

Operation Manual



BCBS-200

Biological Safety Cabinet Class II

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01 Preface

1.1 Introduction

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.

Class II BSC is classified into two types (A2 and B2) based on construction, air flow patterns and exhaust systems. Basically, Type A2 cabinets are suitable for work with microbiological research in the absence of volatile or toxic chemicals and radionuclide, since air is recirculated within the work area.

02 Application Range

Aerosol particles are created by any activity that imparts energy into a liquid or semi-liquid material, such as shaking, pouring, stirring or dropping liquid onto a surface or into another liquid. Other laboratory activities, such as streaking agar plates, inoculating cell culture flasks with a pipette, using a multi-channel pipette to dispense liquid suspensions of infectious agents into micro-culture plates, homogenizing and vortexing infectious materials, and centrifugation of infectious liquids, or working with animals, can generate infectious aerosols. Aerosol particles of less than 5 µm in diameter and small droplets of 5–100 µm in diameter are not visible to the naked eye. The laboratory worker is generally not aware that such particles are being generated and may be inhaled or may cross contaminate work surface materials. BSCs, when properly used, have been shown to be highly effective in reducing laboratory-acquired infections and cross-contaminations of cultures due to aerosol exposures. BSCs also protect the environment.

03 Unpacking, Installation, Technical Parameters

3.1 Storage conditions

1) Relative Humidity: ≤ 75%,

2) Temperature: 40 °C

3) Good ventilation inside the warehouse

4) No acidic, alkaline gases and any other corrosive gases are allowed in storage warehouse

5) Maximum Storage Period or stand-by time: Maximum storage period is one year. (If storage period is for a full year, then completely and comprehensive performance test for the machine is necessary, the qualified machine is supposed to be used normally.)

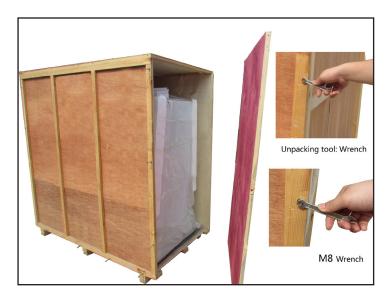
3.2 Unpacking

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



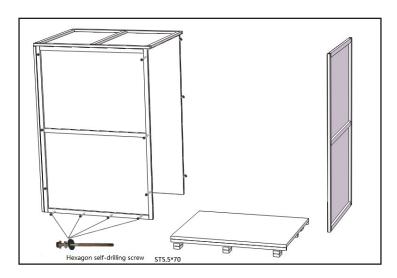
Picture 1

2) Or unpacking by wrench in stead of electric drill.



Picture 2

3) Final status of unpacking



Picture 3

3.3 Installation

3.3.1 Location

- 1) The Class II (laminar flow) biosafety cabinet should be located out of the traffic pattern and away from room air currents that could disrupt the containment provided by the work access opening air barrier.
- 2) If there is a window in the laboratory, it should remain closed at all times. Cabinets should not be located where room ventilation air inlets blow across the front opening or onto the exhaust filter.
- 3) Where space permits, a 12 in (30 cm) clearance should be provided behind and on each side of the cabinet. If not feasible, a minimum 3 in (8 cm) clearance on each side and 1.5 in (3.8 cm) clearance

in back are recommended. The electrical outlet for the cabinet should be accessible for the cabinet service and electrical safety testing without moving the cabinet.

- 3.3.2. The pre-treatment before installation
- 1) The unpacking place is suggested to be near target location for convenience.
- 2) Remove all the package materials.
- 3) Inspect the surface of main body to make sure whether this is scratch, deformation and foreign matter.

The base stand will be packed on the top of cabinet, please take it out firstly before installation. The cabinet is not allowed to be inverted, tilted during transportation. Any Random dis-assembly to the cabinet is forbidden.

4). Installation inspection and adjustment

Installation, inspection and Adjustment should be completed by after-sales engineer.

5). Training

After installation, after-sales engineer should train end user about basic functions, operate steps and notices etc.

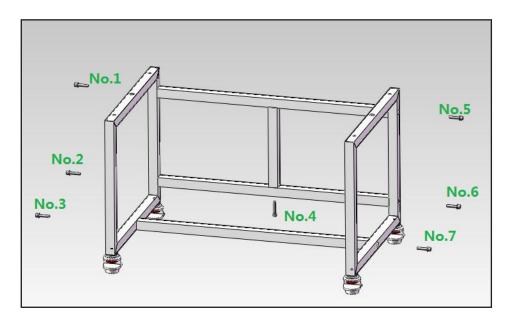
⚠ The person who will operate the cabinet should be well trained.

