

FD500

FULL SCALE FREEZE DRYER

The freeze dryer, type FD500, is a hygienic bulk freeze dryer with an external condenser which can be isolated from the drying chamber.

Heating for sublimation is supplied by an external water heating system, circulation water inside the shelves. The water heating systems secure a uniform temperature gradient and pressure across the entire tray surface area.

The design is optimised for up-scaling and ease of maintenance. The FD500 dryer has as an option CIP nozzles installed for full coverage of CIP-liquid.

The FD500 is manufactured from stainless steel (AISI 316), and all surfaces wetted by CIP-liquid are documented with either 3.1, FDA and/or FCM certificate.

Each module is designed for a complete assembly and function test in the SD Freeze Drying factory and will be shipped in a 20' container ready for installation – plug-and-play.

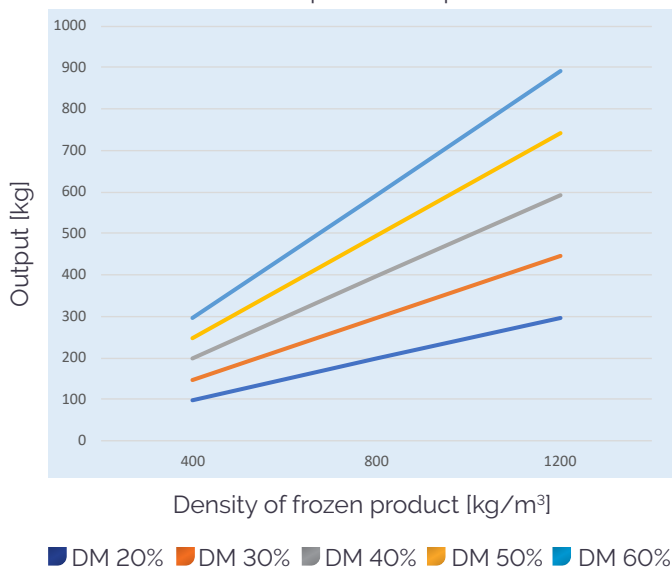


Applications

The FD500 freeze dryer is designed for drying of nutraceuticals, food and pharmaceuticals:

- Probiotic bacteria
- Enzymes
- Algae
- Coffee
- Ready to serve food
- Fruit and vegetable (sliced, puree or extract)

Dried product output



TECHNICAL DATE	
Total tray area	27 m ²
Number of trays	48
Input/feed capacity	1,200 kg
Cooling coil capacity	+500 kg H ₂ O
Maximum sublimation capacity	80 kg H ₂ O/hour
Product contact steel parts	AISI 316
Unit dimensions, W x D x H	2.3 x 5.5 x 2.3 m

Benefits of the FD500

Scalability

Optimised flow, pressure and heat input secure a smooth up-scaling from FD30 pilot size to FD500 full scale.

Reduced utility investment and maintenance

E.g. the heating for sublimation is done by electric heating elements, eliminating the need for a water or silicone heating system.

Improved product integrity

The risk of contamination by leaking water or silicone oil is eliminated using electrical heating elements for sublimation

Improved cleanability

Isolated external condenser chamber and PTFE coated heating elements combined with a state of the art general hygienic design, means that the cleanability of the freeze dryer is very high.

Skid-mounted

The freeze dryer is delivered as a skid-mounted assembly in a standard container – tested and ready for installation. This minimises the need for on-site fabrication and reduces the installation time.

Equipment

STANDARD EQUIPMENT

Fits in a 20' container
Stainless steel drying chamber
Stainless steel condenser chamber
Stainless steel condenser coil
Complete refrigeration system
Vacuum pump system with roots and dry screw pump
Pressure sensors (high and low)
Electrical heating shelves/plates
Wireless product temperature probes
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
Design prepared for robot automation
Isolation valve

OPTIONS

CIP equipment for both chambers
CIP return equipment
Nitrogen purging
Pre-cooling of drying chamber
Sterile filters for in-/outlet flows
Manual wire stainless steel sheeted thermocouples for product temperature measurement
Double pressure sensor set
GMP software and documentation package

OTHER VERSIONS

SIP-able + equipment
Silicone heating/cooling shelves/plates including system