

## 仪器选型

样品蒸发、干燥、浓缩和纯化的方法，常用的有：

- ☒ 高温、常压条件下的蒸馏和旋转蒸发方法，但仅能处理单一样品。
- ☒ 低温下快速蒸发，氮吹化方法，但处理样品少，操作复杂。
- ☒ 室温、真空条件下蒸发，真空离心浓缩方法，但对样品有条件要求。
- ☒ 低温、高真空条件下冷冻干燥机方法，升华保持样品活性，但耗时较长。
- ☑ 真空冷冻干燥机广泛用在医学制药，生物研究，化工和食品等领域。经冷冻干燥处理的物品易于长期保存，给水后能恢复到冻干前状态并保持原有生化特性。

# 台式冷冻干燥机

## DESKTOP FREEZE DRYER



ZX-LGJ-1型

## 可选型号 Available Models



普通型  
Common type



压盖型  
Gland type



多歧管型  
Multi manifold type



多歧管压盖型  
Multi manifold gland type

※ 注：选配有加热功能的隔板需加3000元。

## 成品标本 Finished specimen



## Instrument selection

Common methods for evaporation, drying, concentration and purification of samples:

- The method of distillation and rotary evaporation which under high temperature and atmospheric pressure can only deal with a single sample.
- The methods of rapid evaporation and nitrogen blowing at low temperature can deal with a small quantity of samples and it is more complicated.
- The evaporation at room temperature and vacuum, and the vacuum centrifuge concentration method are conditional on the sample.
- Cryopreservation and drying method under low temperature and high vacuum keeps the activity of the sample, but it takes a long time.
- The vacuum freeze dryer is widely used in the fields of medicine, biological research, chemical industry and food. Freeze-dried items are easier for long-term preservation. After rewatering, the products can return to the state before freeze drying, and maintain their original biochemical persistence.

## 基本参数 Parameters

参数 \ 型号	普通型	压盖型	多歧管型	多歧管压盖型
冷凝温度	-50	-50	-50	-50
真空度	10pa以下	10pa以下	10pa以下	10pa以下
空载冻干面积	0.12m <sup>2</sup> 干燥盘四层 可放置物料约1200ml (料厚10mm)	0.08m <sup>2</sup> 干燥盘三层 可放置物料约900ml (料厚10mm)	0.12m <sup>2</sup> 干燥盘四层 可放置物料约1200ml (料厚10mm)	0.08m <sup>2</sup> 干燥盘三层 可放置物料约900ml (料厚10mm)
干燥室尺寸(mm)	320×480	320×480	320×550	320×550
标准配置	台式主机 普通干燥装置 国产真空泵和连接件 预冻架和保温盖板	台式主机 压盖干燥装置 国产真空泵和连接件 预冻架和保温盖板	台式主机 8接口多歧管干燥装置 8个冻干瓶(500ml、250ml、 100ml、50ml各两只) 国产真空泵和连接件 预冻架和保温盖板	台式主机 8接口多歧管干燥装置 8个冻干瓶(500ml、250ml、 100ml、50ml各两只) 国产真空泵和连接件 预冻架和保温盖板

Parameter \ Model	Common type	Gland type	Multi manifold type	Multi manifold gland type
Condensing temperature	-50	-50	-50	-50
Vacuum degree	below10pa	below10pa	below10pa	below10pa
No-load freezing dry area	The area of dry plate is 0.12 m <sup>2</sup> and placed four layers, the material about 1200ml (material thickness 10mm)	The area of dry plate is 0.08 m <sup>2</sup> and placed four layers, the material about 900ml (material thickness 10mm)	The area of dry plate is 0.12 m <sup>2</sup> and placed four layers, the material about 1200ml (material thickness 10mm)	The area of dry plate is 0.12 m <sup>2</sup> and placed four layers, the material about 1200ml (material thickness 10mm)
Drying chamber size (mm)	320×480	320×480	320×550	320×550
Standard configuration	Desktop machine, ordinary drying device, 4 liters of domestic vacuum pump and a connecting piece, pre freeze frame and a heat insulation cover	Desktop machine, ordinary drying device, 4 liters of domestic vacuum pump and a connecting piece, pre freeze frame and a heat insulation cover	Desktop machine, 8 interface multi manifold drying device, 8 freeze-dried vials(500ml, 250ml, 50ml of the two), 4 liters of domestic vacuum pump and connecting pieces, pre freeze frame and insulation cover plate	Desktop machine, 8 interface multi manifold gland drying device, 8 freeze-dried vials (500ml, 250ml, 50ml of the two), 4 liters of domestic vacuum pump and connecting pieces, pre freeze frame and insulation cover plate