3.3.3. Installation of base stand

Please install the base stand by following below pic 4

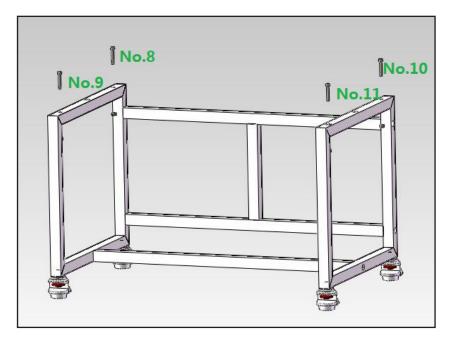
1. The first step is to connect the base stand by No.1 to N0.7 screw.

You should add one spring washer and one plain washer by turn to each screw at first, then fix base stand by screw.



2.The second step is to have No.8 to No.11 screws to go through the reserved holes.

Then add plain washer, spring washer and screw nut by turn from bottom, fixed well by wrench.



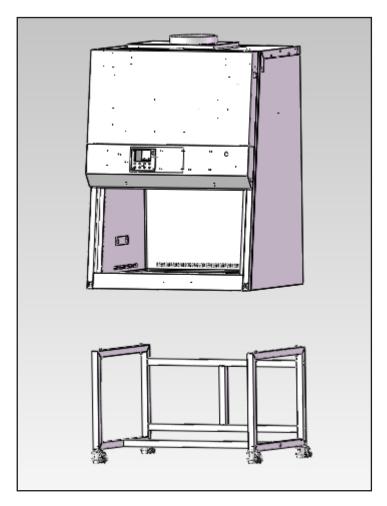
Pic 5



All the bolts must be fastened.

After finishing installation, please add hole plugs for good appearance.

3.3.4. Connect base stand and body



Pic 6

There are for reserved holes in bottom of main body, which are designed to match No.8 to No.11 screws in the base stand, then Stay main body on base stand correctly.

At last, fix main body and base stand by No.12 and No.13 screws, you should add spring washer and plain washer to each screw by turn as first

Utilize suitable connecting fittings and tool to well connect main body with base stand.

- 1). Level the cabinet by fine-tuning the casters.
- 2). Inspect the cabinet and clear inside and outside of the cabinet carefully.

Any residual fragment may cause damage to fan and HEPA filter.

- 3). Make an inventory in accordance with the packing list
- 4). Install UV lamp and fluorescent light.
- 5). If biological safety cabinet installs water and gas tap, there is 1/2 inch whorl tube tie-in on the side

wall, the dimension of tie-in which connected on the BSC should have the same dimension.

6) Connect drain valve correctly.

3.4 Technical Parameters

Biolab class II A2 type Biosafety cabinet, complies to standard of US standard ANSI/NSF49:2002, European standard EN12469:2000, and China YY 0569-2011. The main technical parameters are as following:

Technical parameters	BCBS-201	BCBS-202	BCBS-203	
External Size(W*D*H)	1100×750×2250 mm	1300×850×2200 mm	1500×750×2250 mm	
Internal Size(W*D*H)	940×600×660 mm	1100×600×660 mm	1350×600×660 mm	
D	AC 220V±10%			
Power supply	AC 110V±10%			
Frequency	50 Hz			
Trequency	60Hz			
Consumption	1100 W	≤1650 W	1800 W	
Exhaust volume	360 m³/h	419 m³/h	500 m³/h	
Downflow velocity	0.33±0.025	0.25~0.5m/s	0.37±0.025	
Inflow velocity	0.53±0.025	≥0.5m/s	0.65±0.025	
UV lamp	30W	18W	40W	
Fluorescent lamp	21W*2	21W	28W*2	
HEPA filter	Efficiency of 99.999%(at 0.3μm particle)			
Noise	Noise ≤65dB(A)			

⚠ NOTES

- 1) The consumption includes the load of the waterproof sockets (Total load of 2 sockets ≤ 500W)
- 2) Biolab reserves the right of design change.

)4 Performance Index

4.1 Biological safety performance

Personnel protection, microbial colony count ≤5CFU;

Sample protection, microbial colony count ≤5CFU;

Cross contamination protection, microbial colony count ≤2CFU.

