

LYOMAC FREEZE DRYER

◎真空冷冻干燥机系列

Freeze dryer series

◎层析实验冷柜系列

Level analysis experimentation congealer series

公司概况 | COMPANY INTRODUCTION

Zhejiang Lyomac pharmaceutical equipment Co.,LTD. was founded in 2009 and specializes in the R&D, production and sales of vacuum freeze-drying products. With the vacuum freeze dryer as the core product, forming different scales and different applications of three series of products as well as targeted solution for scientific research experiment, medical, and food industry. We are well-known on providing the vacuum freeze-drying equipment and targeted solution in China. We are one of the first domestic enterprises engaged in vacuum freeze-drying technology and safety production standardization of Beijing industrial enterprises. Our head office is in Shanghai. We have the branches and special maintenance stations in Shanghai, Guangdong, Wuhan, Xian, Chengdu, and Hainan. Our products are exported to the United States, Russia, South Korea, Japan, Singapore, Malaysia, Canada, Brazil, Argentina and other countries.

The company has developed three major series of products with independent intellectual property rights and high-tech content. In 2012, the company researched one kind of patented shelf for vacuum freeze dryers, which is widely used in the current mainstream pilot freeze dryers and production freeze dryers. It makes the rapid development of domestic vacuum freeze-drying technology. In 2015, we researched and developed a kind of energy-saving vacuum freeze-dryer system and a vacuum freeze dryer with this system. At present, this energy-saving system is mainly used in big scale freeze-drying equipment, effectively reducing energy consumption of equipment by about 30%.

With Kind, open, rigorous corporate culture and scientific management, Songyuan Huaxing has excellent professional managers and management team. Senior refrigeration experts, senior vacuum experts, senior electronic control experts and senior mechanical design experts form technical teams. They cooperate close in the product development, promotion and maintenance. They have a profound understanding the meaning of "customer-centric". "service" is carried out throughout operation and management, to win wide trust and support from customers. With an open and harmonious attitude, Songyuan Huaxing has a deep technical cooperation with many well-known freeze-drying technology manufacturers and universities at home and abroad.

The process of growing up is the process of serving customers and making success with the customers together. We try our best to do everything well and meet every challenge with confidence.

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真空冷冻干燥机

VACUUM FREEZE DRYER SERIES

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，加水后能恢复到冻干前状态并保持原有生化特性。

Vacuum freeze dryer is widely used in medicine, pharmacy, biology research, chemical industry and food production, etc. After freeze drying process, a long term preservation for material is much easier. They can be restored to original state and maintain their chemical and biological characteristics after being watered.

1 LGJ-10/12/18 系列真空冷冻干燥机

LGJ-10/12/18 series of freeze dryer

LGJ-10/12/18 系列真空冷冻干燥机，少量样品可直接在冷阱内预冻，适用于实验室使用，可满足大多数实验室常规冻干的要求。本系列分为五种：A、普通型 B、压盖型 C、多歧管普通型 D、多歧管压盖型 E、T 型架

LGJ-10/12/18 freeze dryers, small amount of samples can pre-freeze in condenser. They are suitable for lab use or small-scale production, and they can meet requirements for most laboratories.

Types : A : standard type ,B: top press type, C: manifold type , D: manifold with top press type, E :T-type



主要特点:

- 一体式结构设计，体积小、无外置法兰、使用方便、无泄漏。
- 所有与产品接触的材料均使用惰性材料，满足 GLP 的要求。
- 冷阱和操作台面采用不锈钢材质，防腐蚀，易清洁。
- 全不锈钢充气（放水）阀门本公司自行设计、生产，安全、防腐、无泄漏。
- 冷阱开口大，无内盘管，带样品预冻功能，无需低温冰箱。
- 专业化的气体导流技术，冷阱捕冰均匀，捕冰能力强。
- 国际知名品牌压缩机，高效节能、使用寿命长、噪音低。
- 知名品牌真空泵，抽速大，实现更高的极限真空度。
- 真空泵保护功能，可设定真空泵启动冷阱温度，保护真空泵使用寿命。
- 专业设计 FD-LAB 冻干机控制系统 +SH-HPSC-I 模块化控制器，具有较高的可靠性和稳定性。
- 智能化数据记录系统，实时记录并显示冷阱温度曲线、样品温度曲线、真空度曲线，导出数据可通过电脑浏览打印及多种操作。

Main features:

- All-in-one structure, small size, no external flange, easy to use, no leakage.
- All materials in contact with the product use inert materials to meet the requirements of the GLP.
- The cold trap and console are made of stainless steel, which is anti-corrosion and easy to clean.
- All stainless steel inflated/water release valve is designed and produced by our company, which is safety, anti-corrosion, no leakage.
- With sample pre-frozen function, large cold trap opening, no inner coil, and low temperature refrigerator is needless.
- Patented gas diversion technology, and strong ice holding ability.
- World - known brand compressors, high efficiency, long life, low noise.
- Well-known brand vacuum pump with a high pumping speed to achieve a higher ultimate vacuum.
- Vacuum pump protection function can set the cold trap temperature to protect the vacuum pump life.
- Professionally designed FD-LAB freeze-drying machine control system + SH-HPSC-I modular controller with high reliability and stability.
- Intelligent data recording system can real-time record and display the cold trap temperature curve, sample temperature curve, vacuum curve.



