

## FSH-DS228

### 液氮冻干珠点小球自动化系统

FSH-DS228 Liquid Nitrogen Bead Dispensing System

FSH-DS228是广州飞升公司推出的高精度液氮冻干珠点小球系统，该系统包含高精度计量泵和液氮平台，自动将精密计量的试剂点至液氮中，迅速冻结成小球，确保试剂计量的一致性，成球的圆润性，便于后工序的筛选分装。

该系统可连续自动化生产成千上万个固体试剂小球，大大减少人工生产的劳动强度，提高生产效率和产品质量。丰富的应用经验及许多成功案例，使得DS228系统成为冻干试剂生产的最佳选择。

FSH-DS228 is Guangzhou Ascend's high precision liquid nitrogen automated dispensing system. The system consists of high precision pump system and platform for automatically dispensing reagent fluid into liquid nitrogen and freezing liquid reagent into bead. The bead has high consistency in size and shape for next step easy process.

The system can be used for automated bead production with significantly reduced labor, much higher productivity and premium product quality. With comprehensive application experience and successful stories, DS228 system has become top choice for bead R&D as well as medium scale production.



FSH-DS228-T  
两通道  
Double channels



FSH-DS228-F  
四通道  
Four channels



FSH-DS228-F

#### 规格参数 Specifications:

型号 Model	FSH-DS228-T	FSH-DS228-F
外形尺寸 W * D * H	0.91*0.61*0.63m	1.4*0.85*1.9m
点液精度 Dispensing accuracy	±0.5%	±0.5%
功率 Power/额定电压 Voltage	200W/AC 220V	200W/AC 220V
重量 Weight	80KG	400KG
药珠体积 Volume of beads	1.8μl ~ 50μl	1.8μl ~ 50μl
产能 Efficiency	两通道2500个/小时 Double channels 2500/h 四通道5000个/小时 Four channels 5000/h 跟试剂粘度有关 Depends on the viscosity of the reagent	
设备配置 Device configuration	<ol style="list-style-type: none"> <li>1. 自动加液氮装置 Automatic liquid nitrogen addition device;</li> <li>2. 试剂恒温装置 Reagent temperature control device;</li> <li>3. 试剂搅拌装置 Reagent mixing device;</li> <li>4. 试剂避光 Keep reagent from light.</li> </ol>	

#### 典型应用 Typical Applications:

核酸诊断试剂冻干 Lyophilization of nucleic acid reagent  
体外诊断试剂冻干 Lyophilization of human IVD reagent  
宠物体外诊断试剂冻干 Lyophilization of veterinary IVD reagent



## FSH-DS528

# 全自动液氮冻干珠点小球系统

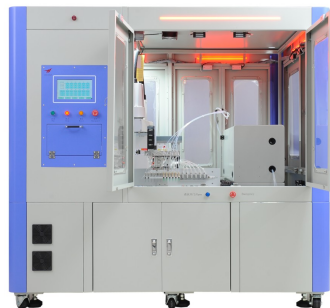
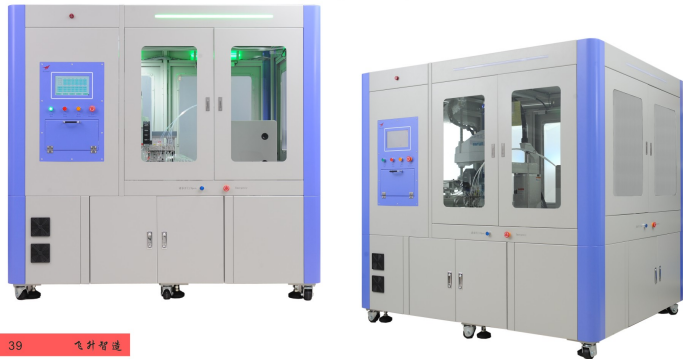
FSH-DS528 Liquid Nitrogen Bead Dispensing System