4.2 Illumination

Average illumination inside safety cabinet is no less than 650 lx, real measured illumination value is required no less than 430lx.

4.3Mechanical capacity

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.

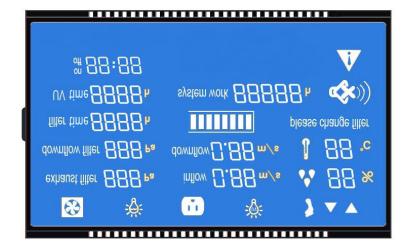
4.4 Electrical performance

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

Grounding resistance ≤0.1Ω

05 Product Characteristics

5.1 LCD Display



Picture 6

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.

5.2 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 ≤6m, 30°. The operator can even carry it with themselves during experiment for convenience.

Adopt imported special chips for remote control which is featured with better anti-jamming performance, longer control distance and better control precision.

Buttons of Remote Control

- 1. POWER
- 2. SUB
- 3. INSTALL TIMER
- 4. CONFIRM
- 5. CANCEL
- 6. +
- 7. -
- 8. FAN
- 9. UV
- 10. LIGHT
- 11. SOCKET
- 12. MUTE
- 13. UP
- 14. DOWN

BSC Power Install Timer Cancel Fan UV Light Socket

Picture 7

5.3 Control of Front Window

Front window is motorized. It could be controlled by remote control, foot switch and control panel.

5.4 Application of Reservation Timing

This function could only be realized by remote control.

Biological Safety Cabinet is equipped with UV lamp for sterilization. Sterilization time should be at least 30min. In order to save the waiting time, we develop reservation timing function. Reservation time range is from 0 to 99 hours and 59minutes. This function helps to save time and improves efficiency.

5.4.1 Reserve Procedure:

- a. Connect the power, open power lock and then press the reservation Button (SUB)
- b. Adjust the time (minutes) by '+'.'-' button. Press the confirmation Button(CONFIRM) to confirm; and then adjust the minutes and hours with the same way
- c. After the time is confirmed, then press related button following which the icon in display lighting.
- d. Press the POWER button, the reservation function starts. Time starts count down. Specific function starts when the time is 0.

5.4.2 Install Timer Procedure

- a. Connect the power, open the power lock, and then press the POWER button The specific function starts when selecting function Buttons (eq: UV)
- b. Press INSTALL TIMER. Adjust the time (minutes) by +.-. Press the (CONFIRM) button to set; and then adjust the minutes and hours with the same way.
- c. After the time is confirmed, TIMER function starts. When it counts down to 0, the machine will turn to in stand by status.

5.5 Caution and Warning

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

5.5.1 Over Safety Height Alarm for Front Window

It will alarm when front window is lifting over safety height. Same time LCD display will twinkle exclamation mark. Safety height is 200mm, please pay attention to stay the front window in this position.

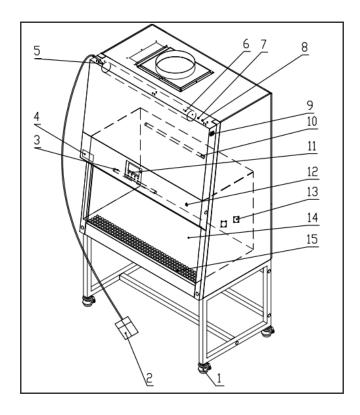
5.5.2 HEPA Filter Pressure Difference Alarm



Differential pressure sensor is superior to air velocity sensor. Differential pressure sensor monitors whole surface of HEPA filter, while air velocity sensor monitors the airflow velocity for one point.

There will be audio and visual alarm if pressure of air supply filter or exhaust filter can't meet preset value, at the same time LCD display will twinkle exclamation mark. Please pay attention to this situation, the HEPA filter might to be changed when this situation happens.