预冻功能
Pre-freezing
function



思科普压缩机
Secop compressor



混合环保制冷剂
Green environmental
protection compound
refrigerant



内置换热器
The refrigeration system
adopts heat interchanger



防返油真空泵
Vacuum pump



全程跟踪设备的生产、
销售及售后
Tracking service card



电除霜
Defrosting function

选配功能:

- 冷阱温度 -80℃
- 真空泵防返油装置
- 冷阱电加热除霜
- 油雾过滤系统
- 50ml 茄型瓶
- 广口瓶装置（600ml/1200ml）
- 进口品牌真空泵
- 非标定制
- Cold trap temperature -80℃
- Vacuum pump anti-return device
- Cold trap electric heating defrosting
- Oil mist filtration system
- 50 ml eggplant bottle
- Wide-mouth bottle device (600ml/1200ml)
- International brand vacuum pump
- Non-standard customization

选型指南:

- A 普通型：
适用于散装（液态、糊状、固态）常规物质的冷冻干燥。
- B 压盖型：
不仅适用于散装（液态、糊状、固态）常规物质的冷冻干燥，还适合西林瓶装物料的干燥，冻干准备时，按需要将物料分装在西林瓶中，浮盖好瓶盖后进行冷冻干燥，干燥结束后操作压盖装置压紧瓶盖，可避免二次污染、重新吸附水分，易于长期保存。
- C 多歧管普通型：
适用于散装（液态、糊状、固态）常规物质的冷冻干燥，并可在干燥室外部接装烧瓶，对旋冻在瓶内壁的物料进行干燥，这时烧瓶作为容器接在干燥箱外的歧管上，烧瓶中的物料靠室温加热，通过多歧管开关装置，可按需要随时取下或装上烧瓶，不需要停机。
- D 多歧管压盖型：
在普通型特点的基础上，结合了压盖型和多歧管普通型的特点。适用于散装（液态、糊状、固态）常规物质的冷冻干燥；适合西林瓶装物料的干燥，冻干准备时，按需要将物料分装在西林瓶中，浮盖好瓶盖后进行冷冻干燥，干燥结束后操作压盖装置压紧瓶盖，可避免二次污染、重新吸附水分，易于长期保存；在干燥室外部接装烧瓶，对旋冻在瓶内壁的物料进行干燥，这时烧瓶作为容器接在干燥箱外的歧管上，烧瓶中的物料靠室温加热，通过多歧管开关装置，可按需要随时取下或装上烧瓶，不需要停机。
- E T 型架：
适用于安瓿管对细菌、真菌等微生物菌种的保藏，实验室常采用安瓿封存法。样品冷冻干燥后封装在小安瓿内。它具有保藏期长，变异小，便于大量保藏及适用范围较广等优点。



↑ LGJ-10 多歧管普通型（-80℃）



↑ 真空泵接口



↑ 真空泵



↑ LGJ-12/18 压盖型

Model Selection Guide:

- A Standard:
It is suitable for freeze-drying bulk (liquid, pasty, solid) conventional materials.
- B Top-press:
It is not only suitable for freeze-drying of bulk (liquid, pasty, solid) conventional substances, but also suitable for drying of Vials materials. When preparing for freeze-drying, the materials are separated into Vials according to the need. After floating the cap, the freeze-drying process start. After drying, the capping device is operated to tighten the cap, which can avoid secondary pollution, re-adsorb water, and is easy to store for a long time.
- C Multi manifold general type:
It is suitable for the freeze-drying of bulk (liquid, pasty, solid) conventional materials, and can be fitted with flasks outside the drying chamber to dry the materials rotated inside the bottle wall. At this time, the flask is connected to the manifold outside the drying chamber as a container. The material in the flask is heated at room temperature. Through the multi-manifold switch device, the flask can be removed or loaded at any time as needed without stopping the machine.
- D Multi manifold cover type:
On the basis of the characteristics of the common type, it combines the characteristics of the capping type and the common type of multi-weir pipe. It is suitable for freeze-drying of bulk (liquid, pasty, solid) conventional material ; suitable for drying of vials materials. When preparing for freeze-drying, the materials are separated into vials according to the need. After floating the cap, the freeze-drying process start . After drying, the capping device is operated to tighten the cap, which can avoid secondary pollution, re-adsorb water, and is easy to be stored for a long time. The flask is used to dry the material whirled inside the flask. At this time, the flask is connected to the manifold outside the drying chamber as a container. The material in the flask is heated at room temperature. Through the multi-manifold switch device, the flask can be removed or loaded at any time as needed without stopping the machine.
- E T shelf :
It is suitable for the preservation of microorganisms such as bacteria and fungi in ampoule tubes. The ampoule storage method is often used in laboratories. The samples were packaged in small ampoules after freeze-drying. It has the advantages of Long-term preservation, small variation, easy storage and Widely used.

冻干实例：



▲ 材料



▲ 养生粥



▲ 干细胞溶液



▲ 土壤



▲ 植物提取物



▲ 微生物



▲ LGJ-18 (茄型瓶 T 型架)

