

Biological Safety Cabinet

11234 BBC86

11224 BBC86

User Manual

Version 2020.07

Preface

Thank you very much for purchasing our Cytotoxin biological safety cabinet.

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” within touch for future reference.



Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

Disclaimer

We shall not be liable for any equipment failure or damage, or for any direct or indirect damage that may occur during the use of the equipment.

1. Malfunction or damage due to violation of the instructions, precautions, and intended use of this manual.
2. Malfunction or damage caused by repair or alteration of the other company.
3. Malfunction or damage caused by use instruments of other company at the same time .
4. Malfunction or damage caused by operating environment not corresponding to the specified operating environment (power conditions, installation environment, etc).
5. Malfunction or damage caused by natural disasters such as earthquakes and floods.
6. Malfunction or damage caused by the company unaware of the movement or transfer (transport) after installation.

Content

1. Unpacking, Installation, Debugging.....	4
1.1 Unpacking.....	4
1.2 Accessories checking.....	6
1.3 Installation conditions and using environment.....	6
1.4 Installation.....	7
1.5 Check after installation finished.....	10
2. User Instructions.....	11
2.1 Functions.....	11
2.1.1 Product Concept.....	11
2.1.2 Application Range.....	11
2.1.3 Working theory/Air flow pattern and protected area.....	11
2.1.4 Protected objects.....	12
2.1.5 TECHNICAL PARAMETERS.....	12
2.1.6 Performance Index.....	13
2.2 Product structure.....	14
2.2.1 Structural composition of 11234 BBC 86.....	14
2.2.2 Structure introduction.....	15
2.3 Control panel.....	17
2.4 Remote Control.....	19
2.5 Instructions for Operation.....	20
2.5.1 Normal Operation Notice.....	20
2.5.2 Operation Process.....	21
2.6. Daily maintenance.....	22
2.6.1 Preparations before maintenance.....	22
2.6.2 Clean the cabinet surface.....	22

2.6.3 Overall maintenance period.....	23
2.6.4 Maintenance methods.....	23
2.6.5 Storage conditions.....	24
2.7 Methods and procedures for disinfection.....	24
2.8 Replacement parts list.....	24
2.9 Wiring diagram.....	26
3. Trouble shooting and Labels.....	27
3.1 Common faults & solution.....	27
3.1.1 Warning and reminder.....	27
3.1.2 Trouble shooting.....	27
3.1.3 Simple accessories replacement.....	30
3.2 Label Description.....	32
4. Warranty.....	35

1. Unpacking, Installation, Debugging

Please firstly check if packing box is in good condition. If the packing box is damaged, please take photos.

1.1 Unpacking

Choose the proper unpacking method according to the actual situation.

1) Method 1 Necessary tools for unpacking: Electric drill with hexagon dead M8



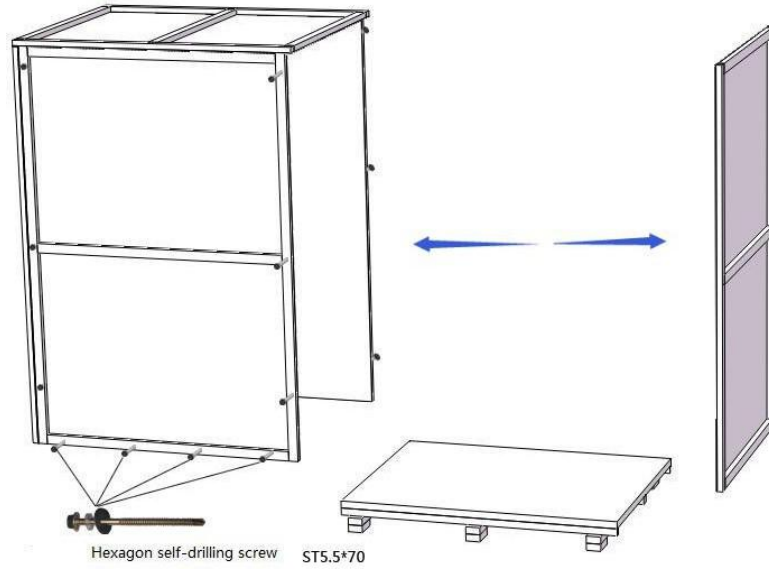
Picture 1

2) Method 2 Use M8 Wrench to unpack



Picture 2

Rapid unpacking diagram (Picture 3). Disassemble the screws shown in the below Picture, then move the wooden pieces to right and left.



Picture 3

1.2 Accessories checking

Refer to the packing list and check the accessories.

Packing list (11224/11234 BBC 86)

Items	Model	Position	Quantity
Main Body		Wooden box	1unit
UV Lamp (T6 18W)	11224 BBC 86	Top or back of main body	1pc
UV Lamp (T6 30W)	11234 BBC 86		
Fuse (10A)		Placed in a transparent plastic bag	2pcs
Fuse (5A)			1pcs
Remote control (including battery)			1pc
Keys			2pcs
User manual			1pc
Test report			1pc
Quality certification card			1pc
Power cord			Placed in the carton accessory box
Big rubber gasket		1pc	
Small rubber gasket		1pc	
Motor control rod		1pc	
Stainless steel internal screw valve		1pc	
Stainless steel external screw tube		2pcs	
PTFE tape		1pc	

1.3 Installation conditions and using environment

To avoid disturbances to the safety cabinet and its operator, follow the following guidelines, while determining a suitable location for the cabinet:

- a. The distance from the plane of the aperture to any circulation space should be at least 1000 mm,

so as to preserve a zone undisturbed by anyone other than the operator.

- b. Biological safety cabinets should be placed in a position where there should be no opposing wall (or other obstruction likely to affect the airflow) within 2000 mm of the front aperture.
- c. Safety cabinets should not be installed in positions where they are likely to be affected by other items or equipment. In particular the distance to the aperture of an opposing safety cabinet, fume cupboard, or the edge of a local exhaust ventilation outlet should not be less than 3000 mm.
- d. Any room air supply diffuser should not be within 1500 mm of the front aperture.
- e. Doorways should not be within 1500 mm of the aperture or within 1000 mm of the side of the safety cabinet.
- f. The position of a safety cabinet should satisfy the spatial requirements (e.g. vision, lighting and convenience of access) of the operator and personnel working nearby. When a cabinet is installed on a bench top, the leading edge should be flush with or slightly overhanging the edge of the bench top.

