

L-117/L-217 喷雾干燥机

Mini lab Spray Dryer



<http://www.laiheng.com>

实验室微型喷雾干燥机 The Mini Spray Dryer

L-117/217型实验室喷雾干燥机，可以以最安全快速的方法把液体样品干燥成粉末而又不破坏样品属性。该仪器突出
续而高效；该仪器可以适用多种有机溶液的干燥，实验过程安全可操控，已被多家用户的实验所验证。该仪器适用
室喷雾干燥机还在以杰出的产品性能，进一步扩展着喷雾干燥的使用领域。

The Mini Spray Dryer is the laboratory equipment which provides an opportunity for every user to quickly and gently dry the
high of degree of flexibility thanks for the smart and simple system. And the Spray Dryer allows the user to work safely with
It is wild areas of application of the Spray Dryer whether the requirement is the gentle drying of natural product dyestuffs, the
outstanding features greatly extend the number of application that is possible with a spray drying process.



L-117

实验
微型
喷雾
干燥
机

L-117 Lab Spray Dryer



L-217 Lab advanced Spray

的性能特点为：干燥速度快、使用及装卸简单方便、操作灵活高效、使干燥实验完全在掌控之中，喷雾干燥过程连范围广泛，不论是人造香精的干燥，还是热敏度高的生物药剂干燥，或是石油衍生生物的干燥等等。L-117/217型实验

liquid to powder. The outstanding feature of the Spray Dryer include its efficient performance with very short set-up times, a almost all currently available solvent as well as our lots of customer have been using this equipment in their experimentation. isolation of highly effective pharmaceutical active agents, or the micro-encapsulation of aromas. The Laiheng Spray Dryer's

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L-217 Lab Professional Spray Dryer

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Dryer

实验室微型喷雾干燥机

Lab spray dry



应用原理 Application Theory

实验室微型喷雾干燥机采用二流体的喷雾方法，整个喷雾干燥系统采用优质不锈钢精密制造，其烘干分离及收集系统采用优质耐热玻璃材料制造，使得喷雾干燥实验在无污染及最稳定的环境下进行。由于采用了透明的玻璃仪器烘干分离系统，使整个喷雾干燥实验在可直接观察的过程中进行，为科研人员掌控实验进程及实验结果提供了极大的便利。

Lab Spray Dryer adopts the two-fluid nozzle method, because it disperses the liquid into fine droplets, which are dried quickly and gently in dryer chamber. The whole system of spray dryer adopt stainless steel material for reliable and high quality as well as all glasses accessories can resist high temperature. Some of outstanding features are easily handling, visible process because of the glass assembly and versatility.

应用范围 Areas of application

- | | |
|-------------------------|--|
| ★液体的喷雾干燥
(包括悬浊液、乳浊液) | Spray drying from solutions
(include suspension and calpis) |
| ★有机溶剂的喷雾干燥 | Spray drying with organic solvent |
| ★干燥产品的结构修改 | Structure modifications |
| ★干燥产品颗粒凝聚 | Agglomeration |
| ★制备微胶囊和喷雾包衣 | Micro-encapsulation and coating |

应用行业 Market field

- | | |
|-------------------------|---|
| ★制药 | Pharmacy |
| ★生物工艺 | Biotechnology |
| ★化工 | Chemistry |
| ★食品 | Foodstuffs |
| ★香精 | Aromas and perfume |
| ★涂料 | Paints and Varnishes |
| ★新材料领域
(包括纳米材料、陶瓷领域) | New Material technology
(include nanotechnology) |

仪器特点 Outstanding Features

1. 操控方便 Easy operation

各项实验参数如：干燥温度、循环风量、样品上样量、雾化压缩气体量、自动通针频率均可随时随意调整。确保喷干实验在最理想的实验条件下进行。

The spray parameters such as input and output temperatures, gas flow, compressed air flow and the intervals of automatic nozzle cleaning that permits to easy handle at any time. This guarantees great quality and trouble-free spraying over the whole experiment.

2. 高效收集和快速装卸结构 High recovery and fast assembly

我公司喷干机的系统结构设计合理。优化的旋风收集器确保样品的高收率。所有可拆卸的仪器部件均采用快装结构，单人即可操作，拆卸或装配均可在1分钟之内完成。

The Laiheng Spray Dryer is a superb illustration of novel design functionality. The optimize cyclone separator guarantees high recovery during the experiment. The assembly of the glass parts is amazingly fast, elegant and simple. The glass cylinder can be inserted with a single in short time.

