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ITEM	Name	Model	Unit	Quantity	FOB USD	TOTAL
Scheme: 5ML <b>Production speed: 180-200 bottles/min accuracy</b> ≤ ±1%						
1	Automatic Bottle Unscrambler Machine	LP200/800	set	1	10500	10500
2	Automatic Eye drop produce line (Cleaning, Filling 、 Plugging and Capping Machine)	DXYG12/12/18/18	set	1	105,000	105,000
<p>1) <b>12 heads for air washing</b>, 1 set for servo control, 12 sets for 316L ceramic pump filling, and 18 heads for plugging; 18 head rotating capping, shaker lid</p> <p>2) PLC, touch screen, inverter: Siemens;</p> <p>3) Start without bottom, stop with full bottom, stop with open door</p>						
2.1	316L Buffer Tank	60L		1	2500	2500
1) Closed, with respirator, liquid separator, pneumatic control valve, cleaning ball, window, high and low liquid level; It is divided into two feeding and cleaning ball pipelines, with three-way and cleaning control valve, which is convenient for filling, feeding and cleaning buffer tank						
2.2	304 stainless steel protective cover(PMMA)			1	4500	4500
3	Introduction of 100-level laminar Flow hood(Laminar hood			1	27500	27500
4	Gloves, glove boxes			8	800	6400
5	<b>Dust particles</b> <b>Planktonic bacteria</b>			1	12500	12500
<b>3 dust particles (put on filling position) and 1 planktonic bacteria, which used for observe dust and bacteria situation</b>						
Total						168,900

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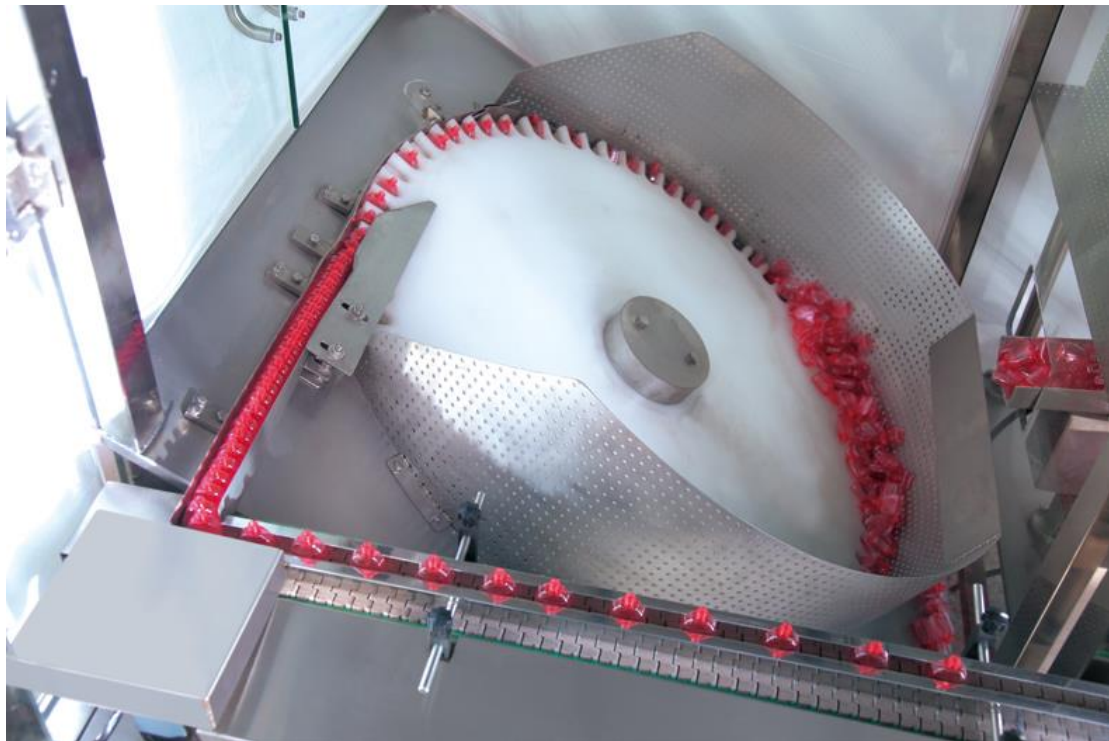
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Delivery time 90days