Working environment:

- (1) Only is suitable for indoor;
- (2) Ambient temperature: 15°C ~ 35°C;
- (3) Relative Humidity: ≤75%;
- (4) Atmospheric pressure range: 70 kPa ~ 106 kPa;
- (5) Electrical parameters: Consistent with the rated voltage of the biosafety cabinet (See 2.1.5 technical parameter performance index);
- (6) Power supply need to be grounded; (Judging method: testing the fire wire and the zero line of the power supply with multimeter, the fire wire to ground voltage should be grid voltage and the zero line to ground voltage should be 0, otherwise the power supply ground is bad).

1.4 Installation

- a. Remove all the package materials;
- b. Inspect the surface of main body to make sure whether there is scratch, deformation or uncorrelated things;
- c. Move the whole device to the final installation location;

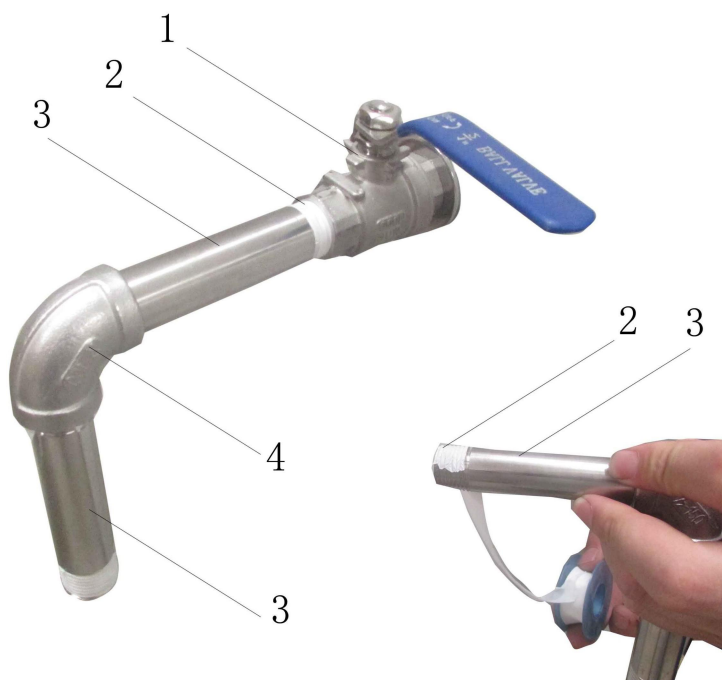


The base stand will be packed at back of main body, please take it out before installation.

DO NOT INVERT, DISASSEMBLE OR TITILE THE CABINET during transportation.

d. Install drain tube

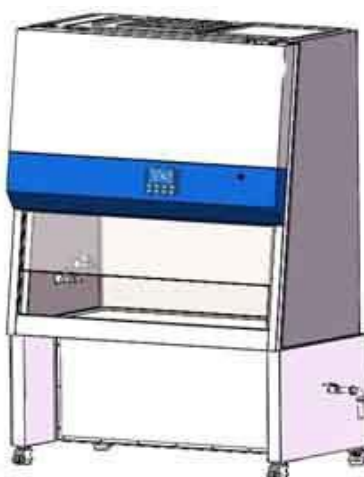
Use PTFE tape to wrap some rounds on the screw of 2 stainless steel external screw tube(refere picture 4).Then connect the 2 stainless steel external screw tubes with Stainless steel 90 ° internal screwed conduit pipe in both sides, pls check installed picture 4.There is installed drain valve in the right of base stand, then connect the installed seepage tube with drain valve and use adjustable wrench firmly it.



Picture4

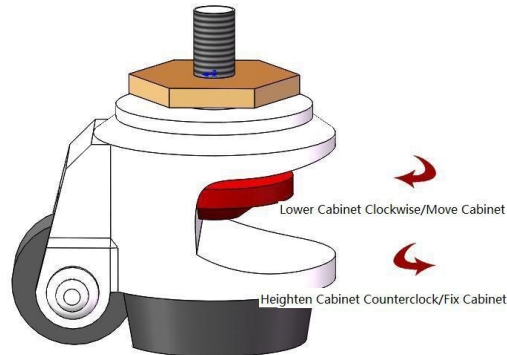
1 . Drain valve 2. PTFE tape 3.Stainless steel external screw tube 4. Stainless steel 90 ° internal screwed conduit pipe

e. Installed picture, pls refer to picture 5



Picture5

f. Adjustment of Footmaster Caster



Picture 6

Clockwise rotate caster' red part to low down the base feet and the height of the cabinet. Low down all four casters can move the cabinet position. Counterclockwise rotate casters' red part can rise the base leg and height of cabinet. Raise all four casters can at same time can fix the cabinet. Adjust the four Foot -masters makes the cabinet stable.

g. Installation of Water and Gas Tap (Optional)



Picture 7

- 1. Fastening Nut
- 2. Stainless Steel Water and Gas Taps

Take out fastening nuts, water and gas taps, installing as Picture 7.

1.5 Check after installation finished

First, make sure the Voltage and frequency to be same as logo showing, and then check the follows items with power on:

Checking Items	Normal situation
Wind speed display	Inflow $0.53\pm 0.025\text{m/s}$, downflow $0.33\pm 0.025\text{m/s}$
Pressure display	exhaust filter 80-120Pa, downflow filter 80-120Pa
Fan running	Normally
LED lamp	Lamp lights after pressing button
UV Lamp	Lamp lights after pressing button
Display screen buttons	All buttons can be used
Socket	Press the socket key, multimeter testing output supply voltage

2. User Instructions

2.1 Functions

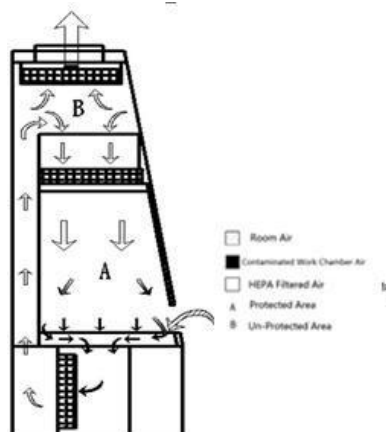
2.1.1 Product Concept

This products belong to Class II A2 biological safety cabinet which fully meet the requirement of Pharmaceutical industry standard of the People's Republic of US standard ANSI/NSF49:2002, European standard EN12469:2000, biological safety cabinet is a kind of negative pressure filtration system for protecting operator, the laboratory environment and work materials, the front opening which air flow inward have protection function for operator, the filtered laminar flow generated by vertical HEPA can protect work materials, what's more, the polluted air flow become pure after processed by HEPA(ULPA) filter. As it has bag in and bag out filter, exhausted air will be much safe after twice processed so that protect environment. Operating air come back to operating area after twice processed, air purification effect is stronger and ensures the accuracy of experimental results. At the same time, the working life of HEPA filter is longer so that reduces the replacement frequency and cost. When it's used in microbiology experiment environment filled with volatile or toxic chemical and radionuclide, suitable exhaust hood in function have to be linked.

2.1.2 Application Range

Biological Safety Cabinet is necessary equipment in the laboratory in the search of microbiology, biomedical, DNA recombinant, animal experiment, and biological products, especially in the occasion that operator need to adopt protective measure, such as medical and health, pharmacy, medical research. Our equipment provides a safety working environment which don't have bacterial and dust in the process of bacterial culture.

2.1.3 Working theory/Air flow pattern and protected area



Picture 8

2.1.4 Protected objects

Biological safety cabinets (BSCs) are designed to protect the operator, the laboratory environment and work materials from exposure to infectious aerosols and splashes that may be generated when manipulating materials containing infectious agents, such as primary cultures, stocks and diagnostic specimens.

2.1.5 TECHNICAL PARAMETERS

Model Parameters	11224 BBC 86	11234 BBC 86
External Size(W*D*H)	1087mm×760mm×2100 mm	1380mm×760mm×2100 mm
Working Zone Size(W*D*H)	910mm×600mm×630 mm	1220mm×600mm×630 mm
Power Supply AC	220V±10% <input type="checkbox"/>	110V±10% <input type="checkbox"/>
Frequency	50 Hz <input type="checkbox"/>	60Hz <input type="checkbox"/>
Consumption	700W	900W
Total Airflow Volume	347m ³ /h	485m ³ /h
Downflow Velocity	0.33±0.025m/s	
Inflow Velocity	0.53±0.025m/s	
UV Lamp	18W*1	30W*1

Consumption		
LED lamp Consumption	12W*2	16W*2
HEAP Filter	99.999%(Diameter: 0.3μm)	
Noise	≤65dB (A)	

Notes: (1) Electric consumption power including power which operation area needs to load (Loading no more than 500W)

(2) Our company has right for changing the products, if we need to change and re-design, please forgive us for not notifying you.

2.1.6 Performance Index

1) Biological safety functions

Personnel protection, microbial colony count ≤5CFU;

Sample protection, microbial colony count ≤5CFU;

Cross contamination protection, microbial colony count ≤2CFU.

2) Leak-proof Cabinet

If cabinet pressurized to 500Pa, the pressure should be no less than 450 Pa after 30 min.

3) Integrity of HEPA Filter

Scan and detect the HEPA filter, the leakage rate at any point should not be >0.01%.

4) Vibration amplitude

The net vibration amplitude between frequency 10Hz and 10KHz is no more than 5μm(rms).

5) Illumination

The average illumination is no less than 650 lux, max illumination is no less than 1000lux.

6) Mechanical performance

Structure design is reasonable, high quality materials are adopted for the cabinet.

It can resist shape global deformation caused by external force.

The working surface will not occur permanent deformation when weight put reaching 23kg.

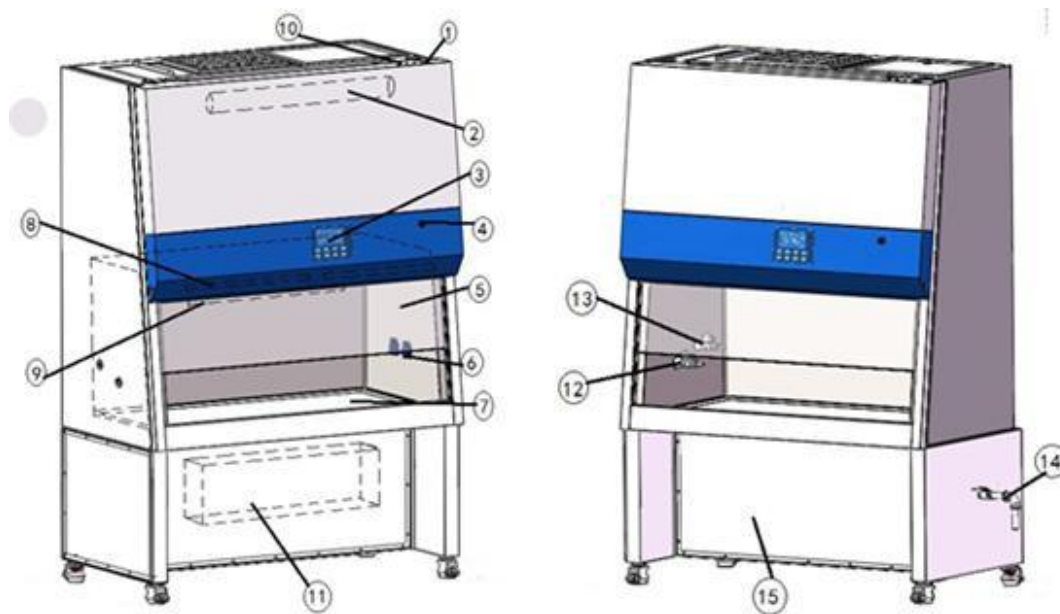
7) Electrical properties

The voltage increases to 1390V (AC) in 5s and keep for another 5s without breakdown.

Grounding resistance $\leq 0.1\Omega$

2.2 Product structure

2.2.1 Structural composition of 11234 BBC 86



Picture 9

- | | |
|-----------------------|-------------------------------|
| 1. Power socket | 9. UV lamp |
| 2. Tube motor | 10. Fuse socket |
| 3. Control panel | 11. Bag In and Bag Out filter |
| 4. Key choice button | 12. Water tap |
| 5. Front window | 13. Gas Tap |
| 6. Water-proof socket | 14. Drainage component |
| 7. Working Area | 15. Base stand |
| 8. Fluorescent Lamp | |

2.2.2 Structure introduction

1) Driving System of Front Window

Driving system consists of tube motor, front window, hauling sash and position switch.

2) Air Filtration System

Air Filtration System is the most important system of BSC. It consists of blower, supply filter and exhaust filter. The function of Air Filtration System is transferring filtered air to work area, ensure the down flow velocity, and keep Class 100 cleanness of work area.

3) UV Light

UV lamp is inside work area. So UV lamp can well sterilize all space of work area. Emission of 253.7 nanometers can ensure most efficient decontamination.

4) Fluorescent Light

The BSC is equipped with straight tube type energy-saving fluorescent lamp. It can make sure average illumination inside work area which meets standard requirements.

5) Air pipe

Air pipe is the ventage of differential pressure sensor.



The air pipe should not be blocked and please do not hang anything on the pipes, otherwise it will effect wind speed and pressure.

6) Power lock

When the power cord is connected to main power, switch the key for power lock, then the equipment is powered on.

7) Water proof Socket

Waterproof Sockets are located on the right side of the work area, which can be controlled by SOCKET button.



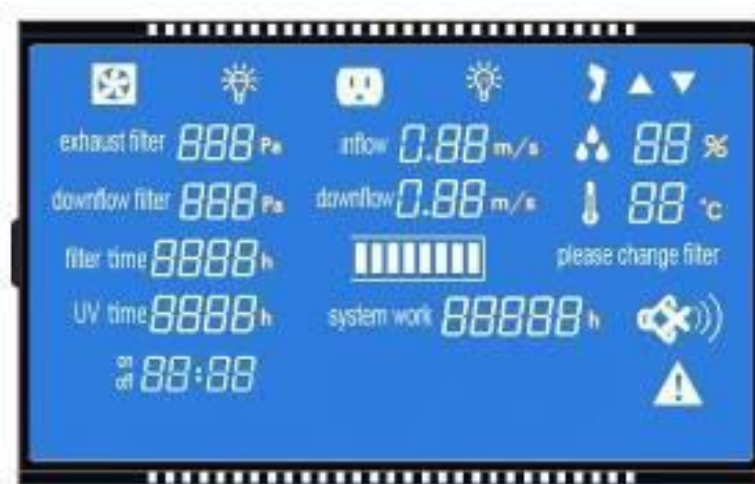
Please make sure the total load of sockets should be $\leq 500W$;

8) Fuse

The equipment is equipped with main power fuse, waterproof socket fuse and fan fuse. They are located near the power cord's outlet. Fuse label is corresponding to the relevant specifications. Please refer to 3.2.

9) LCD Display (Liquid Crystal Display)

Large LCD display indicates detailed key parameters, it is real-time display to reflect the equipment working condition, such as effective working state of the filter, which is more intuitive. (Please refer to picture10)



Picture10

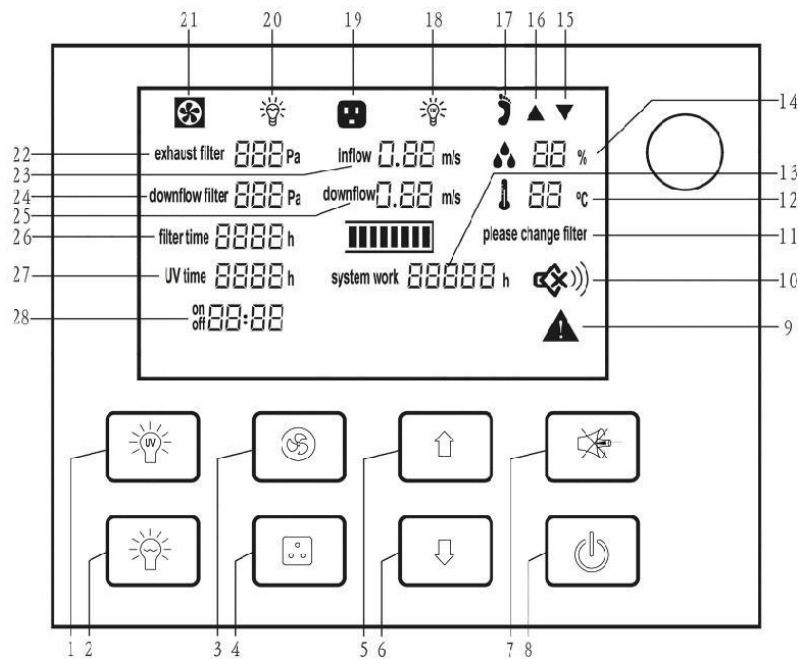
10) Control of Front Window

Front window is motorized, the soft touch-button on the panel could be controlled freely, the operator is no need to direct contact with front window.

11) Structure

- a) Biological Safety Cabinet's both sides and back area are negative pressure air channel. And the negative pressure keeps work area away from contamination.
- b) Cabinet body is built of 1.2mm cold-rolled steel with anti-powder coating. Strong and steady.
- c) Work area is fully made of stainless steel which looks beautiful and with corrosion resistance performance.
- d) Base stand is made of cold-rolled steel with anti-powder coating.
- e) Soft touch type control panel, easy to handle and beautiful appearance.

2.3 Control panel



Picture 11

- | | |
|----------------------------|--|
| 1. UV Lamp | 15. Glass Window Down Status |
| 2. Fluorescent Lamp | 16. Glass Window Up Status |
| 3. Blower | 17. Foot Switch Status |
| 4. Socket | 18. UV Status |
| 5. Glass Window Up | 19. Socket Status |
| 6. Glass Window Down | 20. Fluorescent Lamp Status |
| 7. Mute | 21. Blower Status |
| 8. Power | 22. Exhaust Filter Differential pressure |
| 9. Alarm Status | 23. Inflow Velocity |
| 10. Mute Status | 24. Supply Filter Differential pressure |
| 11. Filter Changing Status | 25. Downflow Velocity |
| 12. Temperature | 26. Filter working time |
| 13. System Working Time | 27. UV Lamp working time |
| 14. Humidity | 28. Reservation timing |

a) LCD Screen

The working status of the equipment and operation can be seen on the LCD screen.

b) Soft touch button.

BSC's main functions could be executed by touch-buttons. User can operate the BSC either by pressing the buttons on control panel or using the remote control. There are totally 8 common button on control panel.



: The power button



: To control fluorescent lamp



: To control UV lamp.(It works only after front window fully closed.)



: To control blower working status. (It will not work when front window is fully closed.)



: Press MUTE button to stop voice prompt



: Press UP button, glass window will raise.



: Press Down button, glass window will fall down.

Clock Adjustment:

Turn the power key, so machine is in standby state.

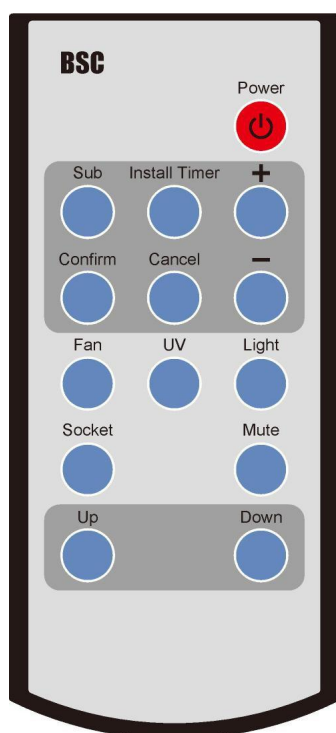
Press the **light** button, and then press the **power** button for 5 seconds. Then you see the state of clock adjustment after a buzzer alarm.

Firstly, **minute** position is flashing, press UP and DOWN to adjust to present time. Then press the MUTE button switching to **hour** position and adjust to present time. After that, press the **light** button first, and press the **power** button for about 5 seconds. Data will be saved after a buzzer alarm.

2.4 Remote Control

It is inconvenient for the users to operate from a distance. Small & light remote control is flexibly to be used to control all the functions of the cabinet in a distance $\leq 6\text{m}$, 30° range. The operator can even carry it with themselves during experiment for convenience.

This remote control adopt specific chip which is featured with good anti-jamming performance, longer control distance and high control precision.



Picture12

Buttons of Remote Control:

1. Power (POWER)
2. Reservation Time (SUB)
3. Timer (INSTALL TIMER)
4. Confirm (CONFIRM)
5. Cancel (CANCEL)
6. Turn up (+)
7. Turn down (-)
8. Fan (FAN)
9. UV (UV)
10. Illumination (LIGHT)
11. Socket (SOCKET)
12. Mute (MUTE)
13. Front window up (UP)
14. Front window down (DOWN)

Remote Control

A. Reservation Time (SUB)

- a. Connect power, open power lock, and press the reservation timing button (SUB);
- b. Adjust the time (minutes) by “+” or “-” button. Press the confirmation button (CONFIRM) to confirm; and then adjust other minutes and hours position data in the same way;
- c. After the time is confirmed, the corresponding display lamp lights by selecting the function buttons (such as UV);
- d. Press the POWER button again, the reservation function starts. Reserved time starts count down. The corresponding setting function starts when the time counts down to zero.

B. Timer (INSTALL TIMER)

- a. Connect power, open power lock, press button (POWER), the corresponding display lamp lights by selecting the function buttons (such as UV);
- b. Press button (INSTALL TIMER), adjust the time (minutes) by “+” or “-” button. Press button (CONFIRM) to confirm; and then adjust other minutes and hours position data in the same way;
- c. After the time is confirmed, the Timer function starts. When the time counts down to zero, all the functions will be off, the cabinet will be in standby mode.

C. Application of Reservation Time

Biological safety cabinet is equipped with special UV lamp. When turning on or turning off the cabinet, sterilization time of UV lamp should be at least 30 minutes. In order to save the waiting time of turning on or turning off the cabinet, we develop reservation time function. It realizes function of automatic turning on or turning off the cabinet after the sterilization finished. Reservation time setting range is from 0 to 99 hours and 59 minutes. This function helps operators to save time and improve efficiency.

2.5 Instructions for Operation

2.5.1 Normal Operation Notice

- (1) Make sure input voltage is correct and stable. The rated load of main power socket should be higher than cabinet consumption. Plug must be well grounded.
- (2) In order to avoid air turbulence, the operator should slightly move his arms during experiment. Hands should stay inside the working area at least 1 minute before operating. In order to decrease the times of arms moving into and out of the working area, prepare all the necessary items inside the cabinet before starting experiment;
- (3) Moving principles of different samples inside cabinet: When two or more samples need to be moved, be sure that low-polluting samples move to high-polluting samples. Movement of items should also follow the principles of slow-moving.
- (4) Samples placed in parallel: Samples should be placed in the cabinet parallel to avoid cross-contamination between samples and blocking back air grille.
- (5) In order to avoid samples being sucked into the negative passage or the blower, do not place soft and slight samples (for example: soft tissue) on the surface during experiment;

- (6) The weight of items placed in the cabinet should be no more than 23Kg/25×25cm²;
- (7) Avoid vibration: avoid using vibration equipment (eg centrifuges, vortex oscillator, etc.) inside the cabinet. Vibration would cause lower cleanliness of operating area and affect operator protection.
- (8) No flame: No flame is allowed inside the cabinet. Using of fire will lead to airflow disorder, and filter damage. If sterilization is required during the experiment, infrared sterilizer is highly recommended.
- (9) HEPA filter life: With the usage time increasing, dust and bacteria accumulate inside HEPA filter. Filter Resistance is getting bigger, when it reaches the maximum point, there will be audible and visual alarm. Please replace new HEPA filter, otherwise it will affect the safety performance of the equipment. The used filter should be processed as medical waste.
- (10) There is a negative passage surrounding the work area, which is sealed strictly in the factory. The operator is not allowed to remove or loose screws of those parts. If necessary, please contact service personal.
- (11) Front Grille is used for air intake and drain. Do not block it, otherwise it will affect airflow. Armrest is recommended to solve this problem and reducing the operator's wrist fatigue.
- (12) Long-term use of biological safety cabinets will inevitably cause pollution (e.g. HEPA filters, corner cabinets, etc.). In order to sterilize thoroughly every 500 hours, formalin (formaldehyde) fumigation sterilizer is recommended. After sterilization, neutralize formaldehyde gas with ammonium hydrogen carbonate. Make sure no sterilization gas escapes during the whole process.
- (13) The maximum storage period is one year. If the period is more than one year, performance test should be done .



Serious declaration: we will take no responsibility for risks caused by improper operation and man-made damages!

2.5.2 Operation Process

- a. Connect the same power reply, as required of equipment
- b. Open the power lock, LCD display lights up and alarm rings at the same time, then the machine enters to standby status. Waiting for the operator to input button to use it.
- c. Press POWER button, then the following functions are available: Fluorescent lamp, UV lamp, Fan, Mute, Sockets, Front window up and down, Reservation timing



When front window is closed and fluorescent light is off, then press the UV button to select the sterilization function.

d. Before doing experiment, please sterilize the cabinet for more than 30 minutes by UV lamp.



(1) For safety of eyes and skin, people should leave room during the UV sterilization.

(2) UV lamp intensity should be tested regularly. If there is no test conditions, it should be replaced when the UV timer on the display indicates the working time reaches to 1000 hours.

e. Please move the front window at 200mm height from the work table, turn on the fan, make sure the experiment should be started after fan working for at least half an hour.



For operating safety, please put testing materials inside the cabinet in advance, and keep the front window at 200mm height from the work table during operation.

After finishing the experiment, please move the front window down to the bottom, and make sure to sterilize the cabinet by UV lamp for 30 minutes before turning off the cabinet.

2.6. Daily maintenance

Because the operating time will directly affect the judgment of maintenance needs, we recommend the user keep a detailed record of operating time for reference.



When doing maintenance, please pay attention to cut off the power, so as to avoid electric shock!

2.6.1 Preparations before maintenance

Soap, hot water or warm water, a soft cotton cloth, dry cloth or towel, medical alcohol or other disinfectants, 100 dilution of household bleach, abrasive household cleaners, sterile water

2.6.2 Clean the cabinet surface

1) Clean the operating area surface

Wipe the entire surface with a soft cotton cloth or towel soaked with concentrated liquid soap, then wipe up the soap with another cotton cloth or towel soaked with clean hot or warm water, and then wipe the surface with a dry cotton cloth or towel rapidly.

For the contaminated or dirty work surface or sump., use 70% medical alcohol or other disinfectant

to wipe.



Disinfectants used for wiping should not damage 304 stainless steel.

2) Clean the external surface and front window.

Use soft cotton cloth or towel to wipe the surface with non-abrasive household cleanser.

2.6.3 Overall maintenance period

We suggest comprehensive maintenance period is one year or 1000 working hours.

2.6.4 Maintenance methods

- a. Disinfect and clean operating area;
- b. Clean the external surface and front window around the operating area;
- c. Check the various functions of equipment;
- d. Record this maintenance result

1) Daily or weekly maintenance

- a) Sterilize and clean the operating area
- b) Clean the external surface and front window.
- c) Check the various functions of equipment
- d) Record this maintenance result

2) Monthly maintenance

- a. Clean the the external surface and front window.
- b. Wipe the working table, inner wall surface of operating area (excluding the wind distributing grid of operating area) and the inner surface of glass door with 70 % medical alcohol or household bleach diluted 1:100 (i.e, 0.05% sodium hypochlorite). Then wipe again with sterile water in order to eliminate the rest chlorine.
- c. Check the various functions of equipment
- d. Record this maintenance result

3) Annual maintenance

- a. Check the two conveyor belts of front window drive unit, and ensure that their tightness is coincident.

- b. Check the UV lamp and fluorescent lamps.
- c. Apply for testing the overall performance of cabinet on an annual basis to ensure the performance safety. User is responsible for testing costs.
- d. Record this maintenance result.

2.6.5 Storage conditions

Safety cabinet should be stored in a relative humidity no more than 75%, the temperature is below 40°C, in the warehouse with good ventilation performance, no acid, no alkali and no other corrosive gases, storage period shall not exceed one year, safety cabinet for more than a year needs to be unpacked and checked. Only the tested and qualified safety cabinet can be sold.

2.7 Methods and procedures for disinfection

Details in the After-sale service manual

Disinfection is necessary when any contaminated part of the biosafety cabinet needed for routine maintenance, replacement filters, and performance testing, etc. Before doing certification test and gas sterilization, all internal working surface and the exposed outer surface should be disinfected with a suitable disinfectant.

2.8 Replacement parts list

11224 BBC 86 replacement parts list

Number	Name	Specification
AAB01	Fuse	10A
AAB02	Fuse	5A
AAB03	Lamp holder T6	LG13-01A
AAB04	UV Lamp	T6 18W
AAB05	LED Lamp	12W
AAB06	UV lamp ballast	1*TL6-18W
AAB07	Upper filter (Exhaust filter)	600*430*69mm
AAB08	Lower filter (Supply filter)	910*470*69mm
AAB09	Bag In and Bag Our filter	797*400*80mm

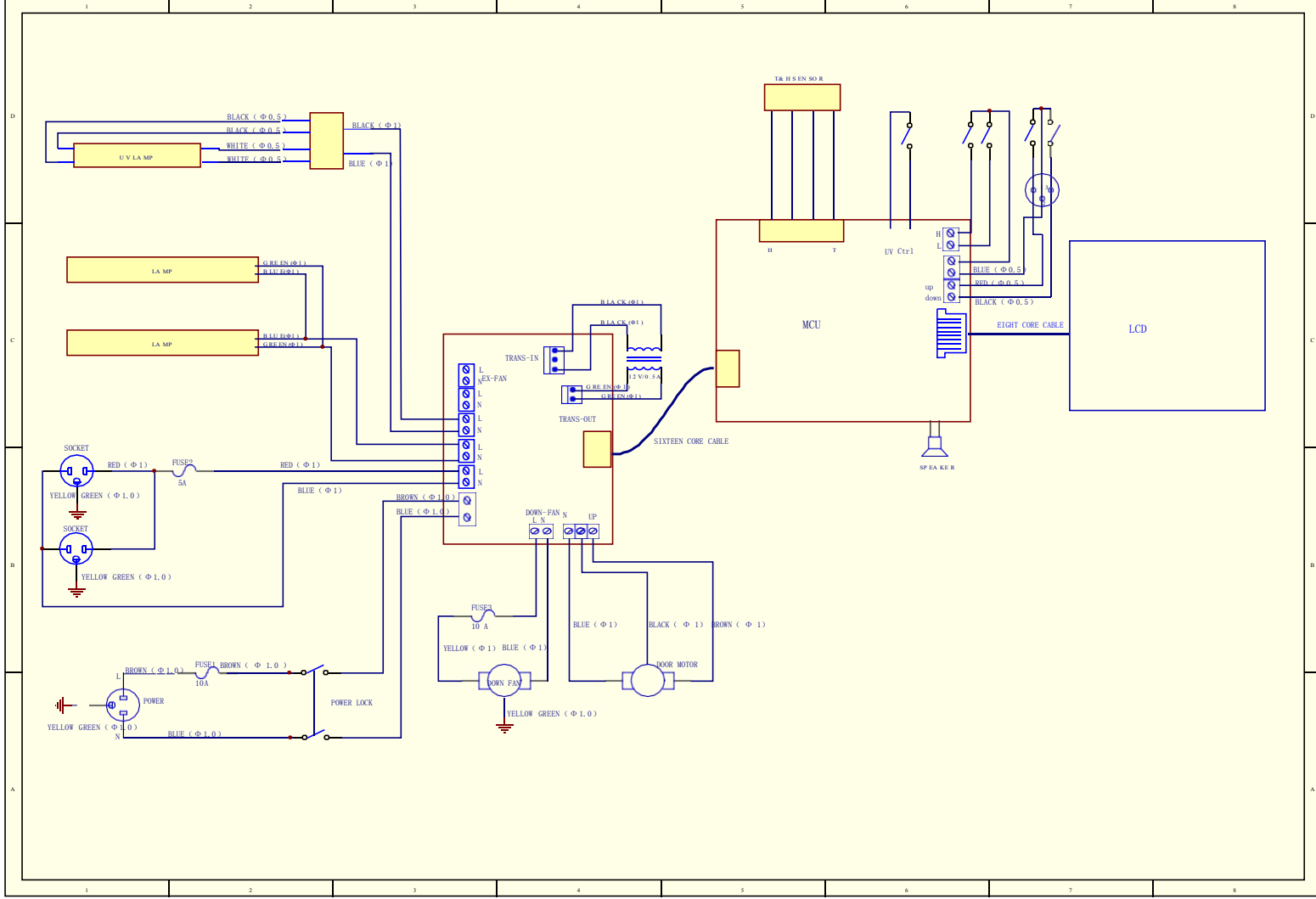
AAB10	Fan	C-DH230A2-AG5-05
AAB11	Control panel	LCD control board (strong circuit board, weak circuit board, display screen)
AAB12	Remote control (with battery)	
AAB13	Key selection button	LA42Y2P-20B
AAB14	Glass	1010*730*6.38mm

11234 BBC 86 replacement parts list

Number	Name	Specification
AAB01	Fuse	10A
AAB02	Fuse	5A
AAB03	Lamp holder T8	LG13-01A
AAB04	UV Lamp	T6 30W
AAB05	LED Lamp	16W
AAB06	UV lamp ballast	1*TL6-30W
AAB07	Upper filter (Exhaust filter)	800*430*69mm
AAB08	Lower filter (Supply filter)	1215*470*69mm
AAB09	Bag In and Bag Our filter	1090*400*80mm
AAB10	Fan	DZAE9/9-4
AAB11	Control panel	LCD control board (strong circuit board, weak circuit board, display screen)
AAB12	Remote control (with battery)	
AAB13	Key selection button	LA42Y2P-20B
AAB14	Glass	1305*730*6.38mm

2.9 Wiring diagram

11224 BBC 86 Wiring diagram/11234 BBC 86 Wiring diagram



Picture 13

3. Trouble shooting and Labels

3.1 Common faults & solution

3.1.1 Warning and reminder

Digital display of pressure difference, digital velocity display, audible and visual alarm system.

1) Over safety height alarm for front window

There will be audio and visual alarm when front window is lifting over safety height. Same time LCD display will twinkle exclamation mark. Then just adjust the height of the front window.(Front window height setting value is 200mm).

2) HEPA filter pressure difference alarm

There will be audio and visual alarm if pressure of air supply filter or exhaust filter can't meet present value, at the same time LCD display will twinkle exclamation mark. Remind the operator to replace the filter immediately to protect the operator's safety.

3) Velocity fluctuation alarm

There will be audio and visual alarm if the inflow velocity and down flow velocity below 20% of the standard value, namely, inflow velocity below 0.42m/s, down flow velocity below 0.26m/s, at the same time LCD display will twinkle exclamation mark to remind the operator pay attention.

3.1.2 Trouble shooting

Please confirm whether the power is connected or not, whether the power cord is obvious damaged or not, whether the fuse is good or not, and whether the power locks are in the open state or not before the fault diagnosis.

Faults	Check parts	Measures
LED lamp doesn't work	Lamp holder	Tube and lamp holder is connected securely
	Circuit	Check circuit
	fluorescent tube	Change it
	Control panel	Change it
UV lamp doesn't work	Front window, fluorescent lamp and blower	Check the front window, fluorescent lamp and the blower is open or not.

	Lamp holder	Tube and lamp holder is connected securely.
	Circuit	Check circuit
	UV lamp	Change it
	Micro Switch	Check if Micro Switch is broken
	Control panel	Change it
Button doesn't work	Control panel	Make sure the power connects well and the
		Check if the button is broken
		Make sure the connecting wire is connected
		Change control panel
Blower doesn't work	Front window	Front window is open or not, blower works only when the front window is open
	Micro Switch	Check if Micro Switch is broken or works fine
	Blower	If blower is broken, change it
	Circuit	Check circuit
	Control panel	Change it
No electricity in socket	Socket fuse	Check if socket fuse is broken
	Socket	Check if socket is broken
	Circuit	Check circuit
	Control panel	Change it
Pressure or air speed displayed	Gas circuit	Check whether gas circuit has dropped, is
	Control panel	Change it
Front window doesn't work	Circuit	Check circuit
	Motor of front window	Check front window motor
	Transmission part	Check transmission connection and lead rail
	Control panel	change it
Foot switch doesn't work	Circuit	Check circuit
	Control panel	Change it
Remote control doesn't work	Remote control	Check if the Remote control is broken or not,
	Connection cable	Check whether main control panel and display
	Control panel	Change it

No electricity in equipment	Power supply	Check power supply connects well
	Power wire	Check whether power wire has obvious
	Fuse	Check if the fuse is good
	Power key	Check if power key is open, is broken or not
	Transformer	Check whether the transformer works
	Control panel	Change it
Display doesn't work	Connection winding	Connection winding displacement
	Display screen	Display screen
	Control panel	Control panel
No alarm	Micro switch	Check whether the micro switch is good, and it
	Circuit	Check whether connection circuit of micro
	Control panel	Change it



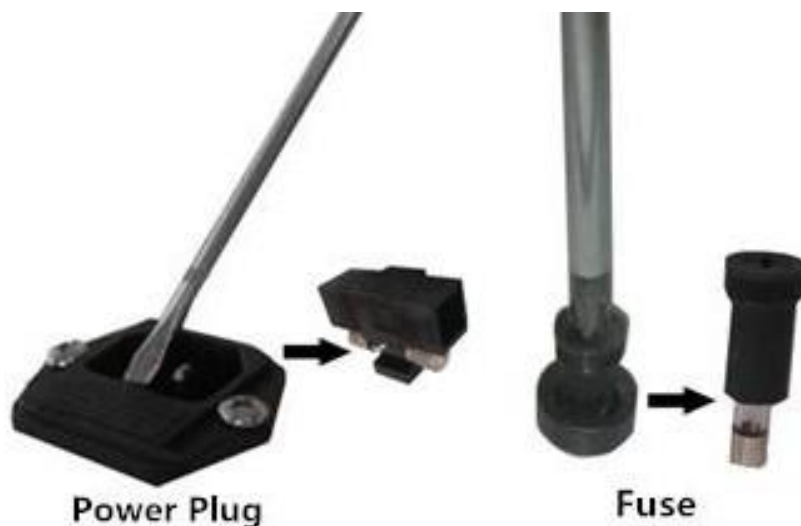
NOTES

- (1) The above electrical parts must be operated by a qualified electrician in safety conditions (cutting off power supply). The other parts are not allowed to remove; otherwise the user should take responsibility by them;
- (2) When failures are not occur, and the operator can't solve, please notify our maintenance department immediately. For your safety, please do not maintain equipment by yourself;
- (3) The maintenance of this equipment is undertaken by trained and recognized technicians;
- (4) If you need to order parts, contact the agent or our technical service department, and please indicate the model and serial number of the cabinet purchased.

