LAB FREEZE DRYER

Labfirst Scientific

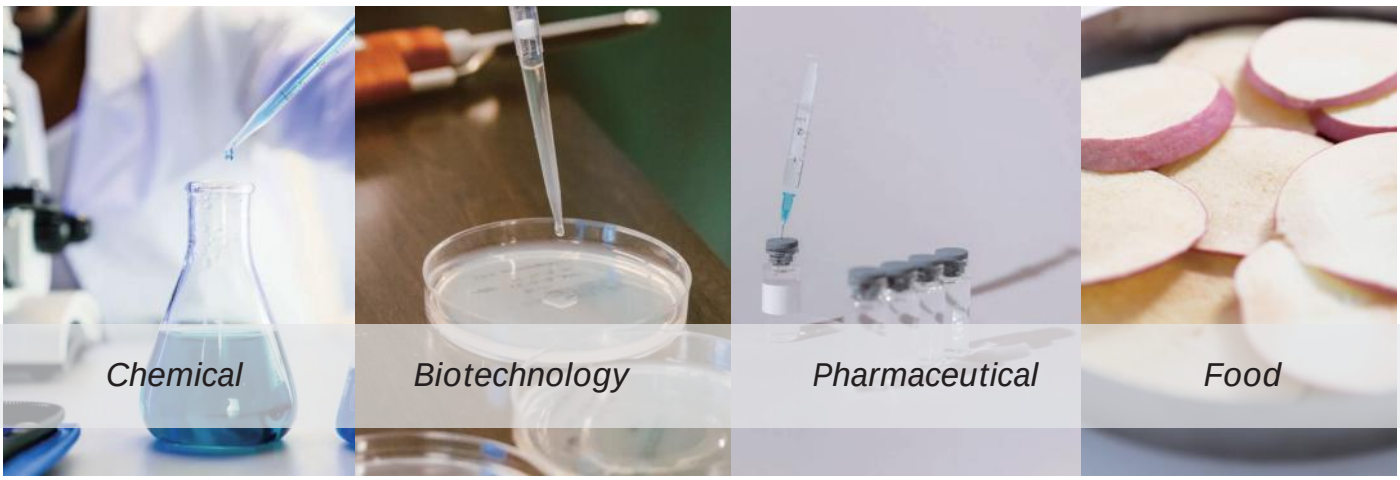
www.lab1st.com

Laboratory Freeze Dryer

FDL Series

Freeze drying is the technology of drying a deep-frozen product in a vacuum below a low temperature. This technique removes water from products while preserving its structure and biological activity, making it ideal for sensitive pharmaceutical products. Therefore, it is widely used in the pharmaceutical and biotechnology industries to better preserve and protect vaccines, antibodies, medecine and more.

Our laboratory freeze dryers are meticulously crafted with advanced freezing technology to handle even the most demanding lab tasks. We offer two precise temperature options, -50℃ and -80℃, along with five distinct drying chambers to cater to a wide range of applications. Each unit is designed with a compact footprint, maximizing lab space while offering a substantial capacity to meet rigorous laboratory needs.



Key Facts

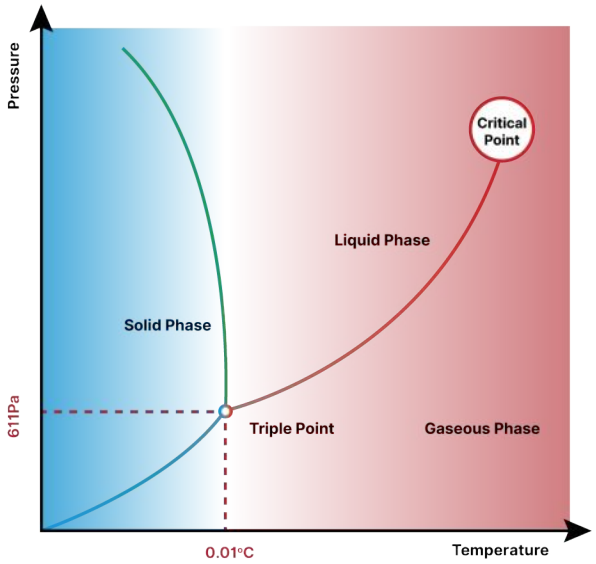
- Drying Surface: 0.08m² - 0.12m²
- Benchtop or floor-standing style
- Five kinds of drying chambers available
- -50℃ or -80℃ cold trap temperature for a great variety of samples
- Optimal process control for quick and reliable freeze-drying.
- Cutting-edge drying technology and compact design with a resonable cost