#### 四、introduce

Scheme: 5ML Production speed: 180-200 bottles/min accuracy  $\leq \pm 1\%$

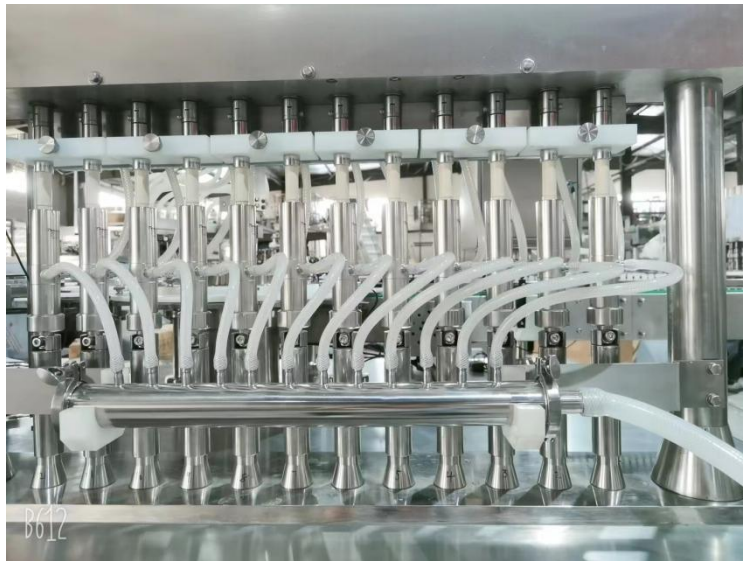
DXYG12/12/18/18 (YG200) Automatic Eye drop produce line



(bottle feeding system)

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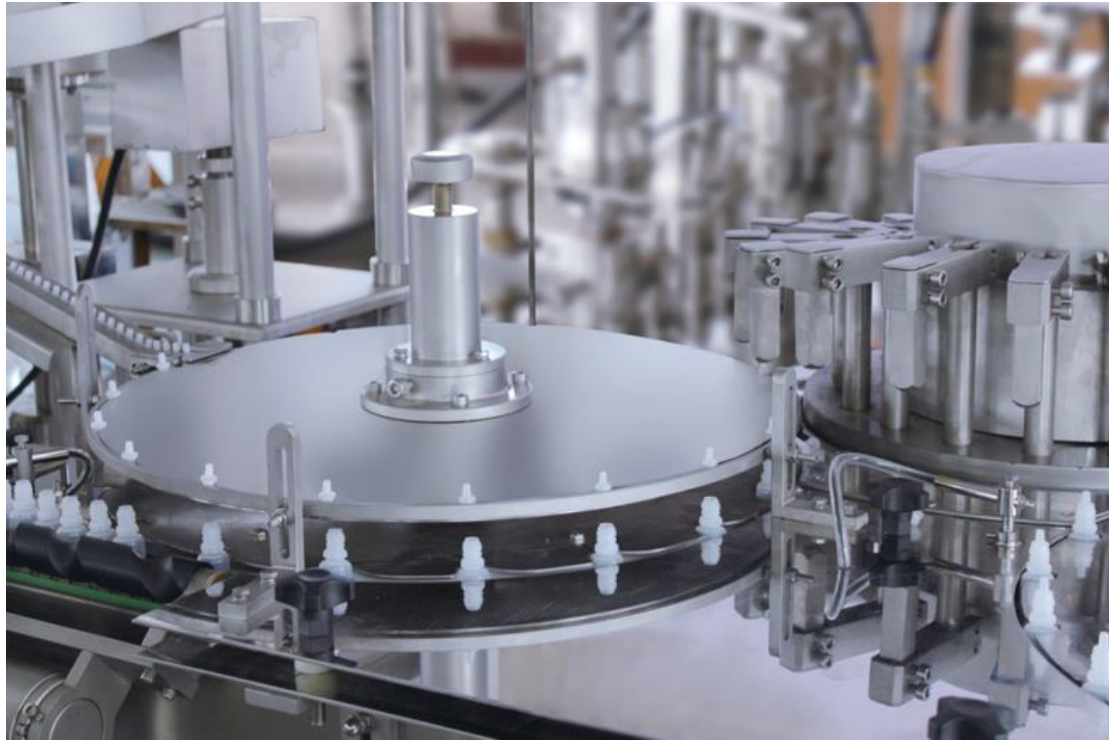
(filling system)



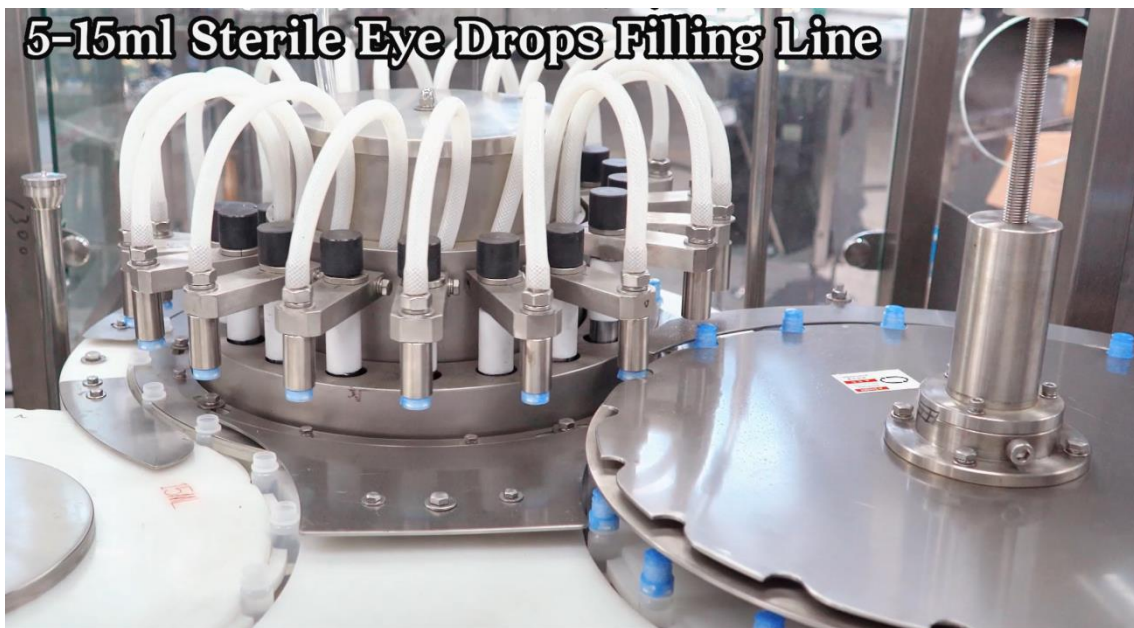
(Ceramic pump components)

