Industrial Food Freeze Dryer

FDI-F series

Labfirst Scientific Instruments (Shanghai) Co., Ltd.



Industrial Scale Freeze Dyrer

FDI-F Series

A freeze dryer, also known as a lyophilizer, is designed to dry products at low temperatures. Compared to traditional drying methods, freeze drying is capable of drying food out while preserving their shape, color, taste, and nutritional value, thus consumers prefer freeze dried food nowadays.

With over 20 years of experience, Labfirst Scientific specializes in designing and building freeze dryers that are robust, reliable, and compliant with stringent regulations. It is widely used in freeze drying fruits, vegetables, pet food, and more. We have a team of professional engineers to assist you with the design and production of your desired machine. Whether you need to scale up from a countertop unit or expand your production, our industrial freeze dryers meet all your essential requirements.

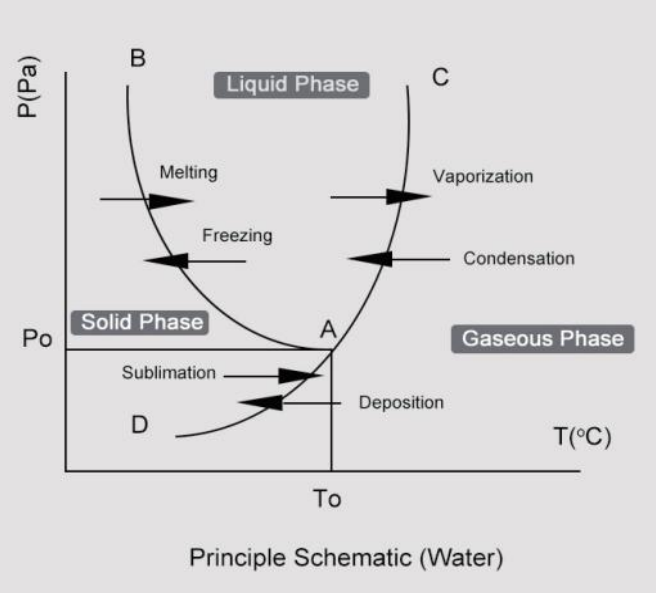
Key Facts

- Modular design makes installation and maintenance easier and faster
- Built with top branded component such as Bitzer or Tecumseh compressors
- Source factory from China with a reasonable cost
- A great variety of custom options like pumps, controlling places, chamber and more are also provided to suit your specific needs.

About Freeze Dyring

Water phase diagram

Freeze dryer is a low temperature dehydration machine that involves freezeing the product, lowering pressure, then removing the ice by sublimation. Because of the low temperature used in processing, the quality of the rehydrated product is excellent, and the original shape of the product is maintained.