About Freeze Dyring

Innovative and efficient drying technology

How Does Freeze Drying Work?

Freeze drying, also called as lyophilization, is ideal for drying heat-sensitive products in a gentle way. It operates by removing water from a sample through sublimation, where ice transitions directly into vapor under controlled low-temperature and low-pressure conditions. Initially, the sample undergoes rapid freezing, which immobilizes water as ice within its structure. Under reduced pressure, this ice sublimates into vapor without passing through a liquid phase. The vapor is then captured and condensed on a cold surface, where it returns to a solid state, effectively extracting moisture. The chart right shows how temperature and pressure affects water.



Water Phase Diagram

This method preserves the physical and chemical stability of temperature-sensitive materials and makes product easy to store and transport, making it essential for high-quality preservation in various scientific and industrial applications.

Applications

- Pharmaceutical: drugs, vaccine, anitbiotics, pharmaceutical ingredients
- Biotechnology: protein cels, enzyme, virus
- Chemical: organic or inorganic substances, materials
- Food: meat, vegetables, fruit, pet food

FDL Freeze Dryers

Versatile drying chambers and compact footprint

A

Standard Chamber

B

Stoppering Chamber

C

Standard Chamber with 8 Port Manifold

D

Stoppering Chamber with 8 Port Manifold

E

T-frame with 8 port Manifold

-50°C

FDL1R Benchtop type

Perfect for aqueous samples

or

FDL2R Floor-standing type

Perfect for organic slovents with low freezing points

-80°C

Key Features

User-friendly, flexible and high-quality

Over the past decade, Labfirst Scientific has dedicated to producing world-class machine. The freeze dryer we make is widely used in pharmaceutical, chemical, biotechnology and food industries. With a compact footprint and outstanding cooling performance, the FDL series is especially engineered for laboratory application. It is easy to install, operate and maintain.

Flexible Design

- Five kinds of drying chambers to accomodate a wide range of vessels. including flasks, vials, trays, etc.
- Benchtop or floor-standing type to save your precious space
- Heated or unheated shelves are provided for different samples.
- -50℃ or -80℃ condenser temperature for aqueous or organic-based solvents

Durable & Safe Contrution

- Equipped with inflation valves, which can be filled with dry nitrogen or inert gas
- Quality stainless steel condenser chamber ensure long term use
- The cold trap temperature can be preset to activate the vacuum pump only when the designated temperature is reached, effectively protecting the pump from premature operation.

Easy Operation

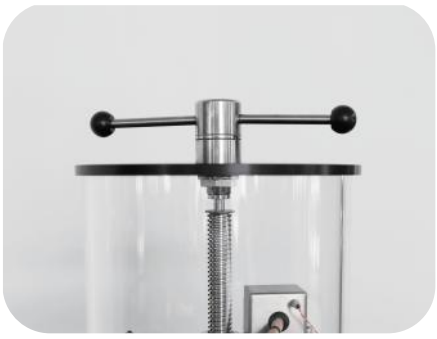
- Easily export data from the USB port to a flash drive
- Intuitive color touch display for easy set-up and control
- Realtime cold trap temperature, sample temperature and vacuum degree display
- Automatic electrical defrosting saves your energy and time

Discover More of LAB1ST Frezze Dryer

Large color touch display for easy set-up and control

Quality stainless steel trays with temperature sensor for better control

Flasks with various sizes are available and can be taken down during operation



Stoppering system is an options for vials in pharmac-tical field.