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(plug system)



(capping system)

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(Lid management system)



(Upper Cover Spinning Outer Cover System)

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## Overview

The aseptic filling production line for eye drops consists of six main parts: bottle feeder, conveying, sterile purified gas washing bottles, filling, inner stopper, and outer capping rotation.. The entire production process is completed under 100 level laminar flow protection and sterile isolation operations, and each area is isolated and protected, Ensure the sterile production of eye drops products, comply with the new national GPM requirements, and the production line is also suitable for the production of other small capacity plastic bottle products.

### 系统组成部分

贮存瓶子, 自动理瓶系统

输送瓶子, 剔除倒瓶系统

静电消除, 气洗瓶子系统

静电消除, 气洗塞盖系统

精密陶瓷, 灌装分瓶系统

真空吸塞, 上塞系统

机械手抓盖上盖系统

恒磁力矩, 定位旋盖系统

百级层流保护无菌化系统

### System components

Automatic bottle management system for storing bottles

Bottle conveying, removing and pouring system

Static elimination, gas washing bottle system

Static elimination, air cleaning plug system

Precision ceramics, filling and bottle separation system

Vacuum suction plug, upper plug system

Robot Clasp Cover Upper System

Constant magnetic torque, positioning screw cap system

100 level laminar flow protection aseptic system

### Main technical parameters

- suitable: 5~10ml bottles
- capacity : 180-200per mintue
- filling head: 12
- air washing head: 12
- plug head: 18
- capping head: 18
- Accuracy:  $\leq \pm 1\%$
- Bottle cleaning qualification rate: 100%
- Upper plug qualification rate:  $\geq 99.8\%$
- Qualification rate of rotating cap:  $\geq 99.8\%$

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- Compressed air consumption: 15m<sup>3</sup>/h 0.6-0.8MPa
- total power: 6KW 380V(220V) 50HZ
- machine weight: 4800KG
- size: : 9500\*2150\*2000 (Excluding laminar flow hood)

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## LP200-800 Automatic Bottle Unscrambler Machine



### I. Main functions of equipment

Pour the bottles into the hopper, drop the bottles on the turntable when no bottles are detected by optical eye → arrange the bottles (the bottles fall into the dial of the turntable, and the extra bottles on the dial blow and then fall into the turntable groove. If the bottles are turned down, the bottle mouths are turned up to ensure that all bottles with bottle mouths facing up → upright and orderly bottles enter the next packaging process.

### 二、the main technical parameters

No.	Content	Technical parameters
1	bottles	10ml below round bottles
2	speed:	160-200per mintue
3	Bottle sorting qualification rate:	≥99.8%
4	Compressed air pressure:	0.4~0.6MPa
5	Gas consumption:	5-10m <sup>3</sup> /h
7	power:	1.0 KW
8	weight:	500kg
9	size(mm):	(L) 1560× (W) 1100× (H) 1130

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### 三、spec

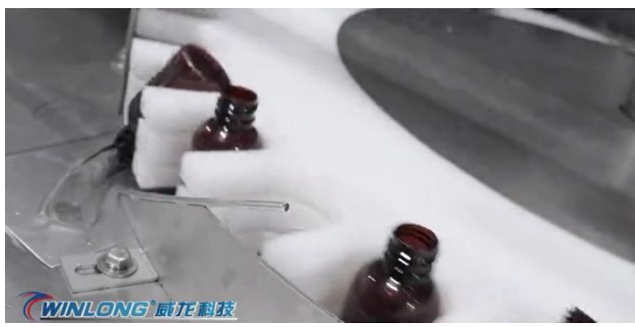

1. The equipment includes a bottle sorting host, a bottle storage box and a material lifting mechanism;
2. The whole machine has frequency conversion speed regulation, PLC control and button operation platform, which is convenient to connect with other equipment;
3. The automatic hopper supplies bottles when there are no bottles in the turntable, and the bottle feeder stops supplying bottles when there are bottles in the turntable (there is a light eye detection);
4. Alarm when there is no material in the lifting machine, without stopping the main engine (there is a detection light eye in the lifting machine, and alarm when there is no material), and make up the material manually;
5. Stop when bottles are full, start without bottles (the main machine stops when bottles are full and starts when bottles are out of the conveyor belt of the bottle sorting machine, so as to meet the supply of bottles when on-line). The bottle sorting turntable will alarm and stop (when bottles are stuck, the turntable transmission shaft is equipped with a torque limiting device), and restart the main machine after manual troubleshooting;