## 产品特点

- 结构小，结构紧凑，操作方便
- 冷阱开口大，无内盘
- 样品预冻功能，无需低温冰箱
- 干燥室采用无色透明一次性注塑成型聚碳材质，防腐蚀，不易碎，不易泄露，可清楚观察样品冻干的全过程
- 冷阱和操作台面为全不锈钢，耐腐蚀，易清洁
- 国际标准KF真空接口，安装简单可靠，可与多种真空泵连用
- 可配充气阀，充干燥惰性气体

# 立式冷冻干燥机

## VERTICAL FREEZE DRYER



ZX-LGJ-18型

## 可选型号 Available Models



普通型  
Common type



压盖型  
Gland type



多歧管型  
Multi manifold type



多歧管压盖型  
Multi manifold gland type

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## 成品标本 Finished specimen



## Characteristics

- The structure is small and compact, the operation is convenient.
- The large opening of the cold trap, without coil.
- There is no need for cryogenic refrigerator with the function of sample prefreezing.
- A colorless, transparent, one-time injection molding material for the drying chamber, which is anticorrosive, unbreakable, and uneasy to leak, and the process of observing the motion of the sample is clear.
- The cold trap and the operating table are all stainless steel, which is anticorrosive and easy to clean.
- Using international standard KF vacuum interface, the installation is simple and reliable, and it can be used in a variety of vacuum pumps.
- It can be equipped with an inflatable valve, and fill a dry and inert gas.

## 技术参数

■ 冷阱温度:  $< -60^{\circ}\text{C}$  (空载时)

■ 真空度:  $< 10\text{Pa}$

■ 冻干面积:  $0.18\text{--}0.27\text{ m}^2$

■ 捕水能力:  $6\text{Kg}/24\text{h}$

■ 物料盘规格:

$\phi 240\text{mm}$ 共4层层间距 $80\text{mm}$  (散装物料);

$\phi 240\text{mm}$ 共6层 层间距 $50\text{mm}$  (散装物料) 可选配;

$\phi 220\text{mm}$ 共3层 (瓶装物料, 手动压盖装置)

普通型:

特殊设计的不锈钢样品架, 样品盘间距可调, 层数自由设定; 物料干燥盘直径为 $\phi 240\text{mm}$ ,共四层; 可放置物料约 $1800\text{ml}$  (料厚 $10\text{mm}$ )

压盖型:

三层搁板 $\phi 220\text{mm}$ , 搁板间距 $70\text{mm}$ , 可放置物料 $1100\text{ml}$  (料厚 $10\text{mm}$ ); 可放置 $\phi 22\text{mm}$ 西林瓶250只; 安瓿瓶1100只

多歧管冻干瓶:

同时最多挂瓶为8个, 分为以下4种规格:  $500\text{ml}$ 、 $250\text{ml}$ 、 $100\text{ml}$ 、 $50\text{ml}$ , 可根据需要自由组合, 冻干过程中可随时更换冻干瓶, 同时冻干几种不同样品, 冻干速度快、时间短、操作简单。

■ 主机尺寸:  $555\text{L} \times 555\text{W} \times 960\text{H}$  (mm)

■ 电源要求:  $220\text{V} \pm 10\%$   $50\text{Hz}$   $1800\text{W}$

## Technical parameter

- Cold trap temperature:  $< -60$  degrees (no load)
- Vacuum degree:  $< 13\text{Pa}$  (equipped with 4 liters of domestic anti back oil vacuum pump)
- Freeze dry area:  $0.18\text{--}0.27\text{m}^2$
- Water capture capacity:  $6\text{Kg}/24\text{h}$
- Material tray size:

$\phi 240\text{mm}$  total of 4 layers, layers spacing  $80\text{mm}$  (bulk material);

$\phi 240\text{mm}$  total of 6 layers, layer spacing  $50\text{mm}$  (bulk material) can be selected;

$\phi 220\text{mm}$  a total of 3 layers (bottled materials, manual capping device)

Common type:

stainless steel sample holder with special design, sample plate spacing can be adjusted, free to set the layers; drying disk diameter  $\Phi 240\text{mm}$ , four layers, placed the material about  $1800\text{ml}$  (material thickness  $10\text{mm}$ )

Gland:

three shelves  $\Phi 220\text{mm}$ , shelf spacing  $70\text{mm}$ , placing the material  $1100\text{ml}$  thickness  $10\text{mm}$ ; can be placed  $\Phi 22\text{mm}$  vials 250; ampere bottle 1100

Manifold freeze dry bottles:

Hang 8 the bottles at most, is divided into the following four kinds of specifications:  $500\text{ ml}$ ,  $250\text{ ml}$ ,  $100\text{ ml}$ ,  $50\text{ ml}$ ,

according to needs, free combination, freeze dry process can be replaced at any time freeze-dried vials, and lyophilized several different samples and freeze drying speed, time is short, the operation is simple.

