BioLAB

PRODUCT CATALOG

LABORATORY BENCHTOP FREEZE DRYER BFH1C4

CE ISO9001 CERTIFIED

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LABORATORY BENCHTOP FREEZE DRYER BFH1C4

MODELS LARGE CAPACITY

Freeze-drying is a drying technique that utilizes the principle of sublimation. It involves rapidly freezing the material to be dried at low temperatures and then, under the right vacuum conditions, allowing the frozen water molecules to directly sublime into water vapor and escape. The material remains in a low-temperature (frozen) state throughout the drying process, with ice crystals evenly distributed throughout. The sublimation process does not lead to concentration due to dehydration, thus avoiding side effects such as foaming and oxidation caused by water vapor. The dried material retains a porous, sponge-like structure with virtually unchanged volume and dissolves easily in water to revert to its original state. This process minimizes the denaturation of the material in terms of physicochemical and biological properties to the greatest extent possible.

Control System:
One-click operation for speed and simplicity:
A 5.4-inch LCD touch screen displays important parameters simultaneously, with numerical values color-coded to correspond to their respective statuses, making it clear at a glance.
Thermal electromagnetic overcurrent short circuit protection:
Ensures safer and more stable equipment operation.
Proactive reminders:
Equipment maintenance time, vacuum pump oil change time, and ambient temperature monitoring alerts.
Make freeze-drying more scientific:
Optional co-crystallization point detection devices and endpoint judgment detect

SPECIFICATIONS

Model	BFH1C4
Ice condenser capacity	12 kg
Ice condenser temperature	-90°C
Cold trap volume	20 L
Freeze dried chamber	Bell shape (standard configuration)/Multi manifold type/T-shaped frame type
Sample shelf	Φ260mm,Single layer area 0.055m*. 3-10 layers/optionalElectric heating/manual capping/optional
Vacuum pump	Extreme vacuum 5*10mbar with a pumping capacity of 8m³/h optional pump of various types
Oil mist filter	Standard configuration
Vacuum pump connection pipe	Single forming stainless steel flexible pipe DN16 ISO-KF
Anti-corrosive treatment	Cold trap, condensing coil/all equipped with PTFE anti-corrosion treatment as standard.Freeze-drying organic solvents.
External valve	12pieces/24pieces
Eutectic point detection system	Support/Optional
Data output analysis	Support/Optional
Power	1.6 kw
Size	525*570*1080mm
Net Weight	87 kg
Voltage	220V, 50/60Hz
Alt Name	Models Large Capacity

FEATURES

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Thermal electromagnetic overcurrent short circuit protection:
Ensures safer and more stable equipment operation.
Proactive reminders:
Equipment maintenance time, vacuum pump oil change time, and ambient temperature monitoring alerts.
Make freeze-drying more scientific:
Optional co-crystallization point detection devices and endpoint judgment detection systems can be equipped.

Drying Chamber:
The standard configuration is an acrylic drying chamber, and you can choose any of the following types of drying chambers as an option.

Detachable drying chamber:
Significantly reduces the probability of damage caused by the overall chamber weight being too heavy.

The Upper cover is made of anodized aluminum with corrosion-resistant:
High-transparency acrylic drying chamber, which has good thermal radiation conduction and reserved 6/12 external valve interfaces.

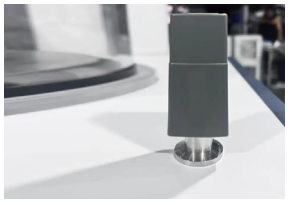
316L Stainless T-Frame:
24 independent exhaust ports, individually controlled, suitable for multiple users, and improve usage efficiency.

Cold Trap and Condenser Coils:
Large opening and passage design:
Gases can quickly pass through the condenser coils to be captured. The condenser coils are placed inside the cold trap, increasing the condensation area and effectively preventing external dew formation.
Standard equipment with Teflon anti-corrosion coating:
316L stainless steel, fully equipped with Teflon anti-corrosion coating, capable of freeze-drying organic solvents and various corrosive samples.

Sample Shelves:
Taking and Placing in Layers, More Convenient:
Each shelf can be placed and taken freely without manual work. The height of each shelf can be adjusted freely.
Special Hole Position for Centrifuge Tubes:
Conductive to the drying of samples in centrifuge tube containers.
Freeze-Drying Organic Solvent:
316L stainless steel stackable sample shelves, capable of freeze-drying organic solvent and various corrosive solvents.