技术指标：

型号 Model		LGJ-10				LGJ-12/12S		LGJ-18/18S	
规格 Specification	单位 Unit	普通型 Standard	压盖型 Top-press	普通型 Standard	压盖型 Top-press	普通型 Standard		压盖型 Top-press	
冻干面积 Freeze-drying area	m ²	0.12	0.08	0.12	0.08	0.18	0.27	0.09	
冷阱温度 Cold trap temperature	℃	< -56 (空载) , 可选 < -80 (空载) < -56 (no-loading), option < -80 (no-loading)							
真空度 Vacuum degree	Pa	≤ -56 (空载) ≤ 5 (no-loading)							
捕水能力 Water-capture capability	kg/24h	3-4			3-4		6		
物料盘尺寸 Tray dimension	mm	φ 200	φ 180	φ 200	φ 180	φ 240	φ 240	φ 200	
物料盘数量 Trays number	个	4	3	4	3	4	6	3	
物料盘间距 Tray spacing	mm	70			70		70		
整机功率 Power	w	970			970		1400		
主机重量 Weight	kg	41			62		105		
主机外形尺寸 (-56℃) Dimension (-56℃)	mm	615 × 450 × 370			580 × 500 × 720		630 × 580 × 970		
主机外形尺寸 (-80℃) Dimension (-80℃)	mm	850 × 680 × 405			770 × 550 × 720		810 × 580 × 950		
干燥室尺寸 Drying chamber size	mm	Φ260 × 430	Φ260 × 490	Φ260 × 430	Φ260 × 490	Φ300 × 445		Φ300 × 540	
冷阱直径 Diameter of cold trap	mm	Φ215			Φ215		Φ270		
冷阱深度 Cold trap depth	mm	140			240		400		
可装物料 (料厚 10mm) Bulk capacity (thickness 10mm)	L	1.2	0.8	1.2	0.8	1.8	2.7	0.9	
可装入西林瓶 Vial loading number	支	—	Φ12mm: 492	—	Φ12mm: 492	—	—	Φ12mm: 615	
	支	—	Φ16mm: 297	—	Φ16mm: 297	—	—	Φ16mm: 345	
	支	—	Φ22mm: 147	—	Φ22mm: 147	—	—	Φ22mm: 183	
除霜模式 Defrosting	—	自然化霜 (可选电除霜) Natural defrosting (option electric defrosting)							
电源 Power	—	单相 3 线, 220 伏 1Ph + N + PE, 220V							



A: 普通型
A:ordinary



B: 压盖型
B:top-press



C: 普通多歧管型
C:multi-pipeline ordinary



D: 压盖多歧管型
D: multi-pipeline top-press



E: T 型架
E:T-type shelf

2

LGJ-12S/18S 电加热真空冷冻干燥机

LGJ-12S/18S heating in-situ freeze dryer

LGJ-12S/18S 冷冻干燥机是一种小型立式冷冻干燥设备，该机型具备**隔板加热**和**可编程功能**，适用于实验室使用，可满足大多数实验室常规冻干的要求。

LGJ-12S/18S freeze-dryer is a small vertical freeze-drying equipment, which has the functions of baffle heating and programmable. They are suitable for lab use or small-scale production, and they can meet requirements for most laboratories.



▲ LGJ-12S/18S 多歧管压盖型

主要特点：

- 一体式结构设计，体积小、无外置法兰、使用方便、无泄漏。
- 所有与产品接触的材料均使用惰性材料，满足 GLP 的要求。
- 冷阱和操作台面采用不锈钢材质，耐腐蚀，易清洁。
- 全不锈钢充气（放水）阀门本公司自行设计、生产，安全、防腐、无泄漏。
- 冷阱开口大，无内盘管，带样品预冻功能，无需低温冰箱。
- 专业化的气体导流技术，冷阱捕冰均匀，捕冰能力强。
- 国际知名品牌压缩机，高效节能、使用寿命长、噪音低。
- 知名品牌真空泵，抽速大，实现更高的极限真空度。
- 真空泵保护功能，可设定真空泵启动冷阱温度，保护真空泵使用寿命。
- 7 英寸真彩工业嵌入式触摸屏 +SH-HPSC-II 模块化控制器，控制精度高，性能稳定可靠。
- 专业设计的 FD-EMB 控制系统，可保存上百组工艺配方，每组配方包含 50 个控温区段，提高工艺优化率。
- 智能化数据记录系统，实时记录并显示冷阱温度曲线、样品温度曲线、真空度曲线，导出数据可通过电脑浏览打印及多种操作。
- 板层加热安全电压（36V）控温系统，可控制升温速率。
- 灵活的手动 + 自动控制方式，手动摸索工艺，自动批量化生产。
- 实时报警显示及历史报警查询功能，方便故障诊断及设备维护。
- 可设置用户等级和密码，分权进行操作管理。
- 强大的传感器校准功能，确保长期使用测量值的精确性。

Main features:

- Integral structure design, small size, no external flange, easy to use, no leakage.
- All materials in contact with the product are inert materials to meet the requirements of GLP.
- Cold trap and operating table are made of stainless steel, which is corrosion-resistant and easy to clean.
- All stainless steel inflatable (drainage) valves designed and manufactured by our company are safe, anticorrosive and leak-free.
- The cold trap has large opening, no inner coil, with sample pre-freezing function, and no cryogenic refrigerator is needed.
- Specialized gas diversion technology, uniform cold trap ice capture, ice capture ability.
- International well-known brand compressor, high efficiency and energy saving, long service life, low noise.
- Well-known brand vacuum pump, high pumping speed, achieve higher vacuum limit.
- Vacuum pump protection function, can set the starting cold trap temperature of vacuum pump, protect the service life of vacuum pump.
- 7-inch real-color industry embedded touch screen + SH-HPSC-II modular controller, high control accuracy, stable and reliable performance.
- Intelligent data recording system can real-time record and display the cold trap temperature curve, sample temperature curve, vacuum curve.
- The shelf electric heating safety.The control systemvoltage (36V) temperature can control the heating rate.
- Flexible manual + automatic control mode, manual groping process, automatic batch production.
- Real-time alarm display and historical alarm inquiry functions facilitate fault diagnosis and equipment maintenance.
- User level and password can be set, and operation management can be decentralized.
- Powerful sensor calibration function ensures long-term use of measurement accuracy.