### 四、process:

 <p>A photograph showing a hopper filled with dark glass bottles. A blue label with white text reads "Bottle Feeder" and "补瓶" (Bottle Replenishment). The WINLONG logo is visible in the bottom left corner.</p>	 <p>A photograph of a circular turntable with a central vertical shaft. The turntable has a white rim with notches. The WINLONG logo is visible in the bottom left corner.</p>
<p>1. Pour the bottle into the bin of the bottle lifting machine, and the conveyor belt of the bottle lifting machine will transfer the bottle to the bottle handling bin;</p>	<p>2. The center turntable takes away a bottle for each notch;</p>
 <p>A photograph showing a bottle being processed on a turntable. A blue label with white text reads "Bottle Orienting" and "理瓶翻转" (Bottle Orientation/Flipping). The WINLONG logo is visible in the bottom left corner.</p>	 <p>A close-up photograph of a bottle being held by a stainless steel plate. The bottle is upside down, and the plate is positioned to flip it. The WINLONG logo is visible in the bottom left corner.</p>
<p>3. The bottle collecting device sweeps away the bottles stored at the outlet;</p>	<p>4. The bottle with the mouth down is turned upside down by a stainless steel plate holding the mouth;</p>

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<p>5.The bottle of Lizheng is output from the bottle opening through the vacuum suction anti-pouring device;</p>	<p>6.After the bottle is removed, the bottle is sent to the next process through the corner pour bottle removal device.</p>

**IV. High-end options:**

1. for aseptic line, the bottle sorting machine shall have a feeding buffer station for bottles, and aseptic protection devices shall be provided during unpacking and transfer, that is, the station shall also be protected by RBAS class a laminar flow hood, and the structural design of the station shall ensure that the operation of the station will not cause any pollution to the sterile materials in the material finisher and sealed bags, and the operation is convenient and the space is large enough.
2. The bottle sorting machine is equipped with an automatic bottle loading device, which can give an audible and visual alarm in advance if bottles are missing, and automatically reset after replenishing bottles. Bottle dumping is not easy to occur between the outlet of the bottle sorting mechanism and the conveyor belt. In case of bottle dumping, the bottle dumping should be automatically separated before entering the purging equipment and an alarm should be given automatically.


**Configuration table of main components**

Equipment Name: LP350-1000Automatic bottle unscrambler machine

No	Name	Model	Brand or Local	Qua	Remark
1	PLC			1	
2	touch screen			1	
3	transducer				
4	Main electrical				
5	Main				
7	Main motor	200W 1: 50	台湾台邦	1	
8	Bottle-pulling	90W 1: 5		1	
9	Material of equipment	A3 carbon steel			Frame, bedplate

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10	Main material	The table panel is			
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Note: The models and specifications of listed products may be adjusted and changed according to the user's needs and actual conditions during design.

## **DXYG12/12/18/18 (YG200) Filling、Plugging and Capping Machine:**



### **The main technical parameters**

1. Applicable bottle type: 5-10ml plastic bottle, bottle stopper, bottle cover
2. Production capacity: 180-200 bottles/min; (5ml 300 bottles/min)
3. Filling head: 12 washing heads 12
4. Number of plugs: 18
5. Number of capping heads: 18
6. Measurement accuracy:  $\leq \pm 1\%$
- Seven. Bottle cleaning qualified rate: 100%
8. Upper plug pass rate:  $\geq 99.8\%$
9. Cap pass rate:  $\geq 99.8\%$
10. Compressed air pressure: 0.5MPa;
11. Compressed air consumption: 10-25L/min
12. Total power: 6Kw 380V (220V) 50Hz
13. Net weight: 4800Kg
- 14 size 9500×2150×200 (Excluding laminar flow hood)

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### Electrical parts

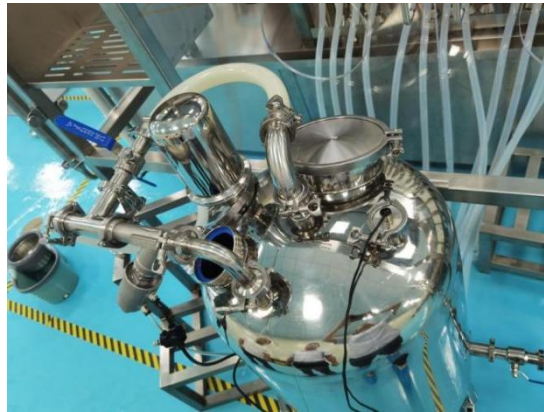
No.	Name	Model	Brand	Quantity	remark
1	Filling pump	0-15Ml	Ceramic pump	12	
2	Filling head/air washing	∅ 4		Each 12	
3	Plug heads			18	
4	Capping head			18	
5	PLC		Siemens	1	
6	Touch Screen		Siemens	1	
7	invertor		Siemens	2	
8	Main electrical components				
9	Main pneumatic components			1	
10	Main motor	2.2KW		1	
11	Speed reducer	WP0100 1:16		1	
12	deliver motor	200W 1: 25		1	
14	Main material	SS304			

Explanation: The model specifications of the listed products may be adjusted and modified during design based on user needs and actual situations.