FSH-DS528是广州飞升公司最新推出的全自动液氮冻干珠点小球系统，该系统配备智能型高精计量泵、自动加液氮装置、机器人、恒温装置、氮气浓度检测等，可自动将精密计量的药液点至液氮中，并自动将冻结后的小球从液氮中捞出至冻干托盘，确保操作人员的安全性。小球大小数字化调节，切换型号更方便。自动加液氮装置，不再需要人工监视和添加，保证液氮容器中的液氮液位恒定。恒温装置温度可设定，确保试剂的有效性。

该系统通道数可选，标配为12个通道，大大提高了生产效率。

FSH-DS528 is the latest large scale, automatic liquid nitrogen bead dispensing system launched by Guangzhou Ascend. FSH-DS528 consists of Intelligent-control precision pump, automatic liquid nitrogen (LN2) addition device, Robot, constant temperature control device, and LN2 concentration detection device. FSH-DS528 can automatically dispense liquid reagent into LN2 for bead production. The system can automatically harvest beads into bead tray for next process. Operator safety is assured during bead production. Bead size can be digitally set up on the system for easy product switch. Automatic LN2 addition device monitors LN2 concentration level for automatic LN2 feeding, which eliminates the need for manual LN2 monitoring and addition. LN2 monitoring device monitors LN2 concentration in the machine ensures safety LN2 level inside machine for safe bead production. Constant temperature device can be used to set up and adjust machine's constant operation temperature of reagent in order to guarantee reagent freshness and effectiveness.

FSH-DS528 has 12 standard channels. Option of extra channels are available upon request. Multiple channels system increases productivity and output.

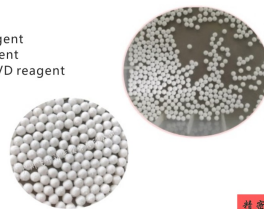


### 规格参数 Specifications:

型号 Model	FSH-DS528
外形尺寸(W * D * H)	2.2*1.8*2.1m
点液精度 Dispensing accuracy	±0.5%
功率 Power	4000W
额定电压 Voltage	AC220V
重量 Weight	2000KG
药珠体积 Volume of beads	5µl-50ul
产能 Efficiency	25000pcs/h
配置 Configuration	1、全自动加液氮装置 Automatic liquid nitrogen addition device; 2、试剂恒温装置 Reagent temperature control device; 3、智能调节点液量 Intelligent adjustment of liquid volume; 4、标配12个通道(通道数可选) 12 channels (number of channels optional); 5、氮气浓度检测功能 Nitrogen concentration detection function; 6、排风功能 Exhaust function; 7、小球收料自动化 Bead feeding automation; 8、MES系统 MES system

### 典型应用 Typical Applications:

核酸诊断试剂冻干 Lyophilization of nucleic acid reagent  
 体外诊断试剂冻干 Lyophilization of human IVD reagent  
 宠物体外诊断试剂冻干 Lyophilization of veterinary IVD reagent



# FSH-LN 液氮添加系统

FSH-LN Liquid Nitrogen Dispensing System

FSH-LN液氮添加系统，由一个保温性能非常好的液氮罐和一个液氮泵组成。设备可选RS232功能，可远程对容器实现自动添加液氮。

FSH-LN is Guangzhou Ascend's latest automatic liquid nitrogen addition system. The system consists of a liquid nitrogen tank with excellent insulation performance, and a liquid nitrogen pump. The device has optional RS232 function, which can automatically add liquid nitrogen to the container remotely.



手动 FSH-DS228-F型标配  
Manual FSH-DS228-F type standard



全自动  
Fully automatic

## 工作原理 Working Principle:

液氮泵使得罐体内形成一个非常小的超压，这个超压推动上升管中的液氮上升，并让它缓慢的从软管中流出。  
Pump operation is achieved by establishing a very small overpressure in the dewar bottle, which pushes the fluid in the riser tube up and allows it to flow out of the filling hose very slowly.