用户现场：



▲ LGJ-10T 配茄型瓶



▲ LGJ-10T 配茄型瓶



▲ LGJ-10 普通型

3

LGJ-10FD/30FD/50FD 电加热真空冷冻干燥机

LGJ-10FD/30FD/50FD electric-heating freeze dryer

LGJ-10FD/30FD/50FD（电加热）冷冻干燥机，原位冻干（专利产品）。它改变了过去干燥过程的繁琐操作，防止了物料的污染，实现了干燥升华的自动化。该机型具备隔板加热和可编程功能，可以记忆冻干曲线，自带u盘提取功能，方便用户观察物料的冻干过程。

LGJ-10FD/LGJ-30FD/LGJ-50FD series of freeze dryers with electric heating function (patent machine). Products can be freeze dried in situ. It changes the complex operation and prevent sample pollution, and make drying automation. These models has shelf heating and programmable functions. They can records freeze drying curves, data can be output by U-disk. User can clearly view the freeze drying process.

主要特点:

- 本公司专利产品方仓原位真空冷冻干燥机，预冻、干燥原位完成，操作简便，干燥效果好。
- 干燥室门采用 ACRYLIC 材料，无色、透明、可观察冻干的全过程。
- 充气（放水）阀门采用安全隔膜阀门，可接惰性气源，干燥后充惰性气体，延长物料保质期。
- 专业化的气体导流技术，冷阱捕冰均匀，捕冰能力强。
- 国际知名品牌压缩机，高效节能、使用寿命长、噪音低。
- 隔板专利技术以及隔板温度模糊控制技术，隔板温差小，控温精度高，干燥效果均匀。
- 强大的传感器校准功能，确保长期使用测量值的精确性。
- 7 英寸真彩工业嵌入式触摸屏 +SH-HPSC-II 模块化控制器，控制精度高，性能稳定可靠。
- 专业设计的 FD-EMB 控制系统，可保存上百组工艺配方，每组配方包含 50 个控温区段，提高工艺优化率。
- 智能化数据记录系统，实时记录并显示冷阱温度曲线、样品温度曲线、真空度曲线，导出数据可通过电脑浏览打印及多种操作，方便工艺优化及干燥效果验证。
- 灵活的手动 + 自动控制方式，手动用于摸索工艺，自动用于批量化生产。
- 实时报警显示及历史报警查询功能，方便故障诊断及设备维护。
- 可设置用户等级和密码，分权进行操作管理。



▲ LGJ-30FD 普通型



▲ LGJ-10FD 普通型

Main features:

- The company's patented product square warehouse in situ vacuum freeze dryer, pre-freezing, drying in situ completed, easy to operate, good drying effect.
- The drying chamber door is made of ACRYLIC material, which is colorless, transparent and can observe the whole process of freeze-drying.
- The inflatable (drainage) valve adopts safety diaphragm valve, which can connect inert gas source, fill inert gas after drying, and prolong the shelf life of materials.
- Specialized gas diversion technology, uniform cold trap ice capture, ice capture ability.
- International well-known brand compressor, high efficiency and energy saving, long service life, low noise.
- The patented technology of partition and the fuzzy control technology of partition temperature have the advantages of small temperature difference of shelf, high precision of temperature control and even drying effect.
- Powerful sensor calibration function ensures long-term use of measurement accuracy.
- 7-inch real-color industry embedded touch screen + SH-HPSC-II modular controller, high control accuracy, stable and reliable performance.
- The specially designed FD-EMB control system can preserve hundreds of formulations, each of which contains 50 temperature control sections, so as to improve the process optimization rate.
- Intelligent data recording system can record and display the temperature curve of cold trap, sample temperature curve and vacuum curve in real time. The derived data can be browsed and printed by computer and operated in a variety of ways to facilitate process optimization and drying effect verification.
- Flexible manual + automatic control mode, manual for exploring process, automatic for batch production.
- Real-time alarm display and historical alarm inquiry functions facilitate fault diagnosis and equipment maintenance.
- User level and password can be set, and operation management can be decentralized.

选配功能:

- 冷阱温度 -80℃
- 共晶点测试仪
- 真空泵防返油装置
- 冷阱电加热除霜
- 油雾过滤系统
- 真空调节系统
- LYO-MEGA 软件系统
- 手机 APP 监控系统
- 回填过滤器
- 外接挂瓶装置
- 进口品牌真空泵
- 非标定制

Optional accessories and functions :

- Cold trap temperature -80℃
- Eutectic point tester
- Vacuum pump anti-return device
- Cold trap electric heating defrosting
- Oil mist filtration system
- Vacuum regulating system
- LYO-MEGA Software System
- Mobile App Monitoring System
- Backfill filter
- Eggplant bottle device
- International brand vacuum pump
- Non-standard customization



▲ 冬虫夏草



▲ 鸡肉块



▲ 酸奶



▲ LGJ-50FD 普通型

技术指标:

型号 Model	单位 Unit	LGJ-10FD 普通型 Standard	LGJ-10FD 压盖型 Top-press	LGJ-30FD 普通型 Standard	LGJ-50FD 普通型 Standard
冻干面积 Freeze-drying area	m ²	0.2	0.1	0.4	0.6
冷阱温度 Cold trap temperature	℃	< -60（空载），可选 < -80（空载） < -60 (no-loading), option < -80 (no-loading)			
真空度 Vacuum degree	Pa	≤ 5（空载） ≤ 5 (no-loading)			
隔板温度范围 Shelf temp range	℃	-50~+70（空载） -50~+70 (no-load)			
捕水能力 Water-capture capability	kg/24h	≥ 6		≥ 8	≥ 10
物料盘尺寸 Tray dimension	mm	265 × 395	265 × 395	295 × 335	295 × 335
物料盘数量 Trays number	个	2	1	4	6
隔板尺寸 Shelf size	mm	270 × 400	270 × 400	300 × 340	300 × 340
隔板间距 Shelf spacing	mm	70		50	50
整机功率 Power	w	2000		2700	4500
主机重量 Weight	kg	210		280	450
主机外形尺寸 Dimension	mm	655 × 640 × 1200		890 × 660 × 1210	890 × 670 × 1470
可装物料（料厚 10mm） Bulk capacity (thickness 10mm)	L	2	1	4	6
可装入西林瓶 Vial loading number	支	—	Φ12mm: 777	—	—
	支	—	Φ16mm: 434	—	—
	支	—	Φ22mm: 220	—	—
除霜模式 Defrosting	—	自然化霜（可选电除霜） Natural defrosting (option electric defrosting)			
电源 Power	—	单相 3 线，220 伏 1Ph + N + PE, 220V		单相 3 线，220 伏 1Ph + N + PE, 220V	3 相 5 线，380 伏 3 phases + N + PE, 380V

4

LGJ-20F/30F/50F/100F/200F 硅油加热真空冷冻干燥机

LGJ-20F/30F/50F/100F/200F silicon oil heating freeze dryer

LGJ-20F/30F/50F/100F/200F（硅油加热）冷冻干燥机，原位冻干（专利产品）。它改变了过去干燥过程的繁琐操作，防止了物料的污染，实现了干燥升华的自动化。该机具备隔板加热和可编程功能，可以记忆冻干曲线，自带u盘提取功能，方便用户观察物料的冻干过程。

LGJ-20F/30F/50F/100F/200F (silicon oil heating) freeze dryer as our patent machine, freezing and drying process made in situ. It changes the complex operation and prevent sample pollution,and make drying automation. These models has shelf heating and programmable functions.They can records freeze drying curves, data can be output by U-disk. User can clearly view the freeze drying process.



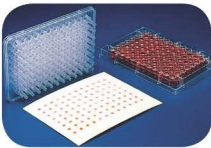
LGJ-100F 普通型

主要特点：

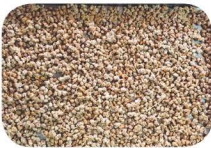
- 本公司专利产品方仓原位真空冷冻干燥机，预冻、干燥原位完成，操作简便，干燥效果好。
- 干燥室门采用 ACRYLIC 材料，无色、透明、可观察冻干的全过程。
- 充气（放水）阀门采用安全隔膜阀门，可接惰性气源，干燥后充惰性气体，延长物料保质期。
- 专业化的气体导流技术，冷阱捕冰均匀，捕冰能力强。
- 国际知名品牌压缩机、双机复叠制冷，高效节能、使用寿命长、噪音低。
- 隔板专利技术以及隔板温度模糊控制技术，隔板温差小，控温精度高，干燥效果均匀。
- 强大的传感器校准功能，确保长期使用测量值的精确性。
- 7英寸真彩工业嵌入式触摸屏+SH-HPSC-II 模块化控制器，控制精度高，性能稳定可靠。
- 专业设计的 FD-PILOT 控制系统，可保存上百组工艺配方，每组配方包含 50 个控温区段，提高工艺优化率。
- 智能化数据记录系统，实时记录并显示冷阱温度曲线、样品温度曲线、真空度曲线，导出数据可通过电脑浏览打印及多种操作，方便工艺优化及干燥效果验证。
- 灵活的手动 + 自动控制方式，手动用于摸索工艺，自动用于批量化生产。
- 实时报警显示及历史报警查询功能，方便故障诊断及设备维护。
- 可设置用户等级和密码，分权进行操作管理。

Main features :

- The company's patented product square warehouse in situ vacuum freeze dryer, pre-freezing, drying in situ completed, easy to operate, good drying effect.
- The drying chamber door is made of ACRYLIC material, which is colorless, transparent and can observe the whole process of freeze-drying.
- The inflatable (drainage) valve adopts safety diaphragm valve, which can connect inert gas source, fill inert gas after drying, and prolong the shelf life of materials.
- Specialized gas diversion technology, uniform cold trap ice capture, ice capture ability.
- International well-known brand compressor, high efficiency and energy saving, long service life, low noise.
- The patented technology of partition and the fuzzy control technology of partition temperature have the advantages of small temperature difference of shelf, high precision of temperature control and even drying effect.
- Powerful sensor calibration function ensures long-term use of measurement accuracy.
- 7-inch real-color industry embedded touch screen + SH-HPSC-II modular controller, high control accuracy, stable and reliable performance.
- The specially designed FD-PILOT control system can preserve hundreds of formulations, each of which contains 50 temperature control sections, so as to improve the process optimization rate.
- Intelligent data recording system can record and display the temperature curve of cold trap, sample temperature curve and vacuum curve in real time. The derived data can be browsed and printed by computer and operated in a variety of ways to facilitate process optimization and drying effect verification.
- Flexible manual + automatic control mode, manual for exploring process, automatic for batch production.
- Real-time alarm display and historical alarm inquiry functions facilitate fault diagnosis and equipment maintenance.
- User level and password can be set, and operation management can be decentralized.