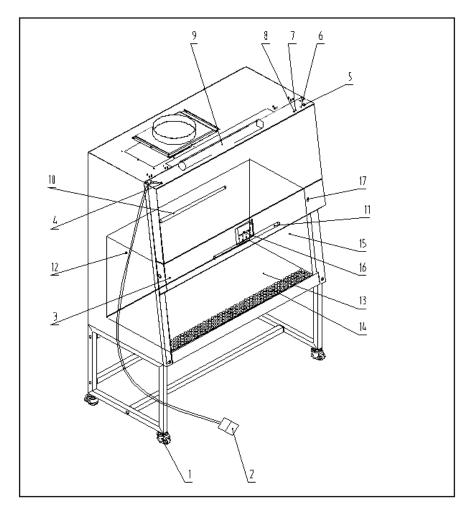
06 Product Characteristics



Picture 8

- 1. Footmaster Caster
- 2. Foot Switch
- 3. .Fluorescent Lamp
- 4. Nameplate
- 5. Foot Switch Socket
- 6. Tube motor
- 7. Fuse socket
- 8. General power fuse socket

- 9. Socket
- 10. UV lamp
- 11. Control panel
- 12. Power supply lock
- 13. Waterproof socket
- 14. Front window
- 15. Inflow grid



Picture 9

- 1. Footmaster Caster
- 2. Foot Switch
- 3. Name plate
- 4. Foot Switch Socket
- 5. Power Socket
- 6. General power fuse tube socket
- 7. Fuse tube socket
- 8. Blower fuse tube socket
- 9. Tube motor

- 10. UV lamp
- 11. Fluorescent lamp
- 12. Gas-guide tube
- 13. Front window
- 14. Inflow grid
- 15. Waterproof socket
- 16. control panel
- 17. Power lock

Construction materials

- 6.1.1 Biological Safety Cabinet's both sides and back area are negative pressure air channel. Work area and environment are quarantined by air curtain (formation because of negative pressure) and cabinet body. Thus, the negative pressure keeps work area from contamination.
- 6.1.2 Cabinet body is built of cold-rolled steel with anti powder coating. Strong and steady.
- 6.1.3 Work area is made of 304 stainless steel which appears with beautiful appearance and corrosion resistance performance.
- 6.1.4 Base stand is made of cold-rolled steel with anti powder coating.
- 6.1.5 Soft touch type control panel, easy to handle and beautiful appearance.
- 6.2 Driving System of Front Window

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

6.3 Air Filtration System

Air Filtration System is most important part of cabinet. It consists of blower, air supply filter and exhaust filter. Air Filtration System's function is transferring filtered air to work area and keep velocity of down flow, cleanness of work area and filtration of exhaust air.

The centrifugal fan could adjust the airflow velocity automatically. With the increasing of time in services, the HEPA filter blocking increases, while the fan could adjust the air velocity to normal automatically. When the speed of the fan could not meet the settled airflow velocity, the cabinet will alarm for changing the filter.

6.4 UV Light

UV lamp is inside work area. This ensures that UV lamp can well sterilize all space of work area. UV lamp is interlock with fluorescent lamp, blower and front window. When UV lamp is on, the fluorescent lamp, blower and front window could not be opened. .

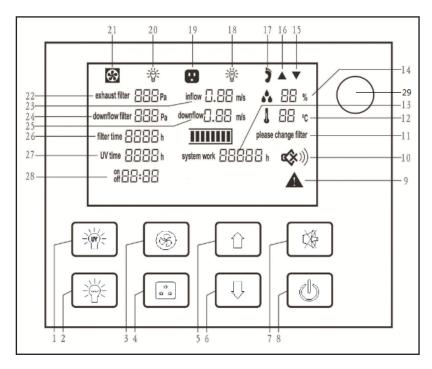
6.5 Fluorescent Light

Lamp is straight tube type energy-saving fluorescent lamp. It can make sure average illumination inside work area meets standard requirements. Fluorescent lamp has interlock function with UV lamp. When fluorescent lamp is on, UV lamp can not be turned on.

6.6 Foot Switch

Adjust front window height by foot during experiment, to avoid airflow turbulence caused by arm movement.

6.7 Control panel



Picture 10

- 1.UV Lamp
- 2.Fluorescent Lamp
- 3.Blower
- 4.Socket
- 5.Glass Window Up
- 6.Glass Window Down
- 7.Mute
- 8. Power
- 9. Alarm Status
- 10.Mute Status
- 11. Filter Changing Status
- 12.Temperature
- 13. System Working Time
- 14. Humidity
- 15. Glass Window Down Status

- 16. Glass Window Up Status
- 17. Foot Switch Status
- 18.UV Status
- 19.Socket Status
- 20. Fluorescent Lamp Status
- 21.Blower Status
- 22.Exhaust Filter
- 23.Inflow Velocity
- 24. Supply Filter Differential pressure
- 25. Downflow Velocity
- 26. Filter working time
- 27.UV Lamp working time
- 28. Reservation timing
- 29. Remote control receiver

6.7.1 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.