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## 60L、TANK



### 3.Introduction of 100-level laminar Flow hood(Laminar hood )

1. In the clean workshop of a production plant, there are often local hundred-level areas, or a certain room or rooms are required to be hundred-level, or some areas in a certain room are required to be hundred-level. These hundred-level areas are generally small, ranging from tens of square meters to several square meters or even tens of square meters. They are usually part of the process line in a clean area, but they all play a very important role in the clean plant. They are often the core parts of the process flow in this workshop, such as the opening, filling and re-capping of the culture medium. Whether the 100-level area can operate normally directly affects the product quality.

2. Laminar hood is a kind of air purification equipment which can provide local high clean environment. It is mainly composed of a box, a fan, a primary air filter, a damping layer, a lamp and the like, and the shell is sprayed with plastic. The product can be hung and supported on the ground, with compact structure and convenient use. This time, it is supported by filling equipment. Can be used singly, or can be connected in a plurality to form a belt-shaped clean area. Laminar flow hood is to make the air pass through the high-efficiency filter at a certain wind speed to form a uniform flow layer, which makes the clean air flow vertically and unidirectionally, thus ensuring the cleanliness of the working area to meet the technical requirements.

3. Configuration description: Laminar flow hood is composed of chassis, high efficiency filter, variable air volume DC fan unit, operation panel and other major components. The chassis is made of high-quality stainless steel 304#, which is beautiful and clean after surface drawing and sheet metal bending.

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4. The laminar flow hood adopts a fan system with adjustable air volume. By adjusting the working condition of the fan, the average wind speed in the clean working area can be kept within the rated range, and the service life of the high efficiency air filter, the main component of the laminar flow hood, is effectively prolonged.

5. Laminar flow hood is a double-layer negative pressure box, made of SUS304 1.2mm plate, with a uniform flow film at the air outlet, and equipped with illuminating lamp and ultraviolet lamp. All 304 brushed stainless steel material (T=1.2mm) is selected inside and outside the box, and the welding process is adopted;

6. Liquid tank high-efficiency filter (filter thickness is 93mm), filter efficiency: 99.995%@0.3um, filter grade H14; ; 5.7PA0 detection port (dust port and sampling port), chuck type;

Differential pressure gauge (0500Pa), DWYER brand, large dial;

The air inlet is provided with a dust ring, and a primary filter is added to the air inlet;

The flow equalizing membrane (200 mesh) is divided into two pieces, which is convenient to disassemble;

Controller: high-power frequency conversion speed regulation;

With operation and fault indicator lights;

Single wind speed: 0.45m/s  $\pm$  20%;

Noise of single station: When the cross-sectional wind speed is 0.45m/s, the noise of single station is  $\leq$  58 dB (a);

Laminar flow with illuminating lamp and ultraviolet germicidal lamp;

All screws used in laminar flow hood are made of 304 stainless steel;

Height of all laminar flow: 550mm; ;

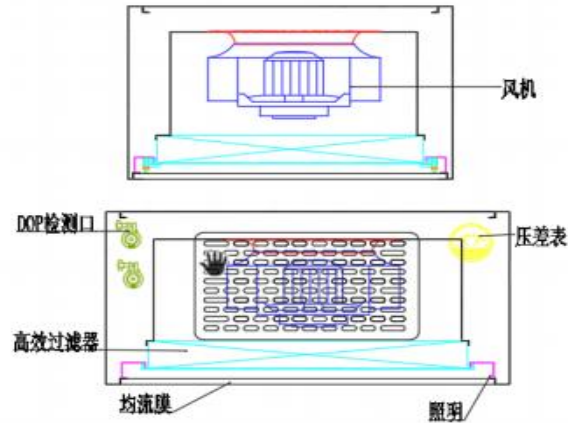
Dust particles and planktonic bacteria are monitored by Nopa brand.

The overall control is connected to the PLC control system, and the wind speed is balanced through the joint control of the wind speed sensor and the frequency converter. At the same time, the on-line detection of dust particles and planktonic bacteria is carried out, and an on-line alarm (three-color alarm lamp) is provided for exceeding the standard. The whole data can be stored online, and the stored data can be audited and tracked, and recorded in real time, which is convenient for inspection by the Food and Drug Administration.