酶标板



纳豆



金花

技术指标：

型号 Model	单位 Unit	LGJ-20F 普通型	LGJ-30F 普通型	LGJ-50F 普通型	LGJ-100F 普通型	LGJ-20F 压盖型	LGJ-30F 压盖型	LGJ-50F 压盖型	LGJ-100F 压盖型
冻干面积 Freeze-drying area	m ²	0.3	0.4	0.7	1.04	0.2	0.3	0.5	1.15
冷阱温度 Cold trap temperature	℃	< -75（空载） < -75 (no-loading), option							
真空度 Vacuum degree	Pa	≤ 5（空载） ≤ 5 (no-loading)							
隔板温度范围 Shelf temp range	℃	-55~+70（空载） -55~+70 (no-load)							
捕水能力 Water-capture capability	kg/24h	≥ 6	≥ 8	≥ 10	≥ 15	≥ 6	≥ 8	≥ 10	≥ 15
物料盘尺寸 Tray dimension	mm	395 × 265	295 × 335	475 × 355	475 × 355	395 × 265	295 × 335	405 × 405	475 × 595
物料盘数量 Trays number	个	3	4	4	6	2	3	3	4
隔板尺寸 Shelf size	mm	400 × 270	300 × 340	480 × 360	480 × 360	400 × 270	300 × 340	410 × 410	480 × 600
隔板间距 Shelf spacing	mm	70	50	50	70	70	70	100	100
整机功率 Power	w	3000	4500	5500	6500	3000	5500	6500	7500
主机重量 Weight	kg	300	400	600	700	300	400	800	1000
主机外形尺寸 Dimension	mm	840 × 750 × 1580	900 × 850 × 1350	1000 × 850 × 1420	1170 × 830 × 1665	840 × 750 × 1580	1280 × 980 × 1550	1490 × 850 × 1620	1640 × 1100 × 1630
可装物料（料厚 10mm） Bulk capacity (thickness 10mm)	L	3	4	7	10	2	3	5	11
可装入西林瓶 Vial loading number	支	—	—	—	—	Φ12mm：1554	Φ12mm：2187	Φ12mm：3705	Φ12mm：8624
	支	—	—	—	—	Φ16mm：868	Φ16mm：1200	Φ16mm：2058	Φ16mm：4788
	支	—	—	—	—	Φ22mm：440	Φ22mm：654	Φ22mm：1050	Φ22mm：2460
除霜模式 Defrosting	—	电除霜 Electric defrosting							
电源 Power	—	单相 3 线，220 伏 1Ph + N + PE, 220V			3 相 5 线，380 伏 3 phases + N + PE, 380V	单相 3 线，220 伏 1Ph + N + PE, 220V		3 相 5 线，380 伏 3 phases + N + PE, 380V	



LGJ-20F 普通型



基因



血制品



驼奶

选配功能：

- 冻干终点判断功能
- 共晶点测试仪
- 真空泵防返油装置
- 冷阱电加热除霜
- 油雾过滤系统
- 真空调节系统
- LYO-MEGA 软件系统
- 手机 APP 监控系统
- 回填过滤器
- 数据记录仪
- 自动回填及排水控制系统
- 电容式真空计
- 外接挂瓶装置
- 进口品牌真空泵
- 非标定制

Optional accessories and functions :

- Judgment function of freeze-drying end point
- Eutectic point tester
- Vacuum pump anti-return device
- Cold trap electric heating defrosting
- Oil mist filtration system
- Vacuum regulating system
- LYO-MEGA Software System
- Mobile App Monitoring System
- Backfill filter
- Data recorder
- Automatic backfill and drainage control system
- Capacitive vacuum gauge
- Eggplant bottle device
- International brand vacuum pump
- Non-standard customization

冻干实验室：

该实验室拥有差示扫描量热仪、扫描电子显微镜、冷冻干燥显微镜，上述仪器为冻干工艺研究开发提供了强有力的硬件支撑。同时松源华兴拥有强大的工艺研发团队，可在以下领域提供完整的技术服务解决方案：

- 冻干工艺开发
- 冻干工艺优化
- 冻干工艺放大
- 冻干机 GMP 验证

Freeze drying laboratory：

The laboratory has a differential scanning calorimeter, scanning electron microscope, freeze-drying microscope, the above instruments for the freeze-drying process research and development provides a strong hardware support. At the same time, Songyuan Huaxing has a strong R&D team, which can provide complete technical service solutions in the following areas:

- Development of freeze-drying process
- Freeze drying process optimization
- Amplification of freeze drying process
- Freeze drying machine GMP verification



▲ LGJ-50F 压盖型（上下结构）



验证文件：

设计验证（DQ）、安装验证（IQ）、运行验证（OQ）、性能验证（PQ）、工厂验收测试（FAT）、客户现场验收测试（SAT）、操作手册（OM）、维护手册（MM）、安装手册（IM）、工艺流程图（P&ID）等。

Verification document：

Design Verification (DQ), Installation Verification (IQ), Operation Verification (OQ), Performance Verification (PQ), Factory Acceptance Test (FAT), Site Acceptance Test (SAT), Operation Manual (OM), Maintenance Manual (MM), Installation Manual (IM), Process Flow Chart (P&ID), etc..