Refrigeration System:
Secop compressor:
Copper plate heat exchanger, which increases heat dissipation to the largest area;
Unique refrigeration technology, the temperature of the cold trap can be lowered from ambient temperature to below -80°C within 2 minutes;
Class A temperature sensor with high temperature accuracy and low error rate;
The multiple detection and alarm system can promptly alert when the refrigeration system pressure is too high or in case of refrigeration failure, and take corresponding measures.

Vacuum System:
High frequency Wide Range
Pirani Vacuum Sensor:
With automatic temperature compensation control unit, Pirani vacuum sensor is capable of precise detection low-temperature environments.



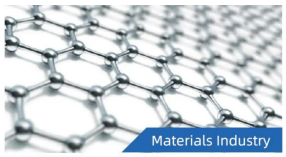
CKD High Vacuum Electromagnetic Control Valve:
Low heat generation, light noise and long-lasting durability.

Stainless Steel Flexible Vacuum Tube:
Will never aging and resistant to all types of corrosion.

Fully Automatic Pressure Relief and Drainage:
Completely eliminate damage to samples and sensors caused by unstable manual pressure relief airflow.

APPLICATIONS

Materials Industry



Pharmaceutical Industry

Food Industry

Biotechnology Industry

Chemical industry

Agriculture

MORE INFO

Conversion table Vapour pressure above ice
(ice temperature(°C) =pressure(mbar)

°C	mbar	°C	mbar	°C	mbar	°C	mbar
0	6.11	-20	1.03	-40	0.12	-60	0.011
-1	5.62	-21	0.94	-41	0.11	-61	0.009
-2	5.17	-22	0.85	-42	0.1	-62	0.008
-3	4.76	23	0.77	43	0.09	-63	0.007
-4	4.37	-24	0.7	-44	0.08	-64	0.006
-5	4.02	-25	0.63	-45	0.07	-65	0.0054
-6	3.69	-26	0.57	-46	0.06	-66	0.0047
-7	3.38	-27	0.52	-47	0.055	-67	0.0041
-8	3.01	-28	0.47	-48	0.05	-68	0.0035
-9	2.84	-29	0.42	-49	0.045	-69	0.003
-10	2.56	-30	0.37	-50	0.04	-70	0.0026
-11	2.38	-31	0.34	-51	0.035	-71	0.0023
12	2.17	32	0.31	-52	0.03	-72	0.0019
13	1.98	-33	0.28	-53	0.025	-73	0.0017
-14	1.81	-34	0.25	-54	0.024	-74	0.0014
-15	1.65	-35	0.22	-55	0.021	-75	0.0012
-16	1.51	-36	0.2	-56	0.018	-76	0.001
-17	1.37	-37	0.18	-57	0.016	-77	
18	1.25	-38	0.16	-58	0.014	-78	
-19	1.14	-39	0.14	-59	0.012	-79	

Freeze Dryer Selection Guide:
What's the purpose of freeze-drying your samples?
Determining the application purpose is the primary consideration when selecting a freeze dryer.
Simple freeze-drying- laboratory freeze dryer series
Process exploration-Pilot-scale freeze dryer series

Purpose	Simple freeze	Process exploration
Model	laboratory freeze dryer series	Pilot-scale freeze dryer series

What's the amount of samples you need to freeze-dry at one time?
The ice condenser capacity of the freeze dryer refers to the maximum amount of vapor, water or organic solvent, that the condenser can capture from the sample within 24 hours. Please select the appropriate machine and model based on the amount of sample you freeze-dry at one time.

Ice Condenser Capacity	3Kg	6Kg	9Kg	12Kg

What's the solvent of the samples you need to freeze-dry?
Select the appropriate cold trap temperature and vacuum pump type.
The lower the cold trap, the stronger its ability to capture from the solvents with lower freezing point.
Corrosion resistance of the vacuum pump:
Two-stage rotary vane oil pump < chemical hybrid pump < oil-free screw pump

Solvent	Water	Organic Solvent
Cold Trap Temperature	-70°C	-90°C
vacuum Pump	Two-stage rotary vane oil pump	Chemical corrosion-resistant oil pump, chemical hybrid pump, oil-free screw pump

What's the loading method for your freeze-drying samples?
Freeze dryer equipped with different types of freeze-drying chambers. Users can choose the
appropriate sample placement method based on factors such as the amount of samples, flatness, and the containers used for loading the samples.

Freeze-Drying chamber	Bell Shape (standard configuration)	Multi Manifold Type	T-shaped Frame Type
Sample Loading Method	sample shelves/tray	Sample shelves/tray/ round bottom/wide month lyophilization bottle	round bottom/ wide month Lyophilization bottle

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