**Diagrammatic presentation:**

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The configuration is as follows:

No	Category	Brand
1	Touch screen	Siemens 10-inch industrial computer
2	PLC	Siemens SMART series
3	Blowe	EBM
4	Filter	Huajia
5	Illuminate	PHILIPS
6	Differential pressure gauge	Dwell
7	Wind speed sensor	E+E
8	Frequency changer/inverter	ABB
9	Wind speed	0.36-0.54m/s
10	Noise	≤75db
10	Cleanliness	A level

#### Laminar flow control description

No	The overall control of laminar flow is centralized controlled by Siemens Smart series PLC, and its functions are as follows:
1	Data integrity and audit trail
2	Three-level password management authority
3	Wind speed self-regulation function
4	Combined control with filling host (laminar flow start signal, abnormal wind speed, abnormal cleanliness)
5	Real-time monitoring of cleanliness and wind speed in laminar flow area
6	Efficient differential pressure display
7	On-line plankton sampling
8	Reserved host computer interface

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## FFU Fan Filter Unit

Fan Filter Unit is a self-powered air supply filter unit, which is a modular terminal air supply device with filtering effect. The fan filter unit sucks air from the top and filters it by HEPA, and the filtered clean air is sent out evenly at the speed of about 0.45 m/s 20% on the whole air outlet surface.

**Chinese name:** 风机过滤机组

**Foreign name:** Fan Filter Unit

**Positioning:** a self-powered air supply and filtering device

**Wind speed:** about 0.45 m/s 20%

### Overview

The Fan Filter Unit is a self-powered air supply filter unit, which is a modular terminal air supply device with filtering effect. The fan filter unit sucks the air from the top and filters it by HEPA, and the filtered clean air is evenly sent out at a speed of about 0.45 m/s 20% throughout the air outlet.

### Application

The FFU fan filter unit can be connected in a modular way. The FFU fan filter unit is widely used in clean rooms, clean operating tables, clean production lines, assembled clean rooms and local 100-level applications. Simple clean workbench, clean shed, clean transfer cabinet and clean storage cabinet can be made by using FFU fan filter unit.

### Characteristic

Most FFU fan filter units are made of imported environmentally-friendly aluminum-zinc clad plates, which are never rusted, corrosion-resistant, lightweight and sturdy. The box is designed with golden section proportional points, and the FFU fan filter units are beautiful and elegant. The ultra-thin body thickness is only 23cm, and the total thickness of high-efficiency filters is no more than 30cm; . The weight is only 24kg, which saves space and is convenient for construction, installation and daily maintenance. The FFU fan filter unit has obvious energy-saving effect, ultra-low noise, uniform wind pressure diffusion, uniform and stable wind speed on the outlet surface, low power consumption, low operating cost and long service life of more than 50,000 hours.

The control of FFU fan filter unit adopts non-contact induction three-speed regulation developed by its company, and the circuits are all controlled by electrical switches, so the control is safe and stable. Besides standard models, flexible and diversified configurations can make non-standard products with different specifications according to customer's needs. Such as: change of air duct connecting flange, filter screen, box material, etc. The humanized design unit is equipped with stainless steel handle, which makes the handling and installation more convenient and fast.

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洁净度	迎面风速	换气次数	过滤器等级
A级	0.36~0.54 m/s	/	H14
B级	/	≥45	H14
C级	/	≥25	H14
D级	/	≥20	H13

## Introduction of 100-level laminar Flow hood



### I. Brief introduction of 100-stage laminar flow hood

1. The 100-level laminar flow hood is an air purification equipment that can provide local high clean environment. It is mainly composed of box body, fan, primary air filter, damping layer, lamps, etc., and its shell is plastic-sprayed. The product can be hung and supported on the ground, with compact structure and convenient use.

2. The 100-level laminar flow hood can be used singly, or can be connected in multiple ways to form a belt-shaped clean area. Laminar flow hood is to make the air pass through the

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high-efficiency filter at a certain wind speed, and then form an even flow layer, which makes the clean air flow vertically and unidirectionally, thus ensuring the cleanliness of the working area to meet the technological requirements.

3. The 100-level laminar flow hood has two types: internal fan and external fan. There are two types of installation methods: hanging type and floor bracket type. The laminar flow hood is used to equalize the pressure of the air through the high-efficiency air filter after passing through the fan at a certain wind pressure, and the clean air is sent into the work area in a vertical laminar flow, thus ensuring that the work area reaches the high cleanliness required by the process. Compared with clean room, laminar flow hood has the advantages of low investment, quick effect, low requirements for building construction, convenient installation and power saving. At present, it is widely used in precision machinery, electronics, pharmacy, food, fine chemicals and other departments. Compared with FFU, it is a local purification equipment, with relatively low requirements for the use of environmental conditions. It is suitable for renovation projects, and the overall requirements are not very high, but only meet the local requirements. It can be used alone or in large area in parallel.

4. The 100-level laminar flow hood is to make the air pass through the high-efficiency filter at a certain wind speed, and then form an even flow layer, which makes the clean air flow vertically and unidirectionally, thus ensuring the cleanliness of the working area to meet the technological requirements.

**II. Application of 100-level laminar flow hood**In a clean workshop of a pharmaceutical factory, there are often local hundred-grade areas, or one room or several rooms are required to be hundred-grade, or part of a room is required to be hundred-grade. These hundred-grade areas are generally small, ranging from tens of square meters to several square meters or even a few tenths of square meters. They are usually part of the process line in a clean area, but they all play a very important role in the clean factory. They are often the core parts of the workshop's process flow, such as the filling and sealing of sterile drug injections, subpackaging, plugging, filling and sealing of biological products, freeze-drying, plugging, etc. Whether the 100-level area can operate normally directly affects the product quality. Combined with the characteristics of clean workshop in pharmaceutical production plant, several practices in hundred-level areas are introduced below.

