

floor standing freeze dryer for serums and antibodies

Floor-standing freeze dryer is a kind of advanced freeze drying equipment specially designed for the fields of biopharmaceutical, medical research and high-end food processing, which is mainly used for vacuum freeze drying of heat-sensitive substances.

Floor-Standing Freeze Dryer

The core advantage of floor-standing freeze dryer is that it can remove the water in the sample by sublimation without destroying the internal structure and biological activity of the substance, so as to realize long-lasting preservation. The freeze-dried product can be quickly recovered after adding water to retain the original properties.

Features of Floor-Standing Freeze Dryer

1. **Intelligent control system:** equipped with 7-inch LCD touch screen and PLC programmable controller to realize humanized operation and multi-stage freeze-drying program control, compatible with software upgrade.
2. **Data management system:** real-time display and recording of temperature, vacuum and other key parameters, can store 1000 freeze-drying curves and alarm information, support for historical data retrospective.



3. **Multi-layer authority management:** the system supports three levels of account control, layered authorization operation, to protect the process formula security.
4. **High performance and low noise design:** imported silent compressor, smooth operation, high cooling efficiency, both energy efficiency and environmental protection.
5. **Intelligent alarm and diagnosis:** with refrigeration system fault self-test, vacuum overrun alarm, vacuum pump maintenance tips and other active safety mechanisms.
6. **Precision vacuum monitoring:** Pirani vacuum gauge monitoring accuracy of 0.01Pa, to ensure that the drying process is fine and controllable.
7. **Support the expansion of optional:** optional oil mist filter, anti-oil return device, automatic defrost module, water vapor filter, dust filter, etc., to meet the needs of multiple scenarios.

Technical Advantages

1. **Maintaining biological activity:** The low temperature and vacuum environment in the freeze-drying process prevent protein denaturation and degradation of other biomolecules.
2. **Sublimation drying technology:** Sublimation dehydration method is adopted to make the substance directly transfer from solid state to gas state, which dramatically reduces the moisture content without liquid phase damage.

3. **Quick start and modularized operation:** support independent start and stop of components, improve the flexibility of equipment operation and maintenance convenience.
4. **Multi-cavity design:** Users can choose different types of cavities according to their needs, supporting a variety of bottles, a variety of uses, to enhance the versatility and adaptability.

Working Principle

1. **Pre-cooling and freezing:** the material is rapidly frozen to low temperature, so that the moisture crystallization.
2. **Primary drying, sublimation drying:** in a high vacuum state, through the heating of ice crystals directly sublimated into water vapor, the vapor is captured by the cold trap, removing most of the water.
3. **Second drying, resolution drying:** Continuous heating at a higher temperature to remove the residual adsorbed water in the material to achieve the drying effect.

The whole process ensures that the moisture is removed without damaging the thermal sensitivity or structural integrity of the sample.

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Model	FD12S	FD12T	FD12P	FD12PT
Type	standard chamber	stoppering chamber	standard chamber with 8 port manifold	stoppering chamber with 8 port manifold
No-load condenser temperature	$\leq -60^{\circ}\text{C}$ or $\leq -80^{\circ}\text{C}$			
Condenser size	$\phi 215 \times 260 \text{mm}$			
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	4kg per 24 hours			
Material loading capacity	1200 to 1800ml	900ml	1200 to 1800ml	900ml

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Model	FD12S	FD12T	FD12P	FD12PT
Shelf	200x20mm			
Shelf quantity	4 to 6	3	4 to 6	3
External dimensions	490x625x940,1390mm	490x625x940,1450mm	490x625x940,1390mm	490x625x940,1450mm
Power supply	220Vac, 50Hz			
Number of vials loaded	260xφ22mm 480xφ16mm 920xφ12mm	or 195xφ22mm or 360xφ16mm 690xφ12mm	or 260xφ22mm or 480xφ16mm 920xφ12mm	or 195xφ22mm or 360xφ16mm 690xφ12mm