Host size:  $555\text{L} * 555\text{W} * 960\text{H}$  (mm)

Power requirements:  $220\text{V} + 10\%$   $1800\text{W}$   $50\text{Hz}$

可选真空泵 Optional vacuum pump

根据客户需求，三款冷冻干燥机可选配真空泵，目前可选配国产真空泵，和进口真空泵。

According to customer requirements, three freeze dryers can be equipped with vacuum pumps. At present, domestic vacuum pumps and imported vacuum pumps are available.

# 小型冷冻干燥机

## SMALL FREEZE DRYER



ZX-LGJ-27型

可选型号 Available Models



普通型  
Common type



压盖型  
Gland type



多歧管型  
Multi manifold type



多歧管压盖型  
Multi manifold gland type

※ 注：选配有加热功能的隔板需加3000元。

成品标本 Finished specimen





标配泵



可选泵

## 技术参数

- 冷阱温度:  $-80^{\circ}\text{C}$  (空载时)
- 极限真空度:  $\leq 10\text{Pa}$  (空载时)
- 降温时间:  $\leq 120\text{min}$
- 达到极限真空时间:  $\leq 20\text{min}$
- 捕水能力:  $10\text{Kg}/24\text{h}$
- 冻干面积:  $0.13\text{--}0.27\text{ m}^2$
- 物料托盘规格:

普通型:  $\phi 240\text{mm}$ 共6层, 冻干面积: $0.27\text{m}^2$ , 可放置直径 $22\text{mm}$ 的瓶子558个

压盖型:

$\phi 220\text{mm}$ 共3层, 冻干面积: $0.135\text{m}^2$ , 放置直径 $22\text{mm}$ 的瓶子250个

多歧管型冻干瓶:

同时最多挂瓶为8个, 分为以下4种规格:  $500\text{ml}$ 、 $250\text{ml}$ 、 $100\text{ml}$ 、 $50\text{ml}$ , 可根据需要自由组合, 冻干过程中可随时更换冻干瓶, 同时冻干几种不同样品, 冻干速度快、时间短、操作简单

- 搁板加热可编程控制, 采用大屏幕液晶屏, 以曲线和数据的方式同时提供有关冻干进程的更多信息
- 整机功耗: 约 $1700\text{VA}$
- 主机外形尺寸(长 $\times$ 宽 $\times$ 高):  $1000\text{mm} \times 555\text{mm} \times 780\text{mm}$  (不含干燥室)
- 适用电源:  $220\text{V } 50\text{Hz}$

注: 本机冷阱兼作预冻室, 搁板加热可编程控制, 采用液晶屏显示冻干曲线。

### Technical parameter

- Cold trap temperature:  $-80^{\circ}\text{C}$  (no load)
- Limiting vacuum:  $\leq 13\text{Pa}$  (no-load)
- The cooling time: less than  $120\text{min}$
- Reach the limit of vacuum time: less than  $20\text{min}$
- Water capture capacity:  $10\text{Kg}/24\text{h}$
- Freeze dry area:  $0.13\text{--}0.27\text{m}^2$
- Material pallet specifications:

Common type:

$\phi 240\text{mm}$  with a total of 6 layers, freeze dry area:  $0.27\text{m}^2$ , can be placed 558 bottles, the diameter of  $22\text{mm}$

Gland type:

$\phi 220\text{mm}$  total of 3 layers, freeze dry area:  $0.135\text{m}^2$ ,  $22\text{mm}$  250 bottle placed.

Manifold type freeze dry bottles:

Hang 8 the bottles at most, is divided into the following four kinds of specifications:  $500\text{ ml}$ ,  $250\text{ ml}$ ,  $100\text{ ml}$ ,  $50\text{ ml}$ , according to needs, free combination, freeze dry process can be replaced at any time freeze-dried vials, and lyophilized several different samples, freeze drying speed, time is short, the operation is simple single

- Heating shelf can be programmed control, the use of large screen LCD screen, the curve and the data also provide more information about freeze dry process
- Overall power consumption: about  $1700\text{VA}$
- Main engine size (L \* w \* h):  $1000\text{mm} * 555\text{mm} * 780\text{mm}$  (no drying room)
- Applicable power:  $50\text{Hz } 220\text{V}$

Note: This machine is used as a pre freezing cold trap chamber, shelf heating control, using liquid crystal display freeze drying curve.