ACCORDING TO THE REQUIREMENTS OF GOOD MANUFACTURING PRACTICE (GMP) (REVISED IN 1998), AT PRESENT, ACCORDING TO DIFFERENT KINDS OF PRODUCTS, THE CLEAN AREAS OF PHARMACEUTICAL FACTORIES ARE GENERALLY DIVIDED INTO FOUR CLEAN LEVELS: 300,000, 100,000, 10,000 AND 100, AND THE 100-LEVEL AREA IS THE HIGHEST CLEAN LEVEL. THE 100-LEVEL AREA IS GENERALLY LOCATED IN THE INNER AREA OF THE WORKSHOP, SURROUNDED BY 10,000-LEVEL OR 100,000-LEVEL AREAS, WHICH ARE PART OF THE WORKSHOP ASSEMBLY LINE, AND THE WHOLE ASSEMBLY LINE ALSO INCLUDES 10,000-LEVEL OR 100,000-LEVEL AREAS.

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GENERALLY, THE FLOOR HEIGHT OF A HUNDRED-LEVEL AREA IS LOWER ( $\leq 2.8\text{M}$ ), THE ENVIRONMENT IS CLOSED, AND THE NOISE REQUIREMENT IS HIGHER ( $\leq 65\text{DB}$  (A) IS REQUIRED IN THE CODE FOR DESIGN OF CLEAN WORKSHOP). THERE ARE MANY AIR DUCTS AROUND THE CEILING OF THE 100-LEVEL AREA, SO THE SPACE FOR HANDLING AIR SUPPLY IN THE 100-LEVEL AREA IS RATHER TIGHT.

### III. Main technical parameters of 100-class laminar flow hood equipment

Item	Parameter
Cleanliness grade	A Level
Bacterial counts	$\leq 0.5/\text{dish}$ * ( $\Phi 90\text{mm}$ culture dish)
Average Wind Speed	Three-step adjustable, 0.3-0.6m/s
Noise	$\leq 75\text{dB(A)}$
Power Supply	220 $\pm$ 22V、50 $\pm$ 1Hz
Environmental requirements	10 $^{\circ}\text{C}$ -40 $^{\circ}\text{C}$
Environmental humidity requirements	30% -75%
Power	Pending
Weight	Pending
Net dimension	Pending
Outline dimension	Pending

### Laminar flow hood configuration list

NO	Fitting name	Brand
1	SUS304	Baosteel Metal 1.2mm
2	Fan	EBM (225/315)
3	filter	Suzhou kaixin
4	transducer	Xinjie
5	Differential pressure meter	Dwell
6	Uniform film, DOP detection port	Norpois

## Operation instruction for installation of 100-level laminar flow

Preparations for installing the 100-level laminar flow hood: glass glue and glass glue gun, open-ended wrench (14) and cross screwdriver, wiring clamp and electrical tools, etc.

### The installation steps of the 100-stage laminar flow hood are as follows:

1. Unpacking the 100-level laminar flow cover  $\rightarrow$  sterilizing the surface  $\rightarrow$  installing it on the

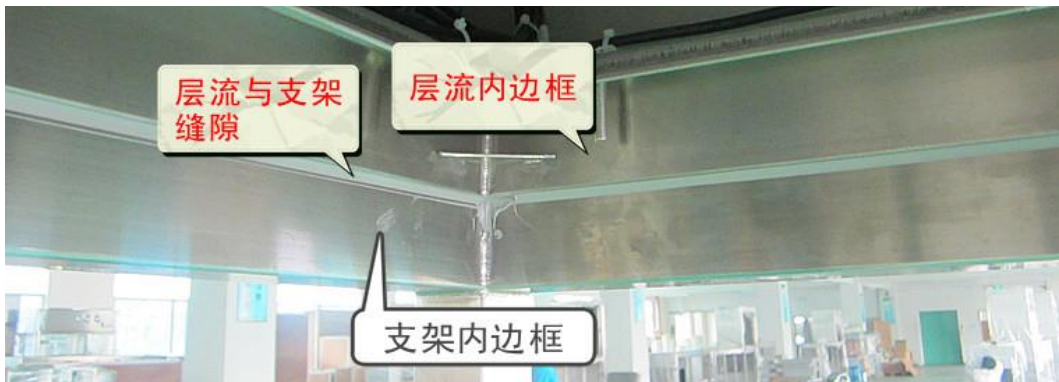
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equipment support/hoisting it at the top of the room;

2. After the 100-stage laminar flow hood is installed on the equipment bracket; Firstly, the support around the equipment is sealed, and the contact part between the equipment and the 100-level laminar flow hood is sealed with glue inside and outside; If the 100-stage laminar flow hood is made separately, glue and seal the joint of the two boxes up and down; Then some equipment brackets have power cord holes, and the power cord holes should be sealed with glue. As shown in the figure:



The gap between the bracket and the box must be sealed with glue;