5

GZL/GZLY 水冷型真空冷冻干燥机

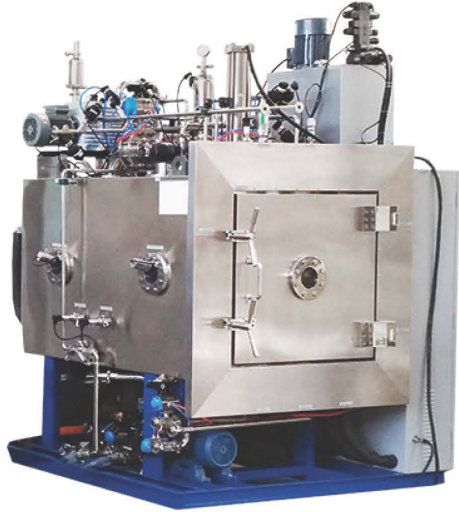
GZL/GZLY water-cooled freeze dryer

GZL/GZLY 系列真空冷冻干燥机广泛应用于血制品、疫苗、生物制品、化学药品等医药领域，以及生物研究、化工和食品等领域。尤其是西药部分，在许多的大型制药厂中都会使用冷冻干燥机，在针剂方面，冷冻干燥工艺提高了药品质量和存储期限。

GZL/GZLY series vacuum freeze dryers are widely used in blood products, vaccines, biological products, chemicals and other pharmaceutical fields, as well as in biological research, chemical industry and food fields. Especially for Western medicine, freeze-drying machines are used in many large pharmaceutical factories. For injection, freeze-drying technology can improve the quality and storage life of medicines.

主要特点：

- 隔板采用独有专利技术制作，耐高压、平整度高、温度均匀性好。
- 冻干曲线优化控制技术，可在预冻阶段控制降温速率，同时可在升华及解析干燥阶段控制样品升温速率及当前阶段真空度值。
- 专业的气体导流设计及控制技术，捕水能力强，干燥效率高。
- 独有的移动式 + 固定式双道箱门密封装置双道密封技术，在蒸汽灭菌的同时对固定式硅橡胶进行灭菌。
- 干燥运行过程中进行真空度调节，避免特殊物质起泡、吹瓶，提高干燥效率。
- 工业级嵌入式触摸屏 + 专用 SH-HPSC-IV 模块化控制器，系统稳定可靠，控制精度高。
- 专业设计的 LYO-CONTROL 控制系统，可保存多组工艺配方，
- 同时可在干燥过程中对工艺进行实时调整，提高工艺优化率。
- 灵活的手动 + 自动控制方式，手动用于摸索工艺，自动用于批量化生产。
- 标配功能强大的 LYO-MEGA 上位机控制系统，可记录、保存长达十年期间的运行数据、曲线及报警记录，提高产品的可追溯性；同时方便观察、操作及故障诊断。
- 可设置用户等级和密码，分权进行操作管理，满足 GMP 相关要求。
- 可根据用户需求进行非标定制。



▲ GZLY 医药型 (CIP+SIP)

Main features:

- Separators are made with proprietary patented technology with high pressure resistance, high smoothness and good temperature uniformity.
- The optimum control technology of freeze-drying curve can control the cooling rate in the pre-freezing stage and the heating rate and the vacuum value in the current stage in the sublimation and analytical drying stage.
- Professional gas diversion design and control technology, strong water catching capacity, high drying efficiency.
- The unique double-way sealing technology of mobile + fixed double-way box door sealing device sterilizes fixed silicone rubber at the same time of steam sterilization.
- Vacuum adjustment is carried out during drying operation to avoid foaming and blowing of special substances and improve drying efficiency.
- Industrial embedded touch screen + special SH-HPSC-IV modular controller, the system is stable and reliable, and the control accuracy is high.
- The specially designed LYO-CONTROL control system can preserve many sets of process formulations, and adjust the process in real time during the drying process to improve the process optimization rate.
- Flexible manual + automatic control mode, manual for exploring process, automatic for batch production.
- Customer level and password can be set, and operation management can be decentralized to meet GMP requirements.

型号 Model	单位 Unit	GZLY-1 医药型 Pharmaceutical	GZLY-2 医药型 Pharmaceutical	GZL-1 通用型 General	GZL-2 通用型 General
冻干面积 Freeze-drying area	m ²	1.15	2.16	1.15	2.16
进料量 (料厚 10mm) loading capacity (10mm thickness)	L	10	20	10	20
隔板数量 Number	层	4+1	4+1	4+1	4+1
隔板尺寸 Shelf size	mm	600 × 480	600 × 900	600 × 480	600 × 900
隔板间距 Shelf spacing	mm	80	80	80	80
控温范围 Temp.control range	℃	-50~+70	-50~+70	-50~+80	-50~+80
水汽凝结量 Ice condensing capacity	kg/B	≥ 20	≥ 40	≥ 20	≥ 40
捕水库温度 Cold trap temp	℃	≤ -75	≤ -75	≤ -75	≤ -75
降温方式 Method	-	水冷	水冷	水冷	水冷
除霜方式 Defrosting method	-	水浸泡	水浸泡	水浸泡	水浸泡
极限真空度 Final vacuum degree	pa	≤ 1	≤ 1	≤ 1	≤ 1
装机功率 installation power	kw	18	21	15	18
外形尺寸 Dimension (L*W*H)	mm	2500*1100*2000	2500*1300*2000	2500*1100*2000	2500*1300*2000
Φ22 西林瓶装量 Vial loading number	支	2460	4608	-	-
Φ16 西林瓶装量 Vial loading number	支	4788	8960	-	-
整机重量 Weight	kg	1500	2600	1200	2000
纯蒸汽耗量 SIP Pure steam consumption	kg/h	60	80	-	-
注射水量 / 纯水 CIP Water consumption	l/min	60	75	-	-

层析实验冷柜系列

Series of Level analysis experimentation congealer

SL-II、SL-III 层析实验冷柜是专为生化层析实验而研制的特殊用途低温柜，也可用于其它需要低温环境的实验，或用于物品冷藏。

SL-II, SL-III level analysis experimentation congealer is special purpose low-temp congealer which used to make some experiments of level analysis, also used to other experiments in the lou-temp environment, or used to refrigerate something.

