

FD-1L

Tray Freeze Dryer



- **20L Ice Capacity**
- **1.15m2 Shelf Area**
- **All-include Structure**
- **Versatile&Economic**

FD-1L shelf freeze dryer designed to fit commercial and industrial freeze drying process, material loading by bulk in trays, the machine designed meet GMP requirements.

The freeze dryers designed consider a lot of factors that will guarantee your success freeze drying result and high dried quality, we provide standard factory models as well as customized configurations to meet your special requirements.

Standard Specification:

Shelf Area	1.15m2
Shelf Type	Fixed, Bulk loading
Shelves Temp.	-50C to +70C
Shelf Size	480*600mm
Shelves	4+1
Ice Capacity	20kgs
Condenser Temp.	-45C or -80C
Condenser Location	Rear side of drying chamber
Defrost	Water soaking
Vacuum Degree	<3Pa
Vacuum Pump Rate	16m3
Compressor	Reciprocating
Power Install	7.6kwh
Size	2500*1100*2000mm
Voltage	380V/50-60Hz/3P
Controller	PLC + Touch Screen
Main Material	AISI304 or 316L

Technical Features:

CONTROL SYSTEM:

- PLC + Touch screen system, PC connectivity.
- Automatic and Manual operation selectable.
- System working status diagram display.
- Freeze Drying status & data display.
- Drying data auto storage, could download to U disk.

DRYING HOUSE & DOOR:

- Design according to GB pressure container directives.
- Rectangular or cylindrical chamber with extra thick insulation.
- Mirror finished walls, shelves, doors and accessories.
- Hinged door, in front door and side drying house have viewing ports.
- Plates and drying house inner wall mirror finish.

SHELVES:

- Stainless steel made, Mirror finish.
- Sandwich type plates fill silicone oil, all plates have both freezing and heating function: -50C ~ +70C.
- 1.15m2 useable shelf area, 4 plates (size 480*600mm) with material loading capacity, 1 for extra radiant temperature.

CONDENSER:

- Condenser house in rear side of drying chamber, Stainless steel material for both coils and walls, surface mirror finish.
- Condenser floor slope design for water thoroughly discharge.
- Exclusive designed coils route, high performance vapor collection.

VACUUM SYSTEM:

- Two stage oil sealed vacuum pump, with vacuum adjust controller.
- Pneumatic isolation valve installed between condenser and pump.

System Performance:

Shelves Lowest Temp.	-50C
Shelves Temp. Range	-50C to +70C
Shelves Cooling Rate	+20C to -40C <60min
Shelves Heating Rate	>1C/min
Shelves Temp. Uniformity	Freezing: ±2C Heating: ±1C
Shelves & Wall Roughness	Ra<0.5
Shelves Flatness	<0.5mm/m
Condenser Lowest Temp.	-45C or -80C
Condenser Cooling Rate	+20C to -40C <30min
Condenser Coil Roughness	Ra<0.5
Vacuum Rate	Atm to 0.1mbar <30min
Vacuum Final	<3Pa
Vacuum Leakage	< 5x10-2mbarL/s

COMPRESSOR SYSTEM:

- Reciprocating compressor, oversized for stable performance.
- 1 stage compressor for -45C condenser, or 2 stage for -80C condenser.
- Water cooled condenser and cooling tower include.
- Brazed plate heat exchanger for shelves cooling, refrigerant direct expand for condenser cooling.

HEATING SYSTEM:

- Heated silicone oil drive by a centrifuge pump recycle inside shelves.
- Individual electric heater provide heating energy.

Vikumer® Freeze Dry designed and manufactured freeze drying machine in China. Quality assured freeze dryer with CE marked.