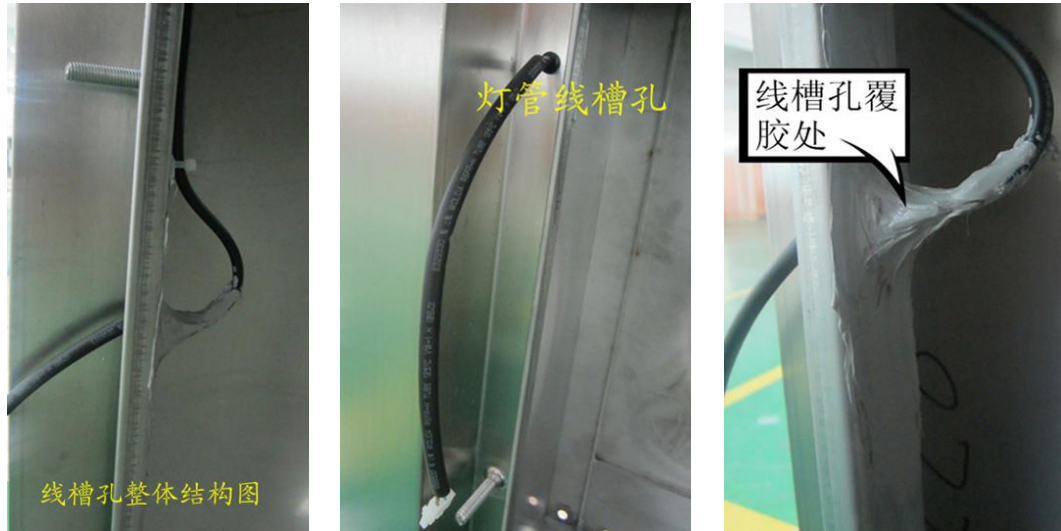
The gap between the laminar inner frame and the inner frame of the bracket must also be sealed with glue;

The above two places are the most easily overlooked parts; Please ask the technician to seal the above two gaps after installing the 100-level laminar flow cover.

3. After the periphery of the laminar flow hood frame is sealed, the next step is to seal the tube slot hole; Before leaving the factory, the tube slot hole will be sealed strictly with glue. Considering the glue strength and transportation vibration, a layer of glue must be coated around the tube slot hole before installing the high efficiency filter.

As shown in the figure:

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4. After the laminar flow hood frame and the lamp duct are sealed, the next step is to install the high-efficiency filter of the liquid tank; When installing the high-efficiency filter of liquid tank, it must be installed by two people; First, take the filter out of the carton correctly. Then, two people respectively hold the two corners of the filter and lift it horizontally to get close to the knife edge. When contacting with the knife edge, make sure that the liquid tank edge of the filter is in the middle of the knife edge of the laminar flow hood.

5. Key points of filter installation:

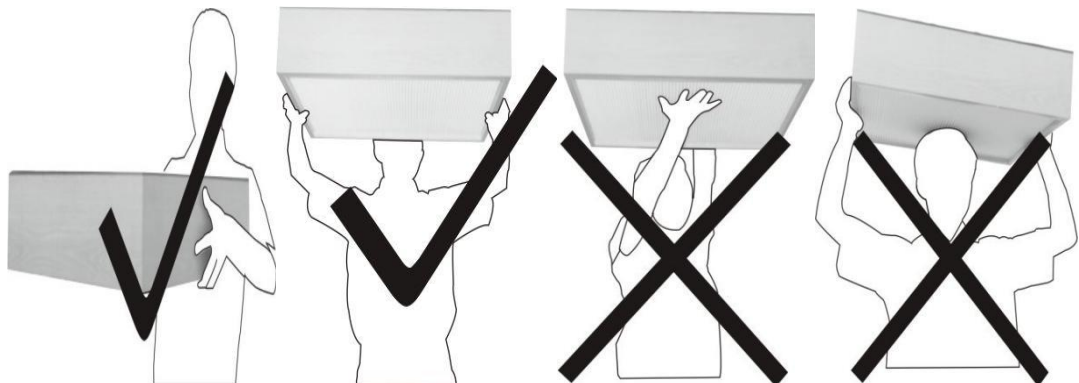
1. The high-efficiency filter must be handled with care during installation;
2. Before installing the filter, install the filter fixing block on the stainless steel screw, so as to ensure that the filter can be installed in the center. See the figure below for detailed installation:



(RIGHT)



(WRONG)



6. Filter lock installation and detection points; Key points of filter locking installation: when locking the nut, first tighten the nut from the diagonal; But it can't be locked in place at one time to ensure

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that each stress point is balanced;

Key points of equipment inspection:

1. During inspection, pay attention to the influence of the surrounding environment of the equipment. First, when the leakage phenomenon is found, check whether the key points of equipment installation have been completely completed;

2, then detecting whether the environmental concentration around the equipment is higher than the environmental concentration of the 100-level laminar flow; If necessary, PE film can be used to make a circle around in the 100-level laminar flow hood before testing.



*( This picture shows the sealing schematic diagram of the front and side of the 100-stage laminar flow hood.)*