

PILOT PLANT

FREEZE DRYER BFD-20 SERIES



Vikumer's BFD-20 pilot freeze dryer suits small volume production in non-aseptic industries, clinical trials, process optimization and preparation of technology transfer to later commercial production.

Technical Specifications

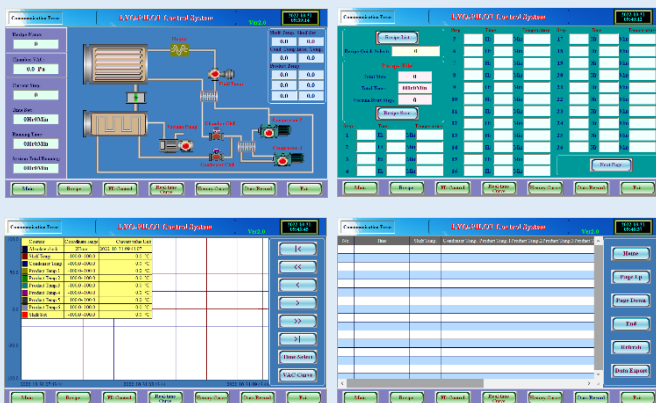
Install Size	W/1350*D/2000*H/2350mm
Weight	1400Kgs
Power Install	13Kwh
Voltage	380V/50Hz/3P
No. of Shelves (Max.)	7+1
Shelf Area (Max.)	2.8m ²
Shelf Clearance	52~144mm
Shelf Dimension	W/510*D/810*T/16mm
Condenser Volume	88L
Condenser Performance	30Kgs/24Hrs
Condenser Capacity	45Kgs
System Final Vacuum	0.01mBar

Performance Specifications

Shelf Temperature Control Range	-50C ~ +70C
Lowest Shelf Temperature	-55C
Shelf Temperature Control Accuracy	<+/-1C
Shelf Temperature Uniformity	<+/-1C
Shelf Cooling Rate +20C to -40C	<60Min
Shelf Heating Rate	>1C/Min
Lowest Condenser Temperature	-85C
Condenser Cooling Rate +20C to -40C	<10Min
Condenser Defrost Time	<60Min
System Final Vacuum	<0.01mBar
Vacuumize To 1 mBar	<30Min
Leak Rate	<0.05mBar L/Sec

Standard Features

- S/S304 drying chamber, interior polish Ra<0.6um.
- Acrylic drying chamber door, lubricate free gasket.
- S/S304 shelves, flatness <0.5mm/m.
- Shelves upper and bottom polish Ra<0.4um.
- S/S304 ice condenser, interior polish Ra<0.6um.
- S/S304 condenser coils, surface polish Ra<0.4um.
- Acrylic condenser door, lubricate free gasket.
- Condenser auto defrost.
- 2-stage oil sealed rotary vacuum pump, velocity 32m³.
- 4HP + 4HP cascade refrigeration system, air cooled ^[1].
- 2x1500w fluid heating bar.
- Industrial grade, PLC and user-friendly touch screen HMI based control system. LYO-PILOT interface, which has the function of:
 - Alive display main components working status and key parameters.
 - Freeze drying recipes management system.
 - Real-time freeze drying curve and historical trend review.
 - Drying data-logging and export to USB memory.
 - Automatic and semi-automatic work mode.
 - Users and authorizations.
 - Alarms.
 - Interlocking system to avoid hardware damage due to mis-operate.
 - Vacuum pump will not active if condenser higher than -45C.
 - Vacuum pump auto shut down if chamber pressure not reduce.
 - All air and water isolate valves automatic close to protect raw product once power outage.
 - Drying data and recipes in HMI will not lose once power outage.
 - Freeze drying will continue after power restoration ^[2].
 - System always executes the latest modified drying steps, even if the freeze drying is in process.
 - Shelf temperature not reach set, system will not move to next step although the set time has been reached.



Processing Capacity

BFD-20S		Vials Load				
Shelves No.	3	4	5	6	7	
Vials Size						
2R/4R Dia.16	4650	6200	7750	9300	10850	
6R/8R Dia.22	2376	3168	3960	4752		
10R/15R Dia.24	1980	2640	3300			
Shelf Area	1.2m ²	1.6m ²	2.0m ²	2.4m ²	2.8m ²	
Shelf Clearance	144mm	104mm	80mm	64mm	52mm	

BFD-20		Bulk Fill				
Shelves No.	3	4	5	6	7	
Thick In Trays						
10mm	12L	16L	20L	24L	29L	
15mm	18L	24L	30L	36L		
20mm	24L	32L	40L			
Shelf Area	1.2m ²	1.6m ²	2.0m ²	2.4m ²	2.8m ²	



Accessories and Options

Name	Part No.	Description
S/S316L Material		Drying chamber, shelves, trays, condenser & coils.
S/S Door		Drying chamber and condenser door.
Inert Gas Backfill Port		
VHP Port		
Side Mounted Flask Rack		6 ports manifolds
Dry Vacuum Pump		Scroll type, oil free pump.
Vacuum Break Filter		0.22um.
Auto Vacuum Break Valve		
Capacitive Vacuum Gauge		
Condenser Isolate Valve		
Auto Condenser Drain Valve		
Pneumatic Operated Valves		All air and water isolate valves open/close by compressed air.
Eutectic Point Detector		
PC Control		
Water Cooled Compressor		

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