3. 适合微量样品的实验 A little samples in trial

实验室微型喷雾干燥机不同于大型喷雾干燥机的特点在于只要10ml左右的样品即可得到干燥结果。十分适合实验样品的干燥需求。

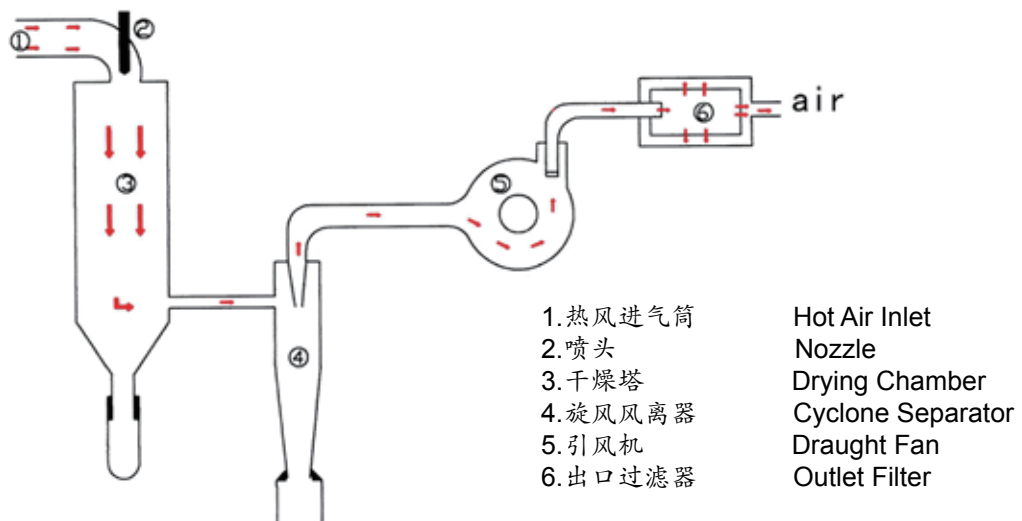
Mini Lab Spray D-ryer is different from the large Spray dryer. The Laiheng Spray Dryer can finish trial with 10ml sample; therefore, it is appropriate for request of lab.

4. 实验参数可直接应用于样品的放大生产 Valuable reference of parameter

通过实验室微型喷雾干燥机生产的样品，可以直接应用于放大生产。参考干燥实验的设定参数，保持与实验机相同的干燥温度、雾化状态，系统环流热能和出风口干燥温度。放大生产的样品与实验样品相同。

Under the direction of results, the parameters are valuable reference in the manufacture, such as input and output temperature, air flow and so on.

工作原理流程图 Engineering flow sheet



特性介绍 Outstanding Feature



自动通针喷头
Automatic online nozzle cleaning

高本公司所设计的喷头是创新与精度的完美融合，经过我公司严格质检，保证了产品长期的喷雾效果。喷头采用不锈钢制造，气压式自动通针设计，安装及清洗非常简单方便。喷头孔径具有Φ0.7mm、Φ1.0mm、Φ1.4mm、Φ2.0mm四种可供选择。

The nozzle is a superb illustration of what may be achieved by combination of novel design functionality and high precision manufacturing. And the nozzle has been strictly inspected in quality that guarantees trouble-free spraying over long periods. Automatic online nozzle cleaning is set in the stainless steel nozzle, which are easily accessible for installing and cleaning. There four types can be choose: nozzle diameter of 0.7mm, 1.0mm, 1.4mm, 2.0mm.

订货号:04-117-11



磁力搅拌器
Magnetic Stirrer

样品盘-磁力搅拌装置

更为人性化的样品盘设计，具有强力磁力搅拌功能，有效的提高了悬浊液，乳浊液的泵液效果。此项功能使操作者更加方便，确保喷雾干燥过程的顺利进行。

Few things can change our efficiency of experiential as rapidly as adding a magnetic stirrer on the table of sample. It is possible that suspension and caliphs are easily pumped into the champter.



二级高效旋风装置图
Two High-performance cyclone device

二级旋风

L-217型标准配置二级旋风收集功能，对于超细粉料（纳米级微粒）的收集效果明显，显著提高样品收率达15%左右，对于珍贵的样品收集，更彰显二级收集的重要价值。



出口过滤器
Outlet filter

系统控制，彰显优势

来亨喷雾干燥机采用负压的系统环境，有效地阻止了因泄漏造成的污染及人员伤害。（系统亦可简单方便的转换到正压状态，可有效防止因腐蚀性介质进入环风机所造成的损坏。）环风机的清洗操作简单方便。

The reduced-pressure environment within the system prevents any possible contamination in the case of a leakage and keeps safety of researcher.(The system can be very easily converted to operate under pressure which prevents the aspirator from being attacked by corrosive media.) All parts of the product are readily accessible for cleaning.

订货号:04-117-51



控制面板图

The control panel

L-217喷雾干燥机的操作面板

采用大数码分项显示、控制。在实验过程中，所有的功能都清晰的显示操作面板上,如进口,出口温度等.并可以在不间断实验的情况下实时调整各项参数，保证了实验的可操作性.这也是喷雾干燥机仪器化的最大体现，使喷雾干燥机的控制能随心所欲，做到及时、准确、快捷。内置的自动清洗装置可以按规定间隔时间自动清洗或手动清洗。

L-217 The operating panel

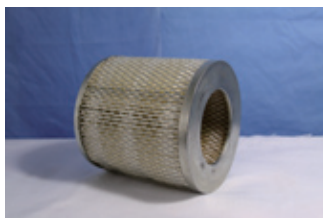
The L-217 operating panel displays all the functions with big letterform in a clear manner. During the process of experiment, the settings of the spray parameter, input and output temperatures are displayed as well as easily set .