: 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.)



: To control socket power status.



: 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.

In addition, reservation Timing should be achieved by remote control.

The same icon button in remote control will achieve same function as control panel.

6.8 Air pipe





Picture 11

Air pipe is the ventage of differential pressure sensor.

The ventage should not be blocked. Please do not hang anything on the pipes. If there is no pressure displayed on the screen, please check if the air pipe is blocked.

6.9 Power lock

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

6.10 Water proof Socket

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

- (1) Please make sure the total load of sockets should be \leq 500W
- (2) The socket is waterproof only when cover is closed.

6.11 Fuse protector



Picture 12

The equipment is equipped with main power fuse, waterproof socket fuse and fan fuse. They are located near the power cord's outlet. Please refer to 11.3 for fuse label description.

07 Airflow Velocity Adjustment

NOTICE: See the label on the front of the cabinet.

First Step: Pressure Setting

The supply and exhaust filters' pressure of Class II A2 Biological Safety Cabinet should be among 80 to 110 Pa. If the pressure is within the limit, there is no need to make adjustments. If not, the pressure should be adjusted. The method is as following.

Turn on the fan; after the fan working for about 5 minutes, press SOCKET button for about 5 seconds continually, then the machine will enter into pressure adjusting state after the first alarm. First adjust supply filter pressure (there is flicker at the bottom right of Display), by pressing UP (up arrow) and DOWN (down arrow) buttons to reach the required value(80~110Pa); Then press MUTE button to switch to exhasut filter pressure adjusting state (there is flicker at the bottom left of Display), then by pressing UP (up arrow) and DOWN (down arrow) buttons to reach the required value (80~110Pa); at last, continually press SOCKET button for about 5 seconds to save the data.

Second Step: Air speed setting

After pressure adjustment, air speed adjustment can be started. Turn on the fan, after the fan working for about 5 minutes, continually press UV button for about 5 seconds, then the machine will enter into air speed adjusting state after the first alarm. First adjust downflow air speed (there is flicker at the bottom right of Display), by pressing UP and DOWN buttons to reach the nominal value (0.33±0.025m/s); Then press MUTE button to switch to inflow air speed adjusting state (there is flicker

at the bottom left of Display), then by pressing UP and DOWN buttons to reach the nominal value (0.53±0.025m/s); when adjustment is finished at last, continually press UV button for about 5 seconds to save the data.

08 Operation

8.1 Working environment:

- 1. Only used in indoor
- 2. Environment temperature 15°C~35°C
- 3. Relative humidity ≤75%
- 4. Pressure Range 70kPa~106kPa
- 5. Power Supply AC 110V±10% , 50Hz±1 220V±10%, 60 Hz±1

8.2 Operating Procedure

- a) Connect power.
- b) Switch power key, LCD display lights up and alarm rings at the same time, then the machine enters to standby status. The operator can start to use it.
- c) Press POWER button, then the following functions are available: Fluorescent lamp. UV lamp, Fan, Mute, Sockets, Glass window up and down, Reservation timing (Related Buttons, function and operation, please refer to items 5.8 and 5.11);
- \triangle The UV lamp works only when glass window is completely closed and other function stops.
- d) Please sterilize the cabinet for 30 minutes with glass widow completely closed before operating.
- (1) For safety of eyes and skin, people should leave room during the UV sterilization.
 - (2) We suggest to change the UV lamp after using 600 to 800 hours.
- e) Please 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 glass door at 200mm height during operation.
 - f) Please make sure to sterilize the cabinet by UV lamp for 30 minutes after finishing operation.

09 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.

9.1 Clean the cabinet surface

9.1.1. 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 medical alcohol or other disinfectant to wipe.

△ Cleanser used for wiping should not have effect on 304 stainless steel.

9.1.2 Clean the external surface and glass door.

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

9.2 Overall maintenance period

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

9.3 Maintenance methods

- 9.3.1 Daily or weekly maintenance
 - a. Disinfect and clean operating area (see 9.1.1);
 - b. Clean the external surface and glass door around the operating area (see 9.1.2);
 - c. Check the various functions of equipment;
 - d. Record this maintenance result;

Monthly maintenance

- a. Clean the external surface and glass door. (See 9.1.2);
- b. Wipe the work table, wall surface of operating area (excluding the top 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:
- 9.3.3 Annual maintenance
- a. Check the two conveyor belts of front glass door 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.