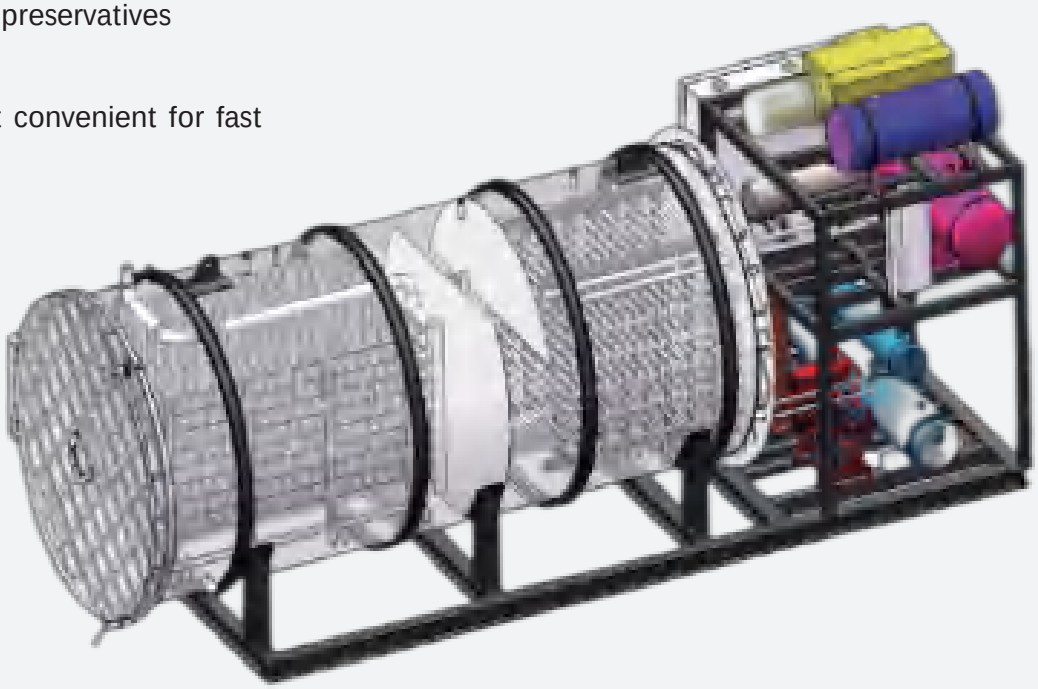
Principle Schematic (Water)

Advantages of freeze drying

- Greatly retain the color, taste and nutrition of the original product
- Longer the shelf life and less preservatives
- Easy to store and transport
- Quick rehydration, making it convenient for fast preparation or cooking.

Applications

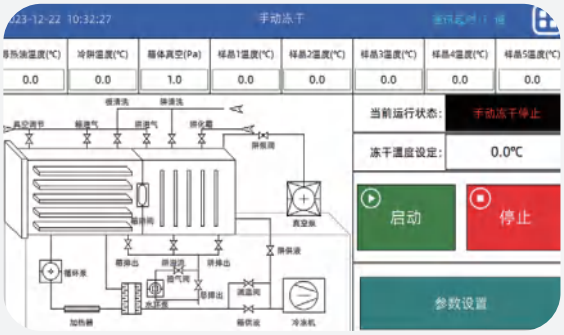
- Fruits
- Vegetables
- Pet food
- Coffee
- Chemical substance



Features

Software

- Intuitive 10 inch color touch display
- Two kinds of working mode: program mode; manual mode
- Easy access to historical record
- Standard RS485 communication and Ether-net communication
- Stable and reliable PLC controller.
- Programs can be added, removed, copied,
- re-run, paused or edited.



LCD touch screen

Structure

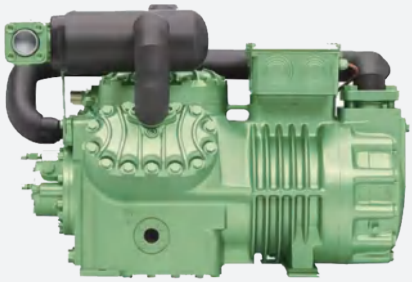
- The double chamber design ensures a hygienic, and energy-efficient system, making it better suited for industries requiring sanitary conditions.
- The two chambers can be closed off, facili-tating cleaning, material handling, and pressure testing.
- The shelves have the same dimensions, making operation easier.

  Stainless steel chambers (drying chamber & ice condenser chamber) are easy to clean and free of dead corners.

Inner Chamber

Electronic Components

- Built with compressors from Bitzer, Tecumseh, etc. and globally available eco-friendly refrigerants, ensuring long service life and convenient local maintenance.
- Equiped with Emerson high-performance elec-tronic expansion valve.
- A refrigeration gauge is used to monitor the system's pressure to track the condition of the refrigeration system.
- Equipped with a high-performance dual-stage rotary vane vacuum pump to ensure a stable vacuum level.
- Industrial standard electrical panel, safe and easy to maintain



