



FD400 Freeze Dryer

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General

The Epsilon FD-400 Freeze Dryer has been designed after careful consideration of all the factors necessary for food freeze drying techniques. The FD-400 General Purpose Freeze Dryer is capable of drying a variety of biologicals such as fruit and vegetables and diverse products such as blood/plasma, mushrooms to mussels. Epsilon Co.,Ltd. has been developing and manufacturing freeze dry and vacuum drying equipment for over 10 years.



Chamber and door

The round shape chamber has product loading/unloading door. The door has smooth and easy lock system with correct alignment and sealing against chamber. The door made from SUS304 with clear acrylic to allow visual monitor both product and vapor condenser. The chamber made from stainless steel SUS304 with diameter 2000mm and 2000mm depth for product chamber and dia. 1500 x1500 mm for ice chamber.



Shelves

Shelves made from stainless steel flat both side complied to hygienic standard consist of 18 shelves.(32.4 sq.m)
Product tray made from SUS304 provide 2 sets per machine

Vapor Condenser

Condenser coil produced from stainless steel tube size 20 mm. Refrigeration of the coil is by direct expansion valve via thermostatic valve.

Defrosting

Defrosting ice from the vapor condenser after a product cycle is hot water to make a rapid process for high volume.

Refrigeration

The FD400 Freeze dryer has 1 water cooled condensing unit with non-cfc refrigerant. Bitzer 2 stage compressor is standard.

Vacuum System

The vacuum pump system has capacity approximately 500 cubic meter per hour. Vacuum pump type are Edwards or Leybold 2 stages rotary and one booster with ultimate pressure 4×10^{-3} mbar. Vacuum pump connected to the chamber isolated by electric vacuum solenoid valve. The pump features an automatic isolating valve to hold the chamber pressure in the event of power failure or vacuum value not reach as set point.

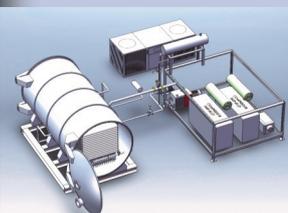
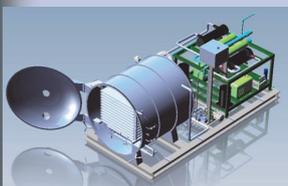
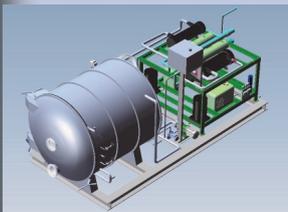
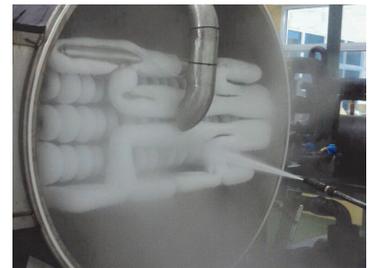
Heating System

The heating fluid is silicone oil and is circulated by in magnetic drive pump, allow heated or cooled fluid to be circulated through the plates. A cooling heat exchanger is provided in the circuit.

Instrumentation

All instruments used complied national safety standard.

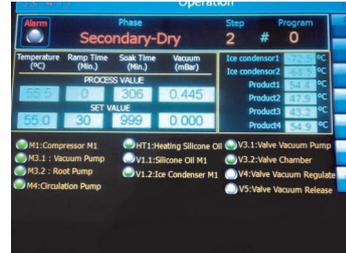
Vacuum pump: Edwards or Leybold, vacuum gauge: Edwards, Compressor: Bitzer, PLC: ABB/Omron, Touch Screen: ABB/Proface





Product testing

A wide range of product to be processing from freeze dryer such as dietary supplementary, fruit, foods, vegetable, medicine.



Smart Program

User friendly and easy to access step by step for user guide. Easy to storage data by flash drive through PLC



Capacities and cycle time

FD400 freeze dryer has a quality acceptance by factory testing are 400 kg per batch and capable to continuous operated on demand per batch as the standard of freeze dry process.

The capable of vapor condenser capacity of ice within 24 hours equates 400 kg. of ice.



Overall Specifications

- Overall Dimensions: 2500mm wide x 4500 mm depth x 3000 mm height (Chamber), 2500 x 2000 x 1800mm (condensing unit)
- Number of shelves: 18
- Shelves capacity area: 32.4 sq.m
- Refrigeration: 30 hp Bitzer 2 stages Compressor
- Refrigerant: R404a
- Shelves temperature: -40C to +70C
- Heating and cooling medium: Silicone oil
- Ice Condenser: SUS304 20mm pipe coil
- Ice condenser capacity: 400kg per 24hours
- Ice condenser temperature: -65C
- Vacuum pump: Edwards 2 stages rotary vane pump w/booster or equivalent
- Working Pressure 0.01mbar to atmosphere
- Power requirement: 80kW 150 amp, 3 phase 380Volt
- Weight : Approx. 9000kg.

Specifications subject to change without prior notice



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