

FD500 Full scale freeze dryer

The FD500 freeze dryer is designed for the drying of nutraceuticals, food, and pharmaceuticals. The FD500 is a hygienic, bulk freeze dryer with an external condenser which can be isolated from the drying chamber.



Applications

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

Freeze drying process

Heating for sublimation is supplied by electrical heated thermal fluid securing a uniform temperature gradient across the entire tray surface area.

The design is optimized for up-scaling and ease of maintenance.

Each module is designed for a complete assembly and function test in the Oestergaard Freeze Drying factory and will be shipped in a standard container ready for installation.

Benefits of the FD500

- Optimized flow, pressure and heat input secure a smooth scaling-up of production.
- Reduced utility investment and maintenance: E.g. the heating for sublimation is created by an internal thermal fluid system which is heated by electricity.
- Improved cleanability: Isolated external condenser chamber 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 minimizes the need for on-site fabrication and reduces the installation time.

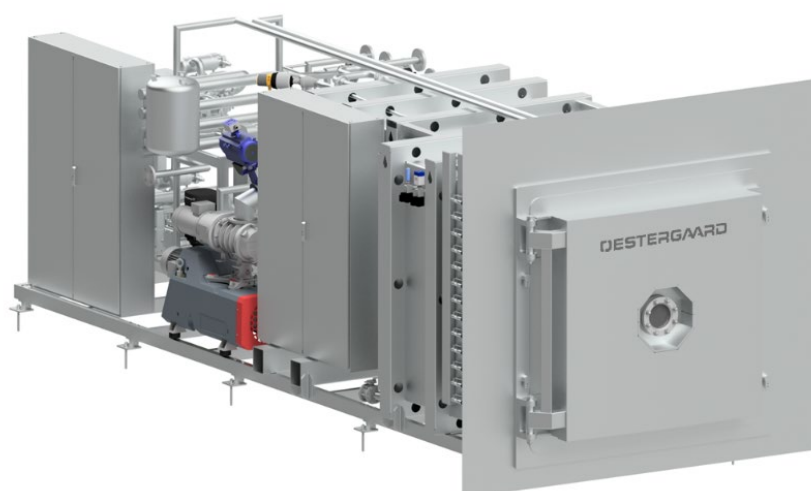
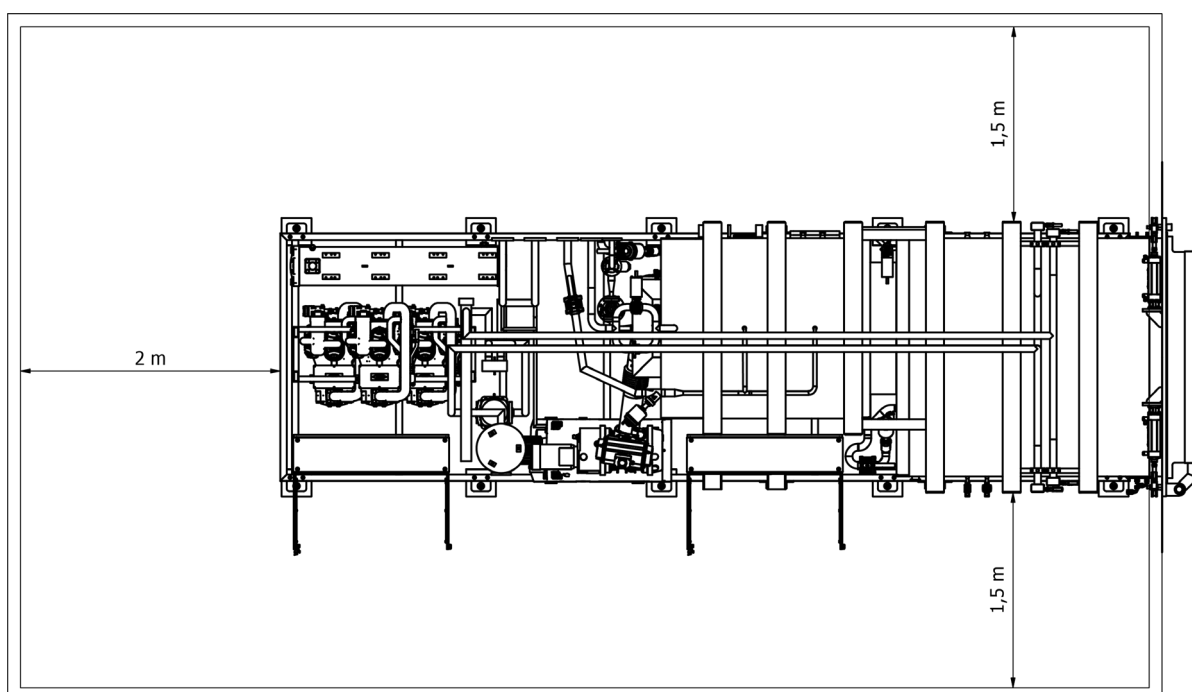
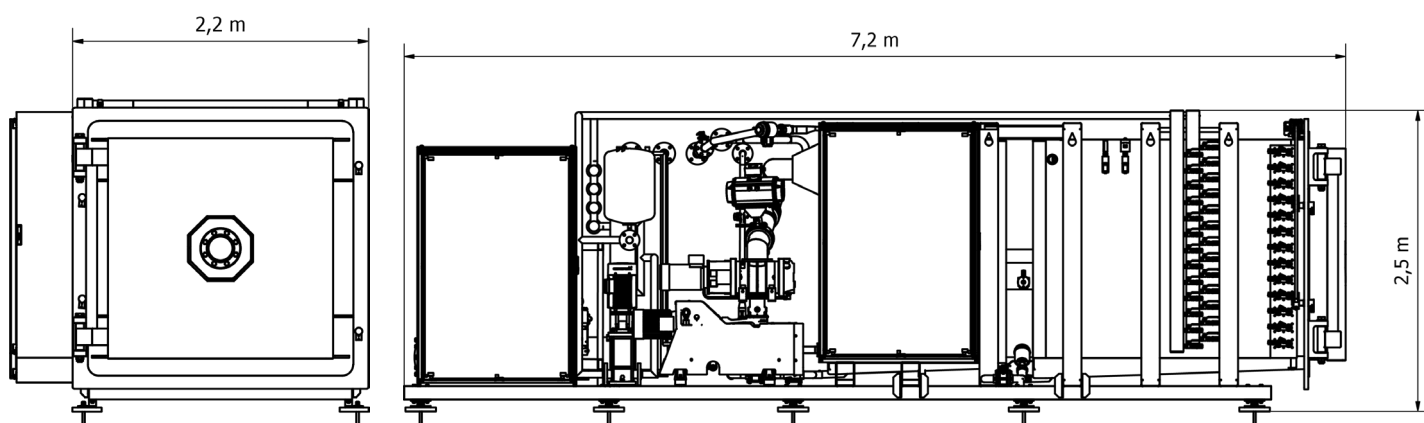
Technical data

