

FD3500 Tunnel freeze dryer

The FD3500 freeze dryer represents the next generation of freeze dryer solutions meeting the growing demand for high capacity within the food, fruit and vegetable production. The dryer has been designed combining simplicity and high capacity with a manual operation.

Freeze drying process

The freeze dryer is a single chamber bulk freeze dryer using trays placed in racks.

The technical solution is built on the well-known and proven single chamber tunnel system. The system can (as an option) be equipped with a door at each chamber end, allowing a wet and dry room. As a standard feature it includes continuous de-icing.

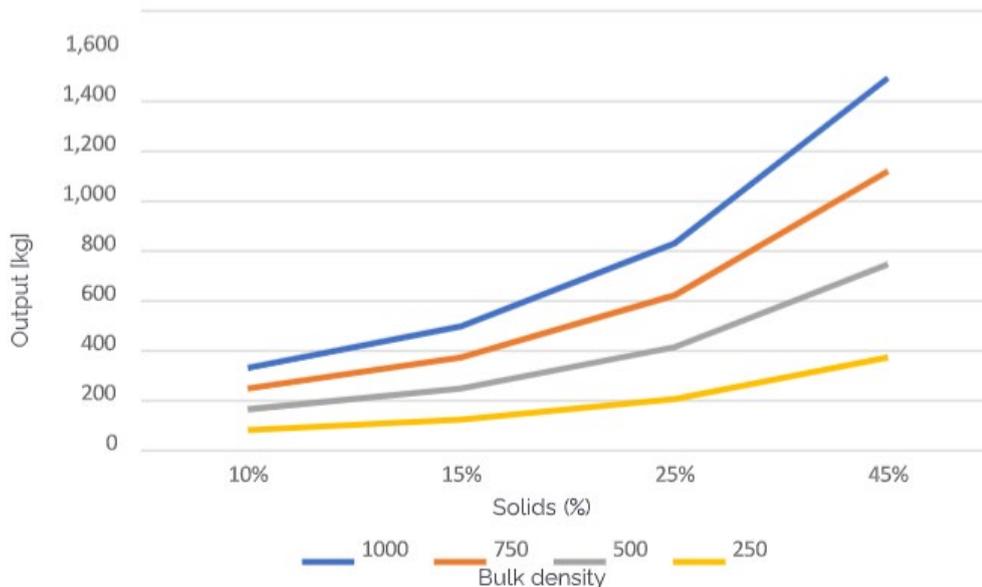
The minimalistic onboard control system offers 100% process control and automatic drying process as well as easy reporting and documentation. The freeze dryer is operated via a touch panel with a graphic overview of the



entire system.

Benefits of the FD3500

- High capacity
- Optimized energy-efficiency
- Low maintenance
- Modularized assembly divided in unassembled modules, pre-pared for easy and swift assembly

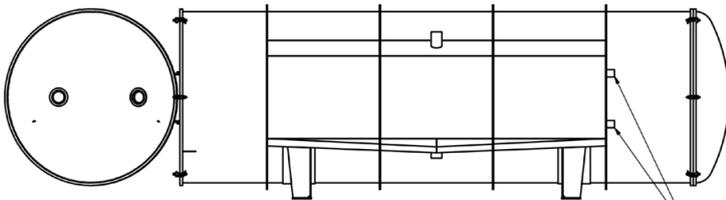
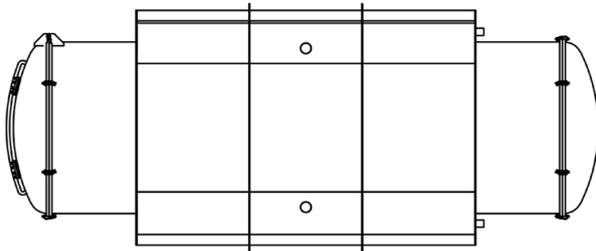
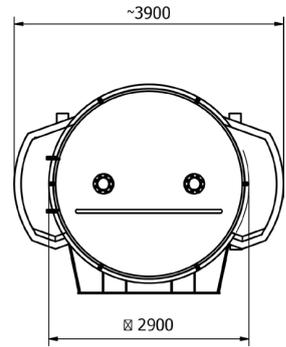
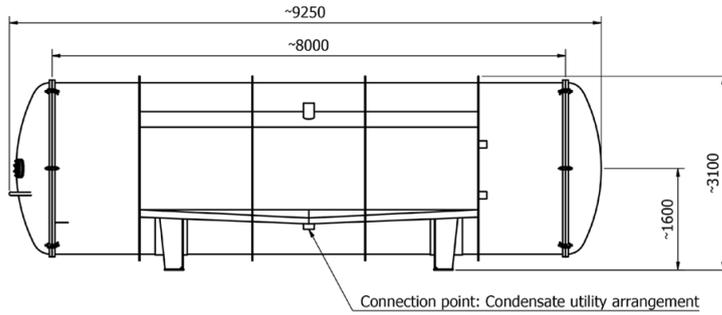


Product output
Dried product output .