Bitzer compressor

Options

LAB1ST provides multiple options to suit your specific needs

- **CIP system**
  Automates cleaning, saving time and reducing manual labor.
- **Extra cooling system**
  Increases cooling capacity, improving performance during high-demand operations.
- **Ulvac, Edwards, or Leybold vacuum pump**
  Provides reliable vacuum performance with long service life.
- **Oil-free vacuum system**
  Requires less maintenance and eliminates the risk of oil contamination.
- **Multiple control points**
  Allows control of the system from different locations for easier operation.
- **Siemens S7 series PLC controller and touchscreen**
  Offers precise, automated control with an easy-to-use interface.
- **Dual-condensing chamber system**
  Ensures continuous operation by alternating between chambers.
- **Display screen with different sizes**
  Flexible screen size options to suit different setups.
- **Pre-freezing system**
  Speeds up the freeze-drying process

Specifications-Contact Type

FDI-F-T Series

- Precise temperature control
- Drying Surface: 5m² to 50m²
- Minimum Cold Trap Temperature: - 65℃

Model	FDI-5F-T	FDI-7.5F-T	FDI-10F-T	FDI-20F-T	FDI-30F-T	FDI-50F-T
Shelf Surface [m²]	5	7.5	10	20	30	50
Tray Dimension [mm]	300*400*25	300*466*25	300*466*25	360*450*25	360*500*25	360*470*25
Number of Trays	45	54	72	120	176	300
Tray Capacity [Kg]	100	150	200	400	600	750
Shelf Dimension [W × D × H]	900 × 1200 × 10	900 × 1400 × 10	900 × 1400 × 10	1080 × 1800 × 15	1440 × 2000 × 15	1440 × 2350 × 15
Number of Shelves	5+1	6+1	8+1	10+1	11+1	15+1
Internal Diameter [mm]	1250	1250	1250	1800	2050	2300
Shelf Spacing [mm]	70	60	60	80	80	70
Shelf Temperature Range [℃]	-40 ~ +80; ± 1℃					
Minimum Cold Trap Temperature [℃]	-65					
Cold Trap Water Capacity[Kg]	100	150	200	400	600	750
Maximum Vacuum	3Pa					
Installed Power [Kw]	26	36	45	80	105	135
Dimensions [mm]	1600 × 3100 × 2200	1600 × 3500 × 2200	1600 × 5100 × 2300	2200 × 7500 × 3000	2500 × 9500 × 3200	2500 × 11000 × 3500
Wieght [Kg]	3000	3500	4000	10000	12000	13000

Specifications- Radiative Type

FDI-F-R Series

- Competitive price, perfect for fruit drying
- Drying Surface: 20 m^2 to 200 m^2
- Minimum Cold Trap Temperature: - 65℃

Model	FDI-20F-R	FDI-30F-R	FDI-50F-R	FDI-106F-R	FDI-218F-R
Shelf Surface [m2]	20	30	50	106	218
Tray Dimension [mm]	610*610*35	710*610*35	610*610*35	610*610*35	710*610*35
Number of Trays	60	68	136	272	476
Tray Capacity [Kg]	200	300	500	1000	2000
Shelf Dimension [W × D × H]	620 × 1900	620 × 1450	620 × 2600	620 × 5200	620 × 10500
Shelf Layers	10+1	17+1	17+1	17+1	17+1
Number of Shelves	22	36	36	36	36
Internal Diameter [mm]	90				
Shelf Temperature Range [℃]	RT ~ +120; ± 1℃				
Minimum Cold Trap Temperature [℃]	-65				
Cold Trap Water Capacity [Kg]	300	450	1000	2000	3000
Maximum Vacuum	3Pa				
Installed Power [Kw]	80	110	144	226	388
Dimensions [mm]	2300 ×5000 × 3000	2800 ×7200 × 3600	2800 ×11000 × 3600	2800 ×16000 × 3600	2800 ×28000 × 3600
Wieght [Kg]	11000	15000	21000	28000	38000

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