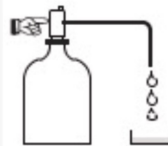
## 工作示意图 Working diagram:



## 规格参数 Specifications:

型号 Model	FSH-LN		
罐体容量 Volume	35L	50L	100L
罐体外径 Diameter	480mm	500mm	500mm
罐体高度 Height	791mm	875mm	1235mm
重量 Weight(empty,full)	13/41.5Kg	17/57.5Kg	32/113Kg
损耗量 Static evaporation rate	< 0.5L per day		
最大工作压力 Max working pressure	< 300mBar		
额定电压 Voltage	115V /220V AC		

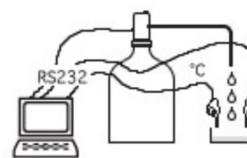
## 多种规格 Multiple Mode:



手动  
Manual



半自动  
Semi-automatic



全自动  
Fully automatic

# FSH-DS628

## 冻干珠小球分装系统

FSH-DS628 Liquid Nitrogen Bead Packing System

FSH-DS628是广州飞升公司最新推出的液氮冻干珠小球分装系统，该系统是将冻干好的小球自动分装到载具内，这个载具可以是EP管，8连管，盘片，微流控芯片，96孔板，西林瓶等等。

小球分装完成之后，要对载具封口，封口的方式有多种，可以是压盖，或者是铝塑膜热封。

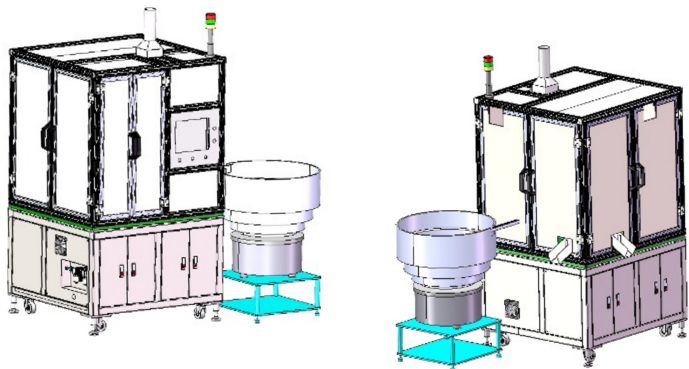
液氮冻干珠小球具备体积小、带静电、易破碎、易吸潮复溶等特性，广州飞升的技术团队分析总结这些点，设计开发自动化分装设备，适用于1.8-50ul标准范围冻干小球的快速分装。

FSH-DS628 is the latest Liquid Nitrogen lyophilized bead packing system launched by Guangzhou Ascend. The system can automatically pack lyophilized beads into 8-strips tube, Biodisc, Microfluidic chip, 96 well plate, vials, etc.

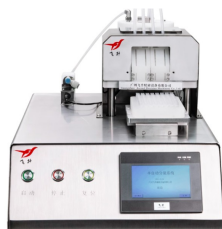
After packing the lyophilized beads separately, The container shall be sealed. There are many methods for sealing, such as capping or heated Al-plastic film.

Liquid nitrogen lyophilized beads have characteristics of small size, static electric, brittle, and easy moisture absorbing. Guangzhou Ascend research team analyzed such features and developed its latest automatic bead packing system for large scale automatic bead packing. The system can be used for automatic bead packing of 1.8-50ul standard bead size range.

Guangzhou Ascend technical team analyzed and summarized the above characteristics and developed automatic lyophilized bead packing system, which is used for rapid packing of lyophilized beads.



FSH-DS628-AT



FSH-DS628-ST

### 规格参数 Specifications:

型号 Model	FSH-DS628-ST	FSH-DS628-AT
外形尺寸 W * D * H	0.45*0.45*0.4m	1.7*1.3*1.9m
功率 Power/额定电压 Voltage	200W/AC 220V	4000W/AC 220V
重量 Weight	20KG	400KG
药珠体积 Volume of beads	2μl~50μl	2μl~50μl
产能 Efficiency	四通道8500个/小时 Four channels 8500/h	四通道8500个/小时 Four channels 8500/h
设备配置 Device configuration	1. 除静电 Remove static electricity.	1. 自动理料 Automatic bead sorting; 2. 除静电 Remove static electricity; 3. 设备内充氮气保护 Filling nitrogen gas into system chamber for protection; 4. 可选铝塑封膜或压盖 Optional aluminum plastic sealing film or capping.

### 典型应用 Typical Applications:

试剂冻干小球分装 Liquid Nitrogen lyophilized beads packing