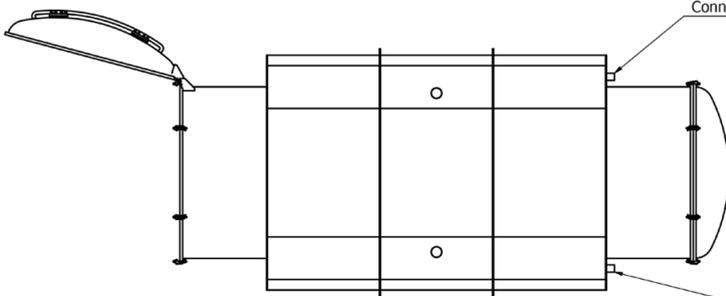
Technical data

FD3500 (standard batch configuration)		
Capacity per batch	[kg/lbs]	3250 / 7,165 lbs
Size	W x L x H [m/ft]	9.3 x 3.9 x 3.1 m / 30.5 x 12.8 x 10.2 ft
Number of product trays		230pc, As standard 700 x 800 x 30mm / 27.55 x 31.5 x 1.18 in, Open design, anodized aluminium Available configurations: half size trays, PTFE coating, stainless steel, finned design and custom sizes
Trolley (for trays)		5 trolleys per freeze dryer
Loading/ Unloading		Standard one end Available configuration: loading in one end and unloading in the other end
Condenser temperature	[°C/ °F]	-35 to -60 °C / -31 to -76 °F (dependent on refrigeration supply)
Condenser/Ice capacity		No capacity limit - The FD3500 is equipped with a continuous de-icing condenser
Shelf spare	[mm / inch]	100 / 3.94
Heating shelves		Anodized aluminum as standard Available configurations made in stainless steel or painted carbon steel
Shelf temperature	[°C /°F]	+10 to +120 / +50 to +248 Low as well as high temperature configurations available on request e.g. -15 °C to 120 °C / +5 to +248
Shelf cooling/Heating rate	[°C/ °F]	Minimum 1° /min
Proven heating/cooling of shelves		Therman liquid, water with glycol solution PID regulation of flow and temperature
Energy consumption approx.	[kWh/kg]	2.2 wet product (20% dry matter)
Chamber pressure (min.)	[mbar/Torr]	0.15/0.11
Vacuum	Edwards	Multiple pump setup
Vacuum evacuation time		~30 min
Cooling water	[°C/ °F]	7/12°C / 45-52°F Pressure and flow depended on systems included as well as refrigerant type if included
Compressed air	[bar/psi]	6-8 / 87-116, <250nl/min
Product changeover time between batches	[min]	≤30

Dimensions



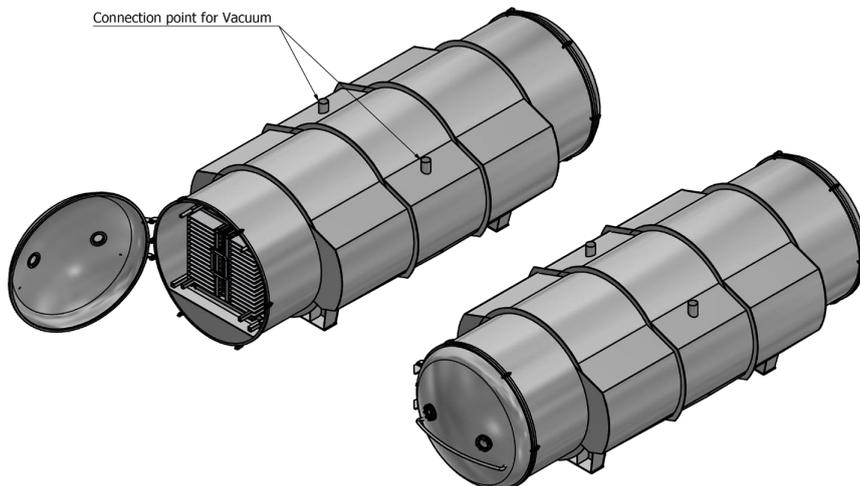
Connection point: Cooling utility arrangement



Connection point: Cooling utility

Connection point: Cooling utility

Connection point for Vacuum



Capacity examples

	kg feed pr batch	kg feed per batch 10% dry matter 3% moist in the dried product	kg feed per batch 15% dry matter 3% moist in the dried product	kg feed per batch 25% dry matter 3% moist in the dried product	kg feed per batch 45% dry matter 3% moist in the dried product
Bulk Density 1000 kg/m ³	3.250 kg	335 kg	500 kg	840 kg	1.510 kg
Bulk Density 750 kg/m ³	2.440 kg	250 kg	375 kg	630 kg	1.130 kg
Bulk Density 500 kg/m ³	1.625 kg	170 kg	250 kg	420 kg	750 kg
Bulk Density 250 kg/m ³	815 kg	85 kg	125 kg	210 kg	380 kg

	kg feed pr batch	kg feed per batch 4% moist in the dried product
Strawberries Bulk Density 500 kg/m ³ 11% dry matter in feed 20mm in tray	1.300 kg	150 kg
Fruit puree Bulk Density 950 kg/m ³ 15% dry matter in feed 15mm in tray	1.850 kg	290 kg
Rice and chicken dish Bulk Density 650 kg/m ³ 23% dry matter in feed 25mm in tray	2.115 kg	510 kg
Petfood Bulk Density 650 kg/m ³ 25% dry matter in feed 25mm in tray	2.115 kg	550 kg