FD500 (standard batch configuration)		
Design		Hygienic and proven twin-chamber technology with isolation valve, 2B cold-rolled surfaces etc.
Capacity	[kg/lbs]	~ 1.100/2,425 (bulk density of 1.000kg/m ³ / 2,200 lbs/cu ft)
Coil capacity	[kg/lbs]	+750 / +1,655
Maximum sublimation capacity	[kg/lbs] H ₂ O	60/176
Shelf area	[m ²]/ [ft ²]	27/290
Number of product trays		48 (natural anodized aluminium)
Number of cooling/heating shelves		26
Materials		Stainless steel (no painted carbon steel)
Size	W x L x H [m/ft]	2.2 x 7.2 x 2.5 m/ 7.2 x 23.6 x 8.2 ft
Refrigeration system	Bitzer	TBDkW, R449a
Vacuum	Edwards	<0.1mbar / 0.075 Torr, 2.000m ³ /h / 70,630 cu ft/h dry screw pump & roots booster pump (leak valve for vacuum control)
De-icing		Hot water spray
Dry out		Vacuum dry out

Utility and connections

Utility		Connections (Located on the backside)
Electricity	3x400VAC+N+PE/50HZ TN-S grounding or 3 x 480/60Hz	TBD kW (indication)
Cooling water	7/12°C / 45/54°F	TBD m ³ /h / TBD cu ft (Average)
Compressed air	6-8bar / 87-116 psi acc. to ISO 8573-1:2010	negligible
Condenser chamber drain	-	DN50
Inert gas in/outlet (optional)	-	-

Dimensions



Equipment

Standard equipment

- Fits in a standard container
- Stainless steel drying and condenser chamber
- Stainless steel condenser coil
- Complete refrigeration system
- Pre-cooling of drying chamber
- Vacuum pump system with roots booster and dry screw pump
- Pressure sensors (high and low)
- Heating/cooling of shelves by thermal fluid
- Natural anodized aluminum product trays
- Touch screen control panel with PLC
- Data logging
- Defrost of condenser
- FAT, SAT and CE-documentation
- Isolation valve

Product output

Optional equipment

- Nitrogen purging
- Sterile filters for in-/outlet flows
- Manual wire stainless steel sheeted thermocouples for product temperature measurement
- Double-pressure sensor set

Other versions

- Silicone heating/cooling shelves/plates including system

Dried product output