Stainless steel condenser with reliable chemical stability

Transparent cover with clear view for observing samples

Specifications

Model	FDL1R-1A	FDL1R-1B	FDL1R-1C	FDL1R-1D	FDL1R-0E
Technical Parameter					
Host Dimensions [mm]	400×620×400	400×620×400	400×620×400	400×620×400	400×620×400
Drying Chamber Height [mm]	420	520	420	520	400
Host Weight [Kg]	40	40	40	40	40
Power			110/220 V; 50/60 Hz; 1.1 kW		
Vacuum Degree	≤10Pa	≤10Pa	≤10Pa	≤10Pa	≤10Pa
Ice Condenser					
Max Ice Capacity [Kg]			3		
Max Throughput			3Kg/24h		
Temperature			≤-50℃ (Limit -60℃)		
Dimensions [mm]			Φ240×150		
Volume			6L		
Drying Chamber					
Type	A [Standard Chamber]	B [Stoppering Chamber]	C [Standard Chamber with 8 Manifold]	D [Stoppering Chamber with 8 Manifold]	E [T-frame with 8 Manifold]
Drying Surface [m²]	0.12	0.08	0.12 & 8 Manifold	0.08 & 8 Manifold	8 Manifold
Tray Dimensions [mm]	Φ200	Φ180	Φ200	Φ180	——
Number of Tray Layers	4	3	4	3	——
Tray Spacing [mm]	80	80	80	80	——
Accessories					
Vacuum Pump	●	●	●	●	●
Oil Mist Separator	●	●	●	●	●
Anti-back Device	○	○	○	○	○
Functions					
Touch Screen	●	●	●	●	●
USB Port	●	●	●	●	●
Inflation Valve	●	●	●	●	●
Electric Defrosting	●	●	●	●	●
Shelf Heating	——	——	——	——	——
Shelf Cooling	——	——	——	——	——

● = Standard ○ = Optional —— = N/A

Model	FDL2R-1A	FDL2R-1B	FDL2R-1C	FDL2R-1D	FDL2R-0E
Technical Parameter					
Host Dimensions [mm]	480×620×880	480×620×880	480×620×880	480×620×880	480×620×880
Drying Chamber Height [mm]	520	520	520	520	400
Host Weight [Kg]	90	90	90	90	90
Power			110/220 V; 50/60 Hz; 1.8 kW		
Vacuum Degree	＜10Pa	＜10Pa	＜10Pa	＜10Pa	＜10Pa
Ice Condenser					
Max Ice Capacity [Kg]			3		
Max Throughput			3Kg/24h		
Temperature			≤-80℃ (Limit -85℃)		
Dimensions [mm]			Φ240×260		
Volume			11L		
Drying Chamber					
Type	A [Standard Chamber]	B [Stoppering Chamber]	C [Standard Chamber with 8 Manifold]	D [Stoppering Chamber with 8 Manifold]	E [T-frame with 8 Manifold]
Drying Surface [m²]	0.12	0.08	0.12 & 8 Manifold	0.08 & 8 Manifold	8 Manifold
Tray Dimensions [mm]	Φ200	Φ180	Φ200	Φ180	——
Number of Tray Layers	4	3	4	3	——
Tray Spacing [mm]	80	80	80	80	——
Accessories					
Vacuum Pump	●	●	●	●	●
Oil Mist Separator	●	●	●	●	●
Anti-back Device	○	○	○	○	○
Functions					
Touch Screen	●	●	●	●	●
USB Port	●	●	●	●	●
Inflation Valve	●	●	●	●	●
Electric Defrosting	●	●	●	●	●
Shelf Heating	——	——	——	——	——
Shelf Cooling	——	——	——	——	——

● = Standard ○ = Optional —— = N/A

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