9.4 Trouble Shooting

1) The preparation work before repairing.

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 fault diagnosis.

2) Common faults and trouble shooting

Faults	Check parts	Measures	
	Lamp holder	Tube and lamp holder is connected securely	
	Tube	Change it	
Fluorescent lamp doesn't work	Ballast	Change it	
	Circuit	Check circuit	
	Control panel	Change it	
	First check the troubles according to the inspection of Fluorescent lamp, if the UV lamp still doesn't work, then make the following analysis.		
UV lamp doesn't	Micro Switch	Check if Micro Switch is broken	
work	Front window, Fluorescent lamp and blower	Check the front window, fluorescent lamp and the blower is open or not.	
	Control panel	Change it	
	Control panel	Make sure the power connects well and the fuse is well	
Button doesn't		Check if the button is broken	
work		Make sure the connecting wire is connected well	
		Change control panel	

	Micro Switch	Check if Micro Switch is broken or works fine	
Blower doesn't	Front window	Front window is open or not, blower work only when the front window is open	
work	Blower	If blower is broken, change it	
	Circuit	Check circuit	
	Control panel	Change it	
	Socket	Check if socket is broken	
No electricity in	Socket fuse	Check if socket fuse is broken	
socket	Circuit	Check circuit	
	Control panel	Change it	
Pressure or air speed displayed	Gas circuit	Check whether gas circuit has dropped, is broken, or jammed	
incorrectly	Control panel	Change it	
	Transmission part	Check transmission connection and lead rail	
Front window	Motor of front window	Check front window motor	
doesn't work	Circuit	Check circuit	
	Control panel	Change it	
	Remote control	Check if the Remote control is broken or not, and if there's electric in the buttery	
Remote control doesn't work	Connection cable	Check whether main control panel and display board is connected well.	
	Control panel	Change it	
	Power supply	Check power supply connects well	
	Power wire	Check whether power wire has obvious damage	
No electricity in	Fuse	Check if the fuse is good	
equipment	Power key	Check if power key is open, is broken or not	
	Transformer	Check whether the transformer works normally	
	Control panel	Change it	
Dienlay de ser't	Connection winding displacement	Check whether the winding displacement connects well.	
Display doesn't work	Display screen	Check whether the display screen is good	
	Control panel	Change it	

	Micro switch	Check whether the micro switch is good, and it works normally or not.	
No alarm	Circuit	Check whether connection circuit of micro switch is good.	
	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 in the above occur, and the operator can't solve, please notify our maintenance department immediately. For your safety, please do not maintenance 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.

10 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 crosscontamination 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!

11 Label Description

11.1 Corporate logo (Picture 15)



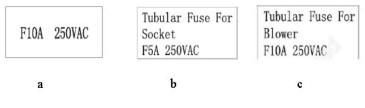
Picture 15

11.2 Biological hazard label (Picture 16)



Picture 16

11.3 Fuse label (Picture 17)



Picture 17

Note:

- a.10A power fuse label (for BCBS-201 and BCBS-203);
- b. Operating area 5A socket fuse labels (for BCBS-201 and BCBS-203);
- c.10A blower fuse label (for BCBS-203)

11.4 Ground label (Picture 18)



Picture 18

Glass door super elevation warning label (Picture 19)



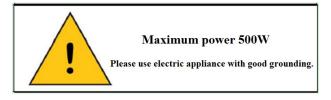
Picture 19

UV lamp alarm label (Picture 20)



Picture 20

Load requirements label (Picture 21)