SL-II 层析实验冷柜：

SL-II level analysis experimentation congealer

主要特点：

- 采用进口压缩机，制冷量大。
- 制冷机组设计在设备底部：符合压缩机的工作原理、提高了制冷效果，与同类产品相比使用寿命长，控温精度高。
- 采用工业级真彩液晶控制系统，操作简单方便，且功能强大。
- 专业开发 SL-LAB 控制系统，实时显示系统参数，控制精度高。
- 柜内空间高大，最高处为 1.7 米，便于层析操作。
- 全不锈钢内壁，光洁耐腐蚀。
- 2 根层析柱固定杆，2 层载重托板。
- 自带照明灯、消毒灯、内电源插座。
- 具有超温、差温、报警功能。
- 下设脚轮，移动方便。

Main Characteristics:

- Imported compressor, the refrigeration quantity is big.
- Refrigeration unit designed at machine bottom: meeting compressor's working principle, improving cooling effect, longer working life, high temperature control accuracy.
- Adopting industrial-grade true-color LCD control system, it is easy to operate and powerful.
- Professional development of SL-LAB control system, real-time display of system parameters, high control accuracy.
- The top is 1.7 meters, convenient for operation.
- All stainless steel wall, bright and anti-corrosive.
- 2 level analysis pole fixed staff, 2 levels of bearing splint.
- Own lighting lamps, antisepsis light, inner power socket.
- Own temperature exceeding, temperature shortage and alarm function.
- There is caster at bottom, easy to move.

技术参数：

温度范围	1℃ -10℃ (上下限设定值之差不小于 4℃)
温度测试精度	± 0.5℃
温度波动范围	设定值 ± 2.5℃
降温时间	≤ 120 分
托板规格	605x700 mm (共 2 层，上下位置可调节)
内容积	800L
功率	500W
内部尺寸	660x760x1700 mm
外部尺寸	760x850x1950 mm

单门冷柜规格：内胆不锈钢型、内外胆不锈钢型。

Technical indices:

Temperature scope	1℃ -10℃ (The difference between the upper and lower limits is not less than 4℃ .)
Temperature test accuracy	± 0.5℃
Temperature fluctuation scope	± 2.5℃
Temperature decrease time	≤ 120min.
The specification of tray	605 × 700mm (2 layers, the position of top and bottom is adjustable)
Inner cubage	800L
Power	500W
Inner dimension	660x760x1700mm
Outer dimension	760x850x1950mm

Single-door Chromatography experiment refrigerator : inner wall stainless steel, inner and shell stainless steel



▲ SL-II 单开门

SL-III 层析实验冷柜：

SL-III level analysis experimentation congealer

主要特点：

- 采用进口压缩机，制冷量大。
- 制冷机组设计在设备底部：符合压缩机的工作原理、提高了制冷效果，与同类产品相比使用寿命长，控温精度高。
- 采用工业级真彩液晶控制系统，操作简单方便，且功能强大。
- 专业开发 SL-LAB 控制系统，实时显示系统参数，控制精度高。
- 柜内空间高大，最高处为 1.5 米，便于层析操作。
- 全不锈钢内壁，光洁耐腐蚀。
- 2 根层析柱固定杆，2 层载重托板。
- 自带照明灯、消毒灯、内电源插座。
- 具有超温、差温、报警功能。
- 下设脚轮，移动方便。

Main Characteristics:

- Imported compressor, the refrigeration quantity is big.
- Refrigeration unit designed at machine bottom: meeting compressor's working principle, improving cooling effect, longer working life, high temperature control accuracy.
- Adopting industrial-grade true-color LCD control system, it is easy to operate and powerful.
- Professional development of SL-LAB control system, real-time display of system parameters, high control accuracy.
- The top is 1.5 meters, convenient for operation.
- All stainless steel wall, bright and anti-corrosive.
- 2 level analysis pole fixed staff, 2 levels of bearing splint.
- Own lighting lamps, antisepsis light, inner power socket.
- Own temperature exceeding, temperature shortage and alarm function.
- There is caster at bottom, easy to move.



▲ SL-II 上下门



▲ SL-III 双开门

技术参数：

温度范围	1℃ -10℃ (上下限设定值之差不小于 4℃)
温度测试精度	± 0.5℃
温度波动范围	设定值 ± 2.5℃
降温时间	≤ 120 分
托板规格	505x615 mm (共 2 层，上下位置可调节)
内容积	1200L
功率	1100W
内部尺寸	660x1200x1500 mm
外部尺寸	760x1315x2000 mm

双门冷柜规格：内胆不锈钢型、内外胆不锈钢型。

Technical indices:

Temperature scope	1℃ -10℃ (The difference between the upper and lower limits is not less than 4℃ .)
Temperature test accuracy	± 0.5℃
Temperature fluctuation scope	± 2.5℃
Temperature decrease time	≤ 120min.
The specification of tray	505 × 615mm (2 layers, the position of top and bottom is adjustable)
Inner cubage	1200L
Power	1100W
Inner dimension	660x1200x1500mm
Outer dimension	760x1315x2000mm

Double-door Chromatography experiment refrigerator : inner wall stainless steel, inner and shell stainless steel