

## PILOT-SCALE FREEZE DRYER BFFT-409

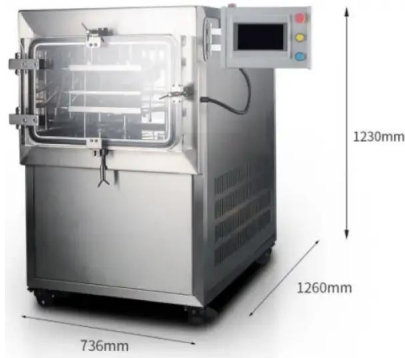
# PILOT-SCALE FREEZE DRYER BFFT-409

## FREEZE DRYER

Command OS2.1 control system was developed to meet the lyophilization requirements of today's pharmaceutical and biotechnology applications.

The system packs the highest level process\_x0002\_control and flexibility into a software package that is as easy to use as it is multi-functional.

The SCADA system solution to deliver superior functionality, as well as faster, more intelligent control of the freeze-drying process and related functions.



## SPECIFICATIONS

Model	BFFT-409
Chamber	AISI 304L /316L
Shelves	AISI 304L /316L
Shelf Size	300 x 400
Chamber Door	Acrylic or stainless door
Door lock system with safe bolt	
Product sensors	Pt-100
Temperature sensors(thermal fluid)	Pt-100
Finish	Ra≤0.4μm
Level	0.5mm/m
Shelves temperature Min	< -60°C
Shelves temperature Max	+65°C
Shelves temperature uniformity	±1°C(after balance)
Spacing	100mm (Top stopper type is 80mm)
Chamber type	Rectangular
Insulation	B1 Cotton insulation
Open direction	Left or right
Sealing strips for doors	Silicon rubber
Condenser (with coiled pipe)	
- Condenser	AISI 304 ,316 optional
- Condenser coiled pipe	Coil inside or round type(coil outside)
- Temperature sensors(condenser)	Pt-100
- Coiled temperature Min	≤-85°C
- ice capacity in 24hour	4kg
- Condenser frosting capacity	Max 6kg/batch
- Condenser type	round
Refrigeration system	
- Compressor model and number	1.5HP Embraco

- Refrigerant	R507+R508B
- Oil separator	Emerson / similar type
- Automatic protective device for pressure	DANFOSS
- Pressure meter	REFCO or similar type
- Expansion valve	DANFOSS
- Shelf cooling time (without load)	+20 ~ -40°C ≤ 60 minutes
- Condenser cooling time(without load)	+20 ~ -40°C ≤ 30 minutes
Vacuum system	
- Vacuum pump	DRV16 (16 m³/h)
- Isolation valve of pump well	Electric valve
- Vacuum gauge	Posifa
- Final vacuum	≤1 Pa
- Evacuation time	From atm to 20 Pa ≤ 30 min
- Leakage rate	5x10 <sup>-3</sup> Pa·m³/sec
Circulation system	
- Circulation pump	Grundfos
- Thermal fluid	5cs, USA Dowcorning Silicon oil (low viscosity)
- Heater	500w
- Plate heat exchanger	
- Temperature sensors(thermal fluid)	Pt-100
- Heating rate	1°C/min
Electric control system	
- Electric standard	IEEE
- PLC	Siemens S7-200
- Breaker	schneider
- AC contactor	schneider
- Control type	Manual and automatic
Utility list	
- Electricity-total electrical load	4.5Kw (380V, 50Hz, 3Phase) or 220V-240V 3 phase or 110V 220v single phase
The equipment's main technique parameter	
- Machine construction	Wall mounted, GMP type
- Weight (approx)	340 kg
- Gross weight (approx)	420kg
- Package size	850 x 1450 x 1480 mm
- Capacity of raw material for freeze drying (suggestive value)	3.6 kg/batch
Alt Name	Freeze Dryer



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