benchtop freeze dryer for drying and preserving bacteria

Benchtop freeze dryer is a kind of equipment for dehydration under low temperature and high vacuum environment, which is suitable for long-lasting preservation treatment of heat-sensitive and bio-active substances.

Benchtop Freeze Dryer

Benchtop freeze dryer is suitable for pilot study and small-scale production, supporting a variety of container types such as syringes and lyophilized vials, flexibly adapting to multiple types of samples.

Features of Benchtop Freeze Dryer

1. **7-inch touch screen + PLC control system:** intuitive interface, support modular software upgrade, with waterproof and electromagnetic interference shielding design.
2. **Strong data integrity:** real-time display of the current parameters and freeze-drying curve, built-in high-capacity memory, can save no less than 1000 freeze-drying records and alarm history.

3. **Authority hierarchical management:** the system supports three levels of user accounts, distinguishing between administrators and operators, to prevent the process parameters from being mistakenly changed.
4. **High-performance compressor:** imported silent compressor refrigeration system, high efficiency, low noise, stable operation.
5. **Self-test and alarm system:** refrigeration system self-diagnosis, vacuum pump maintenance reminder, vacuum abnormal alarm, support sound and light text triple prompts.
6. **Accurate vacuum monitoring:** the use of Pirani vacuum gauge, vacuum monitoring accuracy of 0.01Pa.
7. **Independent parts control:** support system key parts independent start-stop and status detection, easy maintenance.

Cavity Type of Benchtop Freeze Dryer

1. **Standard chamber:** without gland function and manifold interface, suitable for basic freeze-drying experiments and sample processing.
2. **Cavity with capping function:** with capping device, it can press the rubber stopper of vials under vacuum environment, suitable for aseptic closure treatment of injections and other medicines.
3. **Standard chamber with manifold interface:** without gland, but with 8-port manifold, it can be connected with lyophilized bottles, such as syringes and round-bottomed bottles for external bottle-top lyophilization.

4. **Caps with manifold interface:** both caps and manifolds, both support for bottle stopper and 8-port manifold, can be connected to lyophilized bottles, such as sialin bottles, round-bottomed bottles for external bottle-top lyophilization.

Optional Functions

1. Cold trap automatic defrosting device, automatic defrosting.
2. Oil mist filter.
3. Vacuum pump anti-return oil device.
4. Front water vapor filter, dust filter.
5. A variety of interface adapter for different bottle types.
6. A variety of capacity of the cold trap specifications and chamber volume can be selected, cold trap size, cold trap no-load temperature and other parameters can be customized.

Freeze Drying Process

1. **Pre-freezing stage:** the sample is rapidly frozen to -40°C to -80°C through compressor refrigeration, so that the moisture forms ice crystals.
2. **Sublimation drying:** the main drying, heated in a vacuum environment, the use of sublimation principle will be ice directly into water vapor, through the cold trap trapping, without liquid.
3. **Resolution drying:** sub-drying, further heating, removal of bound water inside the sample to achieve low water content, often less than 1%.

This process is a single work cycle, generally in the sample after the completion of drying, into the next batch of material loading, such as pilot-type equipment, can be combined with automatic in and out of the sample system, to achieve continuous operation between batches.

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Model	**FD10S**	**FD10T**	**FD10P**	**FD10PT**
Type	standard chamber	stoppering chamber	standard chamber with 8 port manifold	stoppering chamber with 8 port manifold
No-load condenser temperature	⩽-60°C			
Condenser size	ϕ215x195mm			
Vacuum degree	less than 1 Pa, at no load			
Freeze drying area	0.12 to 0.18 square meters	0.09 square meters	0.12 to 0.18 square meters	0.09 square meters
Ice condenser capacity	3kg per 24 hours			
Material loading capacity	1200 to 1800ml	900ml	1200 to 1800ml	900ml
Shelf	200x20mm			

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Model	**FD10S**	**FD10T**	**FD10P**	**FD10PT**
Shelf quantity	4 to 6	3	4 to 6	3
External dimensions	580x550x375,820mm	590x575x380,890mm	590x575x380,830mm	890x575x380,890
Power supply	220Vac, 50Hz			
Number of vials loaded	260xϕ22mm or 480xϕ16mm or 920xϕ12mm	195xϕ22mm or 360xϕ16mm or 690xϕ12mm	260xϕ22mm or 480xϕ16mm or 920xϕ12mm	195xϕ22mm or 360xϕ16mm or 690xϕ12mm