喷雾干燥塔的简便安装图
cylinder installing

干燥塔装配图

L-217喷雾干燥机所有玻璃部件均为快装结构，使安装极其轻松方便，可单人快速装卸一分钟之内即可完成，使玻璃部件的清洗和安装，变得简单而轻松方便。



进口过滤器
Intlet filter

空气进口设置过滤器

以保持空气的洁净，以确保样品纯净。

订货号:04-117-09

以下溶剂已经实验测试，未发现异常：

The following solvents have been tested and can be used without reservation:

水	water	甲醇	Methanol	乙醇	Ethanol
甲苯	Toluene	丙酮	Acetone	乙烷	Hexane
乙酸乙酯	Ethylacetate	二氯甲烷	Dichloromethane		

仪器配置 Configuration

配置说明 Configuration	型号 Model	L-117	L-217	L-217 不锈钢 Stainless steel
喷头通针 Nozzle Cleaning		手动 Manul	自动 Auto	自动 Auto
旋风收集 Cyclone Separator		一级 Single	二级 Double	二级 Double
带负压显示的出风口过滤器 Outlet Filter		无 None	有 Yes	有 Yes
加热器特性 Heating Feature		铬镍电热丝 nichrome wire	不锈钢 Stainless Steel	不锈钢 Stainless Steel
洁净条件 Sanitary		良 Normal	优 Excellent	优 Excellent
仪器适用 Application		一般试验要求 Normal	卫生洁净要求 Sanitary	卫生洁净要求 Sanitary
仪器表面处理 (抗腐蚀) Surface (Anti- corruption)		钢板喷塑 (良) Plastic Spraying (Normal)	钢板喷塑 (良) Plastic Spraying (Normal)	不锈钢 (优) Stainless Steel (Excellent)

L-117/217 技术参数 Specification

最大干燥能力 Max. Drying Capacity	≥1500ml/h
干燥时间 Drying Time	1.0~1.5 S
最高设置温度 Max. Temperature of Drying Air	240℃
加热控温精度 Heating Accusation	±1℃
最大空气流量 Max. Air Consumption	≤35m ³ /h
最大压缩空气流量 Compressed Air	1200L/h 5-8bar
喷嘴直径 Nozzle Tip	Φ0.7mm (可选配喷嘴直径 Other Nozzle Tip: Φ1.0mm/Φ1.4mm/Φ2.0mm)
磁力搅拌器技术参数 Magnetic Stirrer Specification	磁力搅拌速度 Speed Range: 0-1600rpm 无级可调; 电机转距: 25mn.m ; 搅拌容量 Max. Stirring: 20-3000ml) ;
整机电源电压 Voltage	220V
整机电流 Current Consumption	≤16A
整机功率 power	≤3000W
主机外型尺寸 Dimension (mm) (L×W×H)	600×450×1005 (L-117型); 850×775×1005 (L-217型)
主机重量 (Weight)	55kg
移动机座外型尺寸 Basement Dimension (mm)	620×400×500 (L×W×H)
移动机座重量 (Basement Weight)	20kg


L-117 标准套配置 Standard Configuration

- | | | | |
|------------------|-------------------------------|----------------|--------------------------------|
| ① L-117 喷雾干燥机 1台 | L-117 Lab Spray Dryer(1set); | ④ 进口过滤器 1件 | Inlet Filter (1set); |
| ② 手动通针 Φ0.7mm 1件 | Manual Nozzle Cleaning(1set); | ⑤ 可移动机座 1台 | Basement (1set); |
| ③ 玻璃仪器 1套 | Glasses Accessories (1set); | ⑥ 无油隔膜空气压缩机 1台 | Oil-Free Air Compressor(1set); |

L-217 标准套配置 Standard Configuration

- | | | | |
|------------------|----------------------------------|----------------|-------------------------------|
| ① L-217 喷雾干燥机 1台 | L-217 Lab Spray Dryer(1set); | ⑤ 出口过滤器 1件 | Outlet Filter (1set); |
| ② 自动通针 Φ0.7mm 1件 | Automatic Nozzle Cleaning(1set); | ⑥ 可移动机座 1台 | Basement (1set); |
| ③ 玻璃仪器 1套 | Glasses Accessories (1set); | ⑦ 无油隔膜空气压缩机 1台 | Oil-Free Air Compressor(1set) |
| ④ 进口过滤器 1件 | Inlet Filter (1set); | | |



 喷雾干燥机部分用户分布示意图

The distribution of user of Spray Drying in China