3.1.3 Simple accessories replacement

1) Replace the fuse

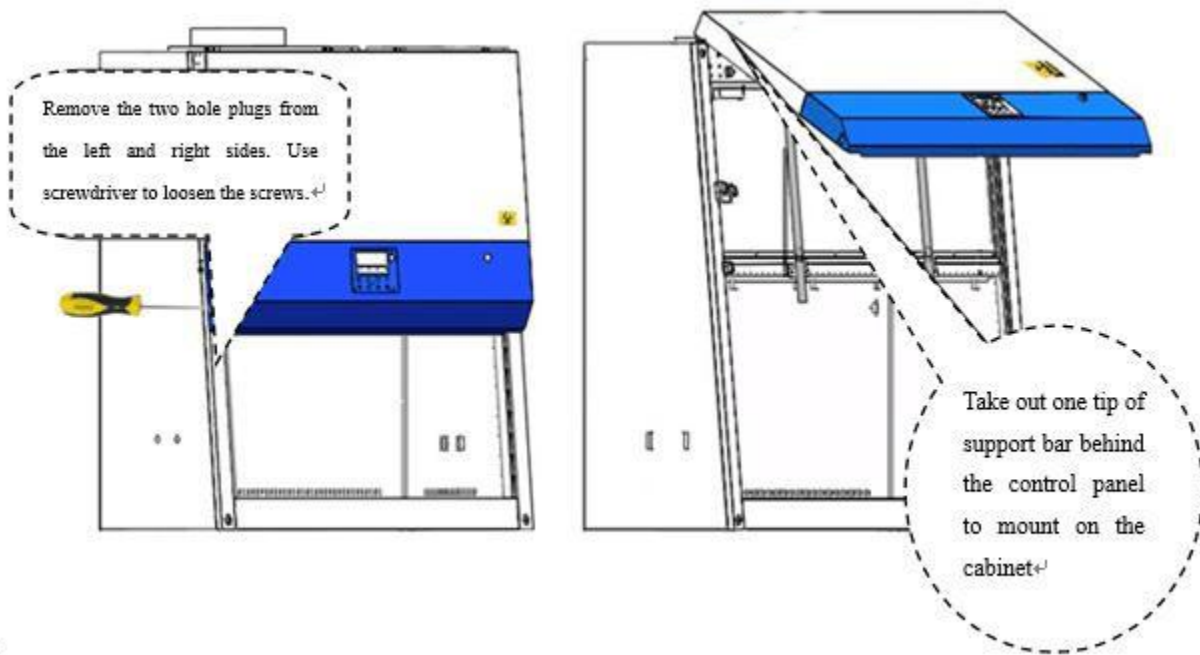
Socket, fan fuse are located in the top operation panel. When replace them, turn off the power and disconnect plug, use a Phillips screwdriver counterclockwise pressing screwed fuse holder, remove the fuse out and replace a new fuse, and then clockwise pressing screwed fuse holder; FireWire fuse is located in the side of the cabinet operation panel, take out of the fuse holder using a slotted screwdriver and replace with a new fuse, and then press it back



Picture 14

2) Replace fluorescent light

When replacing lights, make sure that the power is off, open the operation panel like shown in Picture 23, use the control panel support frame (fixed in the inside position of the control panel as shown), then like Picture 24 shown screwing the tube 90°, take the correspondence type of lamp, put it to the lamp holder and screw 90 °to the right position.



Picture 15



Picture 16

2) Replace UV lamp

UV lamp should be replaced regularly agency of use, when using UV lamps reach to the time of 600 hours, we recommend to replace the lamp. When replacing, first make sure the power is off, and then screw the bulb 90 ° and take it off , then take the correspondence type of lamp, and put it to the lamp holder and and screw 90 ° in reverse direction. After replacing the UV lamp, it needs to keep pressing the button of UV for about five seconds when the machine stays standby.



Picture 17

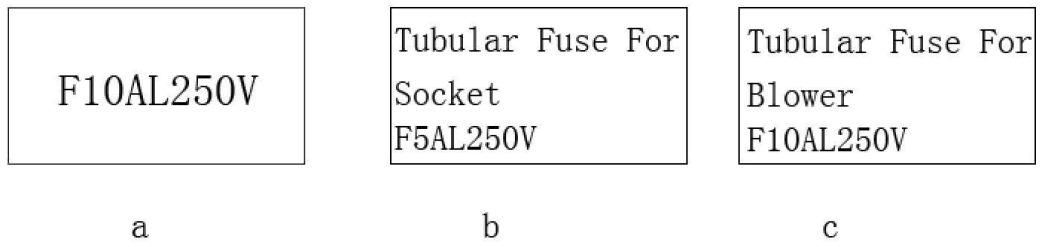
3.2 Label Description

1) Biological hazard label (Picture 18)



Picture 18

2) Fuse label (Picture 19)



Picture 19

Note:

- a. 10A power fuse label
- b. Operating area 5A socket fuse labels
- c. 10A blower fuse label

3) Ground label



Picture 20

4) Glass door super elevation warning label



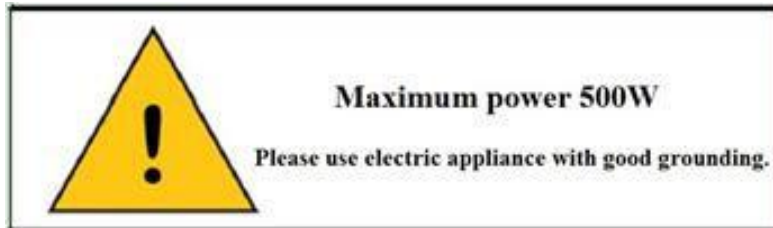
Picture 21

5) UV lamp alarm label



Picture 22

6) Load requirements label



Picture 23

7) Exhaust filter upstream label



Picture 24

8) Downflow filter upstream label



Picture 25

4. Warranty

- 1) Warranty is 12 months from EX-factory date (excluding consumable accessories, UV and Fluorescent lamp, fuse).
- 2) We will take no responsibility for risks caused by improper operation and man-made damages.
- 3) After the expiration of warranty, our company is also responsible for repairs, but the corresponding maintenance cost should be charged.
- 4) Life time of biosafety cabinet is 8 years from production date on the label.
- 5) We can provide equipment drawings and necessary technical data for maintenance companies or personnel trained by our company.

Warranty declaration: One-year Warranty, Life-long Maintenance