

PILOT PRODUCTION

FREEZE DRYER BFD-5 SERIES



Vikumer's BFD-5 laboratory freeze dryer was designed especially fit freeze drying recipe development and process optimization to support the upcoming scale-up. The system ensures precise process control and data acquisition, lyophilize your valuable products fully automatic.

Technical Specifications

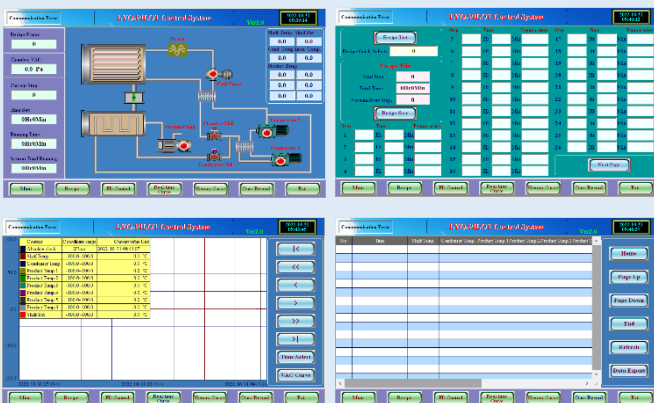
Install Size	W/750*D/800*H/1700mm
Weight	350Kgs
Power Install	3Kwh
Voltage	220V/50Hz/1P
No. of Shelves (Max.)	3+1
Shelf Area (Max.)	0.32m2
Shelf Clearance	50~198mm
Shelf Dimension	W/270*D/400*T/16mm
Condenser Volume	12L
Condenser Performance	5Kgs/24Hrs
Condenser Capacity	8Kgs
System Final Vacuum	0.01mBar

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 8m3.
- 2HP + 2HP cascade refrigeration system, air cooled.
- 800w 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^[1].
 - 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-5S		Vials Load		
Shelves No.	1	2	3	
Vials Size				
2R/4R Dia.16	400	800		
6R/8R Dia.22	216	432		
10R/15R Dia.24	176	352		
Shelf Area	0.1m ²	0.21m ²	0.32m ²	
Shelf Clearance	198mm	83mm	50mm	

BFD-5		Bulk Fill		
Shelves No.	1	2	3	
Thick In Trays				
10mm	1L	2.1L	3.2L	
15mm	1.5L	3.15L	4.8L	
20mm	2L	4.2L		
Shelf Area	0.1m ²	0.21m ²	0.32m 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		
Clean Room Configuration		

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