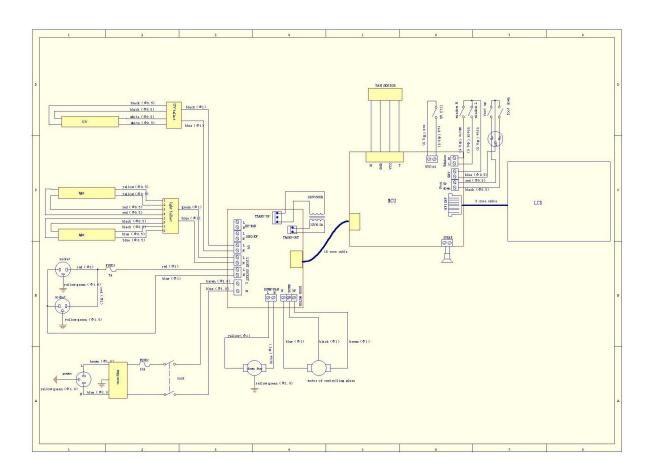
Picture 21

12 Warranty

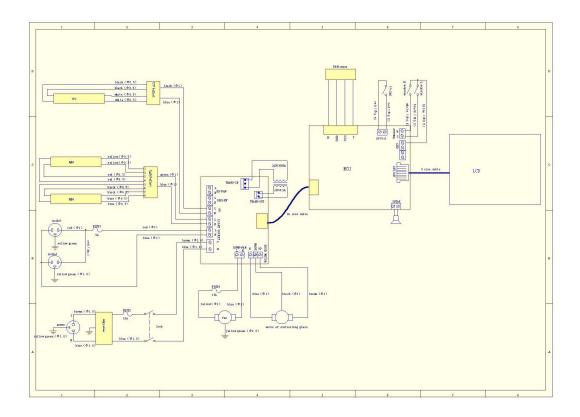
- 1) Warranty is 1 year from EX-factory date (excluding consumable accessories, UV and Fluorescent lamp, filter).
- 2) We will take no responsibility for risks caused by improper operation and man-made damages.
- 3) According to international standards, life time of Biosafety cabinet is 10 years.

13 Appendix A Circuit diagrams

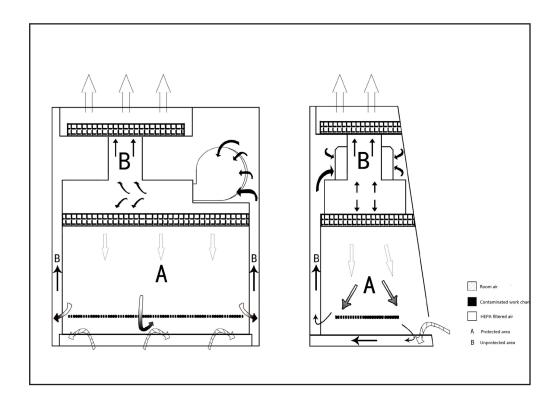
Circuit diagram for BCBS-201



Circuit diagram for BCBS-202 and BCBS-203



14 Appendix B Air flow pattern



15 Appendix C Packing list

Item	Quantity
Main Body	1 unit
Base Stand	1 set
Power cord	1 pc
10A Fuse	2 pcs
5A Fuse	1 pc
UV Lamp (30W)	2 pcs
Remote control (including battery)	1 pc
Power keys	2 pcs
Foot switch	1 pc
User manual	1 pc
Stainless steel hex cylinder head bolt M10×50	12 pcs
Flat washer 10	4 pcs
Stainless steel spring washer 10	4 pcs
Drain Valve and washers	1 set
Plastic Socket head wrench (for tube motor)	1 pc
Motor control rod	1pc
2 U-bolts+4 M4 round head nut	1 set
White Plastic Cover	7 pcs

BCBS-201

Item	Quantity
Main Body	1 unit
Base Stand	1 set
Power cord	1 pc
10A Fuse	2 pcs
5A Fuse	1 pc
UV Lamp (18W)	2 pcs
Remote control (including battery)	1 pc
Power keys	2 pcs
Foot switch	1 pc
User manual	1 pc
Stainless steel hex cylinder head bolt M10×50	12 pcs
Flat washer 10	4 pcs
Stainless steel spring washer 10	4 pcs
Drain Valve and washers	1 set
Plastic Socket head wrench (for tube motor)	1 pc
Motor control rod	1pc
2 U-bolts+4 M4 round head nut	1 set
Connection fittings(for base stand)	1 set
White Plastic Cover	7

BCBS-202

Item	Quantity
Main Body	1 unit
Base Stand	1 set
Power cord	1 pc
10A Fuse	3pcs
5A Fuse	1 pc
UV Lamp (40W)	2 pcs
Remote control (including battery)	1 pc
Power keys	2 pcs
Foot switch	1 pc
User manual	1 pc
Stainless steel hex cylinder head bolt M10×50	12 pcs
Flat washer 10	4 pcs
Stainless steel spring washer 10	4 pcs
Drain Valve and washers	1 set
Plastic Socket head wrench (for tube motor)	1 pc
Motor control rod	1pc
2 U-bolts+4 M4 round head nut	1 set
White Plastic Cover	7 pcs

BCBS-203





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