

SMALL SCALE FREEZE DRYER

The small scale freeze dryer, type FD30, is a hygienic bulk freeze dryer with an external condenser which optionally can be isolated from the drying chamber. Heating for sublimation is as standard supplied by electrical heating elements. The heating shelves secure a uniform temperature gradient and pressure across the entire tray surface area. They offer the highest level of hygienic design and reduces the maintenance costs.

The design is optimised for up-scaling and ease of maintenance. The FD30 dryer has as an option CIP nozzles installed for full coverage of CIP liquid. It is manufactured from stainless steel (AISI 316L), and all surfaces wetted by CIP-liquid can be documented with either 3.1, FDA and/or FCM certificate.

APPLICATIONS

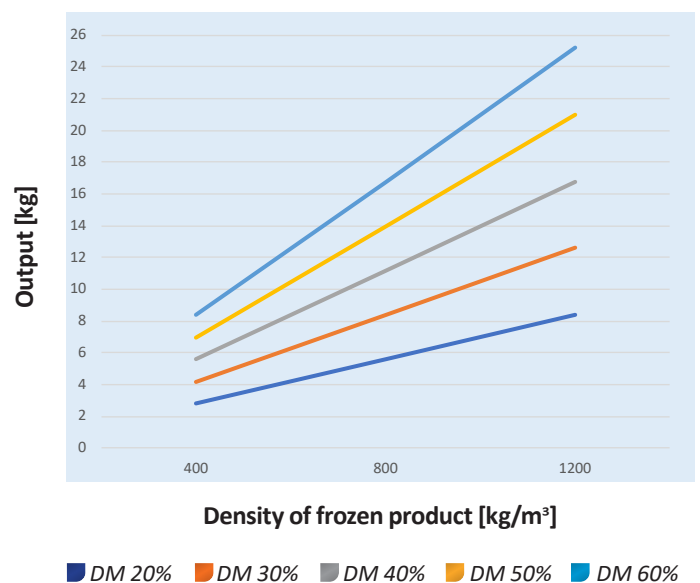
The FD30 freeze dryer is designed for drying of nutraceuticals, food and pharmaceuticals e.g. probiotic bacteria, enzymes, algae, coffee, ready to serve food as well as fruit and vegetable (sliced, puree or extract).



TECHNICAL DATA

Total tray area 1 m ²
Number of trays 8
Input/feed capacity 30-40 kg
Cooling coil capacity +30 kg H ₂ O
Maximum sublimation capacity 1,6 kg H ₂ O/hour
Product contact steel parts AISI 316
Unit dimensions, WxDxH 1,8x0,8x1,7 m

DRIED PRODUCT OUTPUT



EQUIPMENT:

BASIC SYSTEM

- Stainless steel door
- Stainless steel drying chamber
- Stainless steel condenser chamber
- Stainless steel condenser coil
- Complete refrigeration system (water cooled)
- Non-lubricated vacuum pump (dry scroll pump)
- Pressure sensors (high and low)
- Electrical heating shelves (individually controlled)
- Stainless steel sheathed thermocouples for product temperature measurement
- Touch screen control panel with PLC
- Data logging
- Stainless steel frame and cladding
- Defrost of condenser (hardware/software sequence)
- FAT, SAT and CE-documentation
- Hygienic design prepared for CIP
- Isolation valve
- Additional port

OPTIONS

- 3.2/2.1 certificates for all product wetted parts
- CIP equipment for both chambers
- CIP return equipment
- Disinfection v.e.g. H₂O₂
- Wireless product temperature probes
- Nitrogen purging
- Pre-cooling of drying chamber
- Double pressure sensor set
- Sterile filters for in-/out-let flows, 0.22 µm
- cGMP software and documentation package
- Batch report
- Additional ports
- Cooling water unit
- Defrost of condenser v. vacuumsteam

OTHER VERSIONS

- SIP-able + equipment
- Silicone heating/cooling shelves including system
- Water heating/cooling shelves including system
- Realtime product weighing (in chamber)
- Air cooled refrigeration system
- Alternative refrigerant (